

Annals of Spiru Haret University

Economic Series

Volume 15(24), issue 1, 2024
ISSN: 2393-1795 | ISSN-L: 2068-6900



ashues



2024



EDITURA FUNDAȚIEI ROMÂNIA DE MÂINE

Annals of *Spiru Haret* University

**Economic Series
Volume 15(24), Issue 1, 2024**

**Publishing House of *România de Mâine* Foundation
Bucharest, 2024**

SCIENTIFIC TEAM

ANNALS OF SPIRU HARET UNIVERSITY ECONOMIC SERIES

EDITORIAL BOARD

Editor in Chief: *Bondrea A. Aurelian*, Associate Professor Ph.D., Rector at Spiru Haret University, Bucharest, Romania

Deputy Chief Editor: *Gurgu Elena*, Associate Professor Ph.D., Faculty of Economic Sciences from Bucharest, Department of Economic Sciences, Spiru Haret University, Romania

Consulting Editor: *Lăzăroiu George Robert*, Associate Professor Ph.D., Faculty of Economic Sciences from Bucharest, Department of Economic Sciences, Spiru Haret University, Romania

Members:

Andronie Maria, Professor Ph.D., Vice-Rector with Scientific Research at Spiru Haret University, Bucharest, Romania

Amarfii-Răulean Nelli, Associate Prof. Ph.D., *Alecu Russo - Balti State University & The National Institute of Economic Research*, Chisinau, Republic of Moldova

Amodio Stefano, Professor Ph.D., President, and Director of Didactics at the TESEO Institute from Italy Salerno, Italy

Baktybek Isakov, Associate Professor Ph.D., Department of Sociology, Kyrgyz-Turkish Manas University, Kyrgyz Republic

Calu Daniela-Artemisa, Professor Ph.D., Faculty of Accounting and Management Information Systems, Accounting and Audit Department, The Bucharest University of Economic Studies, Bucharest, Romania

Faggini Marisa, Professor Ph.D., DISES Department, University of Salerno, Italy

Ilic Milena, Associate Professor Ph.D., Faculty of Contemporary Arts Belgrade, Information Technology School ITS – Belgrade, Republic of Serbia

Iordachi Victoria, Ph.D., National Institute for Economic Research, Chisinau, Republic of Moldova

Jadranka Denkova, Professor Ph.D., Goce Delcev University Krste Misirkov b.b., Department of Public Administration, Public Law, and Human Behavior, Stip, Republic of Macedonia

Kuleto Valentin, Associate Professor Ph.D., President of The Educational Alliance LINK Group Belgrade, Republic of Serbia; Information Technology School ITS – Belgrade & University Business Academy in Novi Sad, Faculty of Contemporary Arts Belgrade, Republic of Serbia

Lianu Costin, Associate Professor Ph.D., Vice-Rector with International Relations at Spiru Haret University, Bucharest, Romania

Malamov Ivan Georgiev, Brigadier-General and Rector-Commandant of the National Military University, Veliko Tarnovo, Bulgaria

Mastorakis Nikos, Professor Ph.D. at ASEI - Military Institutes of University Education, Hellenic Naval Academy, Greece; Technical University of Sofia, Faculty of Engineering, Bulgaria; Honorary Professor, University of Cluj, Romania; Honorary Professor, Óbuda University, Budapest, Hungary; Honorary Professor, Budapest Tech, Budapest, Hungary; Visiting Professor, University of Exeter, United Kingdom

Meyer Daniel François, Professor Ph.D., Member of School of PMGPP, College of Business and Economics, University of Johannesburg, South Africa

Mile Vasic, Associate Professor Ph.D., *Slobomir P University*, Slobomir, Bijeljina, RS, Bosnia and Herzegovina, Founder and President of the European Marketing and Management Association

Mirfazli Edwin, Lecturer Ph.D., Department of Accounting, Faculty of Economics and Business, University of Lampung, Bandar Lampung, Indonesia

Nica Dumitru, Professor Ph.D., Faculty of Economic Sciences from Câmpulung Muscel, Department of Economic Sciences, Spiru Haret University, Romania

Odhambo Mbaya Nicholas, Professor Ph.D., Head of Macroeconomic Policy Analysis (MPA) Research Flag Programme, College of Economic & Management Sciences (CEMS), Pretoria, South Africa; Director of African Economic and Social Research Institute (AESRI)

Pașnicu Daniela, Professor Ph.D. & Senior researcher at National Scientific Research Institute for Labor and Social Protection, Bucharest, Romania

Pastore Francesco, Associate Professor Ph.D., Full Professor of Economic Policy, Seconda Università di Napoli, Italy

Perciun Rodica, Researcher Ph.D., Head of the Monetary and Financial Research Department, The National Institute of Economic Research, Chisinau, Republic of Moldova

Pokorni Slavko, Professor Ph.D., Faculty of Contemporary Arts Belgrade, Information Technology School ITS – Belgrade, Republic of Serbia

Popa Viorica, Ph.D., Scientific Researcher Coordinator, National Institute for Economic Research, Chisinau, Republic of Moldova

Rădulescu Irina Gabriela, Professor Ph.D., Dean of the Economic Sciences Faculty, Petroleum-Gas University of Ploiesti, Romania

Rikhardsson Pall M., Professor Ph.D., Dean of Business School, Reykjavik University, Iceland

Sabyasachi Rath, Professor Ph.D., Dean of College of Management and Liberal Arts, NIST - Institute of Science and Technology, Institute Park, Pallur Hills, Berhampur, Odisha, India

Steve Keen, Professor Ph.D., School of Social and Behavioural Sciences, Kingston University, London, UK

Tilikidou Irene, Professor Ph.D.(r.), School of Business Administration and Economics, Department of Marketing, ATEI of Thessaloniki, Greece

Tomic Velinka, Associate Professor Ph.D., Regulatory Commission for Energy of the Republic of Srpska, University of East Sarajevo, Faculty of Production and Management, Trebinje, The Republic of Srpska, Bosnia and Herzegovin

Ukpere Wilfred Isioma, Professor Ph.D., Department of Industrial Psychology and People Management, College of Business & Economics, University of Johannesburg, Auckland Park, South Africa

Valášková Katarína, Associate Professor Ph.D., University of Žilina, Faculty of Operation and Economics of Transport and Communications, Department of Economics, Žilina, Slovakia

EDITORIAL ADVISORY BOARD

Allegro Melina, Professor Ph.D., *TESEO* University, Piazza Umberto I, San Cipriano Piacentino, Salerno, Italy

Andronie Mihai, Associate Professor Ph.D., Economic Sciences Faculty from Bucharest, Department of Economic Sciences, Spiru Haret University, Romania

Aveta Raffaele, Professor Ph.D., Seconda Università degli Studi della Campania *Luigi Vanvitelli*, Dipartimento Giurisprudenza, Napoli, Italy

Avram Laura, Associate Professor Ph.D., Dean of Câmpulung Muscel Economic Sciences Faculty, Department of Economic Sciences, Spiru Haret University, Romania

Baicu Claudia, Senior Researcher III, Institute for World Economy, Romanian Academy, Bucharest, Romania

Băluță Aurelian, Associate Professor Ph.D., Faculty of Economic Sciences from Bucharest, Department of Economic Sciences, Spiru Haret University, Romania; Chief Economic Officer at Compania Națională Poșta Română S.A.

Bragă Filofteia Viorica, Associate Professor Ph.D., Faculty of Economic Sciences from Câmpulung Muscel, Head of The Economic Sciences Department, Spiru Haret University, Romania

Buhur Sami, Professor Ph.D., Faculty of Economics and Administrative Sciences, Balikesir University, Turkey

Dinga Emilian, Professor Ph.D., “Victor Slăvescu” Financial and Monetary Research Center, The Romanian Academy, Bucharest, Romania

Dobrescu M. Emilian, Professor Ph.D., Scientific Secretary of the Economic and Legal Sciences Department, The Romanian Academy, Bucharest, Romania

Dragan Ilic, Professor Ph.D., Head of International Relations Department, University Business Academy (UBA), Novi Sad, Republic of Serbia

Dragomir Robert, Associate Professor Ph.D., The Faculty of Economic Sciences from Câmpulung Muscel, Department of Economic Sciences, Spiru Haret University, Romania

Ghiorghiță Eugen, Associate Professor Ph.D., Faculty of Economic Sciences from Bucharest, Department of Economic Sciences, Spiru Haret University, Romania

Golbach Dumitru, Lecturer Ph.D., Faculty of Economic Sciences, Valahia University from Targoviste

Iatagan Mariana, Associate Professor Ph.D., Dean of The Economic Sciences Faculty from Bucharest, Spiru Haret University, Romania

Ionescu Luminița, Professor Ph.D., Faculty of Economic Sciences from Bucharest, Head of The Economic Sciences Department, Spiru Haret University, Romania

Juknevičienė Vita, Associate Professor Ph.D., Department of Public Administration, Šiauliai University, Šiauliai, Lithuania

Manea Natalia, Associate Professor Ph.D., University Politehnica of Bucharest, Faculty of Entrepreneurship, Engineering and Business Management, Department of Economic Engineering, Bucharest, Romania

Mauri Aurelio, Associate Professor Ph.D., IULM University – Libera Università di Lingue e Comunicazione, Economics and Marketing Department, Milano, Italy

Meyer Natanya, Associate Professor Ph.D., Member of School of PMGPP, College of Business and Economics, University of Johannesburg, South Africa

Mladen Luise, Associate Professor Ph.D., Spiru Haret University and National Scientific Research Institute for Labour and Social Protection, Bucharest, Romania

Paletta Angelo, Professor Ph.D., Direttore della Collana “Management e Finanze Etica”, C/O EDUSC, University Press Pontificia Università della S. Croce, TESEO INSTITUTE, Rome, Lazio, Italy

Petrova Stoyanova Elitsa, Associate Professor Ph.D., *Vasil Levski* National Military University, Veliko Tarnovo, Bulgaria

Popescu Maria Loredana, Lecturer Ph.D., Bucharest University of Economic Studies, Romania

Prasanta Kumar Padhy, Ph.D. (Buss. Admn.), MBA, M.A., LL.B., M.Phil, FDP (IIM, Ahmedabad), Former Professor, Head & Chairman Board of Studies, Department of Business Admn., Berhampur University, Odisha State, India

Radivojević Vladimir, Ph.D., Assistant professor & Senior Research Associate, Faculty of Economics, University of Priština in Kosovska Mitrovica, Serbia; Part-time Lecturer, Military Academy, University of Defence in Belgrade & Faculty of Philosophy, University of Priština in Kosovska Mitrovica, Serbia

Rudawska Iga, Associate Professor Ph.D., Faculty of Economics and Management, University of Szczecin, Poland

Simon Ilie, Associate Professor Ph.D., Bucharest University of Economic Studies, Romania

Stephen Jehucal Teryyik, Researcher & Entrepreneur, Teryyik R & D, Germany

Tascovici Daliana Ecaterina, Associate Professor Ph.D., Faculty of Economic Sciences from Câmpulung Muscel, Department of Economic Sciences, Spiru Haret University, Romania

Valiyev Agil, Lecturer Ph.D., Azerbaijan Tourism and Management University, Baku, Azerbaijan

Zorzoliu Raluca, Associate Professor Ph.D., Faculty of Economic Sciences from Bucharest, Department of Economic Sciences, Spiru Haret University, Director of the Economic Applied Research Centre, Bucharest, Romania

TECHNICAL TEAM

Scientific Journal Editor – Printed Edition:

Dragoş Ciocăzan, Editor & Manager at Publishing House of *România de Mâine* Foundation

Elena Gurgu, Associate Professor PhD in Economics, Deputy Chief Editor of the ASHUES

Journal

Webmaster Editor – Online Edition; Representatives for journal indexing

Radu Cătălin Marius, Economist and Researcher at the *Central Institute of Scientific Research*, Spiru Haret University, Bucharest, Romania

Popa Sorin, IT Department, Spiru Haret University

Proofreaders:

Dragoş Ciocăzan, Editor & Manager at Publishing House of *România de Mâine* Foundation

Eugenia Ştefănescu, Professor Ph.D. in foreign languages, The Faculty of Legal and Administrative Sciences, Spiru Haret University, Bucharest, Romania

Operational and Technical Staff:

Radu Cătălin Marius, Economist and Researcher at the Central Institute of Scientific Research, Spiru Haret University, Bucharest, Romania

Marcela Oлару, technical staff at Publishing House of *România de Mâine* Foundation

VISUALS & DESIGN TEAM

Ilie Magdalena, Cover Designer and Books Coordinator at Publishing House of *România de Mâine* Foundation

ADDRESS OF EDITORS AND PUBLISHERS

Editorship:

Office Address: Bucharest, Romania, District 6, Postal Code: 060821, 46 G Fabricii Street, Building B, 2nd Floor, Room No 23

Phone number: +4021 316 97 83/85/88/89 - ext. 151

Phone/Fax number: +4021 316 97 93

E-mail: ashues@spiruharet.ro

Website: <http://anale-economie.spiruharet.ro/index.html>

Deputy Chief Editor:

Elena GURGU, Associate Professor Ph.D., Department of Economic Sciences, Spiru Haret University, Bucharest, Romania

Office address: 46 G Fabricii Street, Building B, 2nd floor, Room 23, District 6, Bucharest, Romania

Office Phone: +4021316.97.85/88/89 - int. 152

VPN: +04021.455.10411, Fax: +4021316.97.93

E-mail: elenagurgu@yahoo.com, maei_elenagurgu@spiruharet.ro; se_egurgu@spiruharet.ro; elenagurgu@profesor.spiruharet.ro

ResearcherID: E-8516-2014

Publons: <https://publons.com/a/1437881>

ORCID: <https://orcid.org/0000-0001-6964-8516>

SSRN: <http://ssrn.com/author=1307203>

ResearchGate: https://www.researchgate.net/profile/Elena_Gurgu

Linkedin: <https://www.linkedin.com/in/elena-gurgu-5099b494/>

Journal's INDEXING:

This journal is indexed in the following databases:



Annals of Spiru Haret University. Economic Series is both an online journal and a printed one, which is committed to publish quality research papers submitted by professors, researchers, and Ph.D. students in the economic field. It is an **OPEN ACCESS** journal.

The papers should be the results of original research, theoretical and empirical approach under the form of research articles, case studies, and essays.

We welcome papers from professors, researchers, and Ph.D. students from all over the world in the attempt of serving as a forum of discussion and a diverse knowledge hub for students and teachers.

Young researchers as Ph.D. students are encouraged to express their views in a special section dedicated to them.

This journal provides immediate open access to its content on the principle that making research freely available to the public supports a greater global exchange of knowledge. The *Annals of Spiru Haret University. Economic Series* allow the author(s) to hold the copyright without restrictions. All the papers are licensed under a *Creative Commons Attribution-Non-Commercial-Share Alike 4.0 International License*



Each paper has a unique Digital Object Identifier. **DOI prefix: 10.26458**

PUBLISHER

The publisher is Publishing House of *România de Măine* Foundation:
www.editurafrm.ro

COVERAGE

The areas covered by *Annals of Spiru Haret University. Economic Series* include topics related to Economic Sciences, such as: marketing, management, finance, banking, accounting, audit, international economic relations, trade, business, tourism, administrative data processing, politic economy, geopolitics, commercial law, cybernetics, environmental economics, statistics, ethics in economics, insurance, advocacy & lobby, economic philosophy, econometrics etc.

Each issue has a specific topic that is a subtopic of major journal coverage.

FREQUENCY

The frequency of the journal *Annals of Spiru Haret University. Economic Series* is quarterly.

JOURNAL HISTORY

The journal *Annals of Spiru Haret University. Economic Series* was founded in 2000 at the initiative of two professors from Spiru Haret University: Professor Ph.D. Gheorghe Zaman – also corresponding member of the Romanian Academy and Professor Ph.D. Constantin Mecu – one of the University's founders and vice-rector.

Between 2004-2010, the journal is headed by Professor Ph.D. Constantin Mecu, as editor-in-chief, and associate professor Ph.D. Aurelian A. Bondrea, as deputy editor, both vice-rectors of the university.

In 2011, associate professor Ph.D. Aurelian A. Bondrea, rector of the university, takes over the presidency as editor-in-chief and leads the journal until present.

The *Annals of Spiru Haret University. Economic Series* was issued annually, once a year, starting 2000, until 2009.

Since 2010, the *Annals* have a new format, with a four-annual issuance exclusively in English, with both redaction and review conditions comparable to the most rigorous international requirements.

In 2007, *Annals of Spiru Haret University. Economic Series* obtained the B+ quotation from The National Council of Research in Higher Education in Romania, becoming a publication of real scientific interest.

Starting 2009, the review is indexed in REPEC, SSRN and Google Scholar and beginning with 2016 our Journal is under a process of rebranding, the new team trying to rethink the journal indexing strategy in international databases, suggesting a greater external visibility.

Along the years, in the journal pages, the members of the teaching personnel – professors, associate professors, lecturers and teaching assistants – active in six economics faculties and distinct specialty departments, as well as in the Central Scientific Research Institute, functioning within Spiru Haret University, present the results of their scientific research. The journal also hosts many studies of professors, researchers or Ph.D. students from other universities and research institutes all over the world.

The subject of the publication firstly reflects the concern for the modernization of teaching economic science in university: marketing, management, finance, banking, accounting, audit, international economic relations, trade, business, tourism, administrative data processing, politic economy, commercial law, cybernetics, environmental economics, statistics, ethics in economics, insurance, advocacy & lobby, economic philosophy, econometrics etc.

In the published materials, there are analysed theoretical and practical issues of edification and consolidation of the Romanian market economy, as well as the fundamental directions of the technical and scientific progress, the actual state, and ways of its promotion in the Romanian economy, the issue of developing the new world economy, the directions of globalization and contemporaneous economic integration and Romania's participation to these processes. Also, there are hosted articles that refer to different aspects of economic phenomena from all over the world.

The editing team and the scientific advisors are Romanian intellectual personalities – members of the Academy, professors, and specialists in different fields of the practical economic and social

activities. In scientific committee have been engaged as reviewers different professors and personalities in economic field coming from economics and academic institutions in our country, such as Academy of Economic Studies Bucharest, West University from Timisoara, The National Scientific Research Institute for Labour and Social Protection Bucharest, The Romanian Court of Auditors, The Body of Expert and Licensed Accountants of Romania – CECCAR, Institute of National Economy and The Economic and Legal Sciences Department from Romanian Academy, etc. Among them, we also find members of the academia, professors, and researchers from other countries of the world: Australia, Azerbaijan, Bosnia & Herzegovina, Bulgaria, France, Germany, Greece, Iceland, India, Indonesia, Italy, Lithuania, North Ireland, Norway, Poland, Republic of Macedonia, Republic of Serbia, Russia, Slovenia, The Netherlands, Turkey, Ukraine, United Kingdom, etc.

As a response to the public interest, the publication is sent to the libraries in Bucharest and Romania, as well as to other universities and economic faculties abroad.

© Publishing House of *România de Mâine* Foundation
www.editurafrm.ro

Publishing House recognized by the *Ministry of Education, Research, Youth and Sports* through the
Higher Education National Council of Research (CODE 171)

All rights reserved. Except for fair dealing for the purposes of research or private study, or criticism or review, no part of this publication may be reproduced, stored, or transmitted in any form or by any means without the prior permission in writing from the copyright holder. Institutions with a paid subscription to this journal may make photocopies for teaching purpose free of charge provided such copies are not resold. Full access to the papers in this issue is available online if your institution subscribes to the print volume.

The liability for the content and originality of the text lies solely with the author/authors

ISSN: 2393-1795
ISSN-L: 2068-6900

For the journal's cover we used photos from the following sites:

<https://pnl-portugal.com/>
www.shutterstock.com
www.wordclouds.com

CUPRINS

<i>Cuvânt înainte de Conf. univ. dr. Elena GURGU – Facultatea de Științe Economice, Universitatea Spiru Haret</i>	15
---	----

Lucrări academice

Milena FILIPOVA, Iuliana Petronela GÂRDAN, Aurelian BONDREA, Daniel Adrian GÂRDAN, <i>Relația între cultura organizațională și durabilitatea corporativă.....</i>	19
Miglena TRENCEVA, Rayna DIMITROVA, Ivan TRENCEV, Laura IACOB, <i>Dezvoltarea unui sistem de marketing durabil cu un motor ireal</i>	41
Vesela SERAFIMOVA, Milena FILIPOVA, <i>Abordări de marketing pentru managementul eficient al muzeelor</i>	54
Dragoș FRASINEANU, Geanina SIMBOTIN, Elena GURGU, <i>Cultură și inovație: Cum pot contribui sectoarele creative la dezvoltarea durabilă a României</i>	66
Alexandra RADU, <i>Acces deschis la sursele informaționale, Dezvoltare științifică durabilă</i>	93
Chymanova Jyldyz JENISHBEKOVNA1, Kanykei KALIEVA, Baktybek ISAKOV, <i>Narațiuni economice în mișcare: puterea limbajului figurativ în ziarele din Kirghizstan</i>	101
Radu PODGOREANU, Marina DRAGAN, Elena GURGU, Aura NEAGA, <i>Beyond Compliance: Valorificarea puterii auditurilor publice interne pentru excelența în managementul durabilității</i>	107
Olufemi Samuel ADEGBOYO, Peter Katyo ABU, <i>Legătura export-creștere în Nigeria: contează fluxul de capital?</i>	131
Ramil GULIYEV, <i>Regândirea limitelor: Fiasco-ul Ftx și imperativul reglementării schimburilor de criptomonede.....</i>	149
Waidi Adeniyi AKINGBADE, Olubunmi Temitayo FAMODUN, <i>Orientare antreprenorială și avantaj competitiv pentru întreprinderile mici și mijlocii în Nigeria</i>	159
Milena NIKOLIĆ, Mirjana JEMOVIĆ, Danka MILOJKOVIĆ, <i>Utilizarea creditelor bancare pentru a spori eficiența energetică a întreprinderilor din țările din Balcanii de Vest</i>	187
Gergana YOCHEVA, <i>Analiza proceselor legate de globalizarea firmelor din Bulgaria</i>	208
Costin LIANU, Irina Gabriela RADULESCU, Cosmin LIANU, <i>Noi modele de afaceri în agroecologie: Studiu de caz - Innovation Hub Bio Danubius ca standarde private (voluntare) bazate pe indicatori.....</i>	219
Francis Ezieshi MONYEI, Wilfred Isioma UKPERE, <i>Lanțul valoric și managementul riscului în era celei de-a patra revoluții industriale: Analiză din sectorul agro-aliat</i>	234
Abayomi Olarewaju ADEOYE, Kafiu Sunkanmi ODUSANYA, Gloria Chinagozi OSADEME, <i>Flexibilitatea programului de lucru și reținerea angajaților: Utilizarea pentru studiul de caz a personalului academic al Institutului de Tehnologie de Stat Ogun, Igbesa, Statul Ogun.....</i>	259

Uchechukwu Roselyn IGNATIUS, Henry Sonna OJUKWU, Ijeamaka Charity MGBEMENA, Catherine Nkechi NWANKWO, <i>Greva ASUU și sănătatea mintală a studenților la Specializarea Administrarea Afacerilor de la Universitatea Nnamdi Azikiwe, Awka, statul Anambra, Nigeria</i>	276
Dayo Idowu AKINTAYO, Adetoun Ramat, BALOGUN, <i>Dimensiuni multilaterale în managementul talentelor și intențiile de rotație a angajaților în industriile de producție, sud-vest, Nigeria</i>	295
Folake Olubunmi LANRE-BABALOLA, Babalola Oluwayemi OGinni, Mobolaji Omotayo OBIDIYA, Joseph Adeyinka ADEWOLE, <i>Influența supravegherii abuzive asupra moralului angajaților la locul de muncă: dovezi din organizațiile de producție</i>	312
Musediq Olufemi LAWAL, Olawale Olufemi AKINRINDE, Tajudeen Yusuf ADEYINKA, Rasaq Omokeji GANIYU, Remi Kasali ALATISE, Kolawole Lateef KAZEEM, <i>Percepțiile lucrătorilor despre securitatea socială, oportunitățile sociale și provocările angajării în hotel</i>	329
Nyasha MAPIRA, Jeremy MITONGA-MONGA, Wilfred Isioma UKPERE, <i>Managementul impresiilor la locul de muncă: intenția lucrătorilor ocazionali</i>	345
Kafiu Sunkanmi ODUSANYA, Gloria Chinagozi OSADEME, Adewunmi Oluwakemi SODEKE, <i>Teleworking-ul și ambasadorul de brand al angajaților: Utilizarea ca studiu de caz a personalului academic al Institutului de Tehnologie de Stat Ogun, Igbesa, Statul Ogun</i>	367
Devajit MOHAJAN, Haradhan Kumar MOHAJAN, <i>Investigația economică a maximizării utilității prin analiză matematică</i>	380
Ètim O. FRANK, Wilfred I. UKPERE, <i>Analiza căutării Ecovas pentru supraviețuirea regimului versus Republica Niger: Implicații economice și politice</i>	419
Keratilwe BODILENYANE, Calvin MABASO, Wilfred I. UKPERE, <i>O analiză critică a mecanismelor de extindere a negocierilor colective în sectorul public din Botswana</i>	445

TABLE OF CONTENTS

<i>Foreword</i> by Associate Professor Ph.D. Elena GURGU – Faculty of Economic Sciences, <i>Spiru Haret</i> University	15
<i>Academia Papers</i>	
Milena FILIPOVA, Iuliana Petronela GÂRDAN, Aurelian BONDREA, Daniel Adrian GÂRDAN, <i>Relationship between Organizational Culture and Corporate Sustainability</i>	19
Miglena TRENCEVA, Rayna DIMITROVA, Ivan TRENCEV, Laura IACOB, <i>Development of a Sustainable Marketing System with an Unreal Engine</i>	41
Vesela SERAFIMOVA, Milena FILIPOVA, <i>Marketing Approaches for Effective Museum Management</i>	54
Dragoș FRASINEANU, Geanina SIMBOTIN, Elena GURGU, <i>Culture and Innovation: How Creative Sectors Can Contribute to the Sustainable Development of Romania</i>	66
Alexandra RADU, <i>Open Access to Information Sources, Sustainable Scientific Development</i>	93
Chymanova Jyldyz JENISHBEKOVNA1, Kanykei KALIEVA, Baktybek ISAKOV, <i>Economic Narratives in Motion: The Power of Figurative Language in Kyrgyz Newspapers</i>	101
Radu PODGOREANU, Marina DRAGAN, Elena GURGU, Aura NEAGA, <i>Beyond Compliance: Harnessing the Power of Internal Public Audits for Sustainability Management Excellence</i>	107
Olufemi Samuel ADEGBOYO, Peter Katyo ABU, <i>Export-Growth Nexus in Nigeria: Does Capital Inflow Matters?</i>	131
Ramil GULIYEV, <i>Rethinking Boundaries: The Ftx Fiasco and The Imperative of Regulating Cryptocurrency Exchanges</i>	149
Waidi Adeniyi AKINGBADE, Olubunmi Temitayo FAMODUN, <i>Entrepreneurial Orientation and Small and Medium Enterprises Competitive Advantage in Nigeria</i>	159
Milena NIKOLIĆ, Mirjana JEMOVIĆ, Danka MILOJKOVIĆ, <i>Utilizing Bank Loans to Enhance The Energy Efficiency of Enterprises in The Western Balkan Countries</i>	187
Gergana YOICHEVA, <i>Analysis of the Processes Related to Globalization of Enterprises in Bulgaria</i>	208
Costin LIANU, Irina Gabriela RADULESCU, Cosmin LIANU, <i>New Business Models in Agroecology: Study Case - Innovation Hub Bio Danubius as Private (Voluntary) Standards Based on Indicators</i>	219
Francis Ezieshi MONYEI, Wilfred Isioma UKPERE, <i>Value Chain and Risk Management in the 4ir: Analysis from the Agro-Allied Sector</i>	234
Abayomi Olarewaju ADEOYE, Kafiu Sunkanmi ODUSANYA, Gloria Chinagozi OSADEME, <i>Work Schedule Flexibility and Employees' Retention: Using Academic Staff of Ogun State Institute of Technology, Igbesa, Ogun State as a Study Case</i>	259

Uchechukwu Roselyn IGNATIUS, Henry Sonna OJUKWU, Ijeamaka Charity MGBEMENA, Catherine Nkechi NWANKWO, <i>ASUU Strike and Mental Health of Business Administration Students in Nnamdi Azikiwe University, Awka, Anambra State, Nigeria</i>	276
Dayo Idowu AKINTAYO, Adetoun Ramat, BALOGUN, <i>Multilateral Dimensions in Talent Management and Employees' Turnover Intentions in Manufacturing Industries, South-West, Nigeria</i>	295
Folake Olubunmi LANRE-BABALOLA, Babalola Oluwayemi OGinni, Mobolaji Omotayo OBIDIYA, Joseph Adeyinka ADEWOLE, <i>Influence of Abusive Supervision on Employees' Morale at Work: Evidence from The Manufacturing Organisations</i>	312
Musediq Olufemi LAWAL, Olawale Olufemi AKINRINDE, Tajudeen Yusuf ADEYINKA, Rasaan Omokeji GANIYU, Remi Kasali ALATISE, Kolawole Lateef KAZEEM, <i>Workers' Perceptions of Social Security, Social Opportunities and The Challenges in Hotel Employment</i>	329
Nyasha MAPIRA, Jeremy MITONGA-MONGA, Wilfred Isioma UKPERE, <i>Impression Management at Work: Intention of Casual Workers</i>	345
Kafiu Sunkanmi ODUSANYA, Gloria Chinagozi OSADEME, Adewunmi Oluwakemi SODEKE, <i>Teleworking and Employees' Brand Ambassador: Using Academic Staff of Ogun State Institute of Technology, Igbesa, Ogun State as a Case Study</i>	367
Devajit MOHAJAN, Haradhan Kumar MOHAJAN, <i>Economic Investigation of Utility Maximization through Mathematical Analysis</i>	380
Etim O. FRANK, Wilfred I. UKPERE, <i>Analysis of Ecowas Quest for Regime Survival versus Republic of Niger: Economic and Political Implications</i>	419
Keratilwe BODILENYANE, Calvin MABASO, Wilfred I. UKPERE, <i>A Critical Analysis of Collective Bargaining Extension Mechanisms in The Public Sector in Botswana</i>	445

TABLE DES MATIÈRES

<i>Avant-propos</i> par Maître de conférences dr. Elena GURGU – Faculté des Sciences Économiques, Université <i>Spiru Haret</i>	15
Articles académiques	
Milena FILIPOVA, Iuliana Petronela GÂRDAN, Aurelian BONDREA, Daniel Adrian GÂRDAN, <i>La relation entre la culture organisationnelle et la durabilité de l'entreprise</i>	19
Miglena TRENCEVA, Rayna DIMITROVA, Ivan TRENCEV, Laura IACOB, <i>Développement d'un système de marketing durable avec un moteur irréel</i>	41
Vesela SERAFIMOVA, Milena FILIPOVA, <i>Approches marketing pour une gestion efficace des musées</i>	54
Dragoș FRASINEANU, Geanina SIMBOTIN, Elena GURGU, <i>Culture et innovation: comment les secteurs créatifs peuvent contribuer au développement durable de la Roumanie</i>	66
Alexandra RADU, <i>Libre accès aux sources d'information. Développement scientifique durable</i>	93
Chymanova Jyldyz JENISHBEKOVNA1, Kanykei KALIEVA, Baktybek ISAKOV, <i>Récits économiques et mouvement : le pouvoir du langage figuratif dans les journaux kirghizes du Kirghizistan</i>	101
Radu PODGOREANU, Marina DRAGAN, Elena GURGU, Aura NEAGA, <i>Au-delà de la conformité : exploiter le pouvoir des audits publics internes pour l'excellence en matière de gestion du développement durable</i>	107
Olufemi Samuel ADEGBOYO, Peter Katyo ABU, <i>Le lien entre les exportations et la croissance au Nigeria : les flux de capitaux sont-ils importants ?</i>	131
Ramil GULIYEV, <i>Repenser les frontières : le fiasco FTX et l'impératif de réglementer les échanges de crypto-monnaies</i>	149
Waidi Adeniyi AKINGBADE, Olubunmi Temitayo FAMODUN, <i>Orientation entrepreneuriale et avantage concurrentiel des petites et moyennes entreprises au Nigeria</i>	159
Milena NIKOLIĆ, Mirjana JEMOVIĆ, Danka MILOJKOVIĆ, <i>Utiliser les prêts bancaires pour améliorer l'efficacité énergétique des entreprises dans les pays des Balkans occidentaux</i>	187
Gergana YOICHEVA, <i>Analyse des processus liés à la mondialisation des entreprises en Bulgarie</i>	208
Costin LIANU, Irina Gabriela RADULESCU, Cosmin LIANU, <i>Nouveaux modèles d'entreprise en agroécologie : étude de cas - Innovation Hub Bio Danubius en tant que normes privées (volontaires) basées sur des indicateurs..</i>	219
Francis Ezieshi MONYEI, Wilfred Isioma UKPERE, <i>Chaîne de valeur et gestion des risques à l'ère de la quatrième révolution industrielle : analyse du secteur agro-allié</i>	234

Abayomi Olarewaju ADEOYE, Kafiu Sunkanmi ODUSANYA, Gloria Chinagozi OSADEME, <i>Flexibilité des horaires de travail et rétention des employés : utilisation pour l'étude de cas du personnel académique de l'Institut de technologie de l'État d'Ogun, Igbesa, État d'Ogun</i>	259
Uchechukwu Roselyn IGNATIUS, Henry Sonna OJUKWU, Ijeamaka Charity MGBEMENA, Catherine Nkechi NWANKWO, <i>ASUU grève et santé mentale des étudiants en administration des affaires de l'Université Nnamdi Azikiwe, Awka, État d'Anambra, Nigeria</i>	276
Dayo Idowu AKINTAYO, Adetoun Ramat, BALOGUN, <i>Dimensions multilatérales de la gestion des talents et intentions de rotation des employés dans les industries manufacturières, Sud-Ouest, Nigéria</i>	295
Folake Olubunmi LANRE-BABALOLA, Babalola Oluwayemi OGinni, Mobolaji Omotayo OBIDIYA, Joseph Adeyinka ADEWOLE, <i>Influence de la supervision abusive sur le moral des employés au travail : preuves provenant des organisations manufacturières</i>	312
Musediq Olufemi LAWAL, Olawale Olufemi AKINRINDE, Tajudeen Yusuf ADEYINKA, Rasaq Omokeji GANIYU, Remi Kasali ALATISE, Kolawole Lateef KAZEEM, <i>Perceptions des travailleurs sur la sécurité sociale, les opportunités sociales et les défis de l'emploi hôtelier</i>	329
Nyasha MAPIRA, Jeremy MITONGA-MONGA, Wilfred Isioma UKPERE, <i>Gestion des impressions au travail : intention des travailleurs occasionnels.....</i>	345
Kafiu Sunkanmi ODUSANYA, Gloria Chinagozi OSADEME, Adewunmi Oluwakemi SODEKE, <i>Ambassadrice de la marque du télétravail et des employés: Utilisation du personnel académique de l'Institut de technologie de l'État d'Ogun, Igbesa, État d'Ogun comme étude</i>	367
Devajit MOHAJAN, Haradhan Kumar MOHAJAN, <i>Enquête économique sur la maximisation de l'utilité par l'analyse mathématique</i>	380
Etim O. FRANK, Wilfred I. UKPERE, <i>Analyse de la quête de la Cedeao pour la survie du régime par rapport à la République du Niger : implications économiques et politiques</i>	419
Keratilwe BODILENYANE, Calvin MABASO, Wilfred I. UKPERE, <i>Une analyse critique des mécanismes d'extension des négociations collectives dans le secteur public au Botswana</i>	445

FOREWORD

How to cite: GURGU, E. (2024). "Foreword". *Annals of Spiru Haret University. Economic Series*, 24(1), 15-16, doi: <https://doi.org/10.26458/2410>

Welcome to the inaugural issue of The Annals of Spiru Haret University. Economic Series for the year 2024. As we embark on this new journey, we find ourselves amidst a dynamic global landscape marked by economic and financial intricacies.

The first quarter of 2024 has presented both challenges and opportunities on the economic horizon. From the ever-evolving geopolitical dynamics to the impacts of technological advancements, the global economy continues to navigate through a multitude of factors that shape its trajectory. With nations striving for sustainable growth and resilience, the economic discourse remains vibrant and multifaceted.

In this issue, we are delighted to present a collection of scholarly works that delve into various dimensions of economic theory, policy, and practice. Our esteemed contributors have explored a wide array of topics, ranging from macroeconomic trends to sector-specific analyses, offering insights into the complexities of contemporary economic landscapes.

As the world grapples with the aftermath of global disruptions, such as the COVID-19 pandemic, and charts a course towards recovery, academia plays a pivotal role in fostering dialogue, generating knowledge, and driving innovation.

The Annals of Spiru Haret University. Economic Series is committed to serving as a platform for rigorous academic inquiry and intellectual exchange, contributing to the advancement of economic thought and policy.

In the current context, the authors found forums for discussions and debates and have written articles for the current issue trying, as far as possible, to look at some solutions for the problems facing the new world state of the economy. Whether or not they succeeded in responding to the challenges, we leave it to you to determine.

We extend our heartfelt gratitude to all the authors, reviewers, and editorial team members whose dedication and expertise have made this publication possible. Their tireless efforts have enriched the scholarly discourse and expanded the frontiers of economic research.

Issue 1/2024

As we navigate the complexities of the global economy, let us embrace the spirit of collaboration, innovation, and inquiry that defines academia. Together, let us embark on a journey of discovery, exploration, and enlightenment, as we strive to understand, analyze, and shape the economic landscape of tomorrow.

We hope that you find this issue of *The Annals of Spiru Haret University. Economic Series* both informative and inspiring, and we look forward to your continued engagement and support in our scholarly endeavors.

We hope that ASHUES journal issue caught your attention and made you read it. Also, we strongly believe that all the articles are interesting and deserve to be appropriated by those who are interested in understanding the specific issues of the global economy.

If you've liked our articles, please visit our website at <http://anale-economie.spiruharet.ro/>. If you want to write an article in our journal, we invite you to expose your ideas in new studies published by us.

Finally, hoping that you found interesting Issue no. 1/2024, I strongly invite you to address your comments and suggestions at ashues@spiruharet.ro and, of course, to submit your own paper via online submission system, using the following link: <http://anale.spiruharet.ro/index.php/economics/login>.

Research is the breath of the future. Let's shape the world together!

Associate Professor Elena GURGU, Ph.D. in Economics
ASHUES Deputy Chief Editor



ACADEMIA PAPERS

RELATIONSHIP BETWEEN ORGANIZATIONAL CULTURE AND CORPORATE SUSTAINABILITY

Milena FILIPOVA¹, Iuliana Petronela GÂRDAN², Aurelian A. BONDREA³, Daniel Adrian GÂRDAN⁴

¹ Faculty of Economics, SWU „Neofit Rilski”, Blagoevgrad, Ivan Mihailov str.66, 2700, phone: + 359887639559, e-mail: mfilipova@swu.bg

^{2,3,4} Faculty of Economic Sciences, Spiru Haret University, Bucharest, Ion Ghica Street, No. 13, District 3, Postal code 030045, phone +400737165996, e-mail: petronelagardan@gmail.com, rector@spiruharet.ro, danielgardan@gmail.com

How to cite: Filipova, M., Gardan, I.P., Bondrea A. A & Gardan, D.A. (2024). “Relationship between Organizational Culture and Corporate Sustainability”. *Annals of Spiru Haret University. Economic Series*, 24(1), 19-40, doi: <https://doi.org/10.26458/2411>

Abstract

In an era marked by increasing concern for the environment and a drive to improve corporate performance, the interplay between sustainability and organizational performance has emerged as a major focal point for businesses. Businesses, as integral components of a global economy, face the dual challenge of addressing complex sustainability imperatives while striving to improve organizational culture, the collective values, norms and beliefs that shape the behavior and decisions of individuals within the enterprise. The extent to which businesses adopt and cultivate a culture that prioritizes sustainability initiatives while promoting efficiency and innovation can profoundly affect their prospects in today's dynamic business environment. The purpose of this paper is to establish the relationship between corporate sustainability and organizational culture, exploring how the conscious integration of sustainability values and principles into an enterprise's culture can provide significant opportunities not only to mitigate adverse environmental impacts, but also to improve performance of the organization. The main research methods involved within the paper are content analysis, method of analysis and synthesis and systematic review methodology adhering

to PRISMA guidelines. The expected results of the development identified key aspects of the relationship between organizational culture and corporate sustainability.

Key words: *organizational culture; corporate sustainability; values of the organization; social responsibility; employee engagement; sustainable practices.*

JEL Classification: M14, Q56

Introduction

It is becoming increasingly clear that organizational culture drives organizational performance rather than being merely a byproduct of management techniques, so it is critical to examine the mechanisms that can be used to harness cultural elements and steer businesses toward sustainable and productive practices. The management of innovations in the enterprise, according to Yuleva-Chuchulaina, is an important function for the realization of the organization and an integral part of the management of changes and sustainability (Yuleva-Chuchulayna, 2023). According to Linnenluecke & Griffiths (2010) organizations have recognized the need for a corporate sustainable strategy and have responded by creating new procedures, business policies, and products to address evolving problems like pollution, community development, resource scarcity, greenhouse effect, carbon emissions, and stakeholder engagement management. A number of authors are considering that organizations can only address social and environmental issues by implementing an organized, planned process of organizational transformation and culture change. (Assoratgoon & Kantabutra, 2023);(Post & Altman, 2017); (Al-Hakimi et al, 2022). The general idea that emerges from the literature on corporate sustainability culture is that firms must adopt a targeted strategy to create a culture that supports corporate sustainability activities. (Crane, 2017).

The research question in this paper is "What is the relationship between organizational culture and corporate sustainability?" This issue has a generous addressability and a topicality that derives from the following:

1. Expands knowledge in the field of corporate sustainability: Exploring the relationship between organizational culture and sustainable strategies contributes to a better understanding of how organizations can strengthen their sustainable

development. This is essential within nowadays business environment as corporate sustainability becomes increasingly important to business and society as a whole.

2. Supports sustainability efforts: Finding out how organizational culture influences sustainable strategies and corporate sustainability can help organizations take more effective measures and focus their efforts on sustainability.

3. Creates opportunities for improvements: Understanding this relationship can help organizations identify areas where they need to make improvements in organizational culture or sustainability strategies. This can stimulate practical action and innovation aimed at corporate sustainability. According to Yuleva-Chuchulaina, today, the capacity to innovate is one of the key characteristics of entrepreneurial behavior, which are significantly related to the competitiveness of enterprises and their future sustainability (Yuleva-Chuchulayna, 2019).

4. Emphasizes the role of culture: Research on this topic highlights the importance of organizational culture as a key factor in corporate sustainability. This can encourage organizations to pay more attention to the cultural aspects and integrate corporate sustainability into their set of values and behavior. In the following, we will elaborate on organizational culture, corporate sustainability, as well as the relationship between the two concepts.

1. Organizational culture

The term "organizational culture" was initially used in management literature by Pettigrew (Pettigrew, 1979) in the journal "Administrative Science Quarterly". Organizational culture is frequently called "corporate culture" to denote the term's more "commercialized" connotation (Lee et al., 2023). The idea that an effective and supportive organizational culture enhances organizational performance is a clear motivation for researchers to examine organizational culture. Galpin (Galpin, Whittington & Bell, 2015) demonstrated a positive correlation between operational success and organizational culture.

It is acknowledged that organizational beliefs, values, and philosophies are essential components of understanding organizational culture and that they serve as a dependent variable in the evaluation and measurement of organizational culture (Sugita & Takahashi, 2015).

The fundamental beliefs and behaviors of senior management, which are used to either restrict or support innovation within the company through implementing best practices like total quality management (TQM), benchmarking, etc. in effect, are a significant component of cultural study.

The superiority of organizational culture as a major factor in improving company performance was presented by Denison (Denison, 1984). In the early 1980s, studies on strategic management and human resources frequently highlighted the importance of organizational culture in order to boost organizational effectiveness. Fundamental developments in the field of organizational culture (Gimenez, Jimenez & Martinez, 2023); (Baird, Jia Hu & Reeve, 2011); (Garmendia, 2004) underline the importance of organizational culture to the overall health and sustainability of a company. The goal of corporate sustainability is to decrease the negative effects of business while developing plans for the creation of major positive effects in significant and applicable areas of the environment and society. The company must take into account the external environment in which it works and establish strategies to address the major problems that arise from its pursuit of the essential resources and capabilities (Dyllick & Muff, 2016). This, in turn, will directly affect the effectiveness of the process of making strategic marketing decisions, ensuring company development, sustainability and competitiveness (Yaneva, 2021).

Organizational culture is the most important pillar to the creation of overall organizational excellence and the development of long-term competitive advantage (Gimenez, Jimenez & Martinez, 2023). Moreover, organizational culture is identified as a particularly significant factor for increasing competitiveness (Kyurova V. & Koyundzhiyska-Davidkova B., 2018). According to Quinn and Dalton (Quinn & Dalton, 2009), they contend that there is a connection between corporate sustainability and organizational culture and that further research into the ways in which these two elements interact is essential to placing sustainable initiatives into practice. Strong leadership and organizational culture are essential components of a successful corporate sustainability-oriented culture that enhances team performance.

2. Corporate sustainability

Companies, media, governments, and even academic institutions use the term "sustainability" extensively, arbitrarily, and in a variety of ways. The terms "resilient" and "resilience" are employed in many situations and can have contradictory meanings at times (Aras, 2010); (Dimitrov, 2010); (Hart & Dowell, 2011); (Haugh & Talwar, 2010); (Williams & Millington, 2004)). Williams and Millington (Williams & Millington, 2004, p. 9) describe sustainable development as "a notoriously difficult, slippery and elusive concept to define". Some authors

emphasize that in order to survive in a dynamic and highly competitive environment, business enterprises must take various measures to achieve sustainability (Kyurova & Kiryakova –Dineva, 2019).

As with the concept of sustainable development, there are multiple understandings of the term corporate sustainability (Atkinson, 2000). Many definitions and interpretations of the word "corporate sustainability" may be found in the academic literature. Some of these definitions have developed from larger, global sustainable development, while others have their foundations in corporate social responsibility. The three elements of corporate sustainability are typically understood to be: safeguarding environmental resources, promoting social benefits, and maintaining the organization's economic or financial sustainability. These three areas of sustainable development were reiterated at the 2002 World Summit on Sustainable Development in Johannesburg is known as the "Three Pillars" of sustainability since the tagline "people, planet, prosperity" was used to emphasize the balance of the three components (White & Lee, 2009). The economy, the environment, and society/people are all three components that are included in most definitions of sustainability and sustainable development. Throughout the previous century, social fairness, balanced natural resource management, and economic development have all been the most important goals. Some scholars (Dyllick & Hockerts, 2002) consider that in order to fulfill the needs of both internal and external stakeholders—such as shareholders, employees, suppliers, traders, social communities, and customers—without compromising the organization's capacity to meet future stakeholder requirements is to practice corporate sustainability. Economic sustainability is not sufficient to make an organization as a whole sustainable (Goldwin, Kennelly, & Krause, 1995). In the near term, a restricted focus on economic sustainability might be successful, but achieving all three of the sustainability goals—economic, environmental, and social—at the same time will be necessary for long-term success. This elaborates on the idea of the "triple bottom line," which integrates and impacts the three facets of sustainability (Purvis, Mao, & Robinson, 2019). Early definitions of sustainability like the one provided by Kidd (Kidd, 1992) highlight corporate sustainability as being the original form of sustainability that emerged during a certain period through socio-political, community and academic inspirations. Several researchers such as (Berger, Cunningham, & Drumwright, 2007) have used corporate social responsibility (CSR) as a terminology to combine economic, operational processes, organizational mission and vision, social and environmental concerns into

organizational culture, management judgment, and overall strategy (Andronie et al, 2019). There tends to be an absence of the operationalization of the notion and a lack of comprehension among practicing managers due to the difficulties of several definitions of corporate sustainability (Dmytriiev, Freeman & Hörisch, 2021).

It is possible to ascertain whether organizations develop a genuine and strategic approach to sustainability, though, given the significance of businesses implementing sustainable business practices, the sluggish adoption of sustainability reporting, and the concerns expressed regarding data quality and whether the reports demonstrate a sincere commitment to sustainability. Organizations' committed to integrating social, environmental, and economic sustainability into their business operations and practices can be evaluated using a variety of models that have been established. Most frequently organized as a continuum or development (Castelló & Lozano, 2009) or successive stages of increasing ownership of organizational sustainability, these models provide an aspirational framework for organizations seeking to fully integrate sustainability into their business (Quinn & Dalton, 2009).

According to Daily and Huang (Daily & Huang, 2001) when implementing corporate sustainability practices and integrating them into organizational procedures, there is a lack of accuracy. Previous studies on corporate sustainability have mostly concentrated on how the organization's sustainability practices are perceived as a means of fending off external organizational factors like government regulations, environmental regulations, opposition from social and community organizations, and consumer rights activists. According to Crane (Crane, 2000) in order to attain corporate sustainability, an improvement in the organization's culture must also be made, involving senior management and the development of staff values and beliefs.

Ivanova emphasizes the need to implement the principles of sustainability in education and the formation of knowledge, skills and competencies relevant to this concept (Ivanova, 2023). From the foregoing, we can infer that corporate sustainability is a multifaceted idea that necessitates an extensive reorganization of management and organizational structures in tandem with the establishment of an organizational culture that supports corporate sustainability.

3. Organizational culture and its relationship with corporate sustainability

The main areas of study for corporate sustainability are how businesses establish and sustain connections with the pertinent parties like suppliers, agencies,

shareholders; and so on, as well as how management and staff embrace and implement sustainability strategies. The areas of research that seem to be missing are how organizational support systems grow, integrate, and coordinate with the organization's systems, procedures, and structure in order to meet corporate sustainability objectives.

A comprehensive integration of economic, social, and environmental factors into the organization's mission, values, vision, and procedures is necessary for corporate sustainability (Carmine & De Marchi, 2023), while the concept of organizational culture emphasizes more on the set of values to regulate and share the overall behavioral aspect of employees to respond to the demands of the environment (Schein, 2010). Emphasizing the significance of organizational culture in developing a corporate sustainability perspective inside the organization and incorporating cultural elements into the overall sustainability plan is crucial in this regard. This requires large enterprises to have a sufficient number of educated, highly qualified specialists, good systems for selecting personnel with innovative thinking, motivated to participate in innovation projects, and last but not least – certification systems to ensure the motivation and incentives for innovation activity (Kalaidzhieva, 2023; Jabbarov, 2018). To cope with increasing environmental challenges, organizations develop a dominant culture (Schein, 2010). Horak (Horak et al, 2018) in his research emphasizes the need for organizational culture as a source of sustainable competitive advantage and points out that an organization that scores high on cultural characteristics tends to develop sustainable competitive advantage and can be a source of more - high financial results. The organizational culture and its ability to adjust to the outside world also have a role in an organization's success. Assoratgoon and Kantabutra (Assoratgoon & Kantabutra, 2023) emphasized the idea that a strong culture has always been the driving force behind organizational success and is associated with superior performance. Organizational culture has a calming effect that can lower barriers to entry and enhance overall performance (Cameron & Quinn, 2011). Three levels of sustainability can be used to analyze the relationship between corporate sustainability and organizational culture. Corporate sustainability reports, employee development programs, technology deployment, operational manuals and procedures, and employee training all demonstrate corporate sustainability ideas at the external level of sustainability (Hossain, Griffiths, & Benn, 2003); (Dunphy, Griffiths, & Benn, 2003). The internal level of sustainability is demonstrated through the change of values and culture among employees and the

sensitivity of the workforce through various HR interventions (Crane, 2017). At its core, adopting corporate sustainability requires a change in the fundamental beliefs and presumptions about environmental values and human issues. Schein (Schein, 2010) proposes different elements of culture for the different levels at which corporate sustainability is applied. The essential components for value creation and decision-making are the organization's underlying assumptions (beliefs and perceptions held by the organization), perceived values (core values, philosophy, and mission), and visible culture (observable organizational behavior, people, structures, and processes) (see Fig. 1).

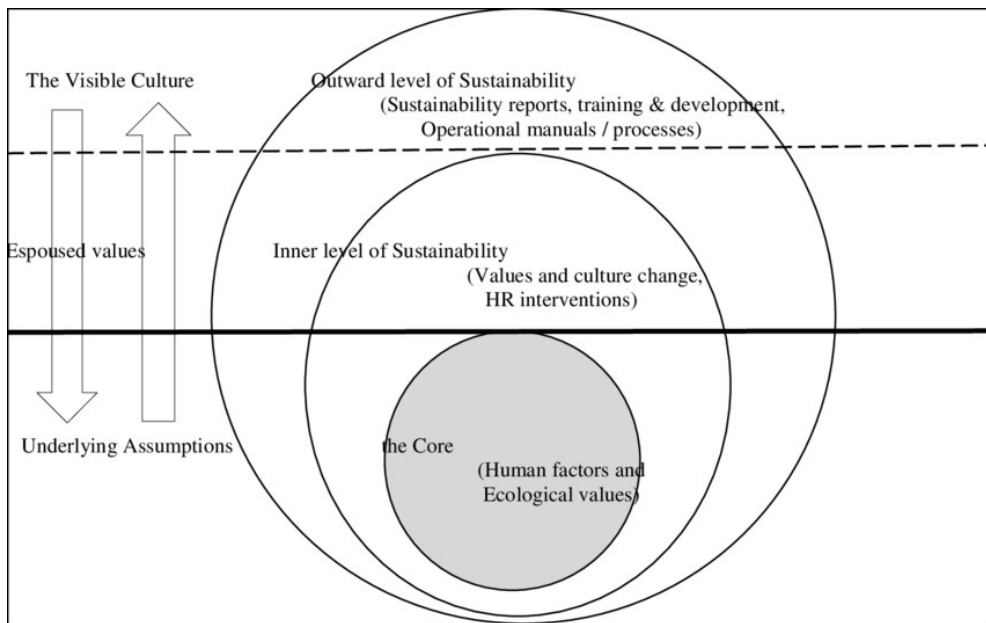


Figure 1: Culture-Sustainability Framework

Source: Mayuk Dasgupta (Dasgupta & Vaghela, 2015)

Examining the diagram, we can observe that the concentric circles stand for various degrees of sustainability, while the center signifies the organization's core and the culture that forms its basis. The internal level of sustainability focuses on

internal elements such ethics, the workplace, and governance and shows how sustainability is ingrained in the firm. Simultaneously, the external sustainability level serves as a reminder that the company is a part of the world and has an impact on the environment, the economy, and society.

The figure above emphasizes how crucial it is that corporate sustainability and organizational culture are closely related. The internal and external layers of sustainability offer the framework for comprehending how this model affects the organization and the larger community, while the core, which refers to culture, is the center of sustainability. The present examination centers on the manners in which organizational culture molds and impacts organizational sustainability, and the reciprocal relationship between this internal process and the external environment.

Actually by aligning a specific set of values characteristic of the company's organizational culture with corporate sustainability, the management can create a culture that not only reflects the company's commitment to sustainability but also drives positive change and impact both internally and externally. Aligning a specific set of values characteristic of the company's organizational culture with corporate sustainability involves integrating sustainability principles into those existing values and ensuring that they guide decision-making and behavior throughout the organization. The following actions can be seen like essential steps toward the alignment of organizational culture values to corporate sustainability (Liu & Lin, 2020):

- 1) Assessment of the current Values: Start by examining the existing values and beliefs that define your company's organizational culture. Identify any values that already align with sustainability principles, such as integrity, innovation, or social responsibility.
- 2) Identify Gaps: Identify any gaps between the current values and corporate sustainability goals. Determine which sustainability principles are missing or underrepresented in the existing values and culture.
- 3) Define Sustainability Values: Define a set of sustainability values that reflect the company's commitment to environmental stewardship, social responsibility, and economic viability. These values may include concepts such as environmental conservation, social equity, ethical business practices, and long-term thinking.
- 4) Integrate Sustainability into Existing Values: Incorporate sustainability principles into the existing values framework by revising or expanding upon

the company's core values. For example, if integrity is already a core value, emphasize the importance of environmental and social integrity in addition to ethical behavior.

- 5) **Communicate and Educate:** Clearly communicate the updated values and their alignment with corporate sustainability goals to employees at all levels of the organization. Provide training and educational resources to help employees understand the importance of sustainability and how it relates to their roles and responsibilities.
- 6) **Lead by Example:** Demonstrate leadership commitment to sustainability by incorporating sustainability values into decision-making processes, policies, and practices. Encourage leaders and managers to exemplify sustainable behavior and prioritize sustainability considerations in their day-to-day activities.
- 7) **Empower Employees:** Empower employees to contribute to sustainability initiatives by providing opportunities for participation, collaboration, and innovation. Encourage employees to incorporate sustainability values into their work and to identify opportunities for improvement within their areas of expertise.
- 8) **Measure Progress:** Establish key performance indicators (KPIs) to track progress towards integrating sustainability values into the organizational culture. Regularly assess performance against these metrics and use feedback to refine and improve sustainability efforts over time.
- 9) **Celebrate Successes:** Celebrate achievements and milestones related to sustainability values to reinforce their importance and maintain momentum. Recognize and reward individuals and teams who demonstrate exemplary commitment to sustainability in their work.
- 10) **Continuously Improve:** Continuously evaluate and refine the integration of sustainability values into the organizational culture. Solicit feedback from employees, stakeholders, and external experts to identify areas for improvement and innovation.

Another specific line of action when we talk about the relationship between organizational culture and corporate sustainability refers to the possibility to treat innovation as an essential feature of the organizational culture. This can lead to corporate sustainability if the management is fostering a culture that values creativity, experimentation, and forward-thinking while also prioritizing sustainability principles. By treating innovation as an integral part of the

organizational culture and embedding sustainability principles into innovation processes, companies can drive positive change, foster resilience, and create long-term value for both the organization and society.

An important aspect of the sustainable principles implementation deals with the degree of the company's orientation towards the customer. This can be achieved through a series of initiatives like (Assoratgoon & Kantabutra, 2023).

a) **Customer-Centric Innovation:** When a company prioritizes the needs and preferences of its customers, it's more likely to develop products, services, and solutions that are aligned with customer demand. By understanding and responding to customer expectations, companies can innovate in ways that create value for both the customer and the company, contributing to long-term sustainability.

b) **Enhanced Customer Loyalty and Trust:** Building strong relationships with customers based on trust, transparency, and responsiveness is essential for sustaining customer loyalty over time. A customer-centric culture that prioritizes excellent customer service and satisfaction can lead to repeat business, positive word-of-mouth referrals, and increased customer lifetime value, which are all critical for the long-term success of the company.

c) **Feedback Loop for Improvement:** A customer-centric culture encourages open communication and feedback channels between the company and its customers. By listening to customer feedback, companies can identify areas for improvement, uncover emerging trends and preferences, and adapt their products, services, and business practices accordingly. This continuous feedback loop fosters agility, innovation, and resilience in the face of changing market dynamics.

d) **Alignment with Sustainability Values:** Customers are increasingly placing importance on sustainability and ethical considerations when making purchasing decisions. A customer-centric culture that prioritizes sustainability can help companies differentiate themselves in the marketplace, attract environmentally and socially conscious consumers, and build a positive brand reputation. By aligning with customer values and expectations around sustainability, companies can enhance their competitive advantage and drive long-term growth.

e) **Risk Mitigation:** By understanding and anticipating customer needs and preferences, companies can proactively identify and mitigate risks associated with changing market conditions, competitive pressures, and regulatory requirements. A customer-centric culture enables companies to stay agile and responsive to evolving customer expectations, reducing the likelihood of reputational damage,

customer churn, or market disruptions that could impact sustainability performance.

f) Long-Term Value Creation: Ultimately, a customer-centric culture contributes to the long-term sustainability and viability of the company by focusing on creating value for customers, employees, shareholders, and society as a whole. By prioritizing customer satisfaction and loyalty, companies can build resilient, adaptive organizations that are better equipped to navigate uncertainties and thrive in an increasingly complex and interconnected global marketplace.

4. Methodology of research

Our research methodology refers to an approach characteristic for the systematic literature review process. In order to employ a proper systematic review we stick to the rules highlighted by Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, which implies defining the research strategy, the selection process, and data extraction.

Systematic review process

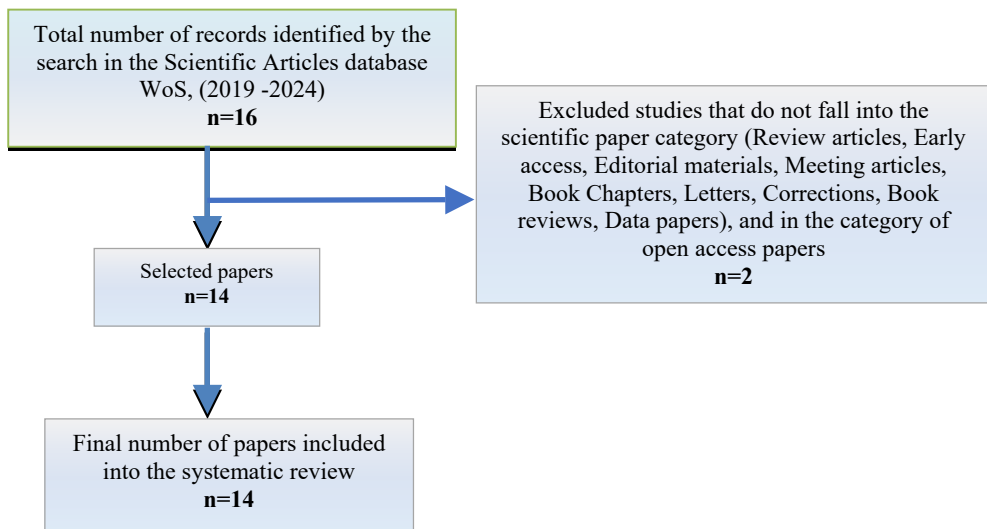


Fig no.2. The systematic review process diagram

Source: own research

Thus, within our research strategy, the review process consists in a search into electronic sources based on Web of Science Database. Within the WoS database we have taken into consideration scientific specialized papers that presents quantitative or qualitative research regarding organizational culture and corporate sustainability, published in English between 2009-2023. We have taken into consideration this period because papers published within this time framework, of the last 5 years may be considered relevant from the perspective of the novelty degree regarding the content of information or advanced and tested working hypotheses. Our research strategy implied the usage of research filters, consisting in selection of the papers according to key words related to "organizational culture, corporate sustainability", the considered time-frame and the type of the paper. Thus, the search was taken into consideration solely online sources, indexed into WoS database. The systematic review process has the following stages that can be seen also in figure no 2: the first step implies using keywords "organizational culture, corporate sustainability" within the topic addressed, and the filter related to the period: 2019 - 2024 was applied, resulting a number of 16 papers that can be taken into consideration. In the second step, we applied the filter related to the type of the paper and the paper of type – article and review article - and respectively those that fall into the open access category were selected, resulting in a number of 14 papers that can be taken into consideration.

Results and discussion

The VOSviewer software, version 1.6.18, was used to interpret the results obtained after the systematic review process.

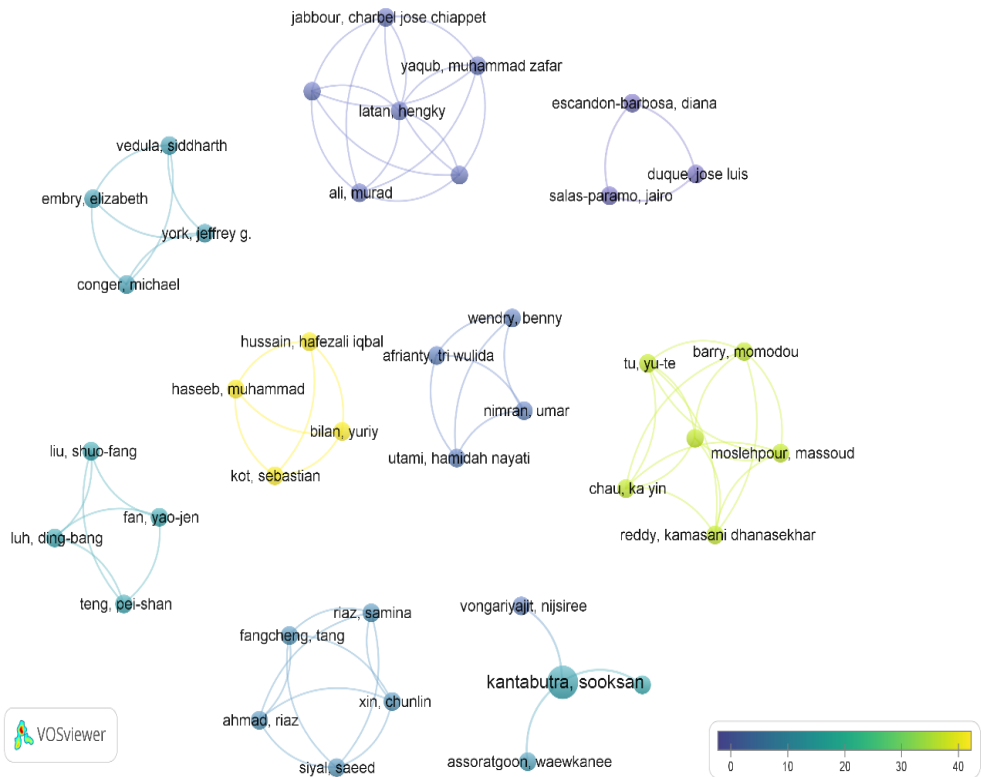


Fig. no. 3. Bibliometric analysis with VOSviewer_1.6.18– the network of papers from the database according to average citations number

Source: own research

Thus, in the first phase, the processing of the selected articles after applying the filters defined within the systematic review methodology was carried out starting from average citation number, obtaining a map for the analyzed papers that can be seen in figure no 3 above. We may see different clusters referring to the papers made by authors that can be highlighted, indicating by different colors the number of citations. There are 14 papers that have a range of citations between 2 and 102, with an average of 22 citations.

Within the selected papers we may find a diversified range of views regarding the possible links between organizational culture and corporate sustainability. Thus we may encounter papers regarding the impact of corporate culture on corporate social responsibility (Siyal et al, 2022), an organizational vision oriented toward sustainability that allows organizations to embrace a specific organizational culture with values that allows the implementation of main sustainable principles (Kantabutra, 2020; Vongariyajit and Kantabutra, 2021); factors defining sustainability organizational culture (Ketprapakorn and Kantabutra, 2022); impact of sustainable practices and organizational culture on sustainable performance of organizations (Moslehpour et al, 2022); the implementation of a corporate sustainability system that is comprising sustainability culture, resilience and corporate sustainability performance (Kantabutra, 2022); review regarding sustainable cultural transformation and sustainability organizational culture (Assoratgoon and Kantabutra, 2023); the role of organizational learning process and innovation on sustainability and economic performance (Bilan et al, 2020); green organizational culture and its integration within management practices (Ali et al, 2023); different cultural influences on corporate sustainability (Escadon, Salas-Paramo and Duduque, 2023); the impact of corporate sustainability on organizational innovation (Fan et al, 2021); the role of corporate governance mediated by organizational culture on firm performance and sustainability (Wendry et al, 2023); development of an Integrated Sustainability Organizational Culture model in which the vision and values are determining the emotional commitment of the members of the organization (Kantabutra, 2021); advancement of market-based solutions to social and environmental issues (Vedula et al, 2022).

Conclusions

We may conclude by pointing out that managers must prioritize the social and environmental components of the company in addition to the economic growth mindset if they are to attain corporate sustainability. Several studies have reached

the conclusion that senior management's promotion, oversight, and internal dissemination of values and philosophies are key factors in the success of corporate sustainability initiatives (e.g. (Baumgartner, 2009); (Escandon-Barbosa et al, 2023)). The overall understanding of organizational values and beliefs will help implement the change management initiatives needed to successfully implement corporate sustainability.

Based on what has been stated so far, we can draw the following main conclusions:

First. Building an effective corporate sustainability-oriented culture that supports workers' successful performance at all levels of the organizational structure requires both strong leadership and organizational culture.

Second. A comprehensive organizational transformation is necessary for corporate sustainability, which is a complicated idea. In order to attain corporate sustainability, senior management must be involved and the organization's culture must be changed by employees developing their own values and beliefs.

Third. The relationship between organizational culture and corporate sustainability can be presented at three levels. An external level of sustainability where technology implementation, operational management, training and employee development are at the core of the corporate sustainability ideology. An internal level of sustainability that is formed through the change of values and culture among employees. Human resources and environmental values are at the core.

After consideration and analysis of the key concepts in the current development, namely organizational culture and corporate sustainability, the goals set at the beginning and expected results were achieved.

First. The relationship between organizational culture and corporate sustainability was investigated as part of the overall development of the organization's sustainable strategy.

Second. The influence of organizational culture on corporate sustainability was established, and the relationship was presented at three levels - external level of sustainability, internal level of sustainability and core, which is the foundation of the organization.

Third. The role of culture as a key factor for corporate sustainability was emphasized.

Research findings on the important relationship between organizational culture and corporate sustainability highlight that successful organizations create sustainable models by integrating values and norms into their culture that promote

environmental and social responsibility. Organizational culture has a significant impact on the level of employee engagement and their ability to adopt and promote sustainable practices. There is a need for a systemic approach to corporate sustainability, which includes the formation of a culture based on sustainability and the active participation of employees in this process.

A sustainable organizational culture goes beyond mere policies or initiatives; it embodies a commitment to environmental stewardship, social responsibility, and ethical business practices that permeate every aspect of the organization's operations.

By aligning values characteristic of the organizational culture with corporate sustainability goals, companies can create a framework that guides decision-making, behavior, and actions towards long-term viability and resilience. Integrating sustainability into the organizational culture involves empowering employees, fostering collaboration, promoting innovation, and prioritizing the needs and expectations of customers.

Furthermore, treating innovation and customer orientation as integral components of the organizational culture contributes to corporate sustainability by driving continuous improvement, enhancing customer satisfaction and loyalty, and creating long-term value for stakeholders. Ultimately, a sustainable organizational culture is essential for companies to navigate complex challenges, seize opportunities, and thrive in a rapidly changing global landscape while contributing positively to society and the environment (Crețoiu, 2014).

References

- [1] Al-Hakimi, M. A., Al-Swidi, A. K., Gelaidan, H. M., & Mohammed, A. (2022). The influence of green manufacturing practices on the corporate sustainable performance of SMEs under the effect of green organizational culture: A moderated mediation analysis. *Journal of Cleaner Production*, 376, 134346. <https://doi.org/10.1016/j.jclepro.2022.134346>
- [2] Ali, M., Malik, M., Yaqub, M. Z., Jabbour, C. J. C., de Sousa Jabbour, A. B. L., & Latan, H. (2023). Green means long life-green competencies for corporate sustainability performance: A moderated mediation model of green organizational culture and top management support. *Journal of Cleaner Production*, 427, 139174. <https://doi.org/10.1016/j.jclepro.2023.139174>
- [3] Andronie, M., Simion, V. E., Gurgu, E., Dijmărescu, A., & Dijmărescu, I. (2019). Social responsibility of firms and the impact of bio-economy in intelligent use of renewable energy source. *Amfiteatru Economic*, 21(52), 520-535.

- [4] Aras, G. &. (2010). Redefining Sustainability. În G. A. (Eds.), A Handbook Of Corporate Governance And Social Responsibility (pg. 51-68). Farnham, Surrey, England: Gower Publishing, Ltd.
- [5] Assoratgoon, W., & Kantabutra, S. (2023). Toward a sustainability organizational culture model. Journal of Cleaner Production, 400, 136666. <https://doi.org/10.1016/j.jclepro.2023.136666>
- [6] Atkinson, G. (2000). Measuring Corporate Sustainability. Journal of Environmental Planning and Management, 43(2), 235-252. <https://doi.org/10.1080/09640560010694>
- [7] Baird, K., Jia Hu, K., & Reeve, R. (2011). The relationships between organizational culture, total quality management practices and operational performance. International Journal of Operations & Production Management, 31(7), 789-814. <https://doi.org/10.1108/01443571111144850>
- [8] Baumgartner, R. J. (2009). Organizational culture and leadership: Preconditions for the development of a sustainable corporation. Sustainable Development, 17(2), 102-113. <https://doi.org/10.1002/sd.405>
- [9] Berger, I., Cunningham, P., & Drumwright, M. (2007). Mainstreaming corporate social responsibility: Developing markets for virtue. California Management Review, 49(4), 132-160. <https://doi.org/10.2307/41166409>
- [10] Bilan, Y., Hussain, H. I., Haseeb, M., & Kot, S. (2020). Sustainability and economic performance: Role of organizational learning and innovation. Inzinerine Ekonomika-Engineering Economics, 31(1), p. 93-103. <http://inzeko.ktu.lt/index.php/EE/article/view/24045>.
- [11] Cameron, S., & Quinn, E. (2011). Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework. The Jossey-Bass Business & Management Series, 242.
- [12] Carmine, S., & De Marchi, V. (2023). Reviewing paradox theory in corporate sustainability toward a systems perspective. Journal of Business Ethics, 184(1), 139-155. <https://doi.org/10.1007/s10551-022-05112-2>
- [13] Crane, A. (2017). Rhetoric and reality in the greening of organisational culture. In Greening the Boardroom (pp. 129-144). Routledge.
- [14] Castelló, I., & Lozano, J. (2009). From Risk Management to Citizenship Corporate Social Responsibility: Analysis of Strategic Drivers of Change. Corporate Governance, 9(4), 374-385. <https://doi.org/10.1108/14720700910984927>
- [15] Crane, A. (2000). Corporate greening as amorization. Organization Studies, 21(4), 673-696. <https://doi.org/10.1177/0170840600214001>
- [16] Crețoiu, R. I. (2014). The Complexity of the Implications of Globalization in the Context of the Current Global Economy. Annals of Spiru Haret University, Economic Series, 5(1), 41-49.

- [17] Daily, B., & Huang, S. (2001). Achieving sustainability through attention to human resource factors in environmental management. *International Journal of Operations & Production Management*, 21(12), 1539–1552. <https://doi.org/10.1108/01443570110410892>
- [18] Dasgupta, M., & Vaghela, D. (2015). Integrating Organization Culture with Corporate Sustainability Strategy: A Review. *Proceedings of ICRBS 2015*, 253-259.
- [19] Denison, D. (1984). Bringing corporate culture to the bottom line. *Organizational Dynamics*, 13(2), 4–22. [https://doi.org/10.1016/0090-2616\(84\)90015-9](https://doi.org/10.1016/0090-2616(84)90015-9)
- [20] Dimitrov, D. K. (2010). The Paradox of Sustainability Definitions. . Paper presented at the The Sixth Asia Pacific Interdisciplinary Research in Accounting (APIRA). Sydney: University of Sydney, New South Wales, Australia.
- [21] Dmytriiev, S. D., Freeman, R. E., & Hörisch, J. (2021). The relationship between stakeholder theory and corporate social responsibility: Differences, similarities, and implications for social issues in management. *Journal of Management Studies*, 58(6), 1441-1470. <https://doi.org/10.1111/joms.12684>
- [22] Dunphy, D., Griffiths, A., & Benn, S. (2003). *Organizational change for corporate sustainability: A guide for leaders and change agents of the future*. London: Routledge.
- [23] Dyllick, T., & Hockerts, K. (2002). Beyond the business case for corporate sustainability. *Business Strategy and the Environment*, 11(2), 130-141. <https://doi.org/10.1002/bse.323>
- [24] Dyllick, T., & Muff, K. (2016). Clarifying the meaning of sustainable business - Introducing a typology from business-as usual to true business sustainability. *Organization & environment*, 29(2), 156-174.
- [25] Elkington, J. (1997). The triple bottom line. *Environmental Management: Readings and Cases* 2, 49-66.
- [26] Escandon-Barbosa, D., Salas-Paramo, J., & Duque, J. L. (2023). Cultural Influence on Corporate Sustainability: A Board of Directors Perspective. *International Journal of Financial Studies*, 11(4), 132. <https://doi.org/10.3390/ijfs11040132>
- [27] Fan, Y. J., Liu, S. F., Luh, D. B., & Teng, P. S. (2021). Corporate sustainability: Impact factors on organizational innovation in the industrial area. *Sustainability*, 13(4), 1979. <https://doi.org/10.3390/su13041979>
- [28] Galpin, T., Whittington, J. L., & Bell, G. (2015). Is your sustainability strategy sustainable? Creating a culture of sustainability. *Corporate Governance*, 15(1), 1-17. <https://doi.org/10.1108/CG-01-2013-0004>
- [29] Garmendia, J. A. (2004). The impact of corporate culture on company performance. *Current sociology*, 52(6), 1021-1038. <https://doi.org/10.1177/0011392104046620>
- [30] Gimenez Espin, J. A., Jimenez Jimenez, D., & Martinez Costa, M. (2023). Effects of the organizational culture and knowledge exploration and exploitation on results in

- the EFQM model framework. *Journal of Knowledge Management*, 27(6), 1607-1636. <https://doi.org/10.1108/JKM-11-2021-0868>
- [31] Goldwin, T. N., Kennelly, J. J., & Krause, T. S. (1995). Beyond eco-efficiency: Towards socially sustainable business. *Sustainable Development*, 3(1), 35-43. <https://doi.org/10.1002/sd.3460030105>
- [32] Hart, S. L., & Dowell, G. (2011). A Natural-Resource-Based View of the Firm: Fifteen Years After. *Journal of Management*, 37(5), 1464-1479. <https://doi.org/10.1177/0149206310390219>
- [33] Haugh, H. M., & Talwar, A. (2010). How Do Corporations Embed Sustainability Across the Organization? *Academy of Management Learning & Education*, 9(3), 384-396. <https://doi.org/10.5465/amle.9.3.zqr384>
- [34] Horak, S., Arya, B., & Ismail, K. M. (2018). Organizational sustainability determinants in different cultural settings: A conceptual framework. *Business Strategy and the Environment*, 27(4), 528-546. <https://doi.org/10.1002/bse.2018>
- [35] Hossain, M. B., Nassar, S., Rahman, M. U., Dunay, A., & Illés, C. B. (2022). Exploring the mediating role of knowledge management practices to corporate sustainability. *Journal of Cleaner Production*, 374, 133869. <https://doi.org/10.1016/j.jclepro.2022.133869>
- [36] Ivanova, P. (2023). Higher Education in Support of the Sustainable Tourism Development. *Strategies for Policy in Science and Education*, 31(4), 406-423.
- [37] Jabbarov, F. (2018). Implementation of corporate governance mechanisms in tourism. *Annals of Spiru Haret University. Economic Series*, 18(4), 113-122. <https://doi.org/10.26458/1847>
- [38] Kalaidzhieva, V., (2023) The role of education and the human factor in innovation activity, *Strategies of educational and scientific policy*, year XXXI, booklet 5/2023, pp. 488 – 503. <https://doi.org/10.53656/str2023 -5-2-rol>
- [39] Kantabutra, S. (2022). Toward a system theory of corporate sustainability: an interim struggle. *Sustainability*, 14(23), 15931. <https://doi.org/10.3390/su142315931>
- [40] Kantabutra, S. (2021). Exploring relationships among sustainability organizational culture components at a leading asian industrial conglomerate. *Sustainability*, 13(4), 1733. <https://doi.org/10.3390/su13041733>
- [41] Kantabutra, S. (2020). Toward an organizational theory of sustainability vision. *Sustainability*, 12 (3), 1125. <https://doi.org/10.3390/su12031125>
- [42] Ketprapakorn, N., & Kantabutra, S. (2022). Toward an organizational theory of sustainability culture. *Sustainable production and consumption*, 32, 638-654. <https://doi.org/10.1016/j.spc.2022.05.020>
- [43] Kidd, C. (1992). The evolution of sustainability. *Journal of Agricultural & Environmental Ethics*, 5 (1), 1-26. <https://doi.org/10.1007/BF01965413>

- [44] Kyurova, V., & Koyundzhiyska-Davidkova, B. (2018). Organizational culture and innovation in cities. In: Development of human potential for an innovative socio-cultural environment. Blagoevgrad: "Neofit Rilski" University Publishing House.
- [45] Kyurova, V., & Kiryakova-Dineva, T. (2019). Sustainability in business environment through intercultural dialogue. CBU International Conference Proceedings 2019, Prague, Czech Republic, Vol. 7, 360-369, DOI: <https://doi.org/10.12955/cbup.v7.1482>
- [46] Lee, C. C., Yeh, W. C., Yu, Z., & Luo, Y. C. (2023). Knowledge sharing and innovation performance: a case study on the impact of organizational culture, structural capital, human resource management practices, and relational capital of real estate agents. *Humanities and Social Sciences Communications*, 10(1), 1-16. <https://doi.org/10.1057/s41599-023-02185-w>
- [47] Linnenluecke, M. K., & Griffiths, A. (2010). Corporate sustainability and organizational culture. *Journal of World Business*, 45(4), 357-366. <https://doi.org/10.1016/j.jwb.2009.08.006>
- [48] Liu, X., & Lin, K. L. (2020). Green organizational culture, corporate social responsibility implementation, and food safety. *Frontiers in Psychology*, 11, 585435. <https://doi.org/10.3389/fpsyg.2020.585435>
- [49] Moslehpour, M., Chau, K. Y., Tu, Y. T., Nguyen, K. L., Barry, M., & Reddy, K. D. (2022). Impact of corporate sustainable practices, government initiative, technology usage, and organizational culture on automobile industry sustainable performance. *Environmental Science and Pollution Research*, 29(55), 83907-83920. <https://doi.org/10.1007/s11356-022-21591-2>
- [50] Pettigrew, A. (1979). On studying organizational cultures. *Administrative Science Quarterly*, 24 (4), 570-581. <https://doi.org/10.2307/2392363>
- [51] Post, J. E., & Altman, B. W. (2017). Managing the Environmental Change Process: Barriers and Opportunities 1. In *Managing green teams* (pp. 84-101). Routledge.
- [52] Purvis, B., Mao, Y., & Robinson, D. (2019). Three pillars of sustainability: in search of conceptual origins. *Sustainability science*, 14, 681-695. <https://doi.org/10.1007/s11625-018-0627-5>
- [53] Quinn, L., & Dalton, M. (2009). Leading for sustainability: implementing the tasks of leadership. *Corporate Governance*, 9(1), 21-38. <https://doi.org/10.1108/14720700910936038>
- [54] Schein, E. H. (2010). *Organizational culture and leadership* (Vol. 2). John Wiley & Sons.
- [55] Siyal, S., Ahmad, R., Riaz, S., Xin, C., & Fangcheng, T. (2022). The impact of corporate culture on corporate social responsibility: Role of reputation and corporate sustainability. *Sustainability*, 14(16), 10105. <https://doi.org/10.3390/su141610105>
- [56] Sugita, M., & Takahashi, T. (2015). Influence of corporate culture on environmental management performance: An empirical study of Japanese firms. *Corporate Social*

- Responsibility and Environmental Management, 22(3), 182-192. <https://doi.org/10.1002/csr.1346>
- [57] Vedula, S., York, J. G., Conger, M., & Embry, E. (2022). Green to gone? Regional institutional logics and firm survival in moral markets. *Organization Science*, 33(6), 2274-2299. <https://doi.org/10.1287/orsc.2021.1533>
- [58] Vongariyajit, N., & Kantabutra, S. (2021). A test of the sustainability vision theory: Is it practical?. *Sustainability*, 13(14), 7534. <https://doi.org/10.3390/su13147534>
- [59] Wendry, B., Nimran, U., Utami, H. N., & Afrianty, T. W. (2023). The role of good corporate governance in mediating the effect of planning, coordination, supervision, and organizational culture on firm performance and firm sustainability. *Environment, Development and Sustainability*, 25(3), 2509-2521. <https://doi.org/10.1007/s10668-022-02125-9>
- [60] White, L., & Lee, G. (2009). Operational research and sustainable development: Tackling the social dimension, *European Journal of Operational Research*, 193(3), 683-692. <https://doi.org/10.1016/j.ejor.2007.06.057>
- [61] Williams, C. C., & Millington, A. C. (2004). The diverse and contested meanings of sustainable development. *The Geographical Journal*, 170(2), 99-104. <https://doi.org/10.1111/j.0016-7398.2004.00111.x>
- [62] Yaneva, D. (2021). Theoretical and methodological aspects of the analysis and evaluation of the marketing activity of the enterprise in the process of strategic marketing decision-making, *Revista Inclusiones*, 8(1), Enero-Marzo, 350-357.
- [63] Yuleva-Chuchulayna, R. (2019). Innovation - a Source of Competitive Advantage in Small and Medium-Sized Enterprises. XVI International Scientific Conference- Innovations and entrepreneurship in education and business, Sofia, pp. 349 – 360, ISBN 978-954-9432-83-1 Available at: https://new.ibsedu.bg/wp-content/uploads/2023/06/sbornik_2019_1.pdf
- [64] Yuleva-Chuchulayna, R. (2023). Innovation Management - a Basis for Development on Modern Business During Crisis. *ANNUAL of the College of Tourism – Blagoevgrad Volume 2/2023*, pp.139-150.

DEVELOPMENT OF A SUSTAINABLE MARKETING SYSTEM WITH UNREAL ENGINE

Miglena TRENCHIEVA¹, Rayna DIMITROVA², Ivan TRENCHIEV³,
Laura IACOB⁴

^{1,2} Faculty of Economics, SWU „Neofit Rilski”, Blagoevgrad, Ivan
Mihailov str.66, 2700, Tel: +359 88 729 0035, E-mail:
megy_tr2001@yahoo.com; Tel: +359 88 243 1477, E-mail:
rayna_dim@swu.bg,

³University of Library Studies and Information Technologies, 119
"Tsarigradsko shose" Blvd, Sofia, 1784, Bulgaria, Tel: +359 88 956 6937,
E-mail: i.trenchev@unibit.bg

⁴ Faculty of Law and Economics, Spiru Haret University, Constanta,
32-34 Unirii Street, phone +40722825454,
E-mail:laura.patache@spiruharet.ro

How to cite: Trencheva, M., Dimitrova, R, Trenchev, I & Iacob, L. (2024).
“Development of a Sustainable Marketing System with an Unreal Engine”.
Annals of Spiru Haret University. Economic Series, 24(1), 41-53, doi:
<https://doi.org/10.26458/2412>

Abstract

This article explores the innovative integration of Unreal Engine, a powerful game development tool, in creating a sustainable marketing system. The Unreal Engine, known for its high-fidelity graphics and real-time rendering capabilities, has been increasingly utilized in various industries beyond gaming, including marketing and advertising. The focus of this paper is on how the engine's advanced features, particularly its Artificial Intelligence (AI) capabilities, can be leveraged to create immersive and engaging marketing experiences.

We delve into the use of Unreal Engine's AI to personalize user interactions, ensuring that marketing content is tailored to individual preferences and behaviors. This personalization is achieved through the

analysis of user data and the implementation of machine learning algorithms, which enable the system to learn and adapt over time. The use of AI also extends to the creation of intelligent virtual assistants and chatbots, providing real-time support and engagement to users.

The sustainability of the system is underscored by its ability to reduce the need for physical marketing materials and in-person events, leading to a decrease in the environmental footprint of marketing activities. Furthermore, the system's adaptability ensures its long-term viability, as it can be easily updated and modified to suit changing market conditions and consumer preferences.

The article also addresses the challenges and ethical considerations associated with the use of AI in marketing, emphasizing the importance of transparency, data security, and user privacy. Best practices and guidelines for the responsible use of AI in marketing are discussed, providing a roadmap for organizations looking to implement similar systems.

In conclusion, the development of a sustainable marketing system with Unreal Engine represents a significant step forward in the integration of advanced technologies in marketing. The use of AI not only enhances user engagement and personalization but also contributes to the sustainability and efficiency of marketing activities. As the industry continues to evolve, the insights gained from this implementation will be invaluable in shaping the future of sustainable and tech-driven marketing strategies.

Key words: *Unreal Engine 5, Artificial Intelligence, Interactive Marketing Strategies, Real-Time Visualization, Neural Network Models, Algorithm Optimization.*

JEL Classification: M31, Q350, Q01

Introduction

In the ever-evolving landscape of digital marketing technologies, the exploration of Unreal Engine's capabilities presents an intriguing and significant avenue for scientific inquiry. Originally conceptualized and meticulously developed as a gaming engine, Unreal Engine has surpassed its initial domain, showcasing remarkable transformative capabilities in visualization and interactivity, and thus necessitating a comprehensive and nuanced analysis of its potential applicability within the domain of marketing communication

(Arsenijevic, & Jovic, 2019; Amant, & Young, 2001; Chung et al., 2022; Chugh, Jain, & Kumar, 2023).

The present context, regarding development and implementation of different types of AI systems requires an equilibrated approach in which every technology and its application must adhere to legal practices and most of all has to be consequent with objectives assumed in relation with consumers (Păun, 2021). This article embarks on a methodical journey to dissect and scrutinize the intricate components of Unreal Engine, with a particular focus on the mathematical models and algorithmic structures that underpin its graphical prowess and artificial intelligence functionalities (Sun, 2021; Chung et al., 2022; Wayama et al., 2023). A meticulous examination of the embedded machine learning algorithms is conducted, with an emphasis on their adaptability and applicability for the nuanced task of personalizing marketing content. The discourse delves into the imperatives of precision in tuning, alongside the rigorous validation of the models, aiming to elucidate the pathways towards achieving optimal and efficacious results.

Concurrently, the critical dimension of sustainability is interrogated through a lens of quantitative rigor, endeavoring to assess and quantify the environmental ramifications of digital marketing strategies (Pokorni, 2021; Yaneva et al., 2023). In fact, the implementation of a viable digital marketing strategy means nothing more than ensuring a truly sustainable framework for carrying out activities and engaging resources that highlight the creative capacity of managers and the versatility of digital systems (Gârdan et al., 2022a). The narrative shifts to spotlight the potential for resource optimization, brought forth by the advent of virtualized marketing endeavors, meticulously developing mathematical models aimed at offering a robust evaluation of the efficiency and sustainability of such emergent systems (Arsenijevic, & Jovic, 2019; Donahue, & Hajizadeh, 2019; Gestwicki, 2019; Barari, Quach, & Thaichon, 2022; Chung et al., 2022; Jayawardena et al., 2022; Chugh, Jain, & Kumar, 2023).

This comprehensive analysis, steeped in scientific rigor, seeks not only to unpack the multifaceted dimensions of Unreal Engine in the context of groundbreaking marketing innovation and unwavering commitment to sustainability but also endeavors to construct a robust foundational base for the iterative development of advanced, efficient, and ethically grounded marketing systems. The article, through its integration of mathematical methodologies and algorithmic insights, aspires to furnish the academic and professional communities alike with valuable knowledge, propelling the discourse forward and paving the

way for informed and strategic application of top-tier technologies within the vibrant sphere of marketing (Ren et al., 2021; Wang, Liu, & Zhang, 2021; Thaichon, & Quach, 2022; Chugh, Jain, & Kumar, 2023; Wayama et al., 2023; Zhang, & Zhang, 2023).

Methodology of research

In the context of this scientific endeavor, we ambitiously strive to construct a grounded and multidimensional methodological framework for the analysis of the integration of artificial intelligence (AI) and cognitive neural networks within the context of Unreal Engine, aiming to develop a sustainable marketing system. This task requires an in-depth theoretical approach, combined with the precise application of mathematical and experimental methodologies, while also providing an evaluation of the complexity of the utilized algorithms (Sun, 2021; Jayawardena et al., 2022; Origlia et al., 2022; Wayama et al., 2023).

Theoretical Analysis: At the beginning of our scientific expedition, we conduct a comprehensive analysis of the existing literature to build a solid theoretical foundation regarding the application of AI and cognitive neural networks in marketing strategies. We thoroughly investigate the various types of neural network architectures and their specific applications, aiming to determine the most suitable models for our system (Aydan, 2019; Amant, & Young, 2001; Sun, 2021; Barari, Quach, & Thaichon, 2022).

Mathematical Analysis and Complexity Evaluation: The subsequent stage involves applying complex mathematical analysis and theoretical modeling to formulate and optimize the learning and decision-making algorithms of the neural networks. In this context, we utilize techniques from linear algebra, statistics, and numerical methods, combined with an analysis of the algorithms' complexity. Using asymptotic analysis, we assess the time and space efficiency of the algorithms, which is crucial for ensuring their practical applicability and scalability (Donahue, & Hajizadeh, 2019; Ren et al., 2021; Thaichon, & Quach, 2022; Chugh, Jain, & Kumar, 2023).

Experimental Methods: A series of experiments are conducted to test the selected models and algorithms in a controlled environment. This includes the integration of AI components into Unreal Engine and monitoring their behavior in various marketing scenarios. The results of the experiments are analyzed with the aim of identifying potential weaknesses and areas for improvement.

Sustainability Assessment: The final phase of our methodological approach is dedicated to the quantitative evaluation of the sustainability of the developed system. We apply a variety of methods to measure the ecological footprint and resource efficiency, while simultaneously analyzing the potential of AI for the optimization of marketing processes and reducing the impact on the environment (Donahue, & Hajizadeh, 2019; Wang, Liu, & Zhang, 2021; Liu, & Mo, 2022; Zhang, & Zhang, 2023).

Our methodology aims to provide an in-depth understanding and critical analysis of the opportunities presented by Unreal Engine and AI in the realm of marketing, while also providing practical guidelines and a foundation for the development of sustainable and efficient marketing systems (Amant, & Young, 2001; Sun, 2021).

Results

The sustainability of the marketing strategy, implemented in the context of the use of artificial intelligence (AI) and cognitive neural networks in Unreal Engine 5 (UE5), is based on the introduction of innovative approaches aimed at optimizing resources, targeting accuracy, environmental responsibility, and adaptability. This strategy incorporates the following key elements (Ren et al., 2021; Thaichon, & Quach, 2022):

1. **Mathematical Fundamentals and Cognitive Modeling:** In the process of building and optimizing neural networks, mathematical methods and algorithmic techniques play a central role. These include, but are not limited to, graph theory, linear algebra, and numerical optimization methods. The complexity of the algorithms has been assessed and analyzed to ensure the efficiency and scalability of the system (Amant, & Young, 2001; Origlia et al., 2022; Thaichon, & Quach, 2022; Zhang, & Zhang, 2023).

2. **Neural Networks and Data Analytics:** Various types of neural networks are integrated into UE5, including convolutional neural networks (CNN) for visual data analysis, recurrent neural networks (RNN) for modeling temporal dependencies, and fully connected layers for information integration and decision-making (Ren et al., 2021; Wang, Liu, & Zhang, 2021; Jayawardena et al., 2022).

3. **Resource Optimization:** The system is optimized for effective resource utilization, focusing on identifying optimal channels and strategies for disseminating marketing messages. This leads to a reduction in unnecessary

expenses and an increase in profitability (Amant, & Young, 2001; Thaichon, & Quach, 2022; Zhang, & Zhang, 2023).

4. Targeting Accuracy and Sustainability: Cognitive neural networks facilitate the analysis of user behavior, providing more accurate and personalized targeting. The strategy also emphasizes the importance of sustainability and social responsibility, directing efforts towards minimizing the ecological footprint and promoting responsible marketing practices (Marsico et al., 2018; Wang, Liu, & Zhang, 2021; Chung et al., 2022).

5. Adaptability and Continuous Improvement: The system is designed to self-learn and adapt in real time, ensuring its long-term effectiveness and relevance. Strict metrics and analytical tools allow continuous monitoring and evaluation of results, leading to constant refinement of the strategy.

In summary, the developed sustainable marketing strategy in UE5 represents an integrated approach that combines advanced mathematical methods, artificial intelligence, and cognitive modeling with the aim of optimizing resources, improving targeting accuracy, promoting sustainability and social responsibility, and ensuring system adaptability in changing market conditions.

Let's delve into more detail with the example of a virtual product exhibition to illustrate how this process can be realized using Unreal Engine 5 (UE5) and artificial intelligence (AI) (Marsico et al., 2018; Donahue, & Hajizadeh, 2019; Wang, Liu, & Zhang, 2021; Wayama et al., 2023).

Example: Virtual Product Exhibition

Creating a virtual space for an exhibition where companies can showcase their products and services. AI assistants can answer questions and guide visitors (Thaichon, & Quach, 2022; Chugh, Jain, & Kumar, 2023; Zhang, & Zhang, 2023).

Steps for Implementation:

1. Planning and Design:
 - Develop a detailed plan for the structure and design of the virtual exhibition.
 - Define the visual elements, interactivity, and content to be included.
2. Creation of 3D Models and Environments:
 - Use the tools in UE5 to create three-dimensional models of the products and design the exhibition space.
 - Optimize the models and textures for high-quality visualization.
3. Integration of AI Assistants:
 - Develop AI algorithms to analyze user queries and provide accurate and useful information.

- Program the AI assistants to interact with visitors through voice or text messages.

4. Interactivity and User Interface:

- Create an intuitive and easy-to-use user interface.
- Integrate interactive elements to engage visitors and guide them to the desired products or information.

5. Testing and Optimization:

- Conduct extensive tests to ensure the reliability and performance of the application.

- Optimize performance and graphics for various devices and platforms.

6. Launch and Analysis (Wang, Liu, & Zhang, 2021; Thaichon, & Quach, 2022):

- Officially release the virtual exhibition to the public.
- Collect and analyze data regarding visitor behavior to make improvements in the future.

By utilizing UE5 and AI, this example demonstrates how an innovative and effective marketing solution can be created, engaging customers while also providing valuable data and insights for optimizing future marketing strategies (figures 1 and 2).



Figure 1: Museum interior design

Source: <https://www.unrealengine.com/marketplace/>



Figure 2: Studio design for advertising

Source: <https://www.unrealengine.com/marketplace/>

In the context of scientific applications and the development of solutions within the virtual environment of Unreal Engine 5 (UE5), it is imperative to pay attention to a variety of components and aspects offered by the engine. Crafting marketing strategies within this environment necessitates a thorough analysis and application of mathematical and computer scientific methodologies (Gestwicki, 2019; Chung et al., 2022; Thaichon, & Quach, 2022).

Architectural Analysis

1. Nanite Virtualized Geometry:

- Operating Principle: Virtualization of geometry, allowing for the processing of vast quantities of polygon data without direct dependence on hardware resources.

- Application: Modeling of complex objects and environments with a high level of detail, utilizing algorithms for optimization and compression.

2. Lumen Global Illumination (Wang, Liu, & Zhang, 2021; Thaichon, & Quach, 2022; Zhang, & Zhang, 2023):

- Operating Principle: Real-time computation of light effects, accounting for interactions of light with various surfaces.

- Application: Simulation of natural lighting, which is crucial for the visualization and analysis of products in marketing strategies.

Methodological Approach

1. Integration of Artificial Intelligence:

- Development of machine learning models and algorithms to be integrated into the UE5 virtual environment.

- Assessment of the complexity of the algorithms and optimization for maximum efficiency.

2. Development of Interactive Elements:

- Designing and implementing intuitive user interfaces to facilitate interactions with objects in the virtual environment.

- Application of mathematical models for analyzing user behavior and optimizing interactive elements.

The development of marketing strategies through the use of Unreal Engine 5 requires a comprehensive approach that integrates various scientific methods and techniques. By applying this methodological approach, organizations can create highly effective and innovative solutions for presenting their products and services (Gestwicki, 2019; Ren et al., 2021; Jayawardena et al., 2022).

Conclusion

The integration and application of Unreal Engine 5 (UE5) in the development of innovative marketing strategies represent a paradigm shift in the manner by which organizations engage with their target audience. This sophisticated game engine, enhanced by its virtualized geometry capabilities through Nanite and the real-time global illumination provided by Lumen, offers unparalleled visual fidelity and interactivity (Gestwicki, 2019; Wang, Liu, & Zhang, 2021; Thaichon, & Quach, 2022).

By employing advanced artificial intelligence algorithms and neural network models, UE5 facilitates the creation of intelligent and adaptive marketing solutions. These solutions are capable of analyzing user behavior, predicting preferences, and delivering personalized content, thus fostering a deeper and more meaningful connection with the audience.

The mathematical rigor applied in the optimization of algorithms and the evaluation of system complexity ensures that the solutions are not only effective

but also efficient and scalable. This is crucial for handling the diverse and dynamic nature of marketing challenges in the contemporary digital landscape.

Furthermore, the practical examples illustrated herein underscore the versatility of UE5 in implementing various marketing strategies, ranging from virtual showrooms to interactive product demos and immersive brand experiences. Each of these applications demonstrates the engine's capability to transform theoretical marketing concepts into tangible, experiential realities. For effective marketing communication, obtaining a corresponding commitment from consumers is an essential goal (Roșca, & Madan, 2020).

The modern consumer requires a particular approach from the perspective of marketing communication. Due to the level of knowledge and the large-scale access to information, today's consumers have become much more versatile in the interpretation of various promotional messages. Thus, modern communication in marketing develops especially in the direction of building a stimulating experience as complete as possible within which the combined use of visual, auditory and informational stimuli creates for consumers a complete communication environment, capable of stimulating commitment and loyalty to a brand (Roșca, & Madan, 2021; Gârdan et al., 2022b).

Such techniques as the ones depicted in our research allow the creation of a special experience and a very special interaction that can highlight the positioning attributes of any brand at the center of the communication process.

In conclusion, Unreal Engine 5 emerges as a formidable tool in the arsenal of modern marketing, offering a blend of visual excellence, interactivity, and intelligent automation. As we continue to explore and push the boundaries of what is possible with UE5, the future of digital marketing looks not just promising, but extraordinary.

Acknowledgements

The paper was the result of scientific collaboration between the authors in the framework of Project BG05M2OP001-2.016-0005-C01 "Modernization of Southwestern University "Neofit Rilski" - city of Blagoevgrad, National Military University "Vasil Levski" - city of Veliko Tarnovo and Sofia University "St. Kliment Ohridski" - city of Sofia, in professional fields 5.3 Communication and Computer Engineering, 4.4 Earth Sciences and 3.7 Administration and Management.

References

- [1.] Amant, R. S. & Young, R. M. (2001, June 1). URL: artificial intelligence and interactive entertainment. 17–19. doi:10.1145/378116.378120
- [2.] Arsenijevic, U. & Jovic, M. (2019). Artificial Intelligence Marketing: Chatbots. Artificial Intelligence Marketing: Chatbots. doi:10.1109/ic-ai48757.2019.00010
- [3.] Aydan, A. (2019). Impact of artificial intelligence on agricultural, healthcare and logistics industries. *Annals of Spiru Haret University. Economic Series*, 19(2), 167-175.
- [4.] Barari, M., Quach, S. & Thaichon, P. (2022). New developments in artificial intelligence (AI)-powered products in marketing. *New developments in artificial intelligence (AI)-powered products in marketing*, 55-75. doi:10.4324/9781003280392-7
- [5.] Chugh, D. A., Jain, D. C. & Kumar, D. A. (2023, May 30). Design of Artificial Intelligence Enabled Game Engine. *Proceedings of the 4th International Conference on Information Management & Machine Intelligence* (pp. 1–5). New York, NY, USA: Association for Computing Machinery. doi:10.1145/3590837.3590936
- [6.] Chung, K., Le, D., Thaichon, P. & Quach, S. (2022). Types of artificial intelligence (AI) in marketing management. *Types of artificial intelligence (AI) in marketing management*, 29-40. doi:10.4324/9781003280392-4
- [7.] Donahue, L. & Hajizadeh, F. (2019). Artificial Intelligence in Cloud Marketing. *Artificial Intelligence in Cloud Marketing*, 77-88. doi:10.1201/9780367821654-7
- [8.] Gărdan, D.A., State, O., Gărdan, I.P., Baicu, C.G., & Țicău, I.R. (2022a). Managers' perception of sustainability - A driver for sustainable leadership, innovation, and performance, *Annales Universitatis Apulensis Series Oeconomica*, 2(24), p. 1-15, DOI: 10.29302/oeconomica.2022.24.2.12
- [9.] Gărdan, I.P., Mauri, A., Dumitru, I., Gărdan, D.A., Maican, S.S., Moise, D. (2022b). User-Generated Multimedia Content Impact on the Destination Choice: Five Dimensions of Consumer Experience. *Electronics*. 11(16):2570. <https://doi.org/10.3390/electronics11162570>
- [10.] Gestwicki, P. (2019, October 1). Unreal engine 4 for computer scientists. 109–110.
- [11.] Jayawardena, N. S., Behl, A., Thaichon, P. & Quach, S. (2022). Artificial intelligence (AI)-based market intelligence and customer insights. *Artificial intelligence (AI)-based market intelligence and customer insights*, 120-141. doi:10.4324/9781003280392-10
- [12.] Jiang, H. H., Brown, L., Cheng, J., Khan, M., Gupta, A., Workman, D., Hanna, A., Flowers, J. & Gebru, T. (2023, August 29). AI Art and its Impact on Artists. *Proceedings of the 2023 AAAI/ACM Conference on AI, Ethics, and Society* (pp. 363–374). New York, NY, USA: Association for Computing Machinery. doi:10.1145/3600211.3604681
- [13.] Le, (. D., Chung, K., Quach, S., & Thaichon, P. (2022). A framework of artificial intelligence (AI) applications in marketing. *A framework of artificial intelligence (AI) applications in marketing*, 41-51. doi:10.4324/9781003280392-5

- [14.] Liu, Z., & Mo, Z. (2022, April 11). Combining Local and Global Features for Quality Assessment of Stitched Images in Virtual Reality. Proceedings of the 2021 9th International Conference on Information Technology: IoT and Smart City (pp. 7–10). New York, NY, USA: Association for Computing Machinery. doi:10.1145/3512576.3512578
- [15.] Liu, Z., & Mo, Z. (2022, April 11). Combining Local and Global Features for Quality Assessment of Stitched Images in Virtual Reality. Proceedings of the 2021 9th International Conference on Information Technology: IoT and Smart City (pp. 7–10). New York, NY, USA: Association for Computing Machinery. doi:10.1145/3512576.3512578
- [16.] Marsico, M. D., Gadia, D., Maggiorini, D., Mariani, I., & Ripamonti, L. A. (2018, May 29). GHIItaly18: 2nd International Workshop on Games-Human Interaction. Proceedings of the 2018 International Conference on Advanced Visual Interfaces (pp. 1–3). New York, NY, USA: Association for Computing Machinery. doi:10.1145/3206505.3206598
- [17.] Origlia, A., Bratto, M. D., Maro, M. D., & Mennella, S. (2022, October 10). Developing Embodied Conversational Agents in the Unreal Engine: The FANTASIA Plugin. Proceedings of the 30th ACM International Conference on Multimedia (pp. 6950–6951). New York, NY, USA: Association for Computing Machinery. doi:10.1145/3503161.3550065
- [18.] Păun, R. D. (2021). Overview of some legal aspects of technologies based on artificial intelligence. *Annals of Spiru Haret University. Economic Series*, 21(4), 193-209.
- [19.] Pokorni, S. (2021). The Reliability of Data-driven Internet of Things Systems. *Annals of Spiru Haret University. Economic Series*, 21(4), 43-52.
- [20.] Ren, K., Liu, H., Zhang, M., Qiu, X., Yan, H., & Zhang, J. (2021, November 8). Design and Implementation of Immersive and Interactive System Based on Unreal Engine. 2021 5th International Conference on Artificial Intelligence and Virtual Reality (AIVR) (pp. 77–82). New York, NY, USA: Association for Computing Machinery. doi:10.1145/3480433.3480449
- [21.] Roșca, M. I. & Madan, A. (2020). Advertising as a Motivator of Human Behavior—Theoretical Approach of Manipulation in Modern Society. *J. Emerg. Trends Mark. Manag.*, 1, pp. 841-848.
- [22.] Roșca, M. I. & Madan, A. (2021). Modern approach of artistic and persuasive marketing communication, *Studia UBB Negotia*, 66(4), 69-84, doi: 10.24193/subbnegotia.2021.4.04.
- [21.] Sun, R. (2021). Analysis on the application of artificial intelligence in marketing. Analysis on the application of artificial intelligence in marketing. doi:10.1109/cisai54367.2021.00135

Issue 1/2024

- [23.] Thaichon, P. & Quach, S. (2022). The growth of marketing research in artificial intelligence (AI). The growth of marketing research in artificial intelligence (AI), pp.18-28. doi:10.4324/9781003280392-3
- [24.] Wang, S., Liu, H. & Zhang, X. (2021, March 6). Design and Implementation of Realistic Rendering and Immersive Experience System Based on Unreal Engine4. 2020 4th International Conference on Artificial Intelligence and Virtual Reality (pp. 11–15). New York, NY, USA: Association for Computing Machinery. doi:10.1145/3439133.3439138
- [25.] Wayama, K., Yokogawa, T., Amasaki, S., Aman, H. & Arimoto, K. (2023, January 5). Verifying Game Logic in Unreal Engine 5 Blueprint Visual Scripting System Using Model Checking. Proceedings of the 37th IEEE/ACM International Conference on Automated Software Engineering (pp. 1–8). New York, NY, USA: Association for Computing Machinery. doi:10.1145/3551349.3560505
- [26.] Yaneva, D., Popkochev A., Gârdan, I.P., Andronie, M. & Gârdan, D.A. (2023). The Road to Digital Excellence: Addressing Challenges and Exploring Opportunities in Business. *Annals of Spiru Haret University. Economic Series*, 23(4), 653-666, doi: <https://doi.org/10.26458/23436>
- [27.] Zhang, X. & Zhang, X. (2023, March 14). Based on Navmesh to implement AI intelligent pathfinding in three-dimensional maps in UE4. Proceedings of the 2022 5th International Conference on Algorithms, Computing and Artificial Intelligence (pp. 1–5). New York, NY, USA: Association for Computing Machinery. doi:10.1145/3579654.3579752

MARKETING APPROACHES FOR EFFECTIVE MUSEUM MANAGEMENT

Vesela SERAFIMOVA¹, Milena FILIPOVA²

^{1,2} Faculty of Economics, SWU „Neofit Rilski”, Blagoevgrad, Ivan Mihailov str.66, 2700, phone +359 89 9117 835, e-mail: serafimova2016@abv.bg; Tel: + 359887639559, e-mail: mfilipova@swu.bg

How to cite: Serafimova, V. & Filipova, M. (2024). “Marketing Approaches for Effective Museum Management”. *Annals of Spiru Haret University. Economic Series*, 24(1), 54-65, doi: <https://doi.org/10.26458/2413>

Abstract

When it comes to effective museum management, implementing smart marketing approaches is crucial for attracting visitors, engaging with the community, and ensuring long-term sustainability. Some key marketing activities can be highlighted for a successful museum management: targeted audience segmentation; compelling branding; engaging content marketing techniques; collaborations and partnerships; the application of specific principles for digital marketing and promotion of a strong online presence; community engagement; visitor experience enhancement; membership programs and loyalty benefits implementation; data analytics and continuous evaluation and adaptation. By implementing these marketing approaches, museums can effectively promote their collections, engage with diverse audiences, and secure their long-term success. Museum management involves overseeing all aspects of a museum's operations, including administration, collections management, exhibition planning, educational programs, marketing, fundraising, and visitor services. The present paper approaches different marketing instruments that can effectively enhance the efficiency of museums activity and shows a practical example regarding „Alexei Rilets” Museum from Rila.

Overall, effective museum management requires a combination of leadership, strategic planning, financial acumen, creativity, and a deep passion for preserving and sharing cultural heritage. By managing these

various aspects, museum managers can nurture vibrant institutions that educate, inspire, and engage audiences from all walks of life.

Key words: *museum management; smart marketing approaches; targeted audience; branding; digital marketing; long-term success.*

JEL Classification: M31, M39

Introduction

The application of marketing practice in museums have been the subject of debate among professionals since the early 1980s [McLean, 2012; Rentschler & Gilmore, 2002]. Some authors have argued that marketing consist in a set of powerful means through which museums can achieve their missions, others have viewed it with suspicion, because of its appropriateness or being scared about its influence. In recent years this polarized thinking has lessened as museum marketing has become both increasingly widespread and more sophisticated in its application.

The museums and the cultural monuments have been introduced on an economic market that is more than unfamiliar to them. They can be observed from a financial perspective: operating budgets, workforce demand, commercial returns and number of visitors. It is true that today one can talk about a museum industry and about institutions as „cultural enterprises”, putting the museum administrators in the same light as company managers [Sandell & Janes, 2007]. In a growing number of national touristic strategies, different cultural institutions are becoming key elements used with the help of marketing techniques to promote national or regional, local brands [Gârdan, Gârdan, & Stefanov, 2020].

As a number of authors have observed [Taormina & Baraldi, 2022; Moon, 2020], there are two distinctive approaches regarding the effort to clarify the role of marketing within the museum literature. The first is considered as a set of techniques or tools designed to bring about increased public interest regarding museums.

The second, very different, conceptualization of marketing sees it as an overarching philosophy: one which places the public at the center of the museum's operations and which, to a greater or lesser extent, influences all its functions and activities [Sandell & Janes, 2007]. Here, the museum is attuned to the needs of its visitors and the communities it seeks to serve. Its varied offerings are informed by

an awareness and understanding of the interests, perceptions, expectations, needs and preferences of both existing and potential audiences [Mavragani, 2021].

Marketing is seen as an approach that permeates and helps to guide the entire museum organization - it is both a function of senior management and a way of working in which all museum personnel are enlisted. In this context, marketing is not concerned solely with communication and promotion, but also plays a part in shaping the museum's strategies and approaches to forward planning [Brenton & Bouckaert, 2021; Sancho Querol & Sancho, 2015].

To view marketing in this way is not, however, to imply that a museum's priorities and overall direction should be wholly determined by the needs of visitors and the forces of the marketplace. Rather, marketing should be viewed as a process which enables museums to achieve their objectives by building and sustaining relationships with a range of audiences [McLean, 2012]. Traditionally associated with efforts to increase audiences and maximize income, there is also growing recognition of the part that marketing can play in helping museums to achieve their socially oriented goals to broaden access and engage groups.

1. A smart marketing approaches for successful museum management

When it comes to effective museum management, implementing smart marketing approaches is crucial for attracting visitors, engaging with the community, and ensuring long-term sustainability. Some key marketing strategies for successful museum management are presented in Table 1.

By implementing these marketing approaches, museums can effectively promote their collections, engage with diverse audiences, and secure their long-term success.

The opportunities and benefits, as well as the challenges and risks associated with museum marketing, are addressed in the literature by Jean-Michel Tobelem and Neil Kotler and Philip Kotler.

Table 1. Marketing strategies for successful museum management

№	Smart marketing approach	Marketing strategies
1.	Targeted Audience Segmentation	Identify and understand museum's target audience segments, such as families, students, art enthusiasts, history buffs, or tourists. Tailor museum's marketing messages and activities to resonate with each segment's interests and preferences.
2.	Compelling Branding	Develop a strong and cohesive brand identity for the museum. This includes creating an appealing logo, using consistent visuals and design elements across all marketing materials, and maintaining a unique tone of voice that reflects the museum's mission and values.
3.	Engaging Content Marketing	Create and distribute high-quality content to educate, entertain, and inspire museum's audience. This can include blog posts, videos, podcasts, social media content, and interactive online exhibits. Focus on storytelling and showcasing the museum's unique collections, events, and behind-the-scenes stories.
4.	Collaborations and Partnerships	Forge partnerships with local businesses, tourism organizations, schools, or cultural institutions to cross-promote each other's offerings. This can involve joint marketing campaigns, shared events, or special discounts for members of partner organizations.
5.	Digital Marketing and Online Presence	Establish a strong online presence through a well-designed website, active social media accounts, and online advertising. Utilize search engine optimization (SEO) techniques to ensure that museum appears in relevant search results. Explore targeted online advertising campaigns to reach specific audience segments.
6.	Community Engagement	Actively engage with the local community through outreach programs, workshops, lectures, and special events. Foster relationships with local schools, universities, and community groups to offer educational experiences and create a sense of ownership and pride in the museum.
7.	Visitor Experience Enhancement	Continuously work on improving the visitor experience by collecting feedback, implementing suggestions, and

№	Smart marketing approach	Marketing strategies
		leveraging technology. Consider technologies like augmented reality, virtual reality, or mobile apps to enhance exhibits, provide guided tours, or offer interactive experiences.
8.	Membership Programs and Loyalty Benefits	Develop a membership program that offers exclusive benefits such as free admission, discounts on merchandise, early access to exhibitions, or special events. Encourage repeat visits and foster a sense of belonging among the existing loyal members.
9.	Data Analytics and Evaluation	Utilize data analytics tools to measure the effectiveness of the marketing efforts, track visitor trends, and gain insights into audience behavior. Use this data to refine museum's strategies, target specific areas for improvement, and make data-driven decisions.
10.	Continuous Evaluation and Adaptation	Regularly review and adapt the marketing strategies based on visitor feedback, changing trends, and new opportunities. Stay agile and open to experimenting with innovative approaches to attract and engage with the target audience.

Source: Author's own systematization

Tobelem's perceptive analysis makes for the value of marketing while drawing attention to the need to bend its application to the specificities of the museum [Kotler & Andreasen, 1987]. Marketing philosophy and practice must be adapted to suit the requirements of the museum context. Neil Kotler and Philip Kotler draw on wide-ranging research and an examples to examine the application of specific marketing strategies, tools and techniques to the challenge of equipping museums to thrive in an increasingly competitive environment [Kotler & Kotler, 2007]

Ruth Rentschler highlights the impact of the partial understanding of audiences with which many museums operate, and proposes the greater use of segmentation as a means to understand the diverse needs and expectations of different user groups. She also introduces the concept of relationship marketing as a process by which museums can attempt to build long-term, sustainable relationships with their visitors, while acknowledging that little formal research has been conducted to explore the potential usefulness of this approach.

The museum's use of innovative approaches to researching visitor experiences also illustrates the trend towards collaborative, partnership-based museum practices. Actually for the urban type consumers of culture, promoting museums in connection with different other institutions and touristic destinations becomes an optimal strategy in the long run [Gârdan, Cătoiu & Gârdan, 2016].

According to Philip Kotler, „in museums which have adopted a marketing approach, marketing services do not only strive to react to changes in the needs, wishes, and perceptions of the consumer, but even try to anticipate them. Research with regard to an institution's 'market' allows the comprehensive assessment of consumers and a means to test decisions on a sample target group in order to ensure that they are efficacious [Kotler & Andreasen 1987].

In some museums the operation of shops has become an efficient business whose primary objective is financial profitability. Moreover, their physical location within the museum now depends less on whim and more on the careful analysis of visitor movements [Osborne et al., 2015]. On the other hand, sales are also dependent on trends in fashion or critical opinion which those responsible for the museum must follow, or even anticipate, as well as the phenomenon of those vast temporary exhibitions which are accompanied more and more systematically by the 'merchandising' of goods exploiting the content of the exhibition [Tobelem, 2007].

Museums, unwittingly or not, are embracing the values of relentless consumption that underlie the planetary difficulties of today [Janes, 2010]. The creation of strategies to improve public perception of the museum is becoming the norm for the practice of marketing in museums [Tobelem, 2007]. Rather, museums are now beginning to focus on what audiences want and how they perceive the museum experience [Rentschler, 2007].

Tobelem, J-M. identifies four primary reasons that marketing was introduced to museums: growth, financing, competition, and the need to know the visitor better [Tobelem 2007]. For the majority of museums, however, any income gained from trading is primarily a means of creating a modest revenue which will allow the institution to fulfil its educational function and to organize programs for its public. The difference from private enterprise remains in the use of commercial benefits which are not distributed among directors or shareholders but are fed back into the museum's budget, at least in those cases where the museum is financially autonomous [Mudzanani, 2017].

In order to increase visitor numbers, certain museums are increasingly being led into adopting a perspective colored by the specific requirements of cultural tourism

which will require a revolutionary change in mentalities, involving a new policy for welcoming visitors, better media relations, and the development of additional programs [Janes & Sandell, 2019]. This factor is particularly significant when one is aware that foreign tourists often make up a crucial proportion of visitor numbers. Museums capable of collecting this ‘manna’ in a professional way are well on the way to being able to generate significant revenues of their own, and in proving that they may constitute a force for local development they may even be able to attract new partners.

In museums, marketing can then be used to rationalize the total process of developing their own resources, going through the creation or speeding up of commercial programs (shops, restaurants, hiring out of premises), intensifying efforts to raise funds from individuals and companies, as well as the launching of subscription programs, but also in order to allow the museum to gain its cultural objectives more efficiently. This management tool effectively offers museums a framework for analysis and intervention in a variety of domains [Fronville 1985]:

- for educational programs: market analysis will facilitate the establishment of a range of the activities the museum proposes for different, previously identified, publics (school visits, conferences, guided tours, films, books...);
- for membership and fund raising programs: the marketing approach will be used to increase the number of museum members and propose partnership programs with private enterprise;
- in order to raise own income: be it from museum shops, commercial programs associated with temporary exhibitions, rental of premises, licenses or concessions;
- in the field of public relations: their purpose will be the consistent exploitation of every past program by various media, publicity, and the communication techniques of sponsors.

These different aspects of marketing policy may be found in museums but are rarely linked up with each other in a coherent, rigorous, and coordinated manner which would allow the definition of a marketing strategy in accordance with the aims of the institution [Calinao & Lin, 2018]. In broad terms, the marketing approach is not systematically incorporated into a holistic managerial framework focused on fulfilling the institution's mission [Cerquetti, 2014]. Effectively, few institutions have at their disposal a true marketing plan.

2. Good practices for innovative marketing approaches and effective management of „Alexei Rilets” Museum from Rila

Museum „Alexei Rilets“ is an extremely attractive object with a rich collection of exhibits distributed in different eras and types. Because of its high historical value, the museum has the potential to become a basis for sustainable development of the tourism sector in the municipality of Rila, Bulgaria. The development and establishment of the municipal museum „Alexei Rilets”, town of Rila, as a cultural object which is attractive for tourists, has unique interior and a positive image, will help to:

- Increase the popularity and attractiveness of Rila municipality as a tourist destination;
- Promote the tourism industry in the Municipality of Rila and the region by creating conditions for sustainable development of cultural and educational tourism and additional tourist services;
- Preserve and keep sustainable management of the archaeological and cultural-historical heritage in the municipality of Rila.

The vision for the development of the municipal museum „Alexei Rilets“ is to gradually turn it into an established cultural and historical site in the municipality of Rila, and the city of Rila into a recognizable tourist destination, attracting a significant number of tourists annually.

Defining marketing objectives requires attention to the following key points and activities:

- making an announcement of a donation campaign „From the chest of drawers to the museum showcase“ in order to recruit new exhibits, which are going to be distributed and arranged by era and type;
- promoting the activities of the museum „Alexei Rilets“;
- renovation and reconstruction of part of the museum and setting up a special place for children;
- attracting permanent visitors to the museum, working with kindergartens and schools from the city of Rila and surrounding settlements, municipalities and regions.
- creating attractive tourist programs for organized groups and individual visits;
- organizing together with directors of day-care centers visits to the museum for people with disabilities;

- popularizing the medieval church „St. Archangel Michael“ and making its culture, a symbol of intangible spirit of Rila;
- organizing events for children and students in the old school - conducting open lessons, presentations, showing films, etc;
- making municipality of Rila recognizable which will make it desirable and preferred destination.

The specific marketing objectives are:

- improving access to cultural heritage by renovating and revitalizing the „Alexei Rilets“ Museum and presenting a new permanent exhibition;
- actively taking part in cultural initiatives and interchange with the help of a complex of measures specially made for people with disabilities, persons from minority groups, children, students, etc.;
- organizing events (exhibitions, seminars, plain airs, presentations, webinars, etc.) in the museum and adjacent buildings (St. Michael the Archangel Church and Old School);
- cutting unemployment in the municipality of Rila by opening new sustainable jobs;
- increasing the competencies and qualifications of museum employees by including them in specific trainings;
- building sustainability in the presentation of cultural heritage through effective integration of a developed entrepreneurial plan.

Product goals

Objective 1: „Alexei Rilets“ museum to be included in common routes for tourist visits with other tourist sites in the region.

Objective 2: Collecting, preserving, studying and promoting objects, images and texts related to different eras.

Objective 3: Studying and researching subjects, promotional and commercial activity.

Advertising purposes

Objective 4: Creating and maintaining a good image of the museum „Alexei Rilets“ as a recognizable cultural and historical object for tourist visits.

Objective 5: Increasing the number of visitors to the museum „Alexei Rilets“ and popularizing the municipality of Rila as a tourist destination.

Distribution purposes

Objective 6: Effective usage of the possibilities of distribution channels to reach the maximum number of potential tourists with information about the museum

„Alexei Rilets“ – preparing offers for individual and group visits for children from kindergartens, schools and universities, as well as from children's centers with special educational needs, centers for people with disabilities, centers for social rehabilitation and integration, etc.

Conclusion

In conclusion, a growing number of museums are hiring marketing experts to help them accomplish their goals. Goals which relate to external factors, audiences, and the environment (e.g., building audiences, improving the museum-going experience, increasing sales, developing competitive programs) are particularly well-suited to marketing [Gomez, 2016]. Marketing can help also museums to integrate themselves in a larger type of consumption trend – culture consumption, which can be seen as a fundamental background capable to offer integration of individual, specific museums goals with social, economic and national heritage related goals [Gârdan, Epuran, & Gârdan, 2016].

It is necessary to identify a series of marketing tools and techniques which can help museums achieve their goals, and these include specific activities grouped in the form of extended services marketing mix, and inputs characterizing the basic factors which affect consumer behavior. The list is as follows: 1) research, competitive analysis, organizational assessment, audience and market research; 2) techniques of segmenting different audiences, targeting the groups the museum seeks to attract, and positioning the museum as delivering the benefits sought by the target groups; 3) product development, management of existing products as well as generating new ones; 4) distribution, beyond the museum walls; 5) promotion, consisting of tools of advertising, public relations, direct marketing, which communicate offerings to different target groups; 6) pricing for different museum offerings; 7) service and relationship marketing; 8) strategic planning, the long-range activity by which the museum visualizes and plans its future and sets its priorities. These represent the tool box which museum managers can apply to their particular challenges and do problem-solving. Main tools and techniques, and a basic assumption behind marketing, is that a transaction and a relationship with museum visitors, members, and supporters has to reflect an exchange of benefits and costs, both for the public and for the museum.

Marketing's ability to assist museums flows both from the tools and techniques it offers and from the ability of marketing staff to influence constructively the museum organization in all its operations [Gomez, 2016].

Marketing is best able to facilitate a museum's goals and strategy when marketing staff can participate in and lend their expertise to all museum tasks, including programs and education, facility and interior design, as well as membership and development.

References

- [1] Brenton, S., & Bouckaert, G. (2021). *Managing public museums appropriately and consequentially: the distinctiveness and diversity of leading organizations*. Public Administration Review, 81(4), 715-727.
- [2] Calinao, D. J., & Lin, H. W. (2018). *Fashion-related exhibitions and their potential role in museum marketing: The case of museums in Taipei, Taiwan*. The International Journal of the Inclusive Museum, 11(4), 1-19. DOI:10.18848/1835-2014/CGP/v11i04/1-19
- [3] Cerquetti, M. (2014). *Marketing museale e creazione di valore: strategie per l'innovazione dei musei italiani*. Milan, FrancoAngeli.
- [4] Fronville, C.L. (1985). Marketing for Museums: For-Profit Techniques in the Non-Profit World. *Curator: The Museum Journal*, 28(3), 169-182.
- [5] Gârdan, D.A., Gârdan, I.P., & Stefanov, T.I. (2020). Tourism marketing strategies for the development of historical heritage - a Romania - Bulgaria comparative analysis. *Management, Accounting and Management Information Systems - MAMIS 2020 - The National Economic Conference - CEN 2020 - Business Management in the Digital Age*, București: Editura Universitară, 87-95.
- [6] Gârdan D.A., Cătoiș I., & Gârdan I.P. (2016). Coordinates of the culture consumption in urban environment, *Annales Universitatis Apulensis, Series Oeconomica*, 18(2): 1-12.
- [7] Gârdan D.A., Epuran G., & Gârdan I.P. (2016) Creating value within culture consumption, *Studies and scientific researches. Economics Edition*, 24: 45-58.
- [8] Gomez, M. J. (2016) *Museografia al filo del milenio. Tendencias y recurrencias*. Gijon: Trea.
- [9] Janes, R.R. (2010). *The Mindful Museum*. *Curator*, 53(3): 325-338.
- [10] Janes, R.R., & Sandell, R. (2019). *Museum Activism. Series Museum Meanings*. London: Routledge.
- [11] Kotler, P., & Andreasen, A.R. (1987) *Strategic marketing for non-profit organizations*. Englewood Cliffs: Prentice-Hall.
- [12] Kotler, N., & Kotler, P. (2007). *Can museums be all things to all people? Missions, goals, and marketing's role*. In *Museum management and marketing*. London: Routledge. 313-330.
- [13] Mavragani, E. (2021). *Greek museums and tourists' perceptions: An empirical research*. *Journal of the Knowledge Economy*, 12(1), 120-133.
- [14] McLean, F. (2012) *Marketing the Museum*, London and New York: Routledge.

- [15] Moon, M. (2020). *Retooling for the revolution: Framing the future of museum management after COVID-19*. Journal of Cultural Management and Cultural Policy/Zeitschrift für Kulturmanagement und Kulturpolitik, 6(2), 193-220.
- [16] Mudzanani, T. E. (2017). The four 'C's of museum marketing: Proposing marketing mix guidelines for museums. African Journal of Hospitality, Tourism and Leisure, 6(2), 1-12.
- [17] Osborne, S. P., Radnor, Z., Kinder, T., & Vidal, I. (2015). *The SERVICE framework: A public-service-dominant approach to sustainable public services*. British journal of management, 26(3), 424-438.
- [18] Rentschler, R., & Gilmore, A. (2002). Museums: Discovering Services Marketing. *International Journal of Arts Management*, 5(1): 62-72.
- [19] Rentschler, R. (2007). Museum Marketing: Understanding Different Types of Audiences. In *Museum Management and Marketing*, edited by Richard Sandell and Robert R. Janes, 345-65. Leicester Readers in Museum Studies. Abingdon, Oxon; New York, NY: Routledge.
- [20] Sandell, R., & Janes, R.R. (2007). *Museum Management and marketing*, New York: Routledge Publishing.
- [21] Sancho Querol, L., & Sancho, E. (2015). *How can Museums Contribute to Social and Cultural Change?* In Jensen, J.T., & Lundgaard, I.B. (eds.) *Museums: Citizens and Sustainable Solutions*. Danish Agency for Culture, 212-231. Accessed November 08, 2023.
https://www.academia.edu/9641273/How_can_museums_contribute_to_social_and_cultural_change.
- [22] Taormina, F., & Baraldi, S. B. (2022). *Museums and digital technology: a literature review on organizational issues*. European Planning Studies, 30(9), 1676-1694.
- [23] Tobelem, J. M. (2007). The marketing approach in museums. In *Museum management and marketing*. London: Routledge. 294-312.

CULTURE AND INNOVATION: HOW CREATIVE SECTORS CAN CONTRIBUTE TO THE SUSTAINABLE DEVELOPMENT OF ROMANIA

Elena GURGU^{1,2}, Dragos FRASINEANU², Geanina SIMBOTIN³

¹*Faculty of Economic Sciences, Spiru Haret University, Bucharest, Ion Ghica Street, No. 13, District 3, Postal code 030045, phone +400737165996, e-mail: se_egurgu@spiruharet.ro*

^{2,3}*Romanian Ministry of Culture, Directorate for Culture of the Bucharest Municipality, Sfantul Stefan Street, No. 3, District 2, Bucharest, tel. 021.323.26.11, e-mail: elenagurgu@yahoo.com, contact@dcmb.ro, geaninasimbotin83@gmail.com*

How to cite: Frasinianu, D., Simbotin, G & Gurgu, E. (2024). "Culture and Innovation: How Creative Sectors Can Contribute to the Sustainable Development of Romania". *Annals of Spiru Haret University. Economic Series*, 24(1), 66-92, doi: <https://doi.org/10.26458/2414>

Abstract:

This academic paper explores the symbiotic relationship between culture and innovation, specifically examining how creative sectors can contribute to the sustainable development of Romania. Grounded in the understanding that cultural and creative industries play a vital role in fostering innovation and economic growth, this study investigates the unique ways in which these sectors can propel Romania towards a sustainable future.

The research employs a multidisciplinary approach, drawing on insights from cultural studies, economics, and innovation management. It begins by elucidating the theoretical foundations that underscore the interplay between culture, innovation, and sustainability. Subsequently, the paper delves into an empirical analysis, utilizing case studies and quantitative data to illustrate the impact of creative sectors on economic development, social cohesion, and environmental sustainability in the Romanian context.

The findings reveal compelling connections between cultural vitality, innovative practices, and sustainable outcomes. The creative sectors, including

visual arts, design, film, and technology-driven industries, emerge as dynamic contributors to Romania's sustainable development agenda. The study highlights the role of cultural initiatives in enhancing social inclusivity, fostering entrepreneurial ecosystems, and driving technological advancements that align with sustainable principles.

Moreover, the paper examines policy implications and strategic recommendations for harnessing the full potential of creative sectors in Romania. It advocates for a comprehensive approach that integrates cultural policies with innovation strategies to create an environment conducive to creativity, collaboration, and sustainable growth.

In conclusion, this research contends that the creative sectors can serve as catalysts for transformative change in Romania's journey towards sustainability. By recognizing and leveraging the intrinsic link between culture and innovation, policymakers, business leaders, and cultural practitioners can collaboratively chart a course for a more resilient and vibrant future for the nation. This paper contributes valuable insights to the discourse on the intersection of culture, innovation, and sustainability, offering a roadmap for unlocking the full potential of creative sectors in Romania's sustainable development trajectory.

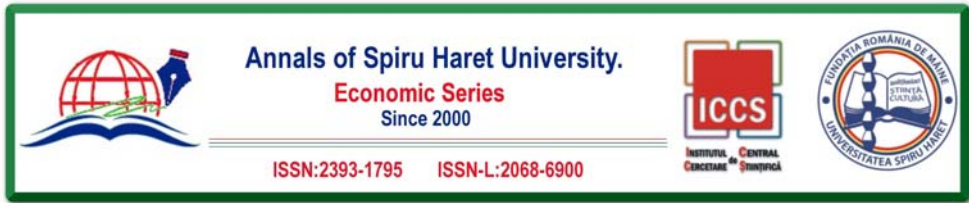
Keywords: *culture, innovation, creative sectors, sustainable development, Romania, cultural industries, social cohesion, environmental sustainability, creative initiatives, cultural policies, transformative change, resilient future*

JEL Classification: *O10, O31, O38, Z10, Z11, Z18, Q01, Q50*

1. Introduction

In the intricate tapestry of societal progress, the nexus between culture and innovation emerges as a catalyst for transformative development. This academic article delves into the dynamic interplay between culture and innovation, unveiling a narrative specific to Romania, where the creative sectors stand poised to become instrumental agents in steering the nation toward sustainable growth.

Background and Rationale. Romania, a nation rich in cultural heritage, finds itself at a juncture where the infusion of creative energy into its developmental fabric holds the promise of both economic vitality and societal resilience. Recognizing that the traditional paradigms of economic growth must be complemented by innovative approaches, this study positions creative sectors—



Issue 1/2024

encompassing visual arts, design, film, and technology-driven industries—as pivotal contributors to Romania's sustainable future.

Theoretical Framework. At the heart of our exploration lies a multidisciplinary understanding that draws from cultural studies, economics, and innovation management. We navigate the theoretical landscape that underscores the intrinsic relationship between culture, innovation, and sustainability. By elucidating the theoretical foundations, we aim to contextualize our empirical inquiries and unveil the nuanced mechanisms through which creative sectors can propel sustainable development.

Research Objectives. The primary objective of this article is to empirically examine and illustrate the multifaceted impact of creative sectors on the sustainable development trajectory of Romania. Through a combination of case studies and quantitative analysis, we seek to unravel the ways in which cultural and creative industries contribute to economic prosperity, social cohesion, and environmental sustainability within the Romanian context.

Significance of the Study. This study is poised to make a significant contribution to both academic discourse and practical policymaking. By shedding light on the unique dynamics at play within Romania's creative sectors, we aspire to inform strategies that harness the potential of cultural initiatives for fostering entrepreneurial ecosystems, enhancing social inclusivity, and driving technological advancements aligned with sustainable principles.

Structure of the Article. The subsequent sections of this article will unfold as follows: Section 2 provides a comprehensive literature review, grounding our study in existing scholarship. Section 3 outlines the methodology, detailing the case studies and analytical approaches employed. Sections 4 and 5 present our empirical findings and discuss their implications. The article concludes with a synthesis of key insights, policy recommendations, and avenues for future research.

In essence, this article embarks on a journey to unravel the transformative potential of culture and innovation in the context of Romania's sustainable development. Through rigorous exploration, we aspire to contribute actionable insights that pave the way for a vibrant and resilient future, where the creative sectors stand as pillars of sustainable progress.

2. Literature Review: Culture, Innovation, and Sustainable Development

2.1 Culture and Economic Development

The intersection of culture and economic development has been a subject of scholarly inquiry for decades. Notably, economists such as Baumol and Florida have emphasized the role of the cultural and creative industries in shaping urban economies and fostering innovation (Rubinstein, A., 2013). Their works underscore the economic value generated by cultural assets and the potential for cultural initiatives to drive economic growth (McGuigan, J. , 2009).

2.2 Innovation and Creative Industries

The link between innovation and creative industries has been a focal point in the literature. Matarasso argues that creative sectors act as hubs of innovation, influencing diverse sectors of the economy (Matarasso, F., 2007). Anderson and Tushman conceptualize innovation as a dynamic process influenced by external factors, including cultural and creative inputs (Anderson, P., & Tushman, M. L. , 2018). Research by Hesmondhalgh (2014) and Pratt (2008) emphasizes the centrality of creative industries in fostering innovation through their unique organizational structures and knowledge-sharing practices.

2.3 Cultural Policy and Sustainable Development

Cultural policy, as an instrument for fostering sustainable development, has gained prominence. UNESCO's Cultural Policy Review (2013) underscores the role of cultural policies in promoting social cohesion, economic diversification, and environmental sustainability. The work of O'Brien (2018) emphasizes the need for coherent cultural policies that integrate cultural and environmental considerations for sustainable development.

2.4 Creative Sectors and Entrepreneurship

The relationship between creative sectors and entrepreneurship is explored by numerous scholars. Florida (2011) introduces the concept of the "creative class," arguing that creative individuals and industries drive economic development through entrepreneurship and innovation. Higgs and Cunningham (2008) delve into the entrepreneurial dynamics within the creative sectors, highlighting the role of creativity in fostering entrepreneurial ecosystems.

2.5 Cultural Capital and Social Inclusivity

The concept of cultural capital, as proposed by Bourdieu (1986), has been pivotal in understanding how cultural assets contribute to social inclusivity. The literature suggests that cultural engagement enhances social cohesion and community resilience (Throsby, 2001; Holden, 2013). Moreover, studies by Evans

and Shaw (2004) emphasize the role of cultural capital in reducing social inequalities and promoting inclusivity.

2.6 Technology-Driven Creative Industries

The rise of technology-driven creative industries has garnered attention in the literature. Research by Pratt and Jeffcutt (2009) explores the impact of digital technologies on creative practices, arguing that technological advancements facilitate innovation and global connectivity within the creative sectors. This aligns with the broader discourse on how technology can drive sustainable development (UNDP, 2020).

2.7 Romania's Cultural Landscape

While a rich body of literature addresses the cultural and economic dynamics in Western contexts, fewer studies specifically focus on Romania. Notable works include the research by Nicolescu and Irimia (2017), which examines the role of cultural industries in post-communist Romania. However, there is a notable gap in literature addressing the potential of Romania's creative sectors in the context of sustainable development.

2.8 Gaps and Avenues for Further Research

Despite the valuable insights provided by existing literature, gaps persist in understanding the specific mechanisms through which Romania's creative sectors can contribute to sustainable development (Becuț, A. G., 2016). This literature review underscores the need for empirical investigations that bridge this gap, providing context-specific insights into the dynamics of culture, innovation, and sustainable development in Romania.

Conclusion of the Literature Review

In summary, the reviewed literature establishes a foundation for our study by elucidating the multifaceted relationships between culture, innovation, and sustainable development. Building on this scholarly framework, our empirical investigation seeks to contribute nuanced insights into how Romania's creative sectors can play a transformative role in the nation's journey toward sustainable and vibrant economic, social, and environmental futures.

3. Unveiling Romania's Creative Sectors for Sustainable Development

Romania possesses a rich cultural heritage and a vibrant creative industry that can contribute significantly to sustainable development. Here's an overview of some key creative sectors in Romania and their potential for sustainable growth:

1. Film Industry: Romania has gained international recognition for its film industry, with directors like Cristian Mungiu and Cristi Puiu winning awards at prestigious film festivals. The Romanian New Wave has brought attention to the country's unique storytelling and filmmaking style. Investing in this sector can lead to the creation of jobs, promotion of cultural exchange, and sustainable economic growth.(Pop, D. , 2014 and Yao, W. , 2018).

2. Design and Fashion: Romania has a burgeoning design and fashion scene, with talented designers producing high-quality garments and accessories. By supporting local designers and promoting sustainable fashion practices, Romania can foster a thriving industry that values ethical production, innovative design, and cultural heritage preservation.(Asavei, M. A. , 2020).

3. Tech and Gaming: Romania has a growing tech industry, with a strong focus on software development, gaming, and animation. By nurturing talent and investing in infrastructure, Romania can become a hub for tech innovation and creative entrepreneurship. Sustainable practices such as green computing and ethical game development can ensure long-term viability and positive environmental impact (Craiu, L., Bungau, C., Bungau, T., Grava, C., Otrisal, P., & Radu, A. F. , 2022).

4. Music and Performing Arts: Romania has a rich musical tradition, spanning classical, folk, and contemporary genres. Supporting musicians, orchestras, theaters, and cultural institutions can enhance cultural diversity, promote social cohesion, and stimulate tourism. Incorporating sustainable practices in event management and venue operations can minimize environmental footprint while maximizing cultural impact.(Komander, V., & König, A. , 2024).

5. Crafts and Artisanal Production: Romania boasts a rich tradition of craftsmanship, with artisans producing handmade goods such as pottery, textiles, woodwork, and traditional costumes. Revitalizing traditional crafts through education, training, and market support can preserve cultural heritage, generate income in rural areas, and promote sustainable tourism.(Kofler, I., & Walder, M. , 2024)

6. Literature and Publishing: Romania has a strong literary tradition, with renowned authors such as Mircea Eliade, Emil Cioran, and Herta Müller. Supporting writers, publishers, and literary events can foster intellectual exchange, promote literacy, and preserve linguistic diversity. Embracing digital publishing and sustainable printing practices can reduce environmental impact while expanding access to literature.(Kusawat, P., & Teerakapibal, S. , 2024).

To unlock the full potential of Romania's creative sectors for sustainable development, stakeholders including government agencies, private sector actors, civil society organizations, and educational institutions must collaborate to:

- Provide funding, incentives, and infrastructure support to creative industries.
- Foster talent development through education, training, and mentorship programs.
- Promote cultural exchange, collaboration, and networking opportunities.
- Implement policies and regulations that support sustainable practices, innovation, and entrepreneurship.
- Harness digital technologies and online platforms to reach global audiences and markets.
- Raise awareness about the social, cultural, and economic value of the creative sectors.
- Integrate creativity and cultural expression into broader sustainable development strategies.

By leveraging its creative potential and embracing sustainability principles, Romania can not only drive economic growth but also preserve its cultural heritage, foster social inclusion, and contribute to global efforts towards a more sustainable future.

4. Culture and Economic Development of Romania

Romania, located in Southeastern Europe, has a rich cultural heritage and a diverse economic landscape. Here's an overview of both aspects.

Regarding *culture*, we only can follow the most relevant aspects, like (HATMANU, M., Lobont, O. R., Albu, C., & Moldovan, N. C., 2014):

1. History and Heritage: Romania has a long and complex history, with influences from Roman, Ottoman, and Austro-Hungarian empires. This diverse history is reflected in its architecture, traditions, and cultural practices.

2. Folklore and Traditions: Romanian culture is rich in folklore, with tales of vampires, werewolves, and other mythical creatures. Traditional music, dance, and crafts are also important cultural elements, often celebrated in festivals and events across the country.

3. Literature and Arts: Romania has produced many notable literary figures, including Mircea Eliade, Emil Cioran, and Eugène Ionesco. Romanian art encompasses various styles, from medieval religious paintings to modern abstract works.

4. Cuisine: Romanian cuisine is diverse and flavorful, influenced by its history and geography. Dishes like *mămăligă* (polenta), *sarmale* (cabbage rolls), and *mici* (grilled sausages) are popular staples.

5. Religion: The majority of Romanians identify as Orthodox Christians, and the Romanian Orthodox Church plays a significant role in the country's culture and society.

6. Language: The official language of Romania is Romanian, a Romance language that shares many similarities with Italian, French, Spanish, and Portuguese. The language is an essential part of Romanian identity and culture.

7. Ethnic Diversity: Romania is home to various ethnic minorities, including Hungarians, Roma (commonly known as Gypsies), Germans, Ukrainians, and others. This diversity enriches the country's cultural landscape, with each group contributing its traditions, languages, and customs.

8. Festivals and Celebrations: Romania celebrates a wide range of festivals and holidays throughout the year, often blending religious, pagan, and folk traditions. Examples include *Dragobete* (celebrating love and spring), *Martisor* (welcoming spring), and Christmas traditions such as *colinde* (caroling) and the Christmas market.

9. Literary Legacy: Romanian literature boasts a rich tradition dating back centuries. Writers like Ion Creangă, Mihai Eminescu, and Ion Luca Caragiale are revered for their contributions to Romanian literature, with their works often studied in schools and celebrated in literary circles.

10. Cultural Landmarks: Romania is home to numerous cultural landmarks, including the Painted Monasteries of Bucovina, the medieval castles of Transylvania (such as Bran Castle, often associated with the Dracula legend), and the historic cities of Sibiu and Brasov.

Regarding *economic development*, we only can follow the most relevant aspects, like (Oțil, M., & Boldea, M., 2015):

1. Transition from Communism: After the fall of communism in 1989, Romania underwent significant economic reforms to transition to a market-oriented economy. This process led to challenges but also opened up opportunities for growth and development.

2. Industry and Agriculture: Romania has a diverse economy, with sectors including automotive manufacturing, IT services, agriculture, and tourism. Industrial centers like Bucharest, Cluj-Napoca, and Timișoara are hubs for innovation and business.

3. EU Membership: Romania joined the European Union in 2007, which has brought both benefits and challenges. Access to EU funds and markets has boosted economic development, but issues such as corruption and infrastructure gaps persist.

4. Investment and Growth: Foreign investment has played a crucial role in Romania's economic development, particularly in sectors like automotive, electronics, and outsourcing. The country has seen steady GDP growth in recent years, although income inequality remains a concern.

5. Challenges: Romania faces various challenges in its economic development, including corruption, bureaucracy, brain drain, and regional disparities. Addressing these issues while promoting innovation and sustainable growth is crucial for the country's future prosperity.

6. Infrastructure Development: Romania has made significant investments in infrastructure development, including roads, railways, airports, and energy infrastructure. Projects funded by the European Union have contributed to modernizing the country's transportation and energy networks.

7. Tourism: Romania's natural beauty, historical sites, and cultural heritage attract millions of tourists each year. Popular destinations include the Danube Delta, the Carpathian Mountains, medieval towns like Sighisoara, and the Transylvanian countryside.

8. IT and Outsourcing: Romania has emerged as a significant player in the IT and outsourcing sectors, with cities like Cluj-Napoca, Timișoara, and Iași becoming hubs for tech companies and startups. The country's well-educated workforce, competitive costs, and growing innovation ecosystem have attracted investment from multinational corporations.

9. Agriculture: Agriculture remains an important sector in Romania, with fertile plains supporting the cultivation of cereals, vegetables, fruits, and grapes for wine production. Small-scale farming is prevalent in rural areas, contributing to both the economy and cultural traditions.

10. Sustainable Development: Romania faces the challenge of balancing economic growth with environmental sustainability. Efforts are underway to promote green initiatives, renewable energy development, and conservation measures to protect the country's natural resources and biodiversity.

In summary, Romania's culture and economic development are intertwined, with its rich heritage providing a foundation for growth and innovation in various sectors of the economy. Continued investment in both cultural preservation and

economic modernization is essential for Romania's future prosperity. Overall, Romania's rich cultural heritage and ongoing economic development reflect the resilience and potential of this dynamic nation in Southeastern Europe.

5. Connections between cultural vitality, innovative practices, and sustainable outcomes in Romania

Romania's cultural vitality, innovative practices, and sustainable outcomes are interconnected in various ways, fostering a dynamic environment conducive to holistic development. Here are some compelling connections (Boldea, B. I. , 2012):

1. **Preservation of Traditional Knowledge:** Romania's cultural vitality is rooted in its rich folklore, traditional crafts, and agricultural practices. Innovative approaches that leverage traditional knowledge can promote sustainable outcomes. For example, initiatives that revive ancient farming techniques, such as permaculture or agroecology, not only preserve cultural heritage but also contribute to sustainable agriculture by promoting biodiversity, soil health, and resilience to climate change.

2. **Creative Industries and Sustainable Tourism:** Romania's cultural heritage and vibrant arts scene provide a foundation for creative industries such as film, music, and crafts. Leveraging these assets can drive sustainable tourism initiatives. For instance, promoting eco-friendly cultural tours that highlight local traditions, gastronomy, and handicrafts can support rural economies while minimizing environmental impact. Additionally, investing in sustainable infrastructure and practices in tourism hotspots can help preserve natural landscapes and mitigate overtourism.

3. **Innovation in Cultural Conservation:** Innovative technologies and approaches can be employed to conserve and promote Romania's cultural heritage sustainably. Digital preservation methods, such as 3D scanning and virtual reality, can create immersive experiences that engage audiences while minimizing physical interventions on historical sites and artifacts. Furthermore, sustainable restoration practices, such as using locally sourced materials and employing traditional craftsmanship techniques, ensure the longevity of cultural monuments while minimizing ecological footprint.

4. **Community-Led Initiatives for Sustainable Development:** Romania's cultural vitality fosters strong community ties and collective identity. Community-led initiatives that combine cultural revitalization with sustainable development goals can have a lasting impact. For example, grassroots movements focused on

revitalizing abandoned rural villages through cultural events, heritage preservation, and eco-friendly agriculture empower local communities to take ownership of their development trajectory while preserving cultural authenticity and environmental integrity.

5. Education and Innovation Hubs: Investing in education and innovation hubs that celebrate Romania's cultural heritage can nurture creativity and entrepreneurship while promoting sustainable practices. Universities and research institutions can collaborate with local communities and businesses to develop innovative solutions that address societal challenges while drawing inspiration from traditional knowledge and cultural practices. For instance, interdisciplinary programs that blend arts, sciences, and sustainability studies can empower future generations to tackle complex issues through a culturally informed lens.

6. Cultural Entrepreneurship and Sustainable Livelihoods: Romania's cultural richness provides a fertile ground for cultural entrepreneurship. By supporting artisans, creatives, and cultural practitioners, innovative business models can be developed that not only preserve traditional crafts and practices but also generate sustainable livelihoods. For example, cooperatives or social enterprises that produce artisanal goods using sustainable materials and techniques can contribute to both economic growth and cultural preservation.

7. Green Design and Architectural Innovation: Integrating sustainability principles into architectural design and urban planning can enhance Romania's cultural landscape while promoting eco-friendly practices. Innovative architectural solutions that draw inspiration from traditional Romanian architecture, such as passive solar design or natural ventilation techniques, can reduce energy consumption and environmental impact. Additionally, incorporating green spaces, pedestrian-friendly infrastructure, and mixed-use developments into urban areas preserves cultural heritage while fostering community well-being and resilience to climate change.

8. Cultural Diplomacy and Sustainable Development: Romania's cultural vitality can be leveraged to promote cross-cultural understanding and cooperation, contributing to global sustainable development goals. Cultural exchange programs, artistic collaborations, and international festivals can foster dialogue and mutual respect among diverse communities, transcending borders and fostering solidarity. By showcasing Romania's cultural diversity and commitment to sustainability on the global stage, diplomatic efforts can amplify the country's influence and support international initiatives for peace, prosperity, and environmental stewardship.

9. Digital Innovation and Accessible Cultural Heritage: Harnessing digital innovation can democratize access to Romania's cultural heritage while promoting inclusivity and sustainability. Digital platforms, such as online archives, virtual museums, and educational resources, can make cultural artifacts and historical knowledge accessible to a broader audience, including marginalized communities and people with disabilities. Moreover, digital engagement tools, such as augmented reality apps or interactive exhibits, can enhance visitor experiences while minimizing environmental impact associated with physical exhibitions and travel.

10. Cross-Sectoral Collaboration for Sustainable Development: Fostering partnerships between government agencies, businesses, civil society organizations, and cultural institutions can drive collaborative efforts towards sustainable development. Multi-stakeholder initiatives that integrate cultural, economic, social, and environmental dimensions can yield innovative solutions to complex challenges. By aligning interests and expertise across sectors, synergistic approaches can be developed that maximize societal benefits while preserving Romania's cultural heritage and natural resources for future generations.

These connections demonstrate the transformative potential of integrating cultural vitality, innovative practices, and sustainability principles to foster holistic development in Romania. By embracing creativity, collaboration, and cultural resilience, Romania can chart a course towards a more prosperous, inclusive, and environmentally sustainable future.

In summary, the intersection of cultural vitality, innovative practices, and sustainable outcomes in Romania presents a wealth of opportunities for holistic development. By leveraging its cultural heritage as a source of inspiration and innovation, Romania can chart a path towards sustainable prosperity that celebrates its unique identity while safeguarding the well-being of future generations and the environment.

6. The creative sectors - visual arts, design, film, and technology-driven industries - dynamic contributors to Romania's sustainable development agenda

The creative sectors, including visual arts, design, film, and technology-driven industries, play a crucial role in contributing to Romania's sustainable development agenda in several ways (Iacobuță-Mihăiță, A. O., 2015):

1. Promoting Cultural Heritage: The visual arts, including painting, sculpture, and photography, serve as a platform for preserving and promoting Romania's rich

cultural heritage. Artists often draw inspiration from traditional motifs, landscapes, and folklore, reinforcing a sense of cultural identity and pride. By showcasing Romania's cultural diversity and history, the visual arts contribute to social cohesion and sustainable tourism initiatives that support local economies.

2. **Innovative Design Solutions:** Design plays a key role in addressing sustainability challenges across various sectors, from architecture and urban planning to product design and fashion. Romanian designers are increasingly incorporating eco-friendly materials, sustainable production processes, and circular economy principles into their work. By prioritizing functionality, durability, and environmental responsibility, design-driven industries contribute to reducing resource consumption, waste generation, and carbon emissions.

3. **Film Industry and Cultural Diplomacy:** Romania's film industry has gained international acclaim for its creativity, originality, and cultural authenticity. Filmmakers often explore social, political, and environmental issues, shedding light on pressing challenges facing Romanian society. Through film festivals, screenings, and co-production agreements, the film industry serves as a powerful tool for cultural diplomacy, promoting cross-cultural dialogue, understanding, and solidarity while raising awareness about sustainability issues on a global scale.

4. **Technology-driven Innovation:** Romania's technology sector, including software development, IT services, and digital media, drives innovation and economic growth while contributing to sustainable development objectives. Tech startups and entrepreneurs leverage digital technologies, such as artificial intelligence, blockchain, and Internet of Things (IoT), to develop solutions for environmental monitoring, energy efficiency, waste management, and renewable energy deployment. By harnessing the power of data analytics, connectivity, and automation, technology-driven industries enhance resource efficiency, optimize processes, and empower communities to address sustainability challenges effectively.

5. **Creative Entrepreneurship and Social Impact:** Creative entrepreneurship thrives in Romania's dynamic ecosystem, fostering innovation, job creation, and social impact. Social enterprises and creative startups develop business models that prioritize social and environmental goals alongside financial sustainability. For example, initiatives focused on upcycling, fair trade, and community-based tourism empower marginalized groups, promote inclusive economic development, and preserve cultural heritage while generating positive social and environmental outcomes.

6. Cross-sectoral Collaboration and Knowledge Exchange: The creative sectors serve as catalysts for cross-sectoral collaboration and knowledge exchange, bridging disciplines, industries, and communities to tackle complex sustainability challenges collaboratively. Partnerships between artists, designers, technologists, policymakers, scientists, and civil society organizations foster interdisciplinary approaches that integrate cultural, economic, environmental, and social dimensions into sustainable development initiatives. By leveraging diverse perspectives, expertise, and resources, collaborative efforts drive innovation, resilience, and positive change towards a more sustainable future for Romania and beyond.

7. Cultural Tourism and Economic Development: Romania's vibrant cultural scene, including its visual arts exhibitions, design festivals, and film screenings, attracts tourists from around the world. Cultural tourism not only generates revenue for local communities but also fosters appreciation for Romania's cultural heritage. Sustainable tourism practices, such as eco-friendly accommodations, responsible tour operators, and community-based tourism initiatives, ensure that tourism benefits both visitors and host communities while preserving natural and cultural assets for future generations.

8. Education and Capacity Building: The creative sectors play a crucial role in education and capacity building, equipping individuals with the skills, knowledge, and mindset needed for sustainable development. Educational programs in visual arts, design, film production, and technology-driven industries empower aspiring professionals to become agents of positive change in their communities. By promoting creativity, critical thinking, and entrepreneurship, creative education fosters innovation, resilience, and social inclusion, laying the foundation for a sustainable workforce and society.

9. Cultural Heritage Conservation and Regeneration: Romania's architectural heritage, including historic buildings, monuments, and traditional villages, is a valuable asset that requires protection and revitalization. Creative approaches to heritage conservation, such as adaptive reuse, heritage-led regeneration, and community-driven restoration projects, breathe new life into neglected spaces while preserving their historical and cultural significance. By transforming heritage sites into cultural hubs, creative clusters, and social enterprises, Romania's creative sectors contribute to sustainable urban development, economic revitalization, and cultural preservation.

10. Public Engagement and Advocacy: The creative sectors have the power to inspire public engagement and advocacy on sustainability issues through art,

design, and storytelling. Visual arts exhibitions, design interventions, and film screenings can raise awareness, stimulate dialogue, and mobilize action on pressing environmental and social challenges, such as climate change, biodiversity loss, and social inequality. By amplifying diverse voices, narratives, and perspectives, creative expressions empower communities to advocate for policy change, collective action, and sustainable lifestyles, driving positive societal transformation.

11. Resilience and Innovation in Times of Crisis: During times of crisis, such as the COVID-19 pandemic, the creative sectors demonstrate resilience and adaptability, contributing to economic recovery and social cohesion. Artists, designers, and cultural organizations pivot to digital platforms, virtual events, and online collaborations to continue engaging audiences, supporting livelihoods, and fostering creativity in challenging circumstances. By harnessing digital technologies, social networks, and creative solutions, the creative sectors inspire resilience, innovation, and solidarity, paving the way for a more sustainable and inclusive post-pandemic future.

In conclusion, the creative sectors in Romania, encompassing visual arts, design, film, and technology-driven industries, are dynamic contributors to the country's sustainable development agenda. Through their innovative practices, cultural expression, and collaborative endeavors, these sectors play a vital role in shaping a more inclusive, resilient, and environmentally sustainable society. The creative sectors in Romania are multifaceted contributors to the country's sustainable development agenda, leveraging their cultural capital, innovative practices, and social influence to drive positive change across economic, environmental, and social dimensions. By harnessing the transformative potential of creativity, collaboration, and cultural expression, Romania can build a more resilient, equitable, and sustainable society for present and future generations.

7. The role of cultural initiatives in enhancing social inclusivity, fostering entrepreneurial ecosystems, and driving technological advancements to align with sustainable principles

Cultural initiatives play a multifaceted role in enhancing social inclusivity, fostering entrepreneurial ecosystems, and driving technological advancements that align with sustainable principles. Here's a deeper look at each aspect (Silviu, B., Oana, P., Stefania, N., & Victor, O., 2011).

1. Enhancing Social Inclusivity

- **Community Engagement:** Cultural initiatives often involve local communities in the planning and execution of events, exhibitions, and programs. This engagement fosters a sense of ownership and belonging, making cultural spaces more inclusive and accessible to people from diverse backgrounds.

- **Celebrating Diversity:** Cultural initiatives celebrate the diversity of cultures, identities, and perspectives within society. By showcasing different traditions, languages, and art forms, these initiatives promote understanding, empathy, and social cohesion, breaking down barriers and fostering a more inclusive society.

- **Addressing Social Issues:** Many cultural initiatives address social issues such as inequality, discrimination, and exclusion through artistic expression, advocacy, and education. By raising awareness and facilitating dialogue on these issues, cultural initiatives contribute to social change and empower marginalized communities.

- **Promoting Accessible Spaces:** Cultural initiatives strive to create inclusive spaces that are accessible to people of all backgrounds, abilities, and ages. This may involve providing accommodations such as wheelchair ramps, sign language interpretation, or sensory-friendly environments to ensure that everyone feels welcome and valued.

- **Empowering Marginalized Communities:** Cultural initiatives often prioritize the voices and perspectives of marginalized communities, including minorities, immigrants, LGBTQ+ individuals, and people with disabilities. By providing platforms for these communities to share their stories, express their identities, and showcase their talents, cultural initiatives empower them to participate more fully in society and contribute to cultural diversity.

- **Building Bridges Across Differences:** Cultural initiatives facilitate dialogue, understanding, and empathy across cultural, social, and political divides. Through artistic expression, storytelling, and community engagement, these initiatives encourage people to see beyond stereotypes and prejudices, fostering connections and building bridges of solidarity and mutual respect.

2. Fostering Entrepreneurial Ecosystems

- **Supporting Creative Entrepreneurs:** Cultural initiatives provide platforms for creative entrepreneurs to showcase their talents, network with peers, and access resources such as funding, mentorship, and training. This support helps to grow the creative economy and build a vibrant ecosystem of cultural and creative industries.

- Spurring Innovation: Cultural initiatives encourage experimentation, risk-taking, and innovation in artistic practices and business models. This culture of creativity fosters entrepreneurship by inspiring individuals to think outside the box, explore new opportunities, and develop innovative solutions to societal challenges.

- Collaboration and Networking: Cultural initiatives facilitate collaboration and networking among artists, designers, technologists, and other stakeholders. These connections lead to new partnerships, projects, and ventures that drive economic growth and create value for both individuals and communities.

- Incubating Creative Ventures: Cultural initiatives often serve as incubators for creative startups and small businesses, providing them with the resources, mentorship, and networking opportunities needed to thrive. By nurturing a supportive ecosystem of creative entrepreneurship, these initiatives stimulate economic growth, job creation, and innovation within the cultural and creative industries.

- Catalyzing Cross-Sector Collaboration: Cultural initiatives bring together stakeholders from diverse sectors, including government, academia, business, and civil society, to collaborate on projects and initiatives that benefit the creative economy. This cross-sector collaboration fosters synergies, accelerates innovation, and generates new opportunities for collaboration and partnership.

- Promoting Sustainable Business Practices: Cultural initiatives promote sustainable business practices within the creative sector, encouraging entrepreneurs to adopt environmentally friendly and socially responsible approaches to production, distribution, and consumption. This may include sourcing materials ethically, reducing waste, and investing in renewable energy and fair labor practices.

3. *Driving Technological Advancements Aligned with Sustainable Principles*

- Creative Use of Technology: Cultural initiatives leverage technology to enhance artistic expression, audience engagement, and organizational efficiency. This includes using digital tools, multimedia platforms, and interactive experiences to create immersive and impactful cultural experiences.

- Promoting Sustainability: Cultural initiatives integrate sustainability principles into their operations, events, and programming. This includes adopting eco-friendly practices, reducing waste, and raising awareness about environmental issues through artistic means.

- Exploring Emerging Technologies: Cultural initiatives explore emerging technologies such as virtual reality, augmented reality, and artificial intelligence to push the boundaries of creativity and expression. These technologies open up new

possibilities for artists, designers, and creators to innovate while also addressing societal challenges in sustainable ways.

- Experimenting with New Technologies: Cultural initiatives serve as testing grounds for experimenting with new technologies and digital tools, such as virtual reality, augmented reality, and artificial intelligence, to enhance artistic expression, audience engagement, and organizational efficiency. By pushing the boundaries of creativity and innovation, these initiatives inspire new ways of thinking and working that drive technological advancement.

- Harnessing Technology for Sustainability: Cultural initiatives harness technology to address environmental challenges and promote sustainability, whether through digital art installations that raise awareness about climate change, online platforms that facilitate sharing and collaboration among artists and creators, or data-driven solutions that optimize resource use and minimize environmental impact.

- Advocating for Ethical Tech Use: Cultural initiatives advocate for ethical and responsible use of technology, raising awareness about the potential risks and consequences of technological advancements such as data privacy violations, algorithmic bias, and digital exclusion. By promoting dialogue and critical thinking around these issues, these initiatives help to ensure that technological advancements align with sustainable principles and benefit society as a whole.

In summary, cultural initiatives play a vital role in promoting social inclusivity, fostering entrepreneurial ecosystems, and driving technological advancements that align with sustainable principles. By embracing diversity, encouraging creativity, and leveraging technology, these initiatives contribute to building more inclusive, resilient, and sustainable communities.

8. Policy implications and strategic recommendations for harnessing the full potential of creative sectors in Romania

Harnessing the full potential of creative sectors in Romania requires a comprehensive policy framework and strategic approach that addresses various dimensions of cultural and economic development. Here are some policy implications and strategic recommendations:

Policy Implications (Pavel, A., Moldovan, B. A., Kourtit, K., & Nijkamp, P. , 2020)

1. Integrated Policy Framework: Develop an integrated policy framework that recognizes the interconnectedness of cultural, economic, social, and environmental

dimensions. This framework should promote collaboration across government departments, agencies, and stakeholders to maximize the impact of creative sectors on sustainable development.

2. **Inclusive Approach:** Ensure that policies and initiatives are inclusive and equitable, taking into account the needs and perspectives of all stakeholders, including artists, entrepreneurs, cultural workers, marginalized communities, and underrepresented groups.

3. **Investment in Infrastructure:** Prioritize investment in cultural infrastructure, including cultural institutions, creative hubs, artist studios, performance venues, and digital platforms. This infrastructure should be accessible, affordable, and adaptable to meet the diverse needs of creative practitioners and audiences.

4. **Education and Training:** Strengthen education and training programs in the creative sectors to develop talent, skills, and entrepreneurship capabilities. This includes integrating arts and creativity into formal education curricula, expanding vocational training opportunities, and providing mentorship and support for emerging artists and entrepreneurs.

5. **Promotion of Cultural Diversity:** Promote cultural diversity and intercultural dialogue through policies that support minority languages, indigenous cultures, immigrant communities, and diverse artistic expressions. This includes funding multicultural festivals, supporting bilingual education, and preserving intangible cultural heritage.

6. **Support for Creative Industries:** Provide targeted support for creative industries, including funding, tax incentives, access to finance, and business development services. This support should be tailored to the specific needs of different sectors, such as visual arts, design, film, performing arts, and digital media.

7. **Collaboration with Technology Sector:** Foster collaboration between the creative sectors and the technology sector to drive innovation, digital transformation, and technological advancements. This includes supporting research and development initiatives, promoting digital literacy, and investing in infrastructure for digital content creation and distribution.

8. **Sustainable Practices:** Promote sustainable practices within the creative sectors, including environmental sustainability, social responsibility, and ethical business practices. This includes incentivizing eco-friendly production methods, reducing carbon footprint, and promoting fair labor standards and diversity inclusion.

9. Cultural Diplomacy: Utilize cultural diplomacy as a tool for promoting Romania's soft power and enhancing its global presence. This involves supporting international cultural exchange programs, artistic collaborations, and cultural diplomacy initiatives to strengthen diplomatic relations, foster mutual understanding, and showcase Romania's cultural heritage and contemporary creativity on the world stage.

10. Cultural Infrastructure Development: Invest in the development of cultural infrastructure, including museums, galleries, theaters, and cultural centers, particularly in underserved regions and rural areas. This involves upgrading existing facilities, building new cultural venues, and improving accessibility to cultural resources and services to ensure that all citizens have opportunities to engage with the arts and culture.

11. Creative Placemaking: Embrace creative placemaking strategies to revitalize urban and rural communities, stimulate economic development, and improve quality of life. This involves integrating arts and culture into urban planning, community development, and placemaking initiatives to create vibrant, inclusive, and sustainable neighborhoods and public spaces that reflect local identity and foster social connections.

12. Cultural Heritage Preservation: Strengthen efforts to preserve and safeguard Romania's cultural heritage, including historic buildings, monuments, archaeological sites, and intangible cultural heritage. This involves implementing policies and regulations to protect cultural heritage assets from threats such as urbanization, pollution, climate change, and unsustainable tourism, while also promoting heritage conservation and heritage-led regeneration initiatives that enhance the socio-economic value of cultural heritage assets.

Strategic Recommendations (Cristian, D., Mihail, P. R., Stefan, I., Dobrea, C. R., Radu-Daniel, P., Camelia, T., ... & Adrian, S., 2015)

1. Strategic Planning: Develop a national strategy for the creative economy that sets clear goals, targets, and timelines for promoting the growth and sustainability of creative sectors. This strategy should be developed through a participatory process involving stakeholders from government, industry, academia, and civil society.

2. Networking and Collaboration: Facilitate networking and collaboration among creative practitioners, organizations, and institutions to foster innovation, knowledge exchange, and collective action. This includes organizing networking

events, conferences, and collaborative projects that bring together diverse stakeholders to address common challenges and opportunities.

3. **Internationalization:** Promote the internationalization of the creative sectors by facilitating export opportunities, cultural exchange programs, and participation in international markets, festivals, and events. This includes supporting export promotion initiatives, providing market intelligence and trade facilitation services, and fostering partnerships with international counterparts.

4. **Cultural Tourism Development:** Invest in cultural tourism development initiatives that leverage Romania's rich cultural heritage and creative assets to attract domestic and international visitors. This includes developing cultural tourism routes, promoting cultural events and festivals, and improving tourist infrastructure and services.

5. **Digital Innovation:** Foster digital innovation and entrepreneurship in the creative sectors by supporting startups, incubators, and accelerators focused on creative industries. This includes providing funding, mentorship, and access to networks and resources for digital content creation, distribution, and monetization.

6. **Evaluation and Monitoring:** Establish mechanisms for monitoring and evaluating the impact of policies and initiatives on the creative economy. This includes collecting data, measuring key performance indicators, and conducting regular evaluations to assess progress, identify gaps, and inform future decision-making.

7. **Capacity Building:** Invest in capacity building initiatives to strengthen the resilience, competitiveness, and sustainability of the creative sectors. This includes providing training and technical assistance in areas such as business development, marketing, intellectual property rights, and access to finance.

8. **Creative Economy Mapping:** Conduct comprehensive mapping and analysis of the creative economy in Romania to better understand its size, scope, and contribution to the overall economy. This involves collecting data on creative industries, occupations, and businesses, as well as identifying growth sectors, emerging trends, and areas for intervention to inform policy-making and resource allocation.

9. **Cultural Entrepreneurship Incubation:** Establish incubation programs, accelerators, and co-working spaces tailored specifically to support cultural entrepreneurs and creative startups. This involves providing tailored support services, mentorship, networking opportunities, and access to funding and markets to help creative entrepreneurs develop viable business models, scale their ventures, and contribute to economic growth and job creation.

10. Cross-Sectoral Collaboration: Encourage cross-sectoral collaboration and partnerships between the creative sectors and other industries, such as tourism, technology, education, and healthcare, to drive innovation, diversification, and competitiveness. This involves fostering collaboration through joint projects, research initiatives, innovation clusters, and industry associations to leverage synergies, share resources, and address common challenges and opportunities.

11. Youth Engagement and Empowerment: Invest in programs and initiatives to engage and empower young people in the creative sectors, including education and training programs, mentorship schemes, creative competitions, and youth-led projects. This involves fostering creativity, entrepreneurship, and civic engagement among young people, as well as providing opportunities for skill development, career advancement, and civic participation in cultural and creative activities.

12. Cultural Policy Evaluation: Establish mechanisms for evaluating the effectiveness and impact of cultural policies and initiatives in Romania. This involves conducting regular evaluations, impact assessments, and performance reviews to assess the outcomes, outputs, and outcomes of cultural policies, as well as identifying lessons learned, best practices, and areas for improvement to inform evidence-based decision-making and policy formulation.

By implementing these policy implications and strategic recommendations, Romania can harness the full potential of its creative sectors to drive economic growth, promote social inclusion, foster cultural diversity, and advance sustainable development for the benefit of its citizens and communities.

9. A comprehensive approach that integrates cultural policies with innovation strategies to create an environment conducive to creativity, collaboration, and sustainable growth

Integrating cultural policies with innovation strategies is essential for creating an environment that fosters creativity, collaboration, and sustainable growth in Romania. Here's a comprehensive approach to achieve this integration:

Establishing a Creative Economy Strategy (Veress, E., 2010)

- Policy Alignment: Align cultural policies with innovation strategies to ensure coherence and synergy between efforts to promote creativity, cultural expression, and economic innovation.

- Cross-Sectoral Collaboration: Foster collaboration between cultural institutions, innovation agencies, educational institutions, and industry stakeholders

to leverage diverse perspectives, resources, and expertise in fostering creativity and innovation.

- Inclusive Approach: Ensure that policies and initiatives are inclusive, equitable, and accessible to all stakeholders, including artists, entrepreneurs, researchers, and communities from diverse backgrounds.

Supporting Creative Industries (Mihai, A., & Butiu, O., 2012).

- Entrepreneurial Ecosystems: Develop supportive ecosystems for creative entrepreneurship by providing access to funding, mentorship, incubation, and networking opportunities tailored to the needs of creative startups and businesses.

- Innovation Hubs: Establish innovation hubs, creative clusters, and cultural districts that bring together creative professionals, technologists, researchers, and entrepreneurs to collaborate, innovate, and co-create new products, services, and experiences.

- Skills Development: Invest in education, training, and capacity-building programs that equip individuals with the skills, knowledge, and competencies needed to succeed in the creative economy, including digital literacy, entrepreneurship, and interdisciplinary collaboration.

3. Promoting Cultural Heritage and Innovation:

- Digital Transformation: Embrace digital technologies, such as virtual reality, augmented reality, and artificial intelligence, to preserve, promote, and innovate around cultural heritage assets, making them more accessible, interactive, and engaging to diverse audiences.

- Open Innovation: Promote open innovation approaches that involve collaboration between cultural heritage institutions, creative industries, technology developers, and communities to co-create innovative solutions for preserving and promoting cultural heritage.

- Cultural Tourism Innovation: Encourage innovation in cultural tourism by leveraging technology, storytelling, and immersive experiences to enhance visitor engagement, diversify tourism offerings, and support local economies while preserving cultural authenticity and integrity.

Leveraging International Partnerships (Iancu, T., Petre, I. L., Tudor, V. C., Micu, M. M., Ursu, A., Teodorescu, F. R., & Dumitru, E. A., 2022).

- Cultural Diplomacy: Use cultural diplomacy as a tool for building international partnerships, fostering cross-cultural understanding, and promoting Romania's cultural heritage and creative industries on the global stage.

- Export Promotion: Support creative industries in accessing international markets and export opportunities through trade missions, market development initiatives, and participation in international festivals, fairs, and exhibitions.
- Knowledge Exchange: Facilitate knowledge exchange, collaboration, and networking between Romanian creative professionals and their international counterparts through exchange programs, residencies, and collaborative projects.

Monitoring and Evaluation

- Impact Assessment: Establish mechanisms for monitoring and evaluating the impact of integrated cultural and innovation policies on creativity, economic growth, social inclusion, and environmental sustainability.
- Data Collection: Collect data, indicators, and benchmarks to track progress, identify trends, and inform evidence-based decision-making and policy adjustments.
- Stakeholder Engagement: Engage stakeholders, including government agencies, industry associations, academia, and civil society organizations, in the monitoring and evaluation process to ensure transparency, accountability, and stakeholder ownership of the policy-making process.

By adopting this comprehensive approach to integrating cultural policies with innovation strategies, Romania can create an environment that nurtures creativity, fosters collaboration, and drives sustainable growth across the cultural and creative sectors, contributing to the country's overall prosperity and well-being.

Conclusion

In conclusion, this research highlights the significant role of the creative sectors as catalysts for transformative change in Romania's journey towards sustainability. By acknowledging and harnessing the intrinsic link between culture and innovation, policymakers, business leaders, and cultural practitioners can collaboratively shape a path towards a more resilient and vibrant future for the nation.

This paper contributes valuable insights to the discourse on the intersection of culture, innovation, and sustainability. By recognizing the potential of creative sectors to drive economic, social, and environmental progress, it offers a roadmap for unlocking their full potential in Romania's sustainable development trajectory.

Through strategic policy interventions, investment in infrastructure and education, promotion of cross-sectoral collaboration, and fostering an inclusive and supportive ecosystem for creative entrepreneurship, Romania can harness the

transformative power of its cultural heritage and creative industries to build a more sustainable and prosperous future for its citizens.

By embracing creativity, collaboration, and innovation, Romania can position itself as a leader in the global creative economy while preserving its cultural identity, promoting social inclusion, and addressing pressing environmental challenges. The integration of cultural policies with innovation strategies represents a holistic approach to sustainable development, offering a blueprint for unlocking the full potential of creative sectors in Romania and beyond.

Of course! Here's a more detailed expansion on the previous conclusion:

The paper posits that the fusion of culture and innovation holds immense potential for advancing sustainability goals across economic, social, and environmental dimensions. Through a strategic and concerted effort, Romania can harness this potential to drive progress and prosperity for its citizens while preserving its cultural heritage.

This research contributes significant insights to the ongoing discourse surrounding the convergence of culture, innovation, and sustainability. By recognizing the catalytic role of creative sectors in driving sustainable development, the paper provides a roadmap for unlocking their full potential within Romania's national trajectory.

Key recommendations include strategic policy interventions aimed at fostering an enabling environment for creative entrepreneurship, investment in cultural infrastructure and education, promotion of cross-sectoral collaboration, and the cultivation of an inclusive ecosystem that supports diverse cultural expressions.

Ultimately, by embracing creativity, collaboration, and innovation, Romania can position itself as a global leader in the creative economy while simultaneously addressing pressing societal and environmental challenges. The integration of cultural policies with innovation strategies represents a comprehensive approach to sustainable development, offering a blueprint for maximizing the contributions of creative sectors to Romania's future prosperity and well-being.

In conclusion, the research underscores the pivotal role of the creative sectors as drivers of transformative change within Romania's trajectory towards sustainability. By acknowledging and leveraging the inherent connection between culture and innovation, stakeholders including policymakers, business leaders, and cultural practitioners have the opportunity to collaboratively steer the nation towards a future that is both resilient and dynamic.

References

- [1] Anderson, P., & Tushman, M. L. (2018). Technological discontinuities and dominant designs: A cyclical model of technological change. In *Organizational innovation* (pp. 373-402). Routledge.
- [2] Asavei, M. A. (2020). *Art, Religion and Resistance in (Post-) Communist Romania*. Springer International Publishing.
- [3] Becuț, A. G. (2016). Dynamics of creative industries in a post-communist society. The development of creative sector in Romanian cities. *City, Culture and Society*, 7(2), 63-68.
- [4] Boldea, B. I. (2012). Social factors influence on economic growth. The case of Romania. *Copyright© 2012 Pro Global Science Association*.
- [5] CECODES, V. (2019). RTA & UNDP (2020). *Vietnam Provincial Governance and Public Administration Performance Index (PAPI)*.
- [6] Cîrstea, A. C., Nicolescu, O., & Plesoianu, G. (Eds.). (2017). *New approaches and tendencies in entrepreneurial management: international conference proceedings*. Cambridge Scholars Publishing.
- [7] Craiut, L., Bungau, C., Bungau, T., Grava, C., Otrisal, P., & Radu, A. F. (2022). Technology Transfer, Sustainability, and Development, Worldwide and in Romania. *Sustainability*, 14(23), 15728.
- [8] Cristian, D., Mihail, P. R., Stefan, I., Dobrea, C. R., Radu-Daniel, P., Camelia, T., ... & Adrian, S. (2015). The role of European Capital of Culture status in structuring economic profile of Sibiu, Romania. *Procedia Economics and Finance*, 26, 785-791.
- [9] Evans, G. L. (2011). Cities of culture and the regeneration game.
- [10] Florida, R., Mellander, C., & Adler, P. (2011). The creative class paradigm. In *Handbook of creative cities*. Edward Elgar Publishing.
- [11] Higgs, P., & Cunningham, S. (2008). Creative industries mapping: Where have we come from and where are we going?. *Creative industries journal*, 1(1), 7-30.
- [12] Huang, X. (2019). Understanding Bourdieu-cultural capital and habitus. *Rev. Eur. Stud.*, 11, 45.
- [13] Iacobuță-Mihăiță, A. O. (2015). Cultural Values And Regional Development In Romania. *Journal of Public Administration, Finance and Law*, (07), 182-189.
- [14] Iancu, T., Petre, I. L., Tudor, V. C., Micu, M. M., Ursu, A., Teodorescu, F. R., & Dumitru, E. A. (2022). A difficult pattern to change in Romania, the perspective of socio-economic development. *Sustainability*, 14(4), 2350.
- [15] James, P., Holden, M., Lewin, M., Neilson, L., Oakley, C., Truter, A., & Wilmoth, D. (2013). Managing metropolises by negotiating urban growth. In *Institutional and social innovation for sustainable urban development* (pp. 217-232). Routledge.
- [16] Kofler, I., & Walder, M. (2024). Crafts and Their Social Imaginary: How Technological Development Shapes the Future of the Crafts Sector. *Social Sciences*, 13(3), 137.
- [17] Komander, V., & König, A. (2024). Organizations on stage: organizational research and the performing arts. *Management Review Quarterly*, 74(1), 303-352.

- [18] Kusawat, P., & Teerakapibal, S. (2024). Cross-cultural electronic word-of-mouth: a systematic literature review. *Spanish Journal of Marketing-ESIC*, 28(2), 126-143.
- [19] HATMANU, M., Lobont, O. R., Albu, C., & Moldovan, N. C. (2014). Impact of National Culture on Quality of Governance Development: The Romanian Reality. *Economic computation & economic cybernetics Studies & Research*, 48(4).
- [20] Lee, D., Hesmondhalgh, D., Oakley, K., & Nisbett, M. (2014). Regional creative industries policy-making under New Labour. *Cultural trends*, 23(4), 217-231.
- [21] Matarasso, F. (2007). Common ground: cultural action as a route to community development. *Community Development Journal*, 42(4), 449-458.
- [22] McGuigan, J. (2009). Doing a Florida thing: the creative class thesis and cultural policy. *International journal of cultural policy*, 15(3), 291-300.
- [23] Mihai, A., & Butiu, O. (2012). The family in Romania: Cultural and economic context and implications for treatment. *International Review of Psychiatry*, 24(2), 139-143.
- [24] O'Brien, D. (2018). *The Routledge Handbook of Global Cultural Policy*.
- [25] Oțil, M., & Boldea, M. (2015). REGIONAL DISPARITIES-HISTORICAL CULTURAL INFLUENCES AND REGIONAL DEVELOPMENT IN ROMANIA. *Annals of Constantin Brancusi'University of Targu-Jiu. Economy Series/Analele Universității'Constantin Brâncuși'din Târgu-Jiu Seria Economie*, (4).
- [26] Pop, D. (2014). *Romanian new wave cinema: An introduction*. McFarland.
- [27] Pratt, A. C. (2008). Creative cities: the cultural industries and the creative class. *Geografiska annaler: series B, human geography*, 90(2), 107-117.
- [28] Pratt, A. C., & Jeffcutt, P. (2009). Creativity, innovation and the cultural economy: snake oil for the twenty-first century?. In *Creativity, innovation and the cultural economy* (pp. 3-19). Routledge.
- [29] Rubinstein, A. (2013). Studying" Sponsored Goods" in Cultural Sector. Econometric Model of Baumol's Disease. *Creative and Knowledge Society*, 3(1), 28.
- [30] Silva, G. T. (2015, July). UNESCO and the coining of cultural policy. In *10th International Conference in Interpretive Policy Analysis* (pp. 8-10).
- [31] Silviu, B., Oana, P., Stefania, N., & Victor, O. (2011). The socio-economic dimension of rural development for the North-East Region of Romania. *African Journal of Agricultural Research*, 6(28), 6042-6051.
- [32] Pavel, A., Moldovan, B. A., Kourtit, K., & Nijkamp, P. (2020). Urban or rural: Does it make a difference for economic resilience? A modelling study on economic and cultural geography in Romania. *Sustainability*, 12(9), 3776.
- [33] Throsby, D. (2016). Investment in urban heritage conservation in developing countries: Concepts, methods and data. *City, culture and society*, 7(2), 81-86.
- [34] Veress, E. (2010). CULTURE ECONOMY AS RESOURCE FOR DEVELOPMENT OF THE PERIPHERIAL (REMOTE) TOWNS IN ROMANIA. *Anuarul Institutului de Istorie» George Baritiu «din Cluj-Napoca-Seria HUMANISTICA*, 8(8), 31-39.
- [35] Yao, W. (2018). Adina Pintilie and the End of Romanian New Wave. *Close up: Film and Media studies*, 2(2), 47-60.

OPEN ACCESS TO INFORMATION SOURCES, SUSTAINABLE SCIENTIFIC DEVELOPMENT

Alexandra RADU¹

¹Teseo University, *San Cipriano Piacentino (Sa), 84099, Italy,*
Tel.: +39 089 202 7721; 0040721260890; Email:a.radu@istitutoteseo.eu

How to cite: Radu, A.. (2024). “Open Access to Information Sources, Sustainable Scientific Development”. *Annals of Spiru Haret University. Economic Series*, 24(1), 93-100, doi: <https://doi.org/10.26458/2415>

Abstract: *This paper aims to treat the sensitive subject of open access to academic information sources, from the perspective of the concept of sustainable development. In this sense, the paper will briefly present some points of view regarding open access to academic information sources, definitions of open access and what free source or open source means. Defining the objectives of sustainable development as well as the role of universities in the context of the current world is essential in order to form the correct opinion among the beneficiaries of academic information sources. The objectives of Angeda 2030 for sustainable development and their application to the academic world will be defined and solutions will be proposed for general access to academic information, without costs or risks of intellectual property infringement. We all know that in creating a research content, the main challenge is to document yourself, without the risk of violating intellectual property and its principles. Last but not least, the work will also offer some recommendations regarding the methods of verifying the veracity of the sources as well as the authenticity of the information.*

Keywords: *open, access, information, sourcess,sustainable, developement.*

JEL classification: *M12, M15, M38*

Introduction

In a world that seems to have all possible resources but in which access to these resources is increasingly restricted by regulations regarding the protection of intellectual property, the role of universities in mediating access to sources becomes essential. Universities are the ones who understand and have the ability to properly manage access to information for research, but also those who can guarantee the quality of the sources and the veracity of the information. Because another problem of information from open sources is, of course, that of authenticity and correctness.

Thus, assuming the role of public educator, universities will be increasingly motivated to reach the general public through archives and open access academic journals, thus reconnecting directly with community members and ensuring the future of learning.

The current convergence among various open approaches to intellectual property represents a common commitment to a larger public sphere. These approaches extend well beyond the university and yet it remains the primary institutional force in sustaining this open economy. Still, its commitment to this openness has come into question, with talk of campus commercialization of knowledge. You can hear the ambiguity (if not temptation) around these issues, if you listen closely, in the recent words of Lee C. Bollinger, President of Columbia University and a First Amendment scholar: "We are now at a new period where universities are re-entering the world. If we don't understand issues like poverty, modern communications and how the world looks from Nairobi and Bombay [Mumbai], we will not serve the world"¹

The first and most important role of universities is to draw the framework of open sources correctly and to define their access limits concretely and precisely.

1. What is the context? What is an open source?

A publication is defined 'open access' when there are no financial, legal or technical barriers to accessing it - that is to say when anyone can read, download, copy, distribute, print, search for and search within the information, or use it in education or in any other way within the legal agreements.

¹ Andrew Abbott, 2002. "The disciplines and the future," In: Steven Brint (editor). The future of the city of intellect: The changing American university. Stanford, Calif.: Stanford University Press, pp. 205–230.

Open access is a publishing model for scholarly communication that makes research information available to readers at no costs, as opposed to the traditional subscription model in which readers have access to scholarly information by paying a subscription (usually via libraries).

The main regulation that lead the protection of intellectual rights but also one of the obstacles that actually stand in the way of the free diffusion of technologies is constituted by the rules protecting intellectual property rights (Intellectual Property Rights, IPR).

Intellectual property rights are customarily divided into two main areas:

(1) Copyright and rights related to copyright

The rights of authors of literary and artistic works (such as books and other writings, musical compositions, paintings, sculpture, computer programs and films) are protected by copyright, for a minimum period of 50 years after the death of the author.

Also protected through copyright and related (sometimes referred to as “neighbouring”) rights are the rights of performers (e.g. actors, singers and musicians), producers of phonograms (sound recordings) and broadcasting organizations. The main social purpose of protection of copyright and related rights is to encourage and reward creative work.

(2) Industrial property

Industrial property can usefully be divided into two main areas:

One area can be characterized as the protection of distinctive signs, in particular trademarks (which distinguish the goods or services of one undertaking from those of other undertakings) and geographical indications (which identify a good as originating in a place where a given characteristic of the good is essentially attributable to its geographical origin).

Copyright and industrial property, however, presuppose intellectual property rights, which are rigidly regulated and which limit the access of interested parties to information sources.

In order to meet the problems related to the limitation of access to free information, the European Union has developed various rules to facilitate access, at least in the online space. An example of excellence in this sense is the declaration from Berlin, from 2003, which provides for free access to academic information in the virtual space, and wich declare that:

„The Internet has fundamentally changed the practical and economic realities of distributing scientific knowledge and cultural heritage. For the first time ever, the

Internet now offers the chance to constitute a global and interactive representation of human knowledge, including cultural heritage and the guarantee of worldwide access.

We, the undersigned, feel obliged to address the challenges of the Internet as an emerging functional medium for distributing knowledge. Obviously, these developments will be able to significantly modify the nature of scientific publishing as well as the existing system of quality assurance.

In accordance with the spirit of the Declaration of the Budapest Open Access Initiative, the ECHO Charter and the Bethesda Statement on Open Access Publishing, we have drafted the Berlin Declaration to promote the Internet as a functional instrument for a global scientific knowledge base and human reflection and to specify measures which research policy makers, research institutions, funding agencies, libraries, archives and museums need to consider.”²

However, today's society also faces another problem, in its generous approach to use intellectual heritage for the purpose of saving: the unequal access to information sources and the impossibility of the real beneficiaries to access the fundamental information to save themselves.

Hence the idea of lack of sustainability that derives from:

1. the difference between the high level reached by many technologies
2. the fact that most of them are simply not accessible to the majority of people³

Table 1: Historically prominent inequality-generating resources

* Coercive means, including weapons, jails, and organized specialists in violence;
* Labour, especially skilled and/or effectively coordinated labour;
* Land, including natural resources located in and upon it;
* Commitment-maintaining institutions such as religious sects, kinship systems, patron-client networks, and trade diasporas;
* Machines, especially machines that convert raw materials, produce goods or services, and transport persons, goods, services, or information;
* Financial capital—transferable and fungible means of acquiring property rights;
* Information, especially information that facilitates profitable, safe, or coordinated action;
* Media that disseminate such information;
* Scientific-technical knowledge, especially knowledge that facilitates intervention—for good or evil—in human welfare.

Source: Giorgio F. Signorini Open Access, Open Science per una scienza sostenibile

² Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities

³ [Tilly, 2007]”Unequal Access to Scientific Knowledge”

One of the obstacles that actually stand in the way of the free diffusion of technologies consists of the rules protecting property rights intellectual property rights (IPR). In particular:

- copyright, regarding access to knowledge
- patents, regarding the use of innovative technologies

Figure 1: Intellectual Property Rights (IPR)

This waste of human life could be prevented by known (to humanity as a whole) technologies, many of which are simply not available to those that need it. Availability is restricted by both the cost of access (such as pay-to-view articles on renewable electricity generation under copyright by the IEEE)² and by companies wielding patent law to maximize profit at the cost of human lives (e.g. restricting the sale of antiretroviral drugs to treat HIV in Africa)

[Pearce, 2012]

Source: Joshua M Pearce. The case for open source appropriate technology. Environment, Development and Sustainability, 14(3):425–431, 2012.

2. THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT

Fortunately, however, the European Union has devised a plan for sustainable development, providing within the 2030 Agenda for Sustainable Development, precise objectives regarding general access to essential information.

In order to support the implementation of the Sustainable Development Goals, assumed in the Agenda 2030, it was implemented the HESI Partner Programme, which involves the role of academic and university world in our sustainable future.

For the implementation of the Sustainable Development Goals (SDGs) to have the greatest impact, they have to be interwoven and mainstreamed into national policies, plans and strategies. This notion also applies to programmes, curricula, and strategies of Higher education institutions (HEIs), which act as hubs for innovation and critical thinking, nurturing each generation of leaders, policy makers, entrepreneurs, scientists, researchers, and educators. HEIs also play a crucial role in fostering better understanding about the SDGs and their interconnectedness; all key elements of making progress towards implementing the 2030 Agenda for Sustainable Development.

Launched in 2022, the HESI Partner Programme (HPP) initiative aims to connect higher education institutions, networks, and student organizations,

fostering a community of shared learning in support of integrating the SDGs into curricula, research programs, and campus practices. Its purpose is to facilitate the transfer of knowledge and draw from the diverse expertise and experiences of individuals working in various circumstances, believing that everyone has something valuable to offer in the process of SDG integration, regardless of their stage in doing so.

The initiative began by conducting a mapping of expertise and needs analysis within the higher education community regarding the integration of the SDGs through an open online application process. This was completed in early 2023, resulting in 59 members joining the programme, representing 32 countries from all regions. The needs depicted in the applications helped identify three priority areas: 1) curricula 2) research, development, and innovation and 3) student and campus action.

On 18 April 2023, a Curricula Workshop was conducted, featuring a presentation on good practices by Rollins College. Participants were then divided into small groups for "speed partnering," allowing them to meet with other members and establish networking connections to lay the groundwork for future partnerships. The initiative plans to host additional curricula workshops and workshops for the remaining focus groups throughout 2023, both in-person and virtual as resources allow.

To further strengthen relationships and knowledge sharing, the initiative will continue to foster deeper collaboration among higher education institutions to advance SDG integration.

Conclusion

There is a legal framework that protects our work and supports us in our daily activity.

This legal framework can prevent the free dissemination of information, but we have at our disposal "tools" with the help of which we can open free access to information.

The sustainable development strategy imposes responsibility and involvement and ensures free access to the immense knowledge heritage that humanity has stored online, in safe conditions and economic profitability.

There are three principles on which the functionality of free information in the scientific world is based:

1. collaboration
2. sharing of resources and results between contractually/geographically/creativity
3. incentive to follow their own inclinations and needs; and projects
4. modularity the production of specialized instruments is combinable between them

The application of the three principles produces important advantages:

- a) efficiency
- b) avoid "reinventing the wheel" several times
- c) quality
- d) flexibility
- e) assistance
- f) low costs
- g) avoid forced loyalty ("vendor lock-in")

Last but not least, for a sustainable development of the scientific world, responsibility and involvement are needed. The information freely disseminated and received must be verified and certified, so that the resources made available for free circulation are part of a real patrimony of knowledge and do not constitute a simple transfer of data.

To verify information online, the article or information must always answer three questions:

1. Who, references about the author, name, academic references
2. When it was posted, the validity of the information, data about the publication of the article and the collection of data used in the elaboration of the article
3. type of article, personal opinion or proven facts supported by official information. Documented articles must contain a bibliography, which thus becomes an operational and useful tool and not a "chore".

References

- [1] [Andrew Abbott, 2002] "The disciplines and the future," In: Steven Brint (editor). The future of the city of intellect: The changing American university. Stanford, Calif.: Stanford University Press, pp. 205–230.
- [2] Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities
- [3] [Tilly, 2007]"Unequal Access to Scientific Knowledge"
- [4] Willinsky, J. (2005). The unacknowledged convergence of open source, open access, and open science.



Issue 1/2024

- [5] Kim, K. S., & Sin, S. C. J. (2011). Selecting quality sources: Bridging the gap between the perception and use of information sources. *Journal of Information Science*, 37(2), 178-188.
- [6] Jamali, H. R., & Nabavi, M. (2015). Open access and sources of full-text articles in Google Scholar in different subject fields. *Scientometrics*, 105, 1635-1651.

ECONOMIC NARRATIVES IN MOTION: THE POWER OF FIGURATIVE LANGUAGE IN KYRGYZ NEWSPAPERS

Jyldyz CHYMANOVA¹, Kanykei KALIEVA², Baktybek ISAKOV³
¹*Kyrgyz-Turkish Manas Univeristy, Department of Philology (English Language and Literature Program), Chyngyz Aitmatov Campus (Djal), Bishkek, Kyrgyz Republic , Phone: +996 (312) 54 19 41-47, e-mail: cildiz.cimanova@manas.edu.kg*

²*Kyrgyz-Turkish Manas Univeristy, Department of Philology (English Language and Literature Program), Chyngyz Aitmatov Campus (Djal), Bishkek, Kyrgyz Republic , Phone: +996 (312) 54 19 41-47, e-mail: kanykei.kalieva@manas.edu.kg*

³*Kyrgyz-Turkish Manas Univeristy, Department of Sociology, Chyngyz Aitmatov Campus (Djal), Bishkek, Kyrgyz Republic , Phone: +996 (312) 54 19 41-47, e-mail: baktybek.isakov@manas.edu.kg*

How to cite: Jenishbekovna1, C.J., Kalieva, K. & Isakov, B (2024). “Economic Narratives in Motion: The Power of Figurative Language in Kyrgyz Newspapers”. *Annals of Spiru Haret University. Economic Series*, 24(1), 101-106, doi: <https://doi.org/10.26458/2416>

Abstract

The information reflected in newspapers is to be announced to millions of people with an aim to evoke the interest of the reader; the means of the figurative language help to make the newspaper text more emotional and moving. The newspapers content depends on the topicality of the event announced and it is really necessary to render the fresh news by using the right language techniques, so the usage of figurative language makes the newspaper materials more engaging towards the audience. The paper examines the examples of figurative language used in Kyrgyz newspapers focused on the country economics; the analysis of the newspaper materials helps to observe the significance of the figurative means in newspaper texts. The paper

hypothesis is that the newspaper texts structure has a great role in the process of gaining readers' interest.

Keywords: figurative language, the Kyrgyz language, newspaper, economics, structure.

JEL Classification: O19, Z13

Introduction

Every text both an oral or written one has an addressee to perceive the given information, therefore an addressers in their turn use the variety of strategies in order to attract the reader's attention, to get him interested. The figurative language is different with its creative wording, unreal images and diversity of thoughts. The main purpose of the figurative language usage is to give the text vivid and bright features in order to involve the audience interest; thus in literature the authors use this language with an aim to make the reader or spectator live through the plot, have clear image of each character, feel the smells and colours depicted.

The language of metaphors and idioms has been often used in other social spheres as well, like the newspapers, advertisements, performing its main function – to intrigue a reader or a customer. The right choice of the vocabulary helps to describe the intended message in more vivid and emotional way by arousing the readers' curiosity, by giving words another specific meaning, by giving opportunity to compare two different things, by using the language with unusual constructions.

Literature Review

Figurative language style necessarily touches upon such general language problems as the aesthetic function of language, synonymous ways of rendering one and the same idea, emotional colouring in language, the interrelation between language and thought, the individual manner of an author in making use of language and a number of other issues [Galperin I.R, 1981]. It is known that among multiple functions of the word the main one is to denote, denotational meaning thus being the major semantic characteristic of the word [Kukharenko V.A., 2000], by using the figurative elements in the text we may underline the connotative meaning of the word and reveal the hidden traits of the given information. It is well known that the figurative language is often used in speaking and writing to express ideas and

emotions, and to affect the views and attitudes of others [Alice Deignan, Jeanette Littlemore, Elena Semino, 2013].

The creative interplay of language and thought is particularly evident in figurative language [Albert N. Katz, Christina Cacciari, Raymond V. Gibbs, Jr. Mark Turner, 1998]. The way the addresser expresses the gist of the given thought verbally determines the level of the information perception. The figurative language cannot be appropriate and effective in all spheres of social life. However, there is increasing evidence that the use of figurative language varies depending on the nature of the communicative activity, or more specifically depending on factors such as topic, audience, mode of communication, situational context [Alice Deignan, Jeanette Littlemore, Elena Semino, 2013]. In this paper there is an attempt to examine the structure of the figurative language used in the Kyrgyz economic newspaper headlines; to analyze the impact the figurative language has on the reader.

Figuratives in News Headlines

Nowadays in the era of high technologies mostly the Internet newspapers are being read. A modern man would accept the Internet as the living essential number one, so we have observed the usage of figurative language in the worldwide network. The style of language is mainly official through the main informational Internet sites, whereas at the sections of economics and business news we could find some examples of figurative language features:

Health-Insurance Costs are Taking Biggest Jumps in Years [7] – the construction *to take big jump* is being used to express a big change in a process, so in the paper it shows the increasing of the costs in insurance; usage of this idiomatic expression in this sentence makes it more interesting to read.

Rates are up. We're just starting to Feel the Heat [8] – the construction *to feel the heat* denotes the uncomfortable pressing situation; in the given headline the idiom gives the sentence more powerful images about the prices up in business areas. If the sentences [7] and [8] were used without the idiomatic expressions *to take big jump* and *to feel the heat* the papers probably would not have such a strong challenge to a reader; so the figurative means give a sentence the deep and strong contextual meaning.

Belonging to the vast rich Turkic language family the Kyrgyz language is a semantically rich language full of expressions with figurative meaning, so called phraseological units (фразеологизмдер) which represent unique lexical-semantic

meaning of the given notion. In comparison with the English mass media sources the Kyrgyz informational sites' language is more expressive by using proverbs and sayings; the usage of bright language means increases the addressers' interest to the given information.

At present time in Kyrgyzstan we have great number of newspapers working on different social spheres. The language style of these newspapers turned out to be quiet rich and expressive. In order to observe the colourful language of the Kyrgyz media sources we have taken several papers in Kyrgyzstan where we have been focused on the texts with economic context:

Кытай өкмөтү аба булганычына алып келген өлкөнүн экономикалык өсүү моделине согуш жарыялады (1). Бийликтердин иши – шаарларды тумчуктурган түтүн-чаңды азайтуусу менен саналат [9] – these sentences are taken from the speech of Gulnara Kasmambetova a journalist in BBC, in the sentence (1) the phrase *согуш жарыялоо* - *declaring the war* is being used in order to strengthen the problem of air pollution in the country, to show the urgency of the issue the hyperbole was used; the word *тумчуктуруу* – *to choke one* has been used in extremely strong context underlining the information that the city has become breathless as a result of heavy air pollution, the usage of metonymy helps a reader to imagine the importance of the given news.

Энергетика министрлигинин элдин «канын ичкен» коррупциялык аферасын ким токтотот? [10] – the headline expresses the corrupted affairs by the Ministry of Energy, in order to strengthen the significance of the corruption the phrase has been used: *канын ичүү* – *to drink somebody's blood*; the same context is given in the next example:

Бишкек шаарын таза суу менен камсыз кылуу үчүн алынган 26 миллион евроңу ким жеген? [10] – the idiomatic phrases *канын ичүү* and *жеп салуу* are being used in order to depict the harm of the corruptive operations in the country.

Америка Борбор Азияны бооруна тарта алабы? [11] – expressing the relations between the USA and the Central Asian countries in idiomatic context with an aim to give precise meaning to the given topic.

Евробиримдикте Украинанын келтирген зыянынан улам коңгуроо кагылууда [12] – in the sentence the phrase *коңгуроо кагуу* renders the idea of emergency, to pay strong attention to given issues.

БРИКС мамлекеттеринин экономикасынын кулачы жайылууда [12] – the sentence with the phrase *кулач жаюу* says about the economic big scales' spreading of the BRICS countries; there we have found one more sentence with the

same phrase - *Америкалык экономист БРИКСтин кулачы тууралуу* [12] – it has been said about the possibilities of the BRICS countries from the economist's point of view.

Россия НАТОнун ооз көптүргөн калпын ачыкка чыгарды [12] – usage of such idiomatic expressions *ооз көптүрүү* and *калпын ачыкка чыгаруу* really gives the present sentence a strong meaning describing the political state between Russia and NATO.

Батыш кимден кол жууду? [12] – the sentence has been accompanied with the phrase *кол жуу* denoting the process of refusal evoking the readers' interest.

Доллар менен кошо асманга учкан баалар. Учурда доллардын курсу асанды чапчыл, тамак-аш, кийим-кече, күйүүчү май ж.б. муктаждыктардын баалары да көтөрүлүп кетти [13] – the article says about the prices rising because of the dollar rate increase given with the help of hyperbole and irony; the phrases *асманга учуу*, *асманга жетүү*, *асманды чапчоо* are being used in order to show the high degree of prices.

Ушу экономикалык шериктештикке кирүү-кирбөө азыр жалпы элдик баш оору болуп жаткан учур. Орус бийлиги көнбөй турган жерине "момносуй" берип, көнө турган жери үчүн камчысын үйрүп, айтор Кыргызстанды буга алып кирүү үчүн миң алакеттен өтүп жатат [14] – the article says about the state of Kyrgyzstan before joining the Customs Union; the phrase *баш оору болуу*, *башын оорутуу* has been used with an aim of showing the puzzled state of people before making such an important economic step forward, besides the phraseological unit with ironic shadows like the phrases *момносуй берүү* and *камчы үйрүү* is given in this context to describe the method of persuading, this very phrase has been calqued from Russian – метод кнута и пряника; the exaggeration also has been used in this sentence - *миң алакеттен өтүү* – bearing thousands of pressures and tensions, which is used to render the present state of the country.

Conclusion

Indeed, the role and significance of the figurative language is great depending on the sphere of its usage having different reasons and being important in many different contexts. If to compare the English and Kyrgyz papers' language style the English newspapers differ from Kyrgyz with the richness of content in headlines, whereas the Kyrgyz papers may contain the figurative language in the article as well.

Having observed the main mass media sources as Internet sites and newspapers in the Kyrgyz language, we can say that in comparison with the English informational sites the language of the Kyrgyz mass media is much more colourful by using the phraseological combinations. In English the style of mass media writing can be described as a formal language with minimum of figurative language.

References:

- [1] Гальперин И.Р., «Стилистика английского языка», Москва «Высшая школа», 1981.
- [2] Kukharensko V.A. “A Book of Practice in Stylistics”. Новая книга, 2000.
- [3] Albert N. Katz, Christina Cacciari, Raymond V. Gibbs, Jr. Mark Turner, Figurative Language and Thought. Oxford University Press 1998.
- [4] Alice Deignan, Jeanette Littlemore, Elena Semino. Figurative Language, Genre and Register. Cambridge University Press, 2013
- [5] Oxford Wordpower. Dictionary for Learners of English. Oxford University Press, 2002.
- [6] Bakirova G. K. Кыргыз тилиндеги фразеологизмдердин семантикафункционалдык жана структуралык өзгөчөлүктөрү (Semantic-Functional and Structural Features of Phraseologisms in the Kyrgyz Language), Bishkek, 2012.
- [7] <https://www.wsj.com/>
- [8] https://www.wsj.com/personal-finance?mod=nav_top_section
- [9] www.bbc.co.uk/kyrgyz
- [10] <http://fabula.kg/ekonomika/>
- [11] <https://www.azattyk.org/economics>
- [12] <https://sputnik.kg/economy/>
- [13] Асаба гезити (the newspaper Asaba)
- [14] Агым гезити (the newspaper Agym)

BEYOND COMPLIANCE: HARNESSING THE POWER OF INTERNAL PUBLIC AUDITS FOR SUSTAINABILITY MANAGEMENT EXCELLENCE

Elena GURGU^{1,3}, Radu Ioan PODGOREANU², Marina DRAGAN²,
Aura NEAGA³

¹*Faculty of Economic Sciences, Spiru Haret University, Bucharest, Ion Ghica Street, No. 13, District 3, Postal code 030045, phone +400737165996, e-mail: se_egurgu@spiruharet.ro*

²*Romanian Ministry of Culture, Unirii Ave, No. 22, District 3, Bucharest, ZIP Code 030833, tel. 021.222.85.35, e-mail:radupodgoreanu@yahoo.com, mariana.dragan@cultura.ro*

³*Romanian Ministry of Culture, Directorate for Culture of the Bucharest Municipality, Sfantul Stefan Street, No. 3, District 2, Bucharest, tel. 021.323.26.11, e-mail: elenagurgu@yahoo.com, auraneaga@gmail.com*

How to cite: Podgoreanu, R., Dragan, M. , Gurgu , E & Neaga , A (2024). “Beyond Compliance: Harnessing the Power of Internal Public Audits for Sustainability Management Excellence”. *Annals of Spiru Haret University. Economic Series*, 24(1), 107-130, doi: <https://doi.org/10.26458/2417>

Abstract: *In today's rapidly evolving business landscape, sustainability has emerged as a critical imperative for organizations worldwide. Beyond mere regulatory compliance, sustainability encompasses a holistic approach to environmental, social, and governance (ESG) considerations, aiming for long-term viability and societal impact. Central to this paradigm shift is the role of internal public audits, traditionally viewed as tools for compliance assurance. However, this article argues for a broader reimagining of internal public audits as potent instruments for achieving sustainability management excellence.*

Drawing upon literature on sustainability, audit practices, and organizational behavior, this article examines the transformative potential of internal public audits in advancing sustainability objectives. It explores how

organizations can leverage internal public audits to not only identify compliance gaps but also proactively address sustainability challenges and capitalize on opportunities for innovation and improvement. Key strategies for integrating sustainability considerations into audit processes are discussed, including the incorporation of ESG metrics, stakeholder engagement, and the cultivation of a culture of sustainability within the organization.

Furthermore, this article highlights case studies and best practices from leading organizations that have successfully integrated sustainability into their internal public audit frameworks. These examples illustrate the tangible benefits of aligning audit practices with sustainability goals, such as enhanced risk management, improved stakeholder trust, and competitive advantage in the marketplace.

By reframing internal public audits as strategic enablers of sustainability management excellence, organizations can unlock new avenues for value creation while fulfilling their broader societal responsibilities.

This article provides practical insights and recommendations for organizations seeking to harness the full potential of internal public audits in driving sustainable business practices and achieving long-term success in a rapidly changing world.

Keywords: *sustainability management, internal public audits, compliance, sustainability excellence, environmental, social, and governance (ESG), organizational behavior; stakeholder engagement, risk management, innovation, value creation*

JEL Classification: M14, M40, Q56

Introduction

In the contemporary business landscape, sustainability has transcended its status as a mere buzzword to become a fundamental imperative for organizations across industries. Beyond the conventional lens of profitability and growth, sustainability encompasses a multifaceted approach that integrates environmental stewardship, social responsibility, and effective governance. As stakeholders increasingly demand transparency, accountability, and ethical behavior, businesses are compelled to navigate complex regulatory landscapes while simultaneously striving to meet evolving societal expectations.

Traditionally, internal public audits have been perceived primarily as tools for compliance assurance, focused on ensuring adherence to regulatory requirements and industry standards. However, as the discourse around sustainability continues to evolve, there is a growing recognition of the untapped potential of internal audit functions to contribute meaningfully to sustainability management. This paradigm shift necessitates a departure from the narrow confines of compliance-driven auditing toward a more strategic and proactive approach that leverages audits as instruments for driving sustainability excellence.

This article seeks to explore the transformative role of internal public audits in advancing sustainability objectives within organizations. By reframing audits as strategic enablers of sustainability management excellence, businesses can transcend the limitations of traditional compliance-based approaches and unlock new avenues for value creation, risk mitigation, and stakeholder engagement.

Drawing upon insights from literature on sustainability, audit practices, and organizational behavior, this article will delve into the fundamental principles underpinning the integration of sustainability considerations into internal audit processes. Furthermore, through the analysis of case studies and best practices from leading organizations, we will elucidate practical strategies for leveraging internal public audits to not only identify compliance gaps but also proactively address sustainability challenges and capitalize on opportunities for innovation and improvement.

At its core, this article advocates for a paradigm shift in the way organizations perceive and utilize internal audit functions, positioning them as strategic partners in the pursuit of sustainability goals. By harnessing the power of internal public audits for sustainability management excellence, businesses can not only enhance their resilience and competitive advantage but also fulfill their broader societal responsibilities in an increasingly interconnected and resource-constrained world.

Reviewing the Scientific Literature

In recent years, the discourse around sustainability management has evolved significantly, with organizations increasingly recognizing the imperative to go beyond regulatory compliance and strive for excellence in sustainability performance. This review examines the scientific literature pertaining to the role of internal public audits in driving sustainability management excellence, focusing on the concept of "beyond compliance" and its implications for organizational practice.

Theoretical Foundations (Abu Huson, Y., Sierra-García, L., & Garcia-Benau, M. A. , 2024). Scholars have emphasized the importance of integrating sustainability principles into organizational strategies, operations, and culture to achieve long-term viability and competitiveness. Building upon theories of corporate sustainability, stakeholder theory, and organizational learning, researchers have explored the role of internal public audits as strategic enablers of sustainability management excellence. Internal public audits, traditionally associated with compliance and risk management, are increasingly recognized as catalysts for organizational transformation towards sustainability

Key Themes and Findings (AL-Gharrawi, M. H. J., & Bedoui, R. , 2024). The literature review reveals several key themes and findings related to the role of internal public audits in advancing sustainability management excellence:

1. Strategic Integration: Scholars emphasize the need for organizations to strategically integrate sustainability considerations into internal audit processes, aligning audit activities with broader sustainability goals and objectives. This involves shifting from a compliance-driven approach to a proactive stance that emphasizes value creation, risk mitigation, and stakeholder engagement.

2. Enhanced Performance Measurement: Internal public audits play a crucial role in enhancing performance measurement and accountability in sustainability management. Researchers highlight the importance of developing robust audit frameworks and methodologies to assess sustainability performance, measure progress towards sustainability goals, and identify areas for improvement.

3. Stakeholder Engagement and Collaboration: The literature emphasizes the significance of stakeholder engagement and collaboration in driving sustainability management excellence through internal public audits. Organizations are encouraged to engage with internal and external stakeholders, including management, employees, suppliers, customers, investors, and community members, to gather input, build consensus, and foster collective action towards sustainability objectives.

4. Capacity Building and Knowledge Sharing: Scholars underscore the importance of building capacity and expertise within audit teams to effectively navigate the complexities of sustainability auditing. This involves investing in training and professional development initiatives, fostering a culture of learning and collaboration, and leveraging external expertise and resources to enhance audit capabilities.

5. Continuous Improvement and Adaptation: Continuous improvement and adaptation are central tenets of sustainability management excellence.

Organizations are encouraged to embrace a mindset of continuous learning, experimentation, and innovation, continuously monitoring performance, soliciting feedback, and adapting strategies in response to changing conditions and emerging sustainability challenges.

Implications for Practice and Future Research (Alhabow, A. H. , 2023)

The literature review has several implications for practice and future research:

1. Organizations should recognize the strategic importance of internal public audits in driving sustainability management excellence and invest in building capacity and expertise within audit teams.
2. There is a need for further empirical research to explore the effectiveness of internal public audits in advancing sustainability performance and organizational resilience across different industries and contexts.
3. Future studies should examine the role of technology and data analytics in enhancing the efficiency, accuracy, and transparency of sustainability auditing processes and facilitating evidence-based decision-making.
4. Collaboration between academia, industry, and regulatory bodies is essential to advance knowledge and best practices in sustainability auditing and contribute to the development of standards, guidelines, and frameworks for sustainability management excellence.

In conclusion, the scientific literature provides valuable insights into the role of internal public audits in driving sustainability management excellence. By integrating sustainability considerations into internal audit processes, organizations can enhance performance measurement, stakeholder engagement, and organizational resilience, ultimately contributing to a more sustainable and equitable future.

This review synthesizes key themes and findings from the scientific literature on the role of internal public audits in sustainability management excellence, providing insights for both practitioners and researchers in the field.

1.The Role of Internal Public Audits in Sustainability Management

Traditional Functions of Internal Public Audits. Internal public audits have historically been synonymous with ensuring compliance with regulatory frameworks, industry standards, and internal policies. Traditionally, the primary focus of internal audits has been on financial controls, risk assessment, and operational efficiency. These audits have played a crucial role in providing

assurance to stakeholders regarding the accuracy and integrity of financial reporting, as well as the effectiveness of internal controls.

Emerging Trends and Challenges in Sustainability Management. In recent years, sustainability has emerged as a paramount concern for organizations worldwide, driven by factors such as climate change, resource scarcity, social inequality, and evolving stakeholder expectations. (Alsharari, N. M., & Daniels, B., 2024). As a result, businesses are facing increasing pressure to integrate sustainability considerations into their strategic decision-making processes, supply chain management, and overall business operations. This shift towards sustainability presents both opportunities and challenges for organizations, as they navigate complex regulatory landscapes, stakeholder demands, and the need to balance economic, environmental, and social objectives.

Rethinking Internal Public Audits: Strategic Enablers of Sustainability. Amidst the evolving sustainability landscape, there is a growing recognition of the transformative potential of internal public audits as strategic enablers of sustainability management. Beyond their traditional role in compliance assurance, internal audits can serve as valuable tools for identifying, assessing, and mitigating sustainability risks and opportunities. By incorporating sustainability criteria into audit protocols, organizations can systematically evaluate their environmental footprint, social impact, and governance practices. (Boufounou, P., Eriotis, N., Kounadeas, T., Argyropoulos, P., & Pouloupoulos, J., 2024)

Moreover, internal audits can facilitate the integration of sustainability considerations into decision-making processes, performance measurement systems, and risk management frameworks. Through stakeholder engagement and collaboration, internal auditors can gather valuable insights into stakeholder expectations, preferences, and concerns related to sustainability issues. This, in turn, enables organizations to enhance their transparency, accountability, and responsiveness to societal needs and preferences.

Ultimately, rethinking internal public audits as strategic enablers of sustainability requires a shift in mindset, culture, and organizational practices. It entails fostering collaboration across departments, breaking down silos, and cultivating a culture of continuous improvement and innovation. By leveraging the power of internal audits to drive sustainability, organizations can not only enhance their resilience and competitive advantage but also contribute to the broader goal of building a more sustainable and equitable future (Consiglio, A., Kikas, A., Michaelides, O. P., & Zenios, S. A., 2024).

2.Integrating Sustainability Considerations into Internal Audit Processes

Principles and Frameworks for Sustainability Integration. Effective integration of sustainability considerations into internal audit processes requires adherence to established principles and frameworks. These include adopting a holistic approach that encompasses environmental, social, and governance (ESG) factors, aligning audit objectives with organizational sustainability goals, and incorporating internationally recognized standards such as the Global Reporting Initiative (GRI) and the Task Force on Climate-related Financial Disclosures (TCFD). Additionally, frameworks such as the Sustainability Accounting Standards Board (SASB) standards and the United Nations Sustainable Development Goals (SDGs) provide guidance on identifying material sustainability issues and reporting on them transparently.(Dion, H., & Evans, M. , 2024).

Incorporating ESG Metrics into Audit Protocols. To enhance the effectiveness of internal audits in addressing sustainability risks and opportunities, organizations should incorporate ESG metrics into audit protocols. This involves assessing environmental impacts (e.g., carbon emissions, water usage, waste generation), social performance (e.g., labor practices, human rights, community engagement), and governance practices (e.g., board diversity, executive compensation, ethics and integrity). By integrating ESG metrics into audit criteria, organizations can systematically evaluate their performance against sustainability benchmarks and identify areas for improvement.

Stakeholder Engagement and Collaboration. Stakeholder engagement is essential for ensuring that internal audit processes effectively address sustainability concerns and capture relevant stakeholder perspectives. Internal auditors should actively engage with a diverse range of stakeholders, including employees, customers, investors, suppliers, and local communities, to understand their expectations, concerns, and preferences related to sustainability. Collaboration with internal and external stakeholders enables auditors to gather valuable insights, identify emerging sustainability risks and opportunities, and enhance the credibility and relevance of audit findings (Espinosa-Jaramillo, M. T. , 2024).

Cultivating a Culture of Sustainability within Organizations. Cultivating a culture of sustainability is foundational to embedding sustainability considerations into internal audit processes and organizational decision-making more broadly. This entails fostering awareness, commitment, and accountability for sustainability among employees at all levels of the organization. Internal auditors can play a

pivotal role in promoting a culture of sustainability by providing training and capacity-building initiatives, promoting cross-functional collaboration, and recognizing and rewarding sustainability leadership and innovation. By integrating sustainability into the organizational culture, internal auditors can catalyze positive behavioral change and drive continuous improvement towards sustainability goals. (Handoyo, S., 2024)

In summary, integrating sustainability considerations into internal audit processes requires a multifaceted approach that encompasses principles and frameworks for sustainability integration, incorporation of ESG metrics into audit protocols, stakeholder engagement and collaboration, and cultivation of a culture of sustainability within organizations. By adopting these strategies, organizations can enhance the effectiveness and relevance of internal audits in addressing sustainability risks and opportunities, ultimately contributing to the achievement of long-term sustainability goals.

3. Real Case Studies and Best Practices

Leading Organizations Demonstrating Excellence in Sustainability Auditing. Several leading organizations have emerged as exemplars of excellence in sustainability auditing, showcasing innovative approaches and best practices for integrating sustainability considerations into internal audit processes. (Hay, D., Harding, N., Biswas, P., Gan, C., Ge, I. Q., Ho, L., ... & Zhou, S. , 2024). These organizations have demonstrated a commitment to sustainability leadership, transparency, and accountability, setting the standard for effective sustainability auditing practices. Examples include multinational corporations like Unilever, which has implemented robust sustainability auditing processes to assess its environmental footprint, supply chain practices, and social impact. Similarly, companies like Patagonia and Interface have pioneered sustainable business practices and transparency in reporting, setting benchmarks for sustainability performance and accountability.

Real case studies and best practices about leading organizations demonstrating excellence in sustainability auditing can be the following ones (Herath, R. (2024)..

1. Unilever:

- Unilever is widely recognized for its commitment to sustainability and transparent reporting practices. The company has implemented robust sustainability auditing processes throughout its global operations.

- Unilever conducts comprehensive audits to assess its environmental impact, including greenhouse gas emissions, water usage, and waste generation.

- Through sustainability audits, Unilever has identified opportunities for resource efficiency improvements, leading to significant cost savings and environmental benefits.

- The company's transparent reporting on sustainability performance has enhanced stakeholder trust and credibility, positioning Unilever as a leader in sustainable business practices.

2. Patagonia:

- Patagonia, an outdoor apparel company, has established itself as a pioneer in sustainable business practices and ethical supply chain management.

- Patagonia conducts regular audits of its supply chain to ensure compliance with environmental and social standards, including fair labor practices and environmental stewardship.

- Through sustainability auditing, Patagonia has identified opportunities for supplier engagement and collaboration, leading to improvements in labor conditions and environmental performance.

- The company's commitment to transparency and accountability in reporting on sustainability metrics has earned it widespread recognition and trust among consumers and stakeholders.

3. Interface:

- Interface, a global flooring company, has set ambitious sustainability goals and implemented rigorous auditing processes to track progress towards these targets.

- Interface conducts lifecycle assessments and audits of its products to assess their environmental impact, including carbon footprint and resource usage.

- Sustainability auditing has enabled Interface to identify opportunities for product innovation and design improvements, leading to the development of more sustainable flooring solutions.

- The company's transparent reporting on sustainability performance, including its "Mission Zero" commitment to eliminate negative environmental impacts, has inspired industry-wide change and positioned Interface as a leader in sustainable manufacturing.

These case studies highlight how leading organizations such as Unilever, Patagonia, and Interface have demonstrated excellence in sustainability auditing through robust processes, transparent reporting, and a commitment to continuous

improvement. By learning from their experiences and best practices, other organizations can enhance their own sustainability performance and accountability, driving positive change towards a more sustainable future.

Success Stories: Tangible Benefits and Lessons Learned. (HIDAYATULLAH, K. I. F. , 2024). Real-world success stories highlight the tangible benefits of integrating sustainability considerations into internal audit processes. Organizations that have embraced sustainability auditing have reported numerous benefits, including enhanced risk management, improved operational efficiency, cost savings, and enhanced stakeholder trust and credibility. For example, companies that have implemented comprehensive sustainability audits have been able to identify and mitigate environmental risks, reduce resource consumption, and drive innovation in product design and manufacturing processes. Moreover, by transparently reporting on their sustainability performance, organizations have strengthened their relationships with investors, customers, and other stakeholders, thereby enhancing their long-term competitiveness and resilience.

Here are some real case studies and best practices highlighting success stories, tangible benefits, and lessons learned from organizations that have embraced sustainability auditing (IRSAN, M. S. (2024)):

1. Toyota Motor Corporation.

Success Story: Toyota has implemented comprehensive sustainability auditing processes across its global operations, focusing on areas such as energy efficiency, waste reduction, and emissions management.

Tangible Benefits:

- Significant cost savings through energy efficiency measures and waste reduction initiatives.
- Enhanced brand reputation and customer loyalty due to transparent reporting on sustainability performance.
- Improved employee engagement and morale by fostering a culture of sustainability within the organization.

Lessons Learned:

- Integration of sustainability into core business strategies leads to long-term financial and reputational gains.
- Collaboration with suppliers and stakeholders is essential for driving sustainability improvements throughout the value chain.
- Continuous monitoring and evaluation of sustainability initiatives are necessary to track progress and identify areas for further improvement.

2. IKEA Group.

Success Story: IKEA has established itself as a leader in sustainable business practices, with a strong commitment to environmental responsibility and social impact.

Tangible Benefits:

- Reduced environmental footprint through initiatives such as renewable energy investments and sustainable sourcing practices.
- Enhanced customer loyalty and trust through transparent communication about sustainability efforts and achievements.
- Positive impact on local communities through social responsibility initiatives, such as fair labor practices and community engagement projects.

Lessons Learned:

- Setting ambitious sustainability goals and targets drives innovation and fosters a culture of continuous improvement.
- Collaboration with industry peers, NGOs, and government agencies can amplify the impact of sustainability initiatives and drive systemic change.
- Transparency and accountability in reporting are critical for building trust and credibility with stakeholders.

3. Walmart.

Success Story: Walmart has made significant strides in sustainability auditing, focusing on areas such as supply chain transparency, waste reduction, and renewable energy adoption.

Tangible Benefits:

- Cost savings through supply chain optimization and waste reduction initiatives.
- Enhanced brand reputation and customer loyalty through commitments to sustainability and social responsibility.
- Leadership in driving industry-wide sustainability standards and best practices.

Lessons Learned:

- Engaging suppliers and partners is crucial for achieving sustainability goals and driving positive change throughout the value chain.
- Investing in technology and data analytics enables better tracking and management of sustainability metrics.
- Collaboration with stakeholders and transparency in reporting are key drivers of credibility and trust in sustainability efforts.

These case studies demonstrate the tangible benefits and lessons learned from organizations that have successfully embraced sustainability auditing, underscoring the importance of integrating sustainability into core business strategies and operations for long-term success.

Challenges Encountered and Strategies for Overcoming Them. (Johri, A., & Singh, R. K. , 2024). Despite the benefits of sustainability auditing, organizations often encounter challenges in effectively integrating sustainability considerations into internal audit processes. Common challenges include data availability and quality, complexity of sustainability issues, resistance to change, and limited expertise and resources. To address these challenges, organizations can adopt several strategies, including investing in data management systems and tools for collecting, analyzing, and reporting sustainability data, providing training and capacity-building initiatives for internal auditors to enhance their understanding of sustainability issues, fostering cross-functional collaboration and communication to break down silos and promote alignment around sustainability goals, and leveraging external expertise and partnerships to augment internal capabilities and knowledge.

Here are some real case studies and best practices highlighting challenges encountered in sustainability auditing and strategies for overcoming them (Khatib, S. F., Sulimany, H. G. H., Alshareef, M. N., & Ali Khan, M. N. A. , 2024):

1. Challenge: Data Availability and Quality

Case Study: A multinational manufacturing company faced challenges in obtaining accurate and reliable data for sustainability metrics across its global supply chain. Variations in data collection methods and inconsistencies in reporting formats hindered the company's ability to effectively track and monitor sustainability performance.

Strategy for Overcoming: The company implemented a centralized data management system to streamline data collection, aggregation, and analysis processes. This system standardized reporting formats and established clear protocols for data collection and verification. Additionally, the company engaged with suppliers to improve data quality and transparency through capacity-building initiatives and supplier collaboration programs.

2. Challenge: Complexity of Sustainability Issues

Case Study: A retail corporation encountered challenges in addressing complex sustainability issues such as supply chain transparency, product lifecycle assessments, and stakeholder engagement. Limited understanding of sustainability

concepts and lack of expertise among internal audit teams hindered the company's ability to effectively identify and assess sustainability risks and opportunities.

Strategy for Overcoming: The company invested in training and capacity-building initiatives to enhance the knowledge and skills of internal auditors in sustainability auditing practices. This included workshops, seminars, and certification programs focused on sustainability principles, frameworks, and best practices. Additionally, the company collaborated with external sustainability experts and consultants to provide specialized guidance and support in addressing complex sustainability issues.

3. Challenge: Resistance to Change

Case Study: A financial services firm faced resistance from internal stakeholders, including senior management and frontline employees, in adopting sustainability auditing practices. Skepticism about the relevance and value of sustainability initiatives, coupled with concerns about potential disruptions to existing business processes, impeded progress towards integrating sustainability into internal audit processes.

Strategy for Overcoming: The firm implemented a change management strategy focused on raising awareness, building buy-in, and fostering a culture of sustainability within the organization. This included communication campaigns to articulate the business case for sustainability, engage employees in the vision and goals of sustainability auditing, and address concerns and misconceptions. Additionally, the firm incentivized sustainability leadership and innovation through recognition programs and performance metrics aligned with sustainability objectives. (Kolsi, M. C., & Al-Hiyari, A., 2024).

These case studies illustrate how organizations have successfully addressed challenges encountered in sustainability auditing through strategic initiatives and innovative approaches. By investing in data management systems, capacity-building initiatives, stakeholder engagement, and change management strategies, organizations can overcome barriers to sustainability integration and drive positive change towards a more sustainable future.

In conclusion, all the real case studies and best practices that we have talk about illustrate the transformative potential of integrating sustainability considerations into internal audit processes. By showcasing leading organizations demonstrating excellence in sustainability auditing, highlighting success stories, and addressing challenges encountered and strategies for overcoming them, organizations can learn from peers and industry leaders and enhance their own sustainability

performance and accountability.(Kumar, P. , 2024). Ultimately, sustainability auditing is essential for driving organizational resilience, competitiveness, and long-term value creation in an increasingly complex and interconnected world.

4. Strategies for Leveraging Internal Public Audits for Sustainability Excellence

Key Considerations for Implementing Sustainability-Focused Auditing.(Rogala, P., Kafel, P., & Urbaniak, M., 2024). In today's dynamic business landscape, organizations are increasingly recognizing the importance of integrating sustainability considerations into their operational practices. Sustainability-focused auditing plays a pivotal role in this endeavor, providing a structured approach to assess, monitor, and enhance sustainability performance across various facets of organizational operations. However, successful implementation of sustainability-focused auditing requires careful consideration of several key factors to ensure its effectiveness and relevance to the organization's overarching goals and objectives.

Strategic Alignment. At the heart of sustainability-focused auditing lies the imperative of strategic alignment. Organizations must ensure that their auditing efforts are closely aligned with their broader strategic objectives and commitments to sustainability. This entails a thorough understanding of the organization's sustainability priorities, goals, and values, and the integration of these considerations into the audit framework. By aligning auditing activities with strategic sustainability objectives, organizations can ensure that audit findings are directly relevant to driving progress towards desired sustainability outcomes (Santos, K. B., Rocha, R., Santos, J. N. P., & Lobato, M. G. S. ,2024).

Comprehensive Coverage. A critical aspect of sustainability-focused auditing is ensuring comprehensive coverage of all relevant sustainability dimensions. Sustainability encompasses a broad spectrum of environmental, social, and governance (ESG) factors, each of which may have implications for the organization's long-term sustainability performance. Therefore, the audit framework must be designed to encompass all relevant aspects of sustainability, including but not limited to energy and resource efficiency, carbon emissions, supply chain transparency, labor practices, diversity and inclusion, and ethical governance practices.

Robust Methodologies. To effectively assess sustainability performance, organizations must develop robust audit protocols and methodologies tailored specifically to address sustainability risks, opportunities, and performance

indicators. This may involve the development of criteria, metrics, and benchmarks for evaluating sustainability performance across different aspects of the organization's operations. Robust methodologies ensure that audit findings are objective, reliable, and actionable, providing valuable insights for driving continuous improvement in sustainability performance.

Stakeholder Engagement. Stakeholder engagement is fundamental to the success of sustainability-focused auditing. Engaging key stakeholders throughout the audit process ensures that audit findings accurately reflect stakeholder expectations, concerns, and priorities. Stakeholders may include internal stakeholders such as management, employees, and shareholders, as well as external stakeholders such as customers, suppliers, investors, regulators, and community representatives. By incorporating diverse perspectives into the audit process, organizations can enhance the credibility, relevance, and effectiveness of sustainability-focused auditing efforts. (Shabani, T., Jerie, S., & Shabani, T. , 2024, May).

Technology and Data Analytics. Advancements in technology and data analytics offer significant opportunities to enhance the efficiency, accuracy, and transparency of sustainability-focused auditing processes. Organizations can leverage software tools for data collection, analysis, and reporting, streamlining audit workflows and improving data integrity and traceability. Furthermore, emerging technologies such as artificial intelligence (AI) and blockchain can be utilized to automate data collection, detect patterns and trends, and verify the authenticity of sustainability-related information. By harnessing the power of technology and data analytics, organizations can gain deeper insights into their sustainability performance and drive more informed decision-making.

Continuous Improvement. Continuous improvement lies at the core of sustainability-focused auditing. Organizations must foster a culture of ongoing learning, innovation, and adaptation to evolving sustainability challenges. This entails conducting regular reviews and evaluations of auditing practices, soliciting feedback from stakeholders and audit teams, and identifying areas for enhancement. By embracing a mindset of continuous improvement, organizations can ensure that their sustainability-focused auditing efforts remain relevant, effective, and responsive to changing sustainability dynamics. (Setyorini, D., & Hartoko, S. , 2024).

In conclusion, successful implementation of sustainability-focused auditing requires careful consideration of several key considerations, including strategic

alignment, comprehensive coverage, robust methodologies, stakeholder engagement, technology and data analytics, and continuous improvement. By addressing these considerations thoughtfully and systematically, organizations can enhance their ability to assess, monitor, and enhance their sustainability performance, driving progress towards a more sustainable future.

Building Capacity and Expertise within Audit Teams (Souza, M. A., González, M. O. A., & Pinho, A. L. S. D. , 2024). In the realm of sustainability-focused auditing, the success of auditing initiatives often hinges upon the expertise and capabilities of the audit teams tasked with conducting these assessments. Building capacity and expertise within audit teams is therefore paramount to ensuring the effectiveness, credibility, and impact of sustainability auditing efforts. This section explores key strategies for enhancing the knowledge, skills, and competencies of audit teams to navigate the complexities of sustainability auditing successfully.

Investment in Training and Development. A cornerstone of building capacity within audit teams is investment in training and development initiatives tailored to enhance knowledge and skills in sustainability auditing practices. Given the multidisciplinary nature of sustainability, auditors require a nuanced understanding of environmental, social, and governance (ESG) factors, as well as the interplay between these dimensions and organizational performance. Training programs may encompass a range of topics, including sustainability principles and frameworks, emerging sustainability trends and issues, stakeholder engagement strategies, and sustainability reporting standards. Additionally, professional certification programs, such as those offered by the Global Reporting Initiative (GRI) or the Institute of Internal Auditors (IIA), can provide auditors with specialized credentials and recognition of expertise in sustainability auditing.

Fostering a Culture of Learning and Collaboration. Beyond formal training programs, fostering a culture of learning and collaboration within audit teams is essential for building capacity and expertise in sustainability auditing. Encouraging knowledge sharing, cross-functional collaboration, and peer-to-peer learning opportunities enables auditors to leverage each other's experiences, insights, and best practices. This may involve organizing internal seminars, workshops, or knowledge-sharing sessions focused on sustainability topics, as well as creating online platforms or communities of practice where auditors can exchange ideas, seek guidance, and collaborate on sustainability-related initiatives. By fostering a culture of continuous learning and collaboration, organizations can harness the

collective expertise of audit teams to address sustainability challenges effectively. (Usman, A., Che-Ahmad, A., & Abdulmalik, S. O., 2024).

Access to External Expertise and Resources. In addition to internal capacity-building efforts, organizations can augment the expertise of audit teams by accessing external resources and expertise in sustainability auditing. This may involve partnering with external consultants, subject matter experts, or sustainability professionals to provide specialized guidance, support, and training on sustainability auditing practices. External partnerships can offer valuable insights, perspectives, and methodologies not readily available within the organization, enriching the capabilities of audit teams and enhancing the quality and depth of sustainability auditing efforts. Furthermore, organizations can leverage industry associations, academic institutions, and professional networks to access resources, research, and best practices in sustainability auditing and stay abreast of emerging trends and developments in the field.

Integration of Sustainability Expertise within Audit Teams. Finally, organizations can strengthen their sustainability auditing capabilities by integrating sustainability expertise within audit teams. This may involve recruiting or appointing auditors with specialized knowledge and experience in sustainability-related disciplines, such as environmental science, social impact assessment, or sustainable finance. By embedding sustainability expertise within audit teams, organizations can ensure that auditors possess the requisite skills and competencies to effectively assess and address sustainability risks and opportunities across diverse organizational contexts. Moreover, fostering interdisciplinary collaboration between auditors with different backgrounds and expertise areas enables holistic and integrated approaches to sustainability auditing, enriching audit processes and outcomes. (Wilamsari, F., Musriati, T., & Cahyaningati, R., 2024).

In conclusion, building capacity and expertise within audit teams is essential for enhancing the effectiveness, credibility, and impact of sustainability-focused auditing efforts. By investing in training and development, fostering a culture of learning and collaboration, accessing external expertise and resources, and integrating sustainability expertise within audit teams, organizations can empower auditors to navigate the complexities of sustainability auditing successfully and drive meaningful change towards a more sustainable future.

Aligning Audit Findings with Strategic Sustainability Goals. In the realm of sustainability-focused auditing, the ultimate goal is not merely to identify sustainability risks and opportunities but to translate audit findings into actionable

insights that drive progress towards strategic sustainability goals. This section explores the importance of aligning audit findings with strategic sustainability goals and outlines key strategies for achieving this alignment effectively. (Abu Huson, Y., Sierra-García, L., & Garcia-Benau, M. A. , 2024)

Understanding Strategic Sustainability Goals. At the outset, it is essential for organizations to have a clear understanding of their strategic sustainability goals and how these goals align with their broader organizational objectives. Strategic sustainability goals may encompass a wide range of aspirations, including reducing carbon emissions, enhancing resource efficiency, promoting social equity, fostering stakeholder engagement, and strengthening governance practices. These goals are typically informed by the organization's vision, mission, values, and stakeholder expectations, and serve as guiding principles for sustainability initiatives and decision-making processes.

Integration of Sustainability Criteria into Audit Frameworks. To ensure alignment between audit findings and strategic sustainability goals, organizations must integrate sustainability criteria into their audit frameworks and methodologies. This involves defining key performance indicators (KPIs) and metrics that are directly relevant to strategic sustainability goals and embedding these criteria into audit protocols and assessment criteria. For example, if one of the organization's strategic sustainability goals is to reduce greenhouse gas emissions, audit protocols may include specific criteria for assessing emission reduction initiatives, energy efficiency measures, and carbon management practices. (AL-Gharrawi, M. H. J., & Bedoui, R. , 2024).

Mapping Audit Findings to Strategic Sustainability Indicators. During the audit process, it is imperative to systematically map audit findings to strategic sustainability indicators to assess progress towards strategic goals. This requires aligning audit findings with key performance metrics, targets, and benchmarks established for each strategic sustainability goal. For instance, if the organization's strategic goal is to improve labor practices, audit findings related to employee engagement, diversity and inclusion, and labor rights violations can be mapped to relevant sustainability indicators, such as employee turnover rates, workforce diversity metrics, and compliance with labor regulations.

Communication and Reporting. Effective communication and reporting of audit findings are essential for ensuring that stakeholders are informed about progress towards strategic sustainability goals and are empowered to take corrective actions where necessary. Organizations should develop clear and concise reports that

highlight key audit findings, their implications for strategic sustainability goals, and proposed recommendations for improvement. Reports should be tailored to different stakeholder groups, ensuring that information is presented in a format that is accessible, understandable, and actionable. (Alhabow, A. H. , 2023).

Integration with Decision-Making Processes. Lastly, organizations must integrate audit findings into decision-making processes to drive alignment with strategic sustainability goals. Audit findings should inform strategic planning, resource allocation, investment decisions, and performance management processes, ensuring that sustainability considerations are systematically integrated into organizational decision-making. By embedding sustainability into decision-making processes, organizations can prioritize initiatives that contribute most effectively to achieving strategic sustainability goals and maximize the impact of sustainability auditing efforts.

In conclusion, aligning audit findings with strategic sustainability goals is essential for ensuring that sustainability auditing efforts contribute meaningfully to organizational success and impact. By understanding strategic sustainability goals, integrating sustainability criteria into audit frameworks, mapping audit findings to strategic indicators, communicating findings effectively, and integrating findings into decision-making processes, organizations can leverage sustainability auditing as a strategic tool for driving progress towards a more sustainable future.

Continuous Improvement and Adaptation to Evolving Sustainability Landscape (Alsharari, N. M., & Daniels, B. 2024).

In today's rapidly changing world, characterized by shifting social, environmental, and economic dynamics, organizations must continuously adapt their sustainability strategies and practices to remain relevant and resilient. Continuous improvement lies at the core of sustainability management, as it enables organizations to identify emerging trends, anticipate future challenges, and seize opportunities for innovation and growth. This section explores the importance of continuous improvement and adaptation in navigating the evolving sustainability landscape and outlines key strategies for achieving sustained success.

Monitoring and Evaluation. A critical aspect of continuous improvement in sustainability management is the ongoing monitoring and evaluation of sustainability performance. Organizations must establish robust monitoring systems to track progress towards sustainability goals, measure performance against key indicators, and identify areas for improvement. This may involve collecting and analyzing data on environmental impact, social performance,

governance practices, and stakeholder engagement, and regularly reviewing performance metrics to assess progress and identify trends. By monitoring performance metrics, organizations can identify deviations from targets, assess the effectiveness of sustainability initiatives, and make informed decisions to drive continuous improvement.

Feedback and Learning Loops. Incorporating feedback and learning loops into sustainability management processes is essential for fostering a culture of continuous improvement. Organizations should actively solicit feedback from internal and external stakeholders, including employees, customers, suppliers, investors, and community members, to gather insights, perspectives, and suggestions for improvement. Feedback mechanisms may include surveys, focus groups, stakeholder consultations, and formalized channels for reporting concerns or suggestions. By listening to stakeholders and incorporating their feedback into decision-making processes, organizations can identify blind spots, address gaps, and enhance the relevance and effectiveness of sustainability strategies and initiatives.

Experimentation and Innovation. Embracing experimentation and innovation is key to driving continuous improvement in sustainability management. Organizations should encourage a culture of experimentation, risk-taking, and innovation, where employees are empowered to test new ideas, pilot projects, and explore innovative solutions to sustainability challenges. This may involve establishing innovation hubs, incubators, or cross-functional teams dedicated to exploring and implementing new sustainability initiatives. By fostering a culture of innovation, organizations can unlock creative solutions to complex sustainability problems, drive efficiency gains, and position themselves as leaders in sustainable business practices. (Boufounou, P., Eriotis, N., Kounadeas, T., Argyropoulos, P., & Pouloupoulos, J. , 2024)

Adaptation to Changing Conditions. The ability to adapt to changing conditions is critical for organizations seeking to navigate the evolving sustainability landscape successfully. As societal expectations, regulatory requirements, and market dynamics shift, organizations must remain agile and responsive, adjusting their sustainability strategies and practices accordingly. This may involve conducting regular environmental scans and horizon scanning exercises to identify emerging trends, risks, and opportunities, and proactively adapting sustainability strategies in anticipation of future challenges. By staying ahead of the curve and adapting quickly to changing conditions, organizations can mitigate risks,

capitalize on opportunities, and maintain their competitive edge in a rapidly changing world.

Collaboration and Knowledge Sharing. Collaboration and knowledge sharing are essential enablers of continuous improvement in sustainability management. Organizations should actively engage with industry peers, government agencies, non-profit organizations, and academic institutions to exchange best practices, share lessons learned, and collaborate on collective solutions to sustainability challenges. By leveraging the collective wisdom and expertise of diverse stakeholders, organizations can accelerate progress towards shared sustainability goals, drive systemic change, and foster a more sustainable future for all. (Consiglio, A., Kikas, A., Michaelides, O. P., & Zenios, S. A., 2024).

In conclusion, continuous improvement and adaptation are fundamental principles of effective sustainability management, enabling organizations to stay ahead of the curve, drive innovation, and create value in an ever-changing world. By embracing monitoring and evaluation, feedback and learning loops, experimentation and innovation, adaptation to changing conditions, and collaboration and knowledge sharing, organizations can achieve sustained success in navigating the evolving sustainability landscape and making meaningful contributions to environmental, social, and economic well-being. (Dion, H., & Evans, M., 2024).

By implementing all these strategies that we have talked about, organizations can leverage internal public audits as powerful tools for driving sustainability excellence, enhancing transparency, accountability, and resilience in an increasingly complex and interconnected world.

Conclusion

Recapitulation of Key Findings and Insights. Throughout this article, we have delved into the realm of sustainability-centric auditing, exploring its significance, challenges, and strategies for implementation. Key findings have underscored the pivotal role of sustainability auditing in driving organizational resilience, transparency, and long-term value creation. From aligning audit findings with strategic sustainability goals to fostering a culture of continuous improvement, each aspect has emphasized the importance of integrating sustainability considerations into audit processes for sustainable business practices.

Implications for Organizations and Future Directions. The implications of sustainability-centric auditing for organizations are profound. It not only enables

organizations to mitigate risks, enhance operational efficiency, and strengthen stakeholder trust but also positions them as leaders in sustainable business practices. Moving forward, organizations must prioritize sustainability auditing as a strategic imperative, embedding it into their core business operations and decision-making processes. Embracing sustainability-centric auditing will not only drive organizational performance but also contribute to broader societal and environmental goals, fostering a more sustainable future for generations to come.

Call to Action: Embracing Sustainability-Centric Auditing for Long-term Success. As we conclude, a compelling call to action emerges: organizations must embrace sustainability-centric auditing as a fundamental practice for long-term success. This necessitates a commitment to integrating sustainability considerations into audit processes, fostering collaboration and knowledge sharing, and embracing a culture of continuous improvement and innovation. By doing so, organizations can unlock new opportunities, mitigate risks, and drive positive change towards a more sustainable and resilient future. Together, let us embark on this journey towards sustainability-centric auditing, empowering organizations to thrive in a rapidly changing world while safeguarding the well-being of people and the planet.

In closing, the path to sustainability-centric auditing is not without its challenges, but the rewards are immeasurable. Let us seize this opportunity to catalyze transformational change and pave the way for a brighter, more sustainable future.

This conclusion summarizes the key points discussed in the article and emphasizes the importance of embracing sustainability-centric auditing for organizational success and global sustainability.

References

- [1] Abu Huson, Y., Sierra-García, L., & Garcia-Benau, M. A. (2024). A bibliometric review of information technology, artificial intelligence, and blockchain on auditing. *Total Quality Management & Business Excellence*, 35(1-2), 91-113.
- [2] AL-Gharrawi, M. H. J., & Bedoui, R. (2024). THE AUDITOR'S COMMITMENT TO INTERNATIONAL AUDITING STANDARD NO.(570) AND ITS IMPACT ON ACHIEVING SUSTAINABLE DEVELOPMENT/EXPLORATORY STUDY ON A SAMPLE OF AUDITORS IN THE FEDERAL OFFICE OF FINANCIAL SUPERVISION. *World Econ*
- [3] Alhabow, A. H. (2023). Internal audit and its role in achieving financial sustainability in self-financing units/case study. *omics and Finance Bulletin*, 33, 131-156.

- [4] Alsharari, N. M., & Daniels, B. (2024). Management accounting practices and organizational change aspects in the public sector: contextual/processual approach. *Journal of Accounting & Organizational Change*, 20(1), 177-204.
- [5] Boufounou, P., Eriotis, N., Kounadeas, T., Argyropoulos, P., & Pouloupoulos, J. (2024). Enhancing Internal Control Mechanisms in Local Government Organizations: A Crucial Step towards Mitigating Corruption and Ensuring Economic Development. *Economies*, 12(4), 78.
- [6] Consiglio, A., Kikas, A., Michaelides, O. P., & Zenios, S. A. (2024). Auditing public debt using risk management. *INFORMS Journal on Applied Analytics*, 54(2), 103-126.
- [7] Dion, H., & Evans, M. (2024). Strategic frameworks for sustainability and corporate governance in healthcare facilities; approaches to energy-efficient hospital management. *Benchmarking: An International Journal*, 31(2), 353-390.
- [8] Espinosa-Jaramillo, M. T. (2024). Internal Control in Companies from the Perspective of the COSO. *AG Management*, 2, 28-28.
- [9] Handoyo, S. (2024). Mapping the landscape of internal auditing effectiveness study: a bibliometric approach. *Cogent Business & Management*, 11(1), 2289200.
- [10] Hay, D., Harding, N., Biswas, P., Gan, C., Ge, I. Q., Ho, L., ... & Zhou, S. (2024). Comments on Exposure Draft for Proposed ISSA 5000, sustainability assurance engagements by the Auditing and Assurance Standards Committee of AFAANZ. *Accounting & Finance*, 64(1), 1221-1239.
- [11] Herath, R. (2024). Exploring environmental management systems in the service industry: drivers, success factors, and implications: insights from Finland: a case study in Hanninen Siivous Palvelu Oy.
- [12] HIDAYATULLAH, K. I. F. (2024). *THE ROLE OF INTERNAL AUDIT IN IMPROVING THE OPERATIONAL EFFECTIVENESS OF PT. MEDCOENERGI* (Doctoral dissertation, SRIWIJAYA UNIVERSITY).
- [13] IRSAN, M. S. (2024). Revitalization of Internal Audit in The Framework of Developing a Risk Management Program as an Early Warning System: Case Study "Carrefour Indonesia". *International Journal of Environmental, Sustainability, and Social Science*, 5(1), 30-40.
- [14] Johri, A., & Singh, R. K. (2024). A systematic literature review of Auditing Practices research landscape and future research propositions using bibliometric analysis. *Cogent Business & Management*, 11(1), 2344743.
- [15] Khatib, S. F., Sulimany, H. G. H., Alshareef, M. N., & Ali Khan, M. N. A. (2024). Catalysts of audit excellence: competitive advantage, intellectual capital and auditing quality. *Quality & Quantity*, 1-25.
- [16] Kolsi, M. C., & Al-Hiyari, A. (2024). Does internal audit function outsourcing policy matter for environmental, social and governance performance score? Evidence from Bursa Malaysia. *Sustainability Accounting, Management and Policy Journal*.

Issue 1/2024

- [17] Kumar, P. (2024). The impact of executives' compensation and corporate governance attributes on voluntary disclosures: Does audit quality matter?. *Journal of Applied Accounting Research*, 25(2), 240-263.
- [18] Rogala, P., Kafel, P., & Urbaniak, M. (2024). The credibility of external audits of management systems—the audited enterprises' perspective. *European Business Review*.
- [19] Santos, K. B., Rocha, R., Santos, J. N. P., & Lobato, M. G. S. (2024). MARKETING AUDIT: ANALYSIS IN TWO RESTAURANTS IN ARACAJU/SE. *Revista Gestão em Análise*, 13(1), 24-40.
- [20] Shabani, T., Jerie, S., & Shabani, T. (2024, May). A comprehensive review of safety audits: ensuring workplace safety and compliance in Zimbabwe. In *Safety and Reliability* (pp. 1-28). Taylor & Francis.
- Setyorini, D., & Hartoko, S. (2024). Internal Audit Engagement and Risk Management in Public Sector Organizations: Does It Really Exist?. *International Journal of Religion*, 5(7), 45-57.
- [21] Souza, M. A., González, M. O. A., & Pinho, A. L. S. D. (2024). Maturity Model for Sustainability Assessment of Chemical Analyses Laboratories in Public Higher Education Institutions. *Sustainability*, 16(5), 2137.
- [22] Usman, A., Che-Ahmad, A., & Abdulmalik, S. O. (2024). The Role of Internal Auditors Characteristics in Cybersecurity Risk Assessment in Financial-Based Business Organisations: a Conceptual Review. *Revista de Gestão Social e Ambiental*, 18(6), e05691-e05691.
- [23] Wilamsari, F., Musriati, T., & Cahyaningati, R. (2024). Determinants of Internal Audit Quality and External Audit Fees. *Assets: Jurnal Ilmiah Ilmu Akuntansi, Keuangan dan Pajak*, 8(1), 1-8.

EXPORT-GROWTH NEXUS IN NIGERIA: DOES CAPITAL INFLOW MATTERS?

Olufemi Samuel ADEGBOYO¹, Peter Katyo ABU²

¹*Federal University Oye-Ekiti, Department of Economics, Oye-Are Road, Oye-Ekiti, Ekiti State, Nigeria, Phone: +2347035931528, e-mail: olufemi.adegboyooolufemi@fuoye.edu.ng, adegboyooolufemi1@gmail.com*

²*Nigeria Customs Service, Headquarters, Abidjan Street, Wuse, Abuja, Nigeria, Phone: 02348063126721, e-mail: katyoabu@customs.gov.ng*

How to cite: Adegboyo, O.S., & Abu, P.K. (2024). "Export-Growth Nexus in Nigeria: Does Capital Inflow Matters?". *Annals of Spiru Haret University. Economic Series*, 24(1), 131-148, doi: <https://doi.org/10.26458/2418>

Abstract

This study examined how capital inflow influence export-growth nexus in Nigeria from 1980 to 2022. The study employed ADF and PP unit root test to determine the stationarity of each variable and the result reveals that there is mixed level of stationarity among the variables as gross capital formation is stationary at level while other variables such as export, capital inflow, inflation rate, and government expenditure are stationary at first difference. Consequently, the study is conducted using the ARDL estimation approach. The study found that inflation rate, gross capital creation, and trade openness had negative impacts on Nigeria's economic growth, whereas capital inflow, government expenditure, the interaction of export and capital inflow, and trade openness all had positive impact on the economic growth. Consequently, the study recommends that government should create an enabling environment to attract more capital inflow into the country also government should review its trade policies so that export could starting stimulating economic growth in Nigeria.

Keywords: *capital inflow, export, economic growth, Solow-Swan growth model, ARDL*

JEL: F10, F24, F43, O40

Introduction

Global financial integration has been a rising trend in the last three decades due to trade liberalization, and the massive movements of capital inflow around the world. For instance, according to World Bank report (2022), a total of US\$2.2 trillion was moved around the world in 2021 as against US\$174.94 Billion in 1991. International trade has continued to be a key economic tool for promoting economic interconnectedness and nation-state prosperity on a global scale (Egyir et al., 2019). Similarly, foreign capital inflows (FCI), with their complementary effect on bridging the gap between local savings and investment, have been identified as one of the main drivers of the trend in favor of economic globalization and integration (Gabriel et al., 2019).

Foreign capital inflows refer to the movement of money from external source to a host nation. The inflow can be as foreign direct investment (FDI), foreign aids and grants, foreign portfolio investment, foreign remittances, foreign loans, and official development assistance (ODA) (Adekunle & Sulaimon, 2018). As one of the main drivers of global economic integration, foreign capital flows is regarded as a strategic component in the process of economic growth in emerging or developing economy where the majority of these countries, still experience difficulties with saving, investment, and foreign exchange. And they therefore depend heavily on foreign financial sources to supplement their domestic capital to close the capital formation gap, and finance long-term growth (Ehigiamusoe & Lean, 2019; Kovačević, 2021). The FCI is thus, considered as an important source of funding that enables the transfer of technology, expertise, and inventions from economically developed nations to developing ones, enhance productivity, and assist in quickening the pace of their economic development (Tahir et al 2020; Chorn & Siek, 2017). Just like the FCI, international trade (export) has also been identified as an economic variable that promotes technological advancement and stimulates foreign exchange gains required for economic growth and development (Egyir et al 2019).

The Sub-Saharan Africa (SSA) has seen a huge influx of foreign cash flow during the past three decades. For instance, there was a massive rise in international capital inflows from 1991 to 2021 in terms of the magnitude of FDI and net inflow from around US\$2.08 billion to more than US\$72.01 billion. Capital

flows are crucial for the SSA region's economic development since they supplement domestic resources and low income levels.

Like other SSA countries, Nigeria has also experienced an impressive inflow of foreign capital (Antony-Orji et al., 2018). Over the last three decade, the personal remittance which is an important contributor to capital inflow in Nigeria has increased tremendously from US\$65,544,714 million in 1991 to US\$19.48 billion in 2021. FDI net flows also increased during the same period from US\$712,373,362 million in 1991 to US\$3.31 billion in 2013.

While FCI are considered as important means of transferring resources from industrialized to developing nations, where they are typically considered to be more productive, their effect, however, can be either good or negative, due to their volatile and fungible nature if not deployed to productive activities or properly managed (Obodoechi et al, 2022). According to Ikpesu and Oke (2022), FCI can stunt growth since it causes poverty and a developing economy to become enmeshed in a vicious cycle. Consequently, issues brought on by massive capital inflows have raised questions about these flows' capacity to promote growth and about their genuine profitability, whether or not countries gained by establishing capital accounts is a hotly debated topic (Baharumshah et al 2015)

Several empirical studies have examined the effects of a FCI on the economic growth. Most scholars argue that FCI stimulate growth due to the effects of knowledge spillover and market efficiency. These impacts facilitate the expansion of regional savings and foster the building of wealth. These arguments were investigated and validated by tests done by Liang et al. (2021) and Kovačević (2021) and they found a positive impact of the influx of net FCI on the rate of growth. However, other economists such as (Adam and Klobodu 2017; Anidiobu et al., 2020) contend that, it is impossible to ignore the crippling consequences of capital inflows, particularly the crises brought on by an increase in systemic risk and rapid reversals when a moral hazard issue is present.

The majority of the research that has been conducted on the growth of Nigeria's economy has been on the effects of FCI, but this study will give significant insights. The link between exports, FCI, and GDP growth, on the other hand, has garnered a surprisingly low amount of attention even though such analysis may provide useful information. One of the major works that attempted to investigate the effects of trade (exports) on economic growth in the presence of capital flows in emerging economies in the last five years was the work of (Egyir et al., 2019),

however, their investigation was done at the cross-country level involving panel data, the emphasis was not on Nigeria.

Therefore, the true impact of exports on FCI and growth for specific nations needs to be investigated because of the peculiarity of economies, If this is not done, authorities may unintentionally implement measures that will increase or prevent currency appreciation in an effort to limit foreign capital influx, thereby running the risk of creating distortions in the economy that might impair economic production in the long run.

Given the aforementioned developments, it is therefore necessary as the main objective of this study, to test the interactive effect of trade (exports) and capital flows on economic growth and also the direct effects of these variables on economic growth in Nigeria. Specifically, the sub-objectives will include: Investigating the effect of foreign capital investment on economic growth of Nigeria, examining the interactive effect of trade (export) on FCI and its impact on economic growth in Nigeria, and making appropriate policy recommendations based on findings of study. Consequently, the paper's primary innovation will be to distinguish between the direct and interactive effects of trade (exports) and capital flows on economic growth in Nigeria.

The paper is organized as follows: the next section will be devoted to empirical studies review on the impact of foreign capital flow on economic growth, the third section dwells on the methodology and data analysis and the last one is conclude.

Empirical Review

The impact of FCI on growth rate of the economy has continued to generate intense debate amongst scholars. Several studies have been conducted over the years to investigate the magnitude and direction of the relationship, both at country specific and cross-country levels. The results have been positive in some case, negative in others while a couple of others recorded conflicting or ambiguous outcomes.

For instance, in their study of the impact of FDI on Singapore's GDP growth from 1970 to 2018 using (ARDL) models, Le & Le (2020) found that FDI and exports are key drivers of GDP growth for Singapore. Similarly, Badwan & Atta (2020) used OLS to estimate a model examining the impact of FDI and other financial flows on Palestine's economic development from 2007 to 2018. The findings indicate that Palestine's economic growth heavily reliant on financial grants, FPI, external loans, worker remittances, and FDI.

In his study, Ikpesu (2019) analysed the impact of capital inflows on economic development in Nigeria between 1981 and 2016, focusing specifically on investment as a means of transmission. The study used the least square regression technique to estimate the model. The study found that Foreign Direct Investment (FDI) has a substantial role in fostering the growth of Nigeria's economy. Nguyen et al. (2021) demonstrated the link between GDP and FDI by using data obtained in Vietnam from 1995 to 2018. The study found that exports, foreign loans, international assistance, GDP, and FDI all contributed to GDP growth. Obodoechi et al. (2022) use the ARDL method to examine the influence of FCI on macroeconomic factors on the development of Nigeria's GDP throughout the period of 1981-2020. The GDP of Nigeria was significantly influenced by GFCF and remittance.

Using pooled ordinary least squares (OLS), Chorn and Siek (2017) conducted a cross-country analysis using panel data from 1997 to 2012 to find out how FCI affected GDP growth in seventy-seven developing economies. According to the findings, FDI and ODA had a positive impact on growth rate of the economies. In a similar manner, Mowlai (2018) used the Pooled Mean Group (PMG) econometric methodology to estimate a panel dataset of 26 African nations spanning from 1992 to 2016. The research showed that all three forms of FCIs significantly contributed to economic development, both in the short term and in the long term.

Liang et al. (2021) conducted research on the relationship between foreign direct investment and GDP growth in developing countries. Data was collected from 113 emerging and transitional countries between 2000 and 2019. The researchers used a two-stage least squares approach, including instrumental variables and the Hausman fixed effect, to track the results. Inflow of FDI was found to be stimulating the growth of the economies of emerging nations. The impacts of FDI and human capital on four North African countries between the years 2000 and 2018 were investigated by Mohamed (2022) using the generalised method of moments (GMM). Both human capital and FDI are beneficial to the economies.

In probing whether Nepal was heading towards Dutch disease, Paudel et al. (2022) in a paper examined the role of external debt, remittances, exports, and labour force in the economic growth of Nepal, using data from 1990 -2019 using ARDL, and the result demonstrated that remittances and external debt have adversely impacted Nepal's economic growth, pointing to a sign of Dutch Disease in the country's economy that has been exacerbated by recent remittance inflows.

In their study, Adegboyega, et al (2021) conducted an analysis on the impact of trade liberalisation on GDP growth, private and public capital flows, and the interplay between these factors in Nigeria. The researchers used data from the period spanning 1985 to 2018. The Autoregressive Distributed Lag (ARDL) approach. They found that Nigeria's economic advancement was impeded by the infusion of public and private funds facilitated by trade liberalisation.

Awad (2021) investigated the influence of FDI, assistance, debt, remittances, and trade on the growth of the GDP in twenty-one low-income states in the SSA. According to the findings of this study, the GDP per capita of these nations increased at a faster rate as a direct consequence of trade and foreign assistance.

The generalised method of moments (GMM) model was used by Njoroge (2021) in order to ascertain the influence that remittances, official development aid (ODA), and FDI had on the growth of GDP in COMESA member states. According to the result, capital inflows positively impact the GDP growth, whereas migrant remittance had negative impact. It is necessary for remittances to interact with some indication of the welfare of the domestic economy in order for them to contribute to the increase of GDP per capita.

Egyir et al. (2019) examined how trade affects FCI economic growth nexus in Africa. For the purpose of this study, a dynamic GMM technique was used. In spite of the fact that capital flows are not the primary factor that is driving this trend, the statistics demonstrate that trade (exports) has been a substantial engine of economic development in Africa, both in recent times and in the past. FDI and remittances are more significant for economic growth than foreign assistance and external debt, according to the statistics. This is true both in the short term and in the long term.

Most studies reviewed have only looked at the impact of FCI within the context of economic growth in a country or across country. A couple of the studies included trade (export) as independent variable (see Le & Le, 2020; Kovacevic, 2021; Nguyen, 2021) but the interaction between FCI and trade (export) has not been sufficiently explored. To the best of our knowledge only the works of Egyir et al. (2019) and Adegboyega et al. (2021), attempted to look in that direction recently. However, while the former utilized panel data across countries, the later uses trade openness as the interacting variable, which factors import in its computation and therefore diminishes the importance of export funds as foreign earnings.

Given the foregoing, it is safe to draw the conclusion that empirical research on the relationship between FCI and economic growth is inconclusive. Some studies support a positive relationship, while others reported a negative relationship. In addition, some studies could not find a relationship or presented a weak relationship. As a result, the methodology, data selection, and analytical tools utilized in the investigation could all be linked to this variation in divergence of viewpoints (Adegboyega et al.,2021).

Therefore, the disparity between the empirical studies should sparked interest in new research focusing on the precise impact of each type of foreign capital inflow and testing the idea that these inflows aren't all equal in terms of contributing to growth; some may have positive effects on country growth while others may have negative ones (Debbiche, 2020).

Methodology

Based on the Solow-Swan Growth Model, this investigation is conducted. An exogenous theory of economic growth, the Model predicts future changes to a nation's GDP over time based on variables such as savings rates, innovation, and population size. Capital accumulation and individual consumption are central to this model of economic growth. Thus, it is also possible for migrants to accumulate wealth via remittances sent home. This is the general production function as it is structured:

$$Y = AF(K, L)$$

In line with previous investigation on economic growth, this study employs a translog production function augmented with capital inflow and export variables that allows the model to be parsimonious and provides stronger inferences.

$$Y = A K^\beta L^{1-\beta} \tag{2}$$

Where, Y = output; k = capital stock; α = share of capital in output; L = labor; A= technological advancement; $1-\alpha$ =share of effective labour in output.

Model specification

Transforming equation 3 into econometric model gives equation 4 below:

$$GDPPC_t = \alpha + \beta A_t + \beta k_t + \varepsilon \tag{4}$$

This study assumes that A which is the technological process is been influence by capital inflow in line with the objective of the study.

$$A = (CAPINF, EXPT) \tag{5}$$

Where CAPINF means capital inflow and EXPT means export
Merging equation 5 with equation 4 gives:

$$GDPPC_t = \alpha + \beta_1(CAPINF)_t + \beta_2(EXPT)_t + \beta_2k_t + \varepsilon \quad (6)$$

Since our focus is to examine how the interaction of capital inflow and export affects economic growth, therefore, we incorporate the interaction into the model and it is presented in equation 7.

$$GDPPC_t = \alpha + \beta_1(CAPINF)_t + \beta_2(EXPT)_t + \beta_3(CAPINF*EXPT)_t + \beta_4(K)_t + \varepsilon_t \quad (7)$$

This study will add control variables (government expenditure, inflation rate) which extant studies have found to be important factors that can affect economic growth

$$GDPPC_t = \alpha + \beta_1(CAPINF)_t + \beta_2(EXPT)_t + \beta_3(CAPINF*EXPT)_t + \beta_4(K)_t + \beta_5(GXPDT)_t + \beta_6(INFR)_t + \varepsilon_t \quad (7)$$

Where: GDPPC = gross domestic product per capital, CAPINF= capital inflow, TEXPT = total export, k = capital stock/ GCF, GXPDT= government expenditure, INFR =inflation rate α, β_1 to β_6 all represent the vectors of the parameters, t = time trend and ε = error term. From equation 7, it can deduce that all the variables are not in the same appropriate coefficient as GDPPC is in rate while other variables are in millions and billion, therefore it is appropriate to make all the variables be in the same rate. Consequently, all variable that are not in rate are logged and presented in equation 8.

$$GDPPC_t = \alpha + \ln\beta_1(CAPINF)_t + \ln\beta_2(EXPT)_t + \ln\beta_3(CAPINF*EXPT)_t + \ln\beta_4(GCF)_t + \ln\beta_5(GXPDT)_t + \beta_6(INFR)_t + \varepsilon_t \quad (8)$$

Data sources

Data analysis were sourced from the annual reports of CBN and World Bank Indicators.

Result and discussion of empirical findings

Descriptive statistics

This section begins descriptive analysis. This analysis is performed to know the characteristic of each variable. The synopsis result is presented in table 1 below:

Table 1: Descriptive statistics

	GDPPC	LOG(TEXPT)	LOG(CAPINF)	LOG(CAPINF*TEXPT)	LOG(GCF)	INFR	LOG(GXPDT)
Mean	4.321	24.089	24.165	21.436	29.811	17.677	21.895
Median	4.431	24.392	24.186	21.489	29.796	17.691	23.498
Maximum	15.329	25.353	25.057	22.903	30.109	18.073	23.914
Minimum	-2.035	21.756	23.285	19.518	29.572	17.279	16.119
Std. Dev.	3.017	1.038	0.408	0.995	0.158	6.231	2.198
Skewness	0.435	-0.665	0.077	-0.256	0.225	-0.045	-0.841
Kurtosis	3.287	2.359	3.082	1.996	1.774	1.941	2.732
Jargue-Bera	1.121	2.951	0.041	1.693	2.274	1.508	3.866
Probability	0.571	0.234	0.979	0.429	0.321	0.321	0.145

Descriptive statistics

The table displayed the summary of statistic description of all the variables that were used by the study. The mean value (average) of gross domestic product per capital, total export, capital inflow, interaction of capital inflow with total export, gross capital formation, inflation rate and government expenditure are 4.321, 24.089, 24.165, 21.436, 29.811, 17.677 and 21.895 respectively. The table also reveal that the average value (mean) of gross capital formation (GCF) is more than its median value. The Gross Capital Flow (GCF) exhibits a distribution that is right-skewed when compared to GDP per capita, total exports, capital inflow, inflation rate, and government spending. From what can be seen in the data, it seems that there is an imbalance in the way the variables are distributed. We may compare the mean to the standard deviation in order to ascertain whether or not it delivers an accurate portrayal of the data. Due to the fact that the standard deviation coefficients are so low, it seems that the majority of the data is centred around the mean percentage. According to the results of the standard deviation, the variable that is the most open to uncertainty is the rate of inflation, while the

variable that is the most stable is gross capital creation. Compared to inflation, gross capital creation has the least standard variance of any economic variable.

The table also demonstrates that all of the variables were very consistent with one another. This is because the median and mean values were both within the range of the upper and lower limits of the variables. This is shown by the skewness statistic coefficient, which indicates that GDPPC, CAPINF, GCF, INFR, and GXPDT have a tendency to be normal, but TEXPT and CAPINF*TEXPT have a tendency to be abnormal. The kurtosis coefficient is used to determine whether or not certain variables are platykurtic (for example, TEXPT, CAPINF*TEXPT, GCFINFR, and GXPDT) or leptokurtic (for example, GDPPC and CAPINF). Moreover, some of the variables that are utilised for data analysis are platykurtic. After all was said and done, the Jarque-Bera statistics demonstrated that each and every variable adhered to normal distributions.

Unit root test

It is essential to determine if each variable is stationary before deciding the appropriate estimation technique. Integrating non-stationary variables into research raises the probability of making regression errors. This research used two-unit root testing to provide a reliable and credible assessment. The two test are: ADF test and PP test. We embark on our pursuit for the most favourable lag time using the Akaike information criterion (AIC). Table 2 presents a concise summary of the test results.

Table 2: synopsis of unit root test

	ADF	PP
At level		
VARIABLE	t-Statistics	t-Statistics
LOG(TEXPT)	-1.217	-1.148
LOG(CAPINF)	-1.466	-1.115
LOG(CAPINF*TEXPT)	-2.088	-1.869
LOG(GCF)	-1.497	-1.656
GDPPC	***-4.049	***-4.131
INFR	-1.892	-1.403
LOG(GXPDT)	-1.594	-1.835

First difference		
VARIABLE	t-Statistics	t-Statistics
LOG(EXERN)	***-6.742	***-6.726
LOG(EXTL)	***-4.293	***-4.173
LOG(FDI)	***-9.449	***-9.377
LOG(GCF)	***-10.264	***-10.469
GDPPC	***-10.909	***-14.936
INFR	***-6.5859	***-6.602
LOG(GXPDT)	***-5.491	***-5.913

***=1%, **=5%

The outcomes of the two tests are similar. The findings from the two tests in table 2 indicate that, with the exception of gross domestic product per capita, all variables do not exhibit stationarity at level. However, it was found that all variables attained stationarity after the first difference. These result indicates that the variables show mixed levels of stationarity. The most suitable approach for estimation in this investigation is the ARDL technique, as recommended by Pesaran et al (2001).

ARDL estimate

Therefore, this study will employ ARDL and ECM technique to analyze both the short run and long run relationship between (GDPPC) and (TEXPT, CAPINF, CAPINF*TEXPT, GCF, INFR, GXPDT). It is also possible to get the ECM from ARDL using a simple linear transformation. The long-run estimation model is shown in equation 9 below:

$$\begin{aligned}
 \Delta GDPPC_t = & \beta_0 + \beta_1 GDPPC_{t-1} + \beta_2 LTEXPT_{t-1} + \beta_3 LCAPINF_{t-1} + \\
 & \beta_4 L(CAPINF * TEXPT)_{t-1} + \beta_5 LGCF_{t-1} + \beta_6 INFR_{t-1} + \beta_7 LGXPDT_{t-1} \\
 & + \sum_{i=1}^q \theta_{1i} \theta \Delta GDPPC_{t-1} + \sum_{i=1}^q \theta_{2i} \theta \Delta LTEXPT_{t-1} + \sum_{i=1}^q \theta_{3i} \theta \Delta LCAPINF_{t-1} + \\
 & \sum_{i=1}^q \theta_{4i} \theta \Delta L(CAPINF * TEXPT)_{t-1} + \sum_{i=1}^q \theta_{5i} \theta \Delta LGCF_{t-1} + \sum_{i=1}^q \theta_{6i} \theta \Delta INFR_{t-1} + \\
 & \sum_{i=1}^q \theta_{7i} \theta \Delta LGXPDT_{t-1} + \varepsilon_t
 \end{aligned}
 \tag{9}$$

Where the variables were as defined before, θ_1 to θ_8 are the short run vector parameters, β_1 to β_7

β_1 are the vector parameters of the long run, q is the length of the optimum lag, β_0 is the drift component, and ε_t denotes the white noise.

The first stage of the ARDL bound test involves examining the presence of cointegration, which refers to a long-term relationship between the variables. The researchers will use F-tests in line with the criteria established by Pesaran et al. (2001). Assumption of the equation's invalidity is $H_0: \theta_1 = \theta_2 = \theta_3 = \theta_4 = \theta_5 = \theta_6 = \theta_7 = 0$, which implies that the variables do not cointegrate i.e., there is no existence of long run relationship among the variables. On the other hand, the alternative hypothesis is $H_1: \theta_1 \neq \theta_2 \neq \theta_3 \neq \theta_4 \neq \theta_5 \neq \theta_6 \neq \theta_7 \neq 0$, which implies that the variables cointegrate i.e., there is existence of long run relationship among the variables.

Table 3: Bound test for cointegration

Test Statistic	Value	Significant	Lower bound I(0)	Upper bound I(1)
F-stastic	8.439	5%	2.17	3.21
K	6	1%	2.73	3.9

The F-statistics (8.439), is higher than the upper limit of 3.21 as seen in Result 3, which indicates that it is reasonable to assume that the variables are cointegrated i.e there is a long run relationship among the variable.

Now that we are aware that the variables are cointegrated, we are able to get a long-term estimate by using the ARDL model, which incorporates an error correction model among its components. The result of the long run analysis is presented below:

Table 4: Long run analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Log(TEXPT)	14.207	2.951	4.815	0.0013
LOG(CAPINF)	5.531	1.354	4.084	0.0035
LOG(TEXPT*CAPINF)	-6.181	1.335	-4.629	0.0017
LOG(GCF)	5.957	1.521	3.916	0.0044
LOG(INF)	-12.241	2.609	-4.691	0.0016
LOG(GXPDT)	-7.149	2.132	-3.352	0.01
C	78.729	33.004	2.385	0.0442

According to what was expected, Table 4 demonstrates that the total export has a significant influence on the growth of Nigeria's GDP. An increase of only one percent in exports would result in an expansion of the GDP that is more than 14.207%. In the event that our exports were to increase, the value of our national currency, as well as our country's foreign reserves would also increase. This is one of the probable explanations. Among these hypotheses is the idea that the companies that manufacture these items are going through a period of continuous expansion, which requires them to hire more workers in order to meet the growing demand.

The favourable and significant influence that the influx of capital had on the increase of Nigeria's gross domestic product was not a surprise. In addition, the statistics demonstrated that there is a 5% increase in growth for every 1% increase in the amount of capital input. It is probable that the capital inflows were effective in increasing domestic saving, which in turn increased investment and accelerated economic development. This conclusion is one of the plausible explanations.

According to the results, Nigeria's economic growth is significantly hampered by $TEXPT * CAPINF$, which is the interaction impact of the two variables. This was discovered after the impacts of total export and capital inflow on growth were analysed independently. For every one percent rise in the interaction, the rate of economic growth will decrease by 6.181%. This implies that capital inflow does not enhance export to impact positively on growth in Nigeria but rather constitute a drag on the growth effect of export. This result negates the earlier result which found a separate strong positive effect of the two variables in the growth prospect of the country. The positive effect of export is weakened by the capital inflow into Nigeria. Meanwhile, the interaction term shows that the two factors are substitutes to each other in growth process. Capital inflows are supposed to be complimenting export to positively impact economic growth but the reverse is the case in Nigeria. This contradicts the apriori expectation which expect that capital inflow should provide more fund to the domestic firms for them to be expand and be able to produce more than it is needed in the home country and export the excess. This might be due to several reasons. One of which is that the capital inflows were not channel to the appropriate sector that needed the fund most to expand for exportation. Two, majority of the capital inflows only increases household income and the increased income were majorly used for consumption of imported goods which often symbolizes wealth in Nigeria.

Gross capital formation has been found to have a significant influence on the growth of GDP. In fact, it has been shown that a one percent rise in GCF might

potentially lead to a three and a half percent increase in GDP growth. It should come as no surprise that the endogenous growth hypothesis is strongly dependent on capital.

The study found that inflation is detrimental to the growth of the economy. In point of fact, the Gross Domestic Product (GDP) drops by 12.241% for every 1% rise in inflation. The rate of inflation is a challenge for the expansion of Nigeria's economy, and the situation is becoming worse as inflation rates continue to rise.

Similarly, government expenditure was found to have a negative and significant impact on economic growth of Nigeria and that 1% increase in government expenditure will lead to 7.149% decrease in economic growth. The reason for this could be that the government is spending less on the productive sector which could stimulate economic growth or the government pattern of spending is skewed towards recurrent expenditure which could not contribute to economic growth.

The short-run model which is also the ECM is estimated with equation 10 below:

$$\Delta GDPPC_t = \beta_0 + \sum_{i=1}^{q1} \theta_{2i} \theta \Delta LTEXPT_{t-1} + \sum_{i=1}^{q2} \theta_{3i} \theta \Delta L CAPINF_{t-1} + \sum_{i=1}^{q3} \theta_{4i} \theta \Delta L(CAPINF * TEXPT)_{t-1} + \sum_{i=1}^{q4} \theta_{5i} \theta \Delta LGCF_{t-1} + \sum_{i=1}^{q5} \theta_{6i} \theta \Delta INFR_{t-1} + \sum_{i=1}^{q6} \theta_{7i} \theta \Delta LGXPDT_{t-1} + \varepsilon_t$$

The result of the short-run model is presented in table 5 below:

Table 5: short-run analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDPGR(-1))	-0.299	0.062	-4.789	0.0014
DLog(TEXPT)	-6.151	0.618	-9.958	0.00001
DLOG(CAPINF)	14.079	2.068	6.801	0.000
LOG(TEXPT*CAPINF)	29.374	2.447	12.004	0.0001
LOG(GCF)	-6.197	2.162	-2.867	0.021
LOG(INF)	-2.805	0.722	-3.886	0.0046
LOG(GXPDT)	1.376	0.459	2.994	0.0172
CoIntEq(-1)*	-0.865	0.071	-12.325	0
R-square	0.959			
Adjusted R-square	0.925			

The negative effect of export on GDP in the near term is seen in Table 5. It reveals a GDP reduction of 6.151 percent for every 1% rise in total export. The expansion of Nigeria's export market result to a constraints on the country's GDP development. This goes against the theoretical underpinnings of classical theory of commerce as well as the Heckscher-Ohlin trade theory.

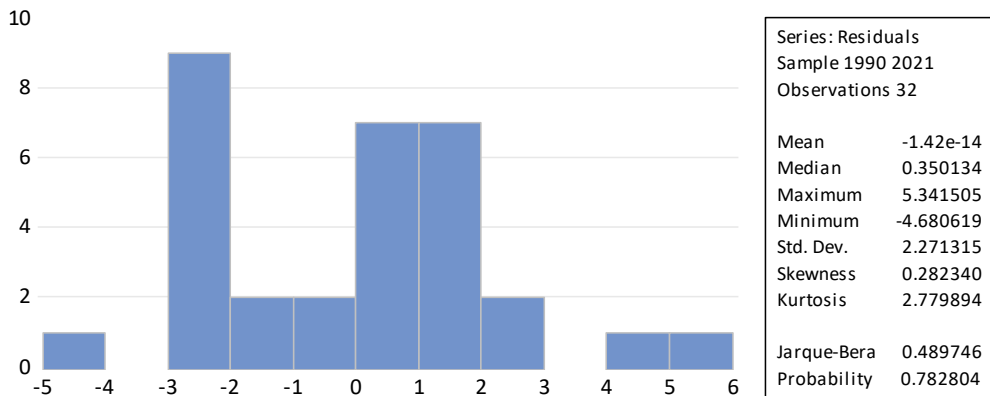
On the other hand, Nigeria's GDP grows by 14.079% for every 1% rise in capital inflow which is a positive and significantly influence the economic growth at 1% significant level in the short run.

A positive and statistically significant interaction effect of total export and capital inflow on Nigeria's economic growth was found at 1% significant level. The growth rate will spike by 29.374% with a 1% increase in the interaction rate. Total exports and capital inflows seem to be driving Nigeria's economic progress. The interaction has reduced export's negative effect on economic development by using resources carefully enough. There was a negative correlation between exports and GDP growth, but FDI significantly reduced that correlation.

Diagnostic test

It is crucial to validate the correctness of the ARDL model after doing the analysis. Therefore, diagnostic tests were administered in this research. The summary of the results is shown in table 6 below.

Diagonistic test	F-statistic	rob.
Breusch-Godfrey Serial Correlation LM Test	.418	0 .664
Heteroskedasticity Test: Breusch-Pagan-Godfrey	.445	0 .916
Ramsey RESET Test	.069	0 .795
Normality Test: Jarque-Bera	.489	0 .783



The result of the Breusch-Godfrey LM which test for autocorrelation revealed that there is no problem of autocorrelation in the model as the probability value is greater than 5% significant level. Also White's test of heteroscedasticity result yields a probability value above the 5% significance level, indicating that there are no issues of heteroscedasticity in the model. Lastly, the Jargue-Bera test revealed that the model is normally distributed.

Conclusion

This research conducted an analysis of Nigeria's economic from 1980 to 2022 in order to ascertain the impact of FCI on the relationship between exports and economic growth. This research is based on the endogenous growth model developed by Solow. While the GPPC was stationary at level, the other variables exhibit first difference stationarity. This indicates that the variables demonstrate different levels of stationarity, as assessed by unit root analysis. Therefore, the investigation is done using the ARDL estimation technique. The bound test demonstrated the presence of cointegration, indicating a long run link between the variables. Capital inflows, aggregate exports, government spending, and gross capital formation all contribute to the growth of Nigeria's GDP. Conversely, trade and FDI have a negative impact in the long run. Whereas, in the long run, Nigeria's economic growth was positively influenced by capital inflow, government spending, the correlation between exports and CFI, and trade openness. However, the impacts of inflation rate, gross capital creation, and trade openness were negative.

Policy recommendation

Sequel to the findings as discussed above, the study makes the following recommendations:

Since the study found that export has a negative impact on economic growth, therefore government should review its trade policies to correct this abnormality.

Since capital inflow spur economic growth, therefore the government should create an enabling environment to attract more capital inflow into the country.

The study found that the interaction of export and CFI contribute to the economic growth, therefore government should formulates policies to ensure that the connection between the two variable is further strengthen.

References

- [1] Adams, S., & Klobodu, E. K. M. (2017). *Capital flows and economic growth revisited: evidence from five Sub-Saharan African countries*. *International Review of Applied Economics*, 32(5), 620–640. <https://doi.org/10.1080/02692171.2017.13553>
- [2] Adegboyega, S., Akinbobola, T., & Ajayi, F. (2021). Capital Flows and Economic Growth: What Roles Does Trade Liberalisation Play? *Izvestiya, Varna University of Economics*, issue 1, pages 26-44.
- [3] Adekunle, W., and Sulaimon, M. (2018). A re-examination of the relationship between foreign capital flows and economic growth in Nigeria. MPRA Paper No. 87754, 1-30
- [4] Anidiobu, G.A., Paschal Okolie, P.I.P., Onyia, C.C., Onwumere, J.U.U. (2020). *Impact of Foreign Capital Inflow on Economic Growth in Ecowas Sub-Region*, *International Journal of Academic Research in Accounting, Finance and Management Sciences* 10 (1): 172-188.
- [5] Awad, A. (2021). Foreign capital inflows and economic growth: the experience of low-income countries in Sub Saharan Africa. *Journal of Chinese Economic and Foreign Trade Studies*, Vol. 14 No. 3, pp. 225-239. <https://doi.org/10.1108/JCEFTS-07-2020-0028>
- [6] Baharumshah, A. Z., Slesman, L., & Devadason, E. S. (2015). *Types of Foreign Capital Inflows and Economic Growth: New Evidence on Role of Financial Markets*. *Journal of International Development*, 29(6), 768–789. <https://doi.org/10.1002/jid.3093>.
- [7] Chorn, S., & Siek, D. (2017). The Impact of Foreign Capital Inflow on Economic Growth in Developing Countries. *Journal of Finance and Economics*, 2017, Vol. 5, No. 3, 128-135. <http://pubs.sciepub.com/jfe/5/3/5>
- [8] Egyir, J., Sakyi, D., & Baidoo, S. T. (2019). *How does capital flows affect the impact of trade on economic growth in Africa? The Journal of International Trade & Economic Development*, 29(3), 353–372. <https://doi.org/10.1080/09638199.2019.16923>.
- [9] Ehigiamusoe, K. U., & Lean, H. H. (2019). *Foreign Capital Inflows and Economic Growth in Nigeria: Any Nexus? Journal of African Business*, 1–17. <https://doi.org/10.1080/15228916.2019.15810>

- [10] Gabriel, B. T., John, O., & Baryl, I. O. (2019). Capital Flows and Economic Growth In Nigeria: An Econometric Approach. *International Journal of Research - GRANTHAALAYAH*, 7(9), 183–199. <https://doi.org/10.29121/granthaalayah.v7.i9.2019.601>
- [11] Ikpesu, F. (2019). Growth effects of capital inflows and investment in Nigeria, *International Journal of Management, Economics and Social Sciences (IJMESS)* 8(1), 5-19, <https://doi.org/10.32327/IJMESS/8.1.2019.2>
- [12] Ikpesu, F. & Oke, B.O. (2022). Interactive Effects of Public Foreign Capital Inflows and Domestic Investment on Growth in Emerging Market. *Journal of Accounting Research, Organization, and Economics* Vol. 5 (1), 2022: 16-27.
- [13] Kovačević, S., Rebić, M. & Kurušić, D. (2021). The Impact of the Inflow of Foreign Direct Investments on the Economic Development of Serbia. *ECONOMICS*. 9. 123-142. 10.2478/eoik-2021-0022.
- [14] Le, H., & Le, T. (2020). Foreign Direct Investment Inflows and Economic Growth in Singapore: an Empirical approach. *Economics Bulletin*. 40. 3256-3273.
- [15] Liang , C. ., Shah, S. A. ., & Bifei, T. . (2021). The Role of FDI Inflow in Economic Growth: Evidence from Developing Countries. *Journal of Advanced Research in Economics and Administrative Sciences*, 2(1), 68-80. <https://doi.org/10.47631/jareas.v2i1.212>
- [16] Mowlaei, M. (2018). The impact of foreign capital inflows on economic growth on selected African countries. *African Journal of Economic and Management Studies*, Vol. 9 No. 4, pp. 523-536. <https://doi.org/10.1108/AJEMS-01-2018-0021>
- [17] Mohamed, S. I. (2022). Foreign Capital Inflows and Economic Growth in North African Countries: the Role of Human Capital. *J Knowl Econ* 13, 2804–2821. <https://doi.org/10.1007/s13132-021-00843-5>.
- [18] Njoroge, L (2021). Capital Inflows and Economic Growth in Selected COMESA Member Countries. *Journal of Finance and Investment Analysis*, Vol. 10, No. 4, 2021, 25-50 ISSN: 2241-0998 (print version), 2241-0996(online) <https://doi.org/10.47260/jfia/1043>
- [19] Nguyen, C.H., Pham, T.T.Q., Tran,T.H., Thi, H., Nguyen,T.H. (2021). The Relationship between Foreign Capital Inflows and Economic Growth: Empirical Evidence from Vietnam. *Journal of Asian Finance .Journal of Asian Finance, Economics and Business Vol 8 No 11 (2021) 0325–0332*
- [20] Paudel, R.C., Kharel, K., Alharthi, M. (2022), “The Role of External Debt, Export Trade, Remittance, and Labour Force in the Economic Growth of Nepal: is Nepal Heading Towards Dutch Disease?”, *Montenegrin Journal of Economics*, Vol. 18, No. 3, pp. 121-131.
- [21] Tahir, M., Jan, A.A., Shah, S.Q.A., Alam, M.B., Afridi, M.A., Tariq, Y.B. and Bashir, M.F. (2020). Foreign inflows and economic growth in Pakistan: some new insights. *Journal of Chinese Economic and Foreign Trade Studies*, Vol. 13 No. 3, pp. 97-113. <https://doi.org/10.1108/JCEFTS-01-2020-0005>
- [22] Obodoechi, D., Urama, C., Ezema, D., Ukwueze, E., Eze, A., Mba, I., Amuka, J., Arazu, W., & Ibrahim, H. (2022). The Effect of Foreign Capital Inflows on Economic Growth in Nigeria. *Regional Economic Development Research*. 253-266. <https://doi.org/10.37256/redr.3220221550>.

RETHINKING BOUNDARIES: THE FTX FIASCO AND THE IMPERATIVE OF REGULATING CRYPTOCURRENCY EXCHANGES

Ramil GULIYEV¹

¹PhD in Economics and Management, University of Sopron,
Sopron, Bajcsy-Zsilinszky Str. , No. 4, ZIP Code 9400 , Hungary ,

Phone: +36 99 518 100

Email: rguliyev2018@ada.edu.az

How to cite: Guliyev, R.. (2024). “Rethinking Boundaries: The Ftx Fiasco and The Imperative of Regulating Cryptocurrency Exchanges”. *Annals of Spiru Haret University. Economic Series*, 24(1), 149-158, doi: <https://doi.org/10.26458/2419>

Abstract

A turning point in the sector was the bankruptcy of FTX, a well-known cryptocurrency exchange, in late 2022. Sam Bankman-Fried founded FTX, which at first prospered with its cutting-edge offers. However, because of financial mismanagement and regulatory issues, FTX experienced a liquidity problem and widespread withdrawals. The collapse revealed regulatory shortcomings and generated demands for improved supervision and investor protection on a global scale. It is essential to implement swift changes, such as harmonized laws and transparent auditing, in order to reduce risks and promote market integrity. Nonetheless, regulatory obstacles continue to exist, necessitating a careful balancing act between innovation and supervision. The failure highlights the necessity of educating stakeholders and helping them adjust to the changing cryptocurrency environment. Regulations guarantee stability, investor trust, and institutional involvement, even though they may also present challenges. In the end, the crash of FTX steered the sector toward responsible expansion and emphasized the significance of strong regulatory frameworks in determining the course of cryptocurrency markets.

Keywords: *cryptocurrency, FTX, Sam Bankman-Fried, regulation, financial mismanagement*

JEL Classification: G0, G1

Introduction

The fall of FTX in late 2022 changed the game in the unstable cryptocurrency space. Sam Bankman-Fried, a visionary and motivating businessman, founded FTX, which soon became one of the most significant cryptocurrency exchanges globally. It was praised for its intuitive trading platform, cutting-edge trading options, and seeming stability in its finances. Beneath this triumph, though, a string of grave operational and moral errors festered, finally resulting in its precipitous collapse.

FTX's decline stemmed from a liquidity crisis sparked by customer withdrawals and concerns regarding its financial stability. Issues surrounding intertwined finances with Alameda Research raised alarms about potential mismanagement of client funds and conflicts of interest (Taylor & Johnson, 2023). The increased volatility and decreasing values within the broader cryptocurrency market exacerbated FTX's predicament. Its collapse, occurring amidst a cryptocurrency boom characterized by significant growth potential and minimal regulation, cast serious doubts on the sustainability and security of the cryptocurrency market (Lee & Kim, 2023). This study contends that the downfall of FTX serves as a clear impetus for the establishment of comprehensive regulatory frameworks within the cryptocurrency exchange sector. It underscores the urgent need for regulatory bodies to devise mechanisms capable of adapting to the rapid evolution of digital finance. Through an exhaustive examination of the FTX case, this research aims to illuminate the intricate dynamics between innovation, regulation, and market stability in the cryptocurrency domain (de Vries, 2022).

Background

Established in 2019 by Sam Bankman-Fried, renowned for his proficiency in crypto markets and algorithmic trading, FTX swiftly ascended as a prominent figure in the cryptocurrency exchange arena. Often dubbed 'SBF', Bankman-Fried steered FTX to eminence through a blend of inventive trading options, an intuitive platform, and dynamic marketing approaches. Within a brief span, FTX's valuation skyrocketed to billions, attracting a diverse pool of investors and establishing a global presence (Daughtridge, 2023). FTX's ascent in the cryptocurrency sphere

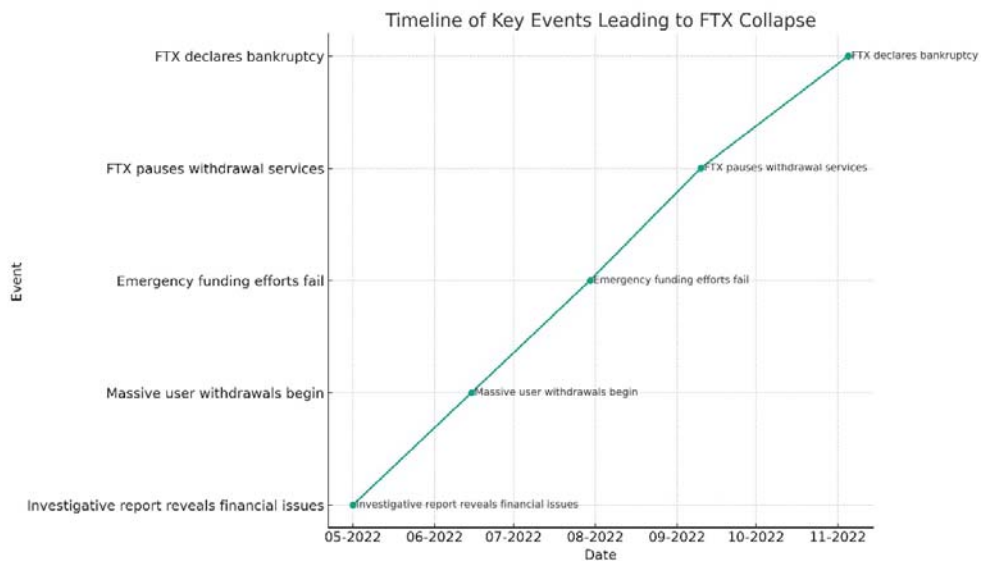
can be attributed to various strategic endeavors. The platform offered a wide spectrum of products, spanning futures, options, and leveraged tokens, catering to both novices and seasoned traders. Its steadfast commitment to user security and upholding stringent liquidity standards distinguished it from competitors. Furthermore, strategic alliances and high-profile sponsorships significantly bolstered FTX's standing and visibility within the crypto domain. However, the regulatory framework governing FTX's operations was intricate and fragmented. Prior to its collapse, the cryptocurrency market operated under relatively lenient regulation, owing partly to the nascent nature of the technology and the rapid pace of innovation within the sector. Regulators worldwide encountered challenges in overseeing a market characterized by its borderless, diverse, and volatile nature. The absence of standardized regulatory protocols allowed exchanges like FTX to operate with considerable autonomy, often in jurisdictions with lax oversight (PWC, 2023).

The background provides context for FTX's rapid rise in the cryptocurrency exchange market under Bankman-Fried's leadership. It highlights the regulatory challenges in the crypto industry that may have contributed to the exchange's eventual collapse.

The Collapse

The collapse of FTX, formerly a dominant player in the cryptocurrency exchange arena, unfolded dramatically and swiftly. It commenced with a cascade of investigative reports and disclosures from whistleblowers, casting doubt upon the financial integrity of both FTX and its affiliate, Alameda Research. These revelations exposed a convoluted network of internal financial arrangements, suggesting that FTX utilized customer deposits to finance speculative ventures via Alameda Research. This disclosure starkly contradicted the perception of stability and transparency that FTX had projected (Lang, Howcroft, and Wilson, 2023). As these reports gained momentum, they precipitated a massive wave of withdrawals from FTX users, apprehensive about the safety of their assets. The exchange, built upon user confidence and trust, encountered a profound liquidity crisis. Despite attempts to secure emergency funding, potential investors and partners distanced themselves due to mounting allegations of financial mismanagement. The situation escalated when FTX suspended withdrawal services, citing liquidity concerns, exacerbating panic among its user base (Zetzsche et al., 2023).

The key factors contributing to the failure of FTX included a lack of financial transparency, the commingling of customer funds with risky investment ventures, and an apparent absence of a robust internal control system. The shockwaves of FTX's collapse were felt across the cryptocurrency market, leading to a significant drop in the value of major cryptocurrencies and eroding investor confidence in other crypto exchanges. This event exposed the vulnerabilities of the crypto market and highlighted the risks associated with a lack of regulatory oversight (U.S. Securities and Exchange Commission, 2022).



Graph 1. The timeline graph illustrating key events leading to the collapse of FTX. This graph visually depicts the rapid progression of events over a short time frame, starting from the release of investigative reports revealing financial issues to the eventual declaration of bankruptcy by FTX.

Following FTX's collapse, numerous investors suffered substantial losses, with billions of dollars in customer assets frozen. The broader cryptocurrency market witnessed increased volatility, as the failure of a major exchange raised concerns about the stability and security of digital asset platforms (Yousaf, Riaz, & Goodell, 2023).

Regulatory Shortcomings

FTX's collapse highlighted regulatory shortcomings in the cryptocurrency market. Despite the market's rapid growth to a \$3 trillion valuation, regulatory frameworks lagged behind. In 2022, only a minority of countries had established comprehensive cryptocurrency regulations, resulting in a fragmented global regulatory landscape (Shirakawa & Korwatanasakul, 2019).

A significant regulatory gap in the cryptocurrency market was the absence of standardized transparency and auditing requirements. While traditional financial institutions are mandated to maintain strict transparency, crypto exchanges like FTX often operated with minimal transparency. Reports indicated that in 2022, less than 25% of crypto exchanges adhered to transparency standards equivalent to those in traditional finance (Hallak & Salén, 2023).

The intertwined financial ties between FTX and Alameda Research highlighted the repercussions of regulatory deficiencies. While conventional financial sectors uphold rigorous conflict-of-interest standards, the cryptocurrency realm notably falls short in this regard. More than 90% of regulated institutions in traditional finance adhere to such protocols, yet the crypto industry lacks equivalent regulations. The mingling of FTX's and Alameda's finances, which contributed to FTX's downfall, emphasizes the imperative for robust conflict-of-interest regulations within the crypto sphere (Han et al., 2023).

The disparity in auditing and financial reporting standards is striking. In traditional finance, nearly all major institutions undergo rigorous independent financial audits annually. Conversely, in the cryptocurrency sphere, only around 40% of exchanges subject themselves to such scrutiny. The absence of independent audits, as seen in the case of FTX, created an environment where financial irregularities could go unnoticed until they led to catastrophic failures (Martino, Nabilou, & Paccès, 2023).

The regulatory deficiencies within the cryptocurrency market, as demonstrated by the collapse of FTX, resulted in significant losses of around \$8 billion in customer assets. This event emphasized the necessity for comprehensive regulatory frameworks that prioritize investor protection and market integrity. Following the FTX incident, there was a surge in demands for regulatory reform, seeking to implement standards comparable to those in traditional finance while accommodating the distinct features of digital assets. Achieving a balance between innovation and investor protection became essential for ensuring the longevity and stability of the cryptocurrency market (Baker et al., 2023).

The global disparity in cryptocurrency regulation was evident, with some countries implementing strict frameworks while others lacked oversight. This inconsistency hindered international cooperation in financial oversight and allowed regulatory arbitrage. Entities like FTX could strategically position themselves in lenient jurisdictions. International financial bodies and regulators aimed to establish a more harmonized regulatory landscape for cryptocurrencies (Narain & Moretti, 2022).

Global Responses and Broader Implications

The collapse of FTX, a major player in the cryptocurrency exchange market, elicited significant responses from financial authorities and governments globally. In the United States, the Securities and Exchange Commission (SEC) and the Commodity Futures Trading Commission (CFTC) intensified their scrutiny of cryptocurrency exchanges. These agencies advocated for stricter compliance with financial regulations, emphasizing the need for greater investor protection in the crypto market. Similarly, in Europe, the European Securities and Markets Authority (ESMA) called for harmonized crypto regulations across member states, focusing on transparency and financial stability (McCrank & John, 2022).

In Asia, responses to the FTX collapse varied. Japan and South Korea accelerated efforts to regulate digital assets, while other countries reconsidered lenient stances. The People's Bank of China maintained strict cryptocurrency policies, citing the FTX collapse (Wang & Lee, 2023).

The collapse of FTX had a significant impact on investor sentiment in the cryptocurrency market. Many investors became more risk-averse, reevaluating their exposure to digital assets. This shift in sentiment led to increased volatility in cryptocurrency markets, with major cryptocurrencies like Bitcoin and Ethereum experiencing significant price declines in the aftermath of the FTX collapse (Almeida & Gonçalves, 2023).

The broader implications for the cryptocurrency industry were profound. The FTX collapse served as a wake-up call, highlighting the vulnerabilities in the market and the urgent need for regulatory reform. It prompted a reevaluation of the decentralized finance (DeFi) sector, with stakeholders acknowledging the necessity for balancing innovation with risk management. Additionally, the incident spurred discussions about the role of cryptocurrency in the global financial system, questioning its viability as a mainstream financial instrument (Manda & Yadav, 2023).

Moreover, the FTX incident catalyzed a shift towards more sustainable and responsible growth models in the crypto industry. Startups and established players alike began prioritizing transparency and compliance, recognizing that these elements were crucial for long-term success and public trust. This shift also opened up dialogues about consumer education in the cryptocurrency space, emphasizing the need for investors to be better informed about the risks associated with digital assets (de Vries, 2022).

The collapse of FTX highlights the urgent need for comprehensive regulation in the cryptocurrency exchange sector. Such regulation is crucial for protecting investors, ensuring market integrity, and promoting a stable environment for sustainable growth.

Enhanced transparency and reporting standards are essential in the cryptocurrency exchange sector. Regulations should require exchanges to regularly disclose financial information and undergo independent audits, fostering trust among users. Crucially, customer funds should be kept separate from exchange operational funds to protect user assets in case of financial difficulties.

Enhanced auditing and strict compliance with anti-money laundering (AML) and know your customer (KYC) regulations are critical. Regular, independent audits should be mandatory to ensure exchanges operate transparently and legally. Implementing measures to prevent market manipulation and maintain fair trading practices is vital for market integrity, including monitoring and addressing fraudulent activities and extreme market volatility.

Proposals for regulatory reform in the cryptocurrency sector encompass the development of a global regulatory framework. Spearheaded by international financial bodies, such a framework would strive to standardize regulations across various jurisdictions, thereby mitigating the risks stemming from regulatory inconsistencies. Another significant proposal involves the establishment of a licensing system for cryptocurrency exchanges. This initiative would mandate exchanges to satisfy specific operational and financial criteria to obtain a license, thereby bolstering overall market integrity. The potential ramifications of these regulatory measures are multifaceted. On one hand, they hold the promise of bolstering investor confidence, curbing fraudulent activities, and fostering a more resilient and trustworthy cryptocurrency market. Conversely, there exists a risk that overly rigid regulations could stifle innovation and impede the dynamic growth characteristic of the digital asset sector. Implementing these regulations poses several challenges.

Achieving the delicate balance between regulation and innovation is paramount. Regulations must be stringent enough to ensure safety and transparency while remaining adaptable to accommodate the rapidly evolving nature of digital assets. Additionally, the global nature of cryptocurrency necessitates international cooperation for effective regulation, a daunting task given the diverse legal and economic landscapes across countries.

Moreover, staying abreast of technological advancements in blockchain and digital assets is imperative for regulations to remain pertinent and efficacious. Lastly, educating all stakeholders, including regulators, investors, and operators, about the risks and obligations associated with digital assets is indispensable for the successful implementation of these regulations.

The journey towards robust regulation in the cryptocurrency exchange sector is complex and multifaceted, requiring careful consideration and collaboration across various domains to ensure effectiveness and sustainability in the rapidly evolving digital asset market.

The collapse of FTX, a leading cryptocurrency exchange, highlights the risks in the largely unregulated crypto space. It resulted from financial mismanagement, lack of transparency, and inadequate regulatory oversight. This underscores the need for robust cryptocurrency exchange regulations to protect investors and ensure market stability.

The significance of FTX's collapse extends beyond its immediate financial repercussions. It has served as a catalyst for a global reassessment of how cryptocurrency exchanges operate and are regulated. The incident highlighted glaring gaps in existing regulatory structures, particularly in areas of transparency, auditing standards, and the safeguarding of customer assets. It also brought to light the necessity of international cooperation in formulating and enforcing regulations in a market that is inherently borderless and diverse.

The urgency and importance of regulating cryptocurrency exchanges have never been clearer. Effective regulation is crucial not only for protecting investors but also for ensuring the stability and integrity of the broader financial system. The implementation of comprehensive regulatory measures, adapted to the unique characteristics of digital assets, is essential for mitigating risks and fostering sustainable growth in the cryptocurrency market.

Looking towards the future, the cryptocurrency markets under enhanced regulation hold both challenges and opportunities. While stricter regulations may impose certain constraints on the operations of cryptocurrency exchanges, they also

offer the potential for greater stability, investor protection, and legitimacy. A well-regulated market could attract more institutional investors, contributing to the maturity and mainstream acceptance of cryptocurrencies. Additionally, effective regulation could spur innovation, encouraging the development of new and safer financial products within the crypto space.

Conclusion

In conclusion, the FTX collapse serves as a pivotal moment in the history of cryptocurrency markets, marking a turning point towards more responsible and robust regulatory approaches. The future of these markets, under the auspices of enhanced regulation, promises greater security for investors and a more stable foundation for the continued growth and innovation in the world of digital finance.

References

- [1] Almeida, J., & Gonçalves, T. C. (2023). *A systematic literature review of investor behavior in the cryptocurrency markets*. Journal of Behavioral and Experimental Finance, 37. <https://www.sciencedirect.com/science/article/pii/S2214635022001071>
- [2] Baker, T. H., Boggs, J. C., Loeser, J. L., Lofchie, S., Lummis, C., & Pollock, A. J. (2023). *Cryptocurrency Regulation in the Aftermath of FTX*. [Webinar]. The Federalist Society. Retrieved from <https://fedsoc.org/events/cryptocurrency-regulation-in-the-aftermath-of-ftx>
- [3] Daughtridge, S. (2023, October 20). *Robinson's Take: The Rise and Fall of Crypto Billionaire Sam Bankman-Fried*. Georgia State University News. Retrieved from <https://news.gsu.edu/2023/10/20/bankman-fried>
- [4] de Vries, A. (2022). *Cryptocurrencies on the road to sustainability: Ethereum paving the way for Bitcoin*. ResearchGate. Retrieved from https://www.researchgate.net/publication/366057710_Cryptocurrencies_on_the_road_to_sustainability_Ethereum_paving_the_way_for_Bitcoin
- [5] Han, H., Shiwakoti, R. K., Jarvis, R., Mordi, C., & Botchie, D. (2023). *Accounting and auditing with blockchain technology and artificial intelligence: A literature review*. International Journal of Accounting Information Systems. Retrieved from <https://www.sciencedirect.com/science/article/pii/S1467089522000501>
- [6] Hallak, I., & Salén, R. (2023). *Non-EU countries' regulations on crypto-assets and their potential implications for the EU*. European Parliament. Retrieved from [https://www.europarl.europa.eu/RegData/etudes/BRIE/2023/753930/EPRS_BRI\(2023\)753930_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2023/753930/EPRS_BRI(2023)753930_EN.pdf)
- [7] Lang, H., Howcroft, E., & Wilson, T. (2023, November 3). *The crypto market bears the scars of FTX's collapse*. Reuters. Retrieved from <https://www.reuters.com/technology/crypto-market-still-bears-scars-ftxs-collapse-2023-10-03>

- [8] Manda, V. K., & Yadav, A. (2023). The aftermath of the FTX Cryptocurrency Exchange Collapse. ResearchGate. Retrieved from https://www.researchgate.net/publication/369537492_The_aftermath_of_the_FTX_Cryptocurrency_Exchange_Collapse
- [9] Martino, E. D., Nabilou, H., & Paces, A. M. (2023). Comparative Financial Regulation: The Analytical Framework. European Corporate Governance Institute. Retrieved from https://www.ecgi.global/sites/default/files/working_papers/documents/comparativefinancialregulation_0.pdf
- [10] McCrank, J., & John, A. (2022). Regulators circle FTX as rival exchanges try to calm investors. Reuters. Retrieved from <https://www.reuters.com/technology/regulators-scrutinise-ftx-investor-focus-swings-cryptocom-2022-11-14>
- [11] Narain, A., & Moretti, M. (2022, September). Regulating Crypto. International Monetary Fund. Retrieved from <https://www.imf.org/en/Publications/fandd/issues/2022/09/Regulating-crypto-Narain-Moretti>
- [12] PwC. (2023). PwC Global Crypto Regulation Report 2023. PricewaterhouseCoopers. Retrieved from <https://www.pwc.com/gx/en/new-ventures/cryptocurrency-assets/pwc-global-crypto-regulation-report-2023.pdf>
- [13] Shirakawa, J. B. R., & Korwatanasakul, U. (2019). Cryptocurrency Regulations: Institutions and Financial Openness. Asian Development Bank Institute. Retrieved from <https://www.adb.org/sites/default/files/publication/513726/adbi-wp978.pdf>
- [14] U.S. Securities and Exchange Commission. (2022). SEC Charges Samuel Bankman-Fried with Defrauding Investors in Crypto Asset Trading Platform FTX. Retrieved from <https://www.sec.gov/news/press-release/2022-219>
- [15] Yousaf, I., Riaz, Y., & Goodell, J. W. (2023). What do responses of financial markets to the collapse of FTX say about investor interest in cryptocurrencies? Event-study evidence. Finance Research Letters, 53. Retrieved from <https://www.sciencedirect.com/science/article/abs/pii/S1544612323000351>
- [16] Zetzsche, D., Arner, D. W., Kirkwood, J., & Buckley, R. (2023). The Financialization of Crypto: Lessons from FTX and the Crypto Winter of 2022-2023. ResearchGate. Retrieved from https://www.researchgate.net/publication/368882433_The_Financialization_of_Crypto_Lessons_from_FTX_and_the_Crypto_Winter_of_2022-2023

ENTREPRENEURIAL ORIENTATION AND SMALL AND MEDIUM ENTERPRISES COMPETITIVE ADVANTANGE IN NIGERIA

Waidi Adeniyi AKINGBADE¹, Olubunmi Temitayo FAMODUN²

¹*Department of Business Administration, Faculty of Management Sciences, Lagos State University, Lagos, Nigeria.*

Phone: +2348030500622, Email address: waidi.akingbade@lasu.edu.ng

²*Department of Business Administration, Faculty of Management Sciences, Lagos State University, Lagos, Nigeria.*

Phone: +2348023733846, Email address: ogundele_tayo@yahoo.com

How to cite: Akingbade, W.A. & Famodun, O.T. (2024). "Entrepreneurial Orientation and Small and Medium Enterprises Competitive Advantange in Nigeria". *Annals of Spiru Haret University. Economic Series*, 24(1), 159-186, doi: <https://doi.org/10.26458/24110>

Abstract

There have been inconsistencies in the findings of academic researchers on entrepreneurial orientation and SMEs competitive advantage, which has demanded a further study. The issue of inadequate access to finance, poor infrastructure, inconsistency with government policy, poor support (business development work), inadequate sales, too many taxes and obsolete technologies leading to massive failures of SMEs and its effect on the epileptic growth of SMEs in Nigeria, but also due to the problem from entrepreneurial orientation. The survey research design was employed in this study and the study relied on primary data. The targeted population of this study is 1,511 SMEs (wholesalers and retailers only), which were drawn from National Association of Small and Medium Enterprises (NASMEs) in Lagos and Ogun States in Nigeria. A snowballing sampling technique was used to choose 316 participant SMEs to which the questionnaires were administered, of which 243 questionnaires were returned. The hypotheses of the study were analyzed using multiple regression analysis. The results showed that pro-activeness, innovativeness, and risk-taking significantly improve the performance of SMEs in Nigeria. The study came to the conclusion that innovative, entrepreneurial-oriented businesses are more likely to lead their industry in innovations and

carry out tasks in a way that better serves clients and increases the firm's power. In order to improve the performance of their companies, the study recommended that SMEs' owners and managers to be dedicated to process and radical innovation in their interactions.

Keywords: *Competitive Advantage, Entrepreneurial Orientation, Innovativeness, Pro-activeness, Risk-taking and Small and Medium Scale Enterprises*

JEL Classification: M1

1.0 Introduction

Nigeria is blessed with huge natural and human resources which should make her one of the best countries in the world but the country faces various challenges amongst which are economic depression, crisis, and insecurity deprived her from being one of the best (Dansu, 2013). Nigeria remain free food producer economy and one of the major exporter of the agricultural products across the world not until late 1970s when crude oil became the major source of revenue to gain Gross Domestic Product (GDP) and affected other revenue generation sectors of the Nigeria economy (Olowofeso, 2021). Though some of the oil producing economies (Saudi-Arabia, Qatar, Venezuela etc.) like Nigeria that are mono-product economy do not experience the same challenges, it is because their oil revenue is well managed, unlike what obtains in the Nigerian economy. Other revenue generating sectors in Nigeria have been paralyzed during the oil boom of the 1970s, as government and other organizations lost interest in these sectors and focused on oil alone. Unfortunately, these sectors have not been revived till today (Zaato, Ismail, Uthamaputhran & Owusu-Ansah, 2020).

Asides the oil boom of 1970s, SMEs in Nigeria is another area currently expected to help in building Gross Domestic Product (GDP), but series of challenges perhaps [both internal (poor accounting record, inability to separate the owner from business and so on) and external (epileptic power supply, bad road and inadequate road network as well as poor town planning)] retarded the expected growth of SMEs in Nigeria and however, resulted in inadequate contribution of the sector to GDP (Dansu, 2013). The above mentioned challenges contributed immensely to the adverse performance of the SMEs in Nigeria, though most of the existing SMEs that have been in operation for over five years appear to have been

proffering solution to those problems facing them through local strategic alliance such as managing the environment where they are operating (Zaato, Ismail, Uthamaputhran & Owusu-Ansah, 2020).

In recent years, the importance of entrepreneurship to firms has been increasingly recognized. According to research by Audretsch and Keilbach (2007), entrepreneurial activities can lead to innovation and create new products or services, which in turn can help firms achieve a competitive advantage. Additionally, Hitt et al. (2011) suggest that entrepreneurship can also contribute to organizational growth and adaptability, as entrepreneurs often possess the drive and vision to identify new opportunities and respond to changing market conditions. Thus, fostering an entrepreneurial mindset and supporting entrepreneurial activities can be beneficial for firms looking to achieve long-term success (Zaato, Ismail, Uthamaputhran & Owusu-Ansah, 2020).

While a number of studies have examined entrepreneurial orientation (EO), SMEs performances and Market share, they have ignored the EO and SMEs competitive advantage in developing economies like Nigeria, with the exception of a few studies. This study examines the relationship between entrepreneurial orientation and SMEs' competitive advantage (wholesale and retail only) in Lagos State, Nigeria. This research expands the literature on the EO and SMEs competitive advantage focusing on the effect of EO on SMEs' competitive advantage in Lagos State.

1.1 Statement of the Problem

SMEs in Nigeria are faced with a lot of challenges and pressures, both from internal and external factors. These challenges range from lack of financial support, innovative ability, technological innovation, demographic and social change, globalization to mention a few, as a nation and integrates more into the world economy at large.

Ibrahim and Abu (2020), reflected that the skills and knowledge of the owners of businesses, depends directly on entrepreneurial orientation and it is referred to as the basic component in determining the ability to manage strategically their establishments in order to engender good performance (Okoli, Nwosu & Okechukwu, 2021). Ilesanmi, Onikoyi & Badiru (2022) opined that collapse of SMEs is based on the in-competencies of the manager, their inability to be proactive, innovative, their lack of entrepreneurial skill and technical incompetence.

Meanwhile a contrary opinion was presented by Gupta, Niranjana, and Markin(2020) who said that EO has no significant relationship with performance. They had their backing from the empirical study where they revealed that many entrepreneurs having little or no training or orientation in business and management appeared to be more successful in their businesses than some with some levels of orientation. Hence, there are inconsistencies in the findings which demand for further study. Scholars have written severally on EO and SMEs performance but few have related these concepts to competitive advantage, hence the reason to look into the effect of EO and SMEs competitive advantage in Lagos State.

1.2 Research Objectives

The main objective of the study is to examine the effect of entrepreneurial orientation on SMEs competitive advantage in Nigeria. The specific objectives are to;

- i. examine the influence of pro-activeness on SMEs' competitive advantage in Nigeria.
- ii. evaluate the effect of innovativeness on SMEs' competitive advantage in Nigeria, and
- iii. assess the effect of risk taking on SMEs' competitive advantage in Nigeria.

1.3 Research Questions

Based on the above objectives, the below relevant questions were raised and to be addressed;

- i. How does pro-activeness affect SMEs' competitive advantage in Nigeria?
- ii. What is the influence of innovativeness on competitive advantage of SMEs in Nigeria?
- iii. How does risk taking influence competitive advantage of SMEs in Nigeria?

1.4 Research Hypotheses

Based on the above questions, the below relevant hypotheses were tested;

H₀₁: Pro-activeness does not significantly affect competitive advantage of SMEs in Nigeria

H₀₂: Innovativeness has no effect on competitive advantage of SMEs in Nigeria

H₀₃: Risk taking does not have influence on competitive advantage of SMEs in Nigeria.

1.5 Scope of the Study

The purpose of this paper is to investigate the relationship between entrepreneurship orientation and SMEs competitive advantage in Nigeria. The study focused on exploring the extent to which entrepreneurship orientation influences the competitive advantage of SMEs operating in Nigeria.

The study is limited to a sample of SMEs operating in Lagos State and Ogun State, drawn from various industries and who are wholesalers or retailers which constitute 1,511 SMEs within Lagos and Ogun States. They were included in this study because they are easily assessable, and they constitute one of the highest SMEs subsector. The findings from this study has contribute to the existing literature on entrepreneurship orientation and SMEs competitive advantage. It is expected that the study will provide insights into the relationship between entrepreneurship orientation and competitive advantage, as well as the factors that influence this relationship in the context of SMEs in Nigeria.

2.0 Literature Review

2.1 Conceptual review

2.1.1 Entrepreneurial Orientation

Entrepreneurial orientation (EO) is the readiness of individual or organisation to accept willingly new opportunities and be accountable for creative change. (Barterng, 2020). Entrepreneurship is basically an orientation towards seeing opportunities and taking advantage of the opportunities, therefore, another way to understand EO is to think about it as the process and decision-making activities used by entrepreneurs. EO helps to discover new opportunities and to the support of business activities, hence, EO is a key factor for a successful SMEs performance.

There are empirical explanations in recent studies on EO which analyze EO and affirm it as a moderating effect on corporate social responsibility (CSR) and performance. They indicate that sustainable firms should be able to make considerations for the entrepreneurial orientation so as to make their businesses succeed (Dansu, 2013). Soto-Acosta et al. (2016) examined the relationship between sustainable entrepreneurship and business success. Their findings revealed that environmental consciousness and other aspects of sustainability do not directly affect a company's performance. When entrepreneurial and financial benefits are realized, it indicates that sustainability orientation has an impact on sustainable entrepreneurial intention, and this will have to depend on the EO. In the meantime,

the sustainability-oriented people with entrepreneurial orientation might not be able to take the right action when starting a business. Meanwhile, some other studies considered EO with entrepreneurial intention citing a tradeoff relationship between them (Soto-Acosta et al., 2016). They perceive that the entrepreneurs are often used as social entrepreneurs which is having their interest on the environmental and social issues rather than making profit.

Some studies revealed that entrepreneurial orientation has a negative effect on entrepreneurial intention for students in businesses (Adamu, Wan, & Gorondutse, 2019); most of these entrepreneurs' reason that when they consider the social and environment factors in their business there might be a reduction in their private benefit. Entrepreneurs tend to view sustainability orientation for social and environmental benefit as a tradeoff relationship with entrepreneurship orientation for profit (Dansu, 2013). Nascent entrepreneurs sometimes take sustainability as a way of making profit and making more serious consideration than that of the benefit of the social and environment through sustainability. This means that the nascent entrepreneurs see new market opportunities in the environments which they interpret and understand the new opportunities, this can be feasibility or the creation of profit; this is different from the altruistic view which make considerations for the environment and sustainability. However, for an entrepreneur, there is a relationship between profit and the survival or sustainability of the enterprise. This means that, entrepreneurial orientation might make it very tough in starting businesses even when there are good opportunities in the market. Patzelt & Shepherd (2011) carried out a study to understand the moderating effect of entrepreneurship orientation in the relationship between sustainability orientation and opportunity discovery. They revealed that having the idea of the natural and communal environment has positive effects on recognition of sustainable development opportunities while that of the entrepreneurial knowledge also have a positive moderating effect in this relationship.

2.1.2 Small and Medium Enterprises

There is no generally accepted definition of micro enterprises as different nations have defined enterprises based on different circumstances. What is stated or identified as SMEs in many industrialized countries might differ from the developing nations.

In industrialized economies, businesses classified as micro enterprises could be classified as small or medium-sized in developing nations. This is due to the fact that different countries have different levels of technology, capital invested, and

workforces involved in running and executing SMEs. SMEs are classified according to capital invested in certain nations, number of employees, or volume of revenue in other countries. Most definitions of SMEs are determined by the policy makers, who include traders, labor officers, financiers, and service providers. Among the standard used to define enterprises, the most common and widely used ones comprise of the number of paid employees by the sector, the amount of paid-up capital, total assets, volume of sales, and value added or net worth (Ipigansi, Ajemunigbohun, 2023).

Dansu (2013) says that SMEs are classified according to the scale of operations based on the nature and size of employment. That is, they are classified into different size categories based on number of workers as criteria. For example, Micro, Small and Medium Enterprises (MSME) National Survey Report (2017), classified MSMEs based on employment and assets. See table 1 below:

Table1: Categorisation of SMEs definition by employment and asset

S/N	Size category	Employment	Asset (=N= million) (excl. land & building)
1	Micro enterprises	Less than 10	Less than 5
2	Small enterprises	10 to 49	5 to less than 50
3	Medium enterprises	50 to 197	50 to less than 500

Source: Micro, small and medium enterprises (MSME) National Survey 2017 Report

2.1.3 Pro-activeness

Generally speaking, pro-activeness means looking forward and seeking opportunities. It entails a company taking the lead to launch novel goods or services that set them apart from their rivals in an effort to lead by example, set the standard, make the first move, or gain the upper hand in satisfying consumer needs in any given circumstance by launching new procedures, goods, or services before their rivals (Miller, 1983; Dansu, 2013). Proactive SMEs don't only follow the lead of other companies; instead, they always aim to be industry leaders (Zaato, Ismail, Uthamaputhran & Owusu-Ansah 2020). It is an indication of opportunity recognition and how they are aware and responsive to market signals ahead of competitors (Zaato, Ismail, Uthamaputhran & Owusu-Ansah 2020). Furthermore, some studies have reported that SMEs 'with high responsive ability' should consider pro-activeness as a vital aspect of their business and always strive to have a first-mover advantage over their counterparts in identifying and turning ideas into

opportunities (Dansu 2013; Adamu, Wan, & Gorondutse, 2019). SMEs should, therefore, focus on building their capacity in order to be proactive. This involves improving both their material and non-material resources, such as their human resource capability, in order to be able to recognize opportunities to meet current and future market demands in a timely manner, influence policymakers, set the market's pace based on their market share (Tang et al., 2014), adopt technology, and stay up to date with advancements in the field (Adamu, Wan, & Gorondutse, 2019).

2.1.4 Innovativeness

Global marketplaces are changing quickly, which has increased rivalry, reduced value addition, and decreased the efficacy of businesses' goods and services (Dansu, 2013; Zaato, Ismail, Uthamaputhran & Owusu-Ansah 2020). One of the key components of SMEs' strategies is innovation, which helps them create new or improved processes, goods, and services that help them enter markets, draw in customers, grow their market share, and gain a competitive edge as their environment changes (Dansu, 2013; Zaato, Ismail, Uthamaputhran & Owusu-Ansah 2020). Schumpeter (1942) was the first to recognize innovation, equating it with "creative destruction." According to him, the process that generates wealth is known as "creative destruction." It starts with the introduction of new goods and services, which displaces existing firms' resources and gives new firms a competitive edge. This process should be started by an entrepreneur and results in the destruction of existing products and services as well as market structures (Dansu, 2013).

2.1.5 Risk Taking

SMEs perceive risk-taking as the inclination of individuals within a firm to make bold or well-calculated decisions when entering existing or new markets. It involves committing resources to ventures with uncertain outcomes and a willingness to invest in business ideas that other SMEs may shy away from due to fear or risk aversion (Dansu, 2013; Zaato, Ismail, Uthamaputhran & Owusu-Ansah 2020). Since the beginning of entrepreneurship, risk-taking has been associated with it (Dansu, 2013), and it is a crucial indicator of EO when assessing the degree of survival among SMEs. On the other hand, studies show that SMEs' risk-taking capabilities range from low to moderate. As opposed to those who take extremely low levels of risk, individuals who take reasonable amounts of risk perform well (Dansu, 2013; Zaato, Ismail, Uthamaputhran & Owusu-Ansah 2020). This supported the widely held belief that SMEs who take risks can achieve better

long-term growth and profitability than those who don't. (Dansu, 2013; Zaato, Ismail, Uthamaputhran & Owusu-Ansah 2020). This viewpoint confirmed the risk-returned theory's tenet, which states that performance of SMEs is correlated with risk and return. It is impossible for SMEs to achieve targeted performance and completely distance themselves from taking some amount of risk if they hope to survive.

2.1.6 Competitive advantage

Competitive advantage refers to the unique strengths or capabilities that allow a business to outperform its competitors. These advantages enable a company to achieve superior profitability, market share, or other strategic objectives. Competitive advantage can arise from various sources, and businesses often seek to identify, develop, and leverage these advantages to stay ahead in the market. Twin (2023), a company's competitive edge is what sets its goods and services apart from those of its rivals in the eyes of consumers. Put differently, a company's ability to demonstrate its values to customers in a way that outweighs the price they pay is its competitive edge. Tonchia and De Toni (2003). According to Shodiya (2021), a company gains a competitive edge when it connects to its environmental opportunities and chances. This advantage helps the company thrive.

Lynch (2002), stated that competence includes knowledge and key skills that enables firm meet and surpass the expectation of customers with their quality product and service delivery of products. Based on this, it can be argued that knowledge is the basic skill for competitive advantage, which are observed as fundamental basis of competitive advantage.

The basic way of assessing competitive advantage, is with the use of comparative advantage (a firm's ability to produce a good or service more efficiently than its competitors) or differential advantage (which is when a firm's products or services differ from its competitors' offerings and are seen as superior), (Twin, 2023). He also stated that competitive advantage is easily replicable and imitated by competitors. Some of the benefits of competitive advantage are: increase in profit margins and customer base, brand loyalty maintenance and attracts potential investors. Thus, this study used competitive advantage to assess its effect on EO amongst SMEs.

2.2 Theoretical Background

2.2.1 The Resource Based View Theory (RBV)

For investigating EO in predicting SMEs competitive advantage in Lagos, this study invokes the Resource Based View (RBV) Theory. This theory is key for

understanding and defining pro-activeness, innovation and sustainability that enables leaders take advantage of internal resources (Barney & Arikan, 2021).

Adekunle and Owolabi (2022) stated that resource-based theory emphasizes how businesses use a variety of resources to launch their entrepreneurial endeavors. Although having access to capital increases the likelihood of a new business venture succeeding, entrepreneurs frequently launch their ventures with little available cash. Entrepreneurs may also leverage human resources, such as education, and other resources, as well as social networks and the knowledge they offer. Furthermore, the intangible components of leadership the entrepreneur adds to the mix operate as resources that cannot be replaced but can help uncover ways of utilizing resources optimally, which is necessary for SMEs (Adekunle and Owolabi, 2022). Birger (1995) states that RBV theory remarkably impacts a firm's pro-activeness, innovativeness and sustainability. Evans and Jonanovic (2016) asserted that the process of strategic planning starts with an examination of a company's competitive standing within a certain industry. This is regularly accomplished by taking into account the surroundings of the company and determining what course of action might perhaps enhance the company's performance. Given this context, it makes sense for Anderson and Mullar (2003) to suggest that Resource-Based (RBV) theory can be viewed as a strategy formulation process that occurs "inside out." The process begins with acknowledging the resources that the company obtains, exploring opportunities for value creation, and implementing a plan that will support sufficient and sustainable value creation.

Moreover, the ideas of resources also encompass the diverse cognitive capacities that the business owner possesses in order to generate and integrate mixed resources. Identifying behaviors and skills that can be viewed as resources, organizing and combining resources, building a firm out of those resources, and producing a variety of outputs that outperform competitors are the primary objectives of this analysis (Anderson & Miller, 2003).

2.3 Empirical Review

Kraus et al. (2012) reviewed the entrepreneurial orientation and the business performance of SMEs in the Netherlands in a quantitative study in the Netherlands in which a series of hypotheses were tested pertaining to its performance effects using survey data gathered from 164 Dutch SMEs and the principal component analysis with Varimax rotation was used for data analysis. The findings from the study showed that pro-activeness is directly related to the performance of the Dutch

SMEs under investigation, and its effects on business performance is not affected by market turbulence. Innovativeness and risk-taking did show a direct significant relationship with business performance, but only when accounting for their interaction with market turbulence.

Butkouskaya, Llonch-Andreua and Alarcón-del-Amo (2020) carried out a study titled “Entrepreneurial Orientation (EO), Integrated Marketing Communications (IMC), and Performance in Small and Medium-Sized Enterprises (SMEs): Gender Gap and Inter-Country Context”. In this study, structural equation modeling (SEM) was used to examine data collected from 315 manager questionnaires conducted in Belarus and Spain. The findings indicate that EO, IMC, and performance among SMEs in both marketplaces are positively correlated. Nonetheless, in the case of men managers in a developed market (Spain), as opposed to female managers, these relationships are noticeably stronger. In the developing market (Belarus), there was no discernible gender difference. Furthermore, on the other hand, when a manager is a woman in a developing market, the EO-IMC-performance linkages are stronger.

Runtuk, Kiat, Yin, Purwanto, Chairat and Yu (2023) carried out a study titled “Sustainable Growth for Small and Medium-Sized Enterprises: Interpretive Structural Modeling Approach”. The study intended to create an interaction model for all factors that encourage sustainable SME growth. To create an interaction model of the factors that promote the growth of SMEs, an interpretative structural modeling (ISM) analysis is carried out. The findings demonstrate the importance of both internal and external facilitators for the expansion of SMEs. This study demonstrates that the internal enablers of managerial skills (MS), entrepreneurial orientation (EO), and ownership structure (OS) are interconnected and have a significant impact on the success of SMEs. Furthermore, outside facilitators like GS (government support) and CIL (customer involvement and location) are crucial in enhancing the effectiveness of other SME growth-related elements.

In the 1980s, competitive advantage became a tool for evaluating business operations' sustainability and value proposition in addition to their fundamental financial performance (Tsenyil, Dakung, & Goyit, 2018). It can also be defined as the aspect of an organization's success relative to rivals that supports the continuation of business operations. When a business maintains a distinct advantage over rivals, even in the face of their constant attempts to replicate it, it is said to have acquired a competitive advantage. According to Michael Porter's research, competitive advantage is attributed to three factors: (a) providing a tested value proposition that

benefits end users; (b) delivering this value proposition through organizational activities in a way that rivals find difficult to copy; and (c) the advantage is sustainable in the face of competition and environmental change (Tsenyil, Dakung & Goyit, 2018). Technology innovation, human resource management, and organizational culture can all be used to gain a competitive advantage.

3.0 Research Methods

The research methodology outlined in this section includes the research design, data collection methods, and data analysis techniques used in the study.

3.1 Research Design

The research design chosen for this study is the descriptive survey research design. This is because the study seeks to produce data for analysis through the use of a questionnaire. The descriptive survey design allows for the collation of data from a large sample, in this case, a large sample of SMEs in Lagos and Ogun States, so as to produce a snapshot of the current entrepreneurial orientation and competitive advantage amongst the SMEs in the Nigeria (Hair et al., 2019). The questionnaire served as the primary instrument for data collection, allowing for efficient data gathering from a diverse range of SMEs operating in Lagos State and Ogun State.

3.2 Population of the study

The target population of the study is 1,511 SMEs (Wholesales and Retails Only) from Lagos State and Ogun State, which are from the total SMEs obtained from National Association of Small and Medium Enterprises (NASMEs) records as at 2021. The population of the study signified the registered members of National Association of Small and Medium Enterprises (NASMEs) in Nigeria choosing Lagos and Ogun States.

3.3 Sampling Size Determination

The Yamane (1967) formula of sample size calculation was used, as depicted below to determine the sample size of the study population.

$$n = \frac{N}{1 + N(e)^2}$$

Where: n = Sample size

N = Elements of population of the study: 1,511

e = Sampling error: 5%

Substituting the formula above:

$$n = \frac{1,511}{1 + 1,511 (0.05)^2}$$

$$n = \frac{1,511}{4.7775}$$

$$n = 316.27$$

$$= 316$$

3.4 Sampling Techniques

This study applied the snowballing sampling technique. Snowball sampling is a non-probability sampling technique that is commonly used in qualitative research, but it can also be adapted for quantitative studies such as the current research (Biernacki & Waldort, 1981). The SMEs in Nigeria are many and diverse, and as such, carrying out other sampling techniques has the risk of making us leave out SMEs in certain industries in the state. Snowball sampling technique is therefore justified in this study as it makes it easier to reach diverse SMEs in different industries.

The snowballing technique, also known as a chain referral technique involves an initial identification of participants through the researcher's network (Hair et al., 2019). These initial participants then use their own network to recruit more participants who are able and willing to participate in the study. In studies where it may be difficult to reach certain aspects of the population, this technique is useful as it leverages the power of network to penetrate the different layers of the population. With this, the researcher is able to ensure that the participants are able to provide valuable insights and recommendations for identifying other relevant participants. This cycle is repeated until all important information has been collected, and new contacts may not necessarily provide new additional information.

The first set of participants in this study were identified through purposive sampling as they were SMEs and they were also assessable to the researcher. The criteria at this initial point were that they operate or work in SMEs within Nigeria, and they have an understanding of entrepreneurial orientation and competitive advantage. They were then administered the questionnaire for the study. After they had completed the questionnaire, they were asked to refer other participants who would fit in to the study. It is important to note that the determined sample size for the project was kept in view while admitting participants.

The snowballing sampling technique applied here has its limitations. It has the potential to introduce biases into the sample due to over representation of SMEs

from certain industries. However, the method provides a valuable approach to accessing specific population where other sampling methods cannot yield success (Sekaran & Bougie, 2016).

3.5 Results and Discussion

The following is how the codes are arranged in the questionnaire: Agree (4), Strongly Disagree (1), Disagree (2), Undecided (3), and Strongly Agree (5). The study tool was validated using face and content validity. Cronbach Alpha reliability study shows a high level of internal consistency. Pro-activeness, inventiveness, risk-taking, and competitive advantage scored 0.713, 0.762, 0.770, and 0.827, respectively, according to the alpha coefficients.

3.6 Reliability and Viability Test of Research Instrument

Conducting research through online (google form) survey strategy is an essential aspect of research; in this case, questionnaire was subjected to reliability and validity tests. Face and content validity of the questionnaire was assessed by some experts such as academics, scholars and SMEs owners/managers who have in-depth knowledge in the area of study before it was administered.

Table 1: Reliability Analysis

Variable	Number of items	Cronbach's Alpha
Pro-activeness	5	0.713
Innovativeness	4	0.762
Risk Taking	5	0.770
Competitive Advantage	4	0.827

Source: Field Survey Results, 2023

3.7 Validity of the Instrument

The questionnaires were split up into multiple sections, each of which evaluated data for a different study purpose, in order to ensure construct validity. Principal Component Analysis (PCA) was used to statistically measure construct validity. The Kaiser-Meyer-Oklin (KMO) measure of sample adequacy and Bartlett's test of sphericity are the primary measures used to assess an instrument's validity in exploratory factor analysis (Field, 2018; Fabrigar et al., 1999). The KMO sampling adequacy and Bartlett's sphericity test were used in the study to ascertain whether the statements that make up the research instruments for each variable genuinely measured the intended outcomes. The study's variables are genuinely measured by

the questions if the KMO result is larger than 0.5. When assessing the variables under investigation, the Bartlett test of sphericity result at 0.000, or less than 5%, shows that there is a highly significant association among the variables.

Table 2: Validity Results: Confirmatory Factor Analysis

S/N	Variables	No. of Items	AVE	KMO	Bartlett Test
1	Pro-activeness	5	0.511	0.573	109.636
2	Innovativeness	4	0.515	0.511	84.681
3	Risk Taking	5	0.531	0.632	63.268
4	Competitive Advantage	4	0.541	0.554	237.201

Source: Researcher’s Computation from Field Survey (2023)

The results of the Bartlett test of sphericity, which is less than 5% and the KMO test, which is larger than 5%, respectively, in this study show that the statements that made up the research instruments for each variable were indeed measuring the desired things. Confirmatory factor analysis was utilized to further demonstrate the construct validity of the study instrument. All variables in the research instrument were found to have construct validity when the Average Variance Extracted (AVE) value was greater than 0.5. The result of the KMO and Bartlett test of sphericity are shown in Table 2 below.

Table 3: Response Rate

Category	Frequency	Percentage
Completed usable copies of the questionnaire	243	77.0%
Unreturned usable copies of the questionnaire	73	23.0%
Total	316	100

Source: Field Survey, 2023

4.0 Data Treatment Results

This section summarises the outcomes of the treatment conducted on the data obtained during fieldwork before the hypotheses were evaluated using regression analyses. Certain pre-diagnostic tests were conducted on the data to confirm that all of the fundamental regression assumptions were met. As diagnostic tests, normality, and multicollinearity tests were performed.

4.1 Results of Normality Test

The skewness and kurtosis statistics, as suggested by Kline (2005), Cunningham (2008), and Creswell (2008) were used to check for normalcy. The results of the normalcy test are listed in Table 4.

Table 4: Skewness and Kurtosis results for the Variables

Variables	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Pro-activeness	243	-1.666	.128	3.097	.255
Innovativeness	243	-1.754	.128	3.296	.255
Risk-Taking	243	-1.799	.128	3.372	.255
Competitive Advantage	243	-1.963	.128	4.736	.255

Source: Researchers' Findings 2023

Table 4, demonstrates that all variables had skewness coefficients ranging between -1.963 and -1.666 and kurtosis coefficients between 3.097 and 4.736, which falls within the specified threshold of values between -3 and +3 for skewness and values less than +7 for kurtosis (Cunningham, 2008; Creswell, 2008; Kline, 2005), indicating the normal distribution of the survey data.

4.2 Multicollinearity Test

This study uses the variance inflation factor (VIF) and tolerance levels to test for multicollinearity. A tolerance value of less than 0.1 indicates a severe problem with collinearity. The VIF value must be at least 10 and the acceptable tolerance value must be at least 0.1. (Pallant et al., 2004). The presence of multicollinearity is indicated by a VIF value greater than 10. The results of the multicollinearity measurements are summarized in Table 5.

Table 5: Variance Inflation Factor and Tolerance Value Results

Variables	Collinearity Statistics	
	Tolerance	VIF
Pro-activeness	.150	6.661
Innovativeness	.208	4.807
Risk-Taking	.170	5.882

Source: Researchers' Findings 2023

Table 5 reveals that the VIF for the variables ranges from 5.882 to 6.661 indicating the absence of multicollinearity between the variables. The tolerance values were above 0.1 and ranged between 0.150 and 0.208. The results show that there is no significant relationship between the components of Pro-activeness, Innovativeness and Risk-Taking confirming the absence of multicollinearity.

Table 6: Hypothesis One, Two and Three:

H₀1: Pro-activeness does not significantly affect competitive advantage of SMEs in Nigeria

H₀2: Innovativeness has no effect on competitive advantage of SMEs in Nigeria.

H₀3: Risk taking does not have influence on competitive advantage of SMEs in Nigeria.

Effect of Pro-activeness, Innovativeness and Risk-Taking on Competitive Advantage

n	Model	B	T	Sig.	ANOVA (Sig.)	R	Adjusted R ²	F (3,239)
243	(Constant)	1.893	1.300	.195	0.000 ^b	0.699 ^a	0.482	85.367
	Pro-activeness	0.241	2.732	.007				
	Innovativeness	0.300	3.750	.000				
	Risk-Taking	0.177	2.051	.041				
a. Dependent Variable: Competitive Advantage								
b. Predictors: (Constant), Pro-activeness, Innovativeness and Risk-Taking								

Source: Researchers' Findings 2023

The effects of entrepreneurial orientation on the competitive advantage of SMEs in Nigeria are displayed in Table 6 as a result of a multiple regression analysis. The findings show that the competitive advantage of SMEs is positively and significantly impacted by pro-activeness ($\beta = 0.241$, $t = 2.732$, $p < 0.05$),

innovativeness ($\beta = 0.300$, $t = 3.750$, $p < 0.05$), and risk-taking ($\beta = 0.177$, $t = 2.051$, $p < 0.05$). The study's findings demonstrated that every aspect of entrepreneurial approach significantly affects competitive advantage.

Proactiveness, innovativeness, and risk-taking are positively connected with competitive advantage at (R) 0.699, according to Table 6. Proactivity, inventiveness, risk-taking, and entrepreneurial orientation have a somewhat favorable correlation with competitive advantage. According to the results, the Adj.R2 equals 0.482, meaning that variations in pro-activeness, innovativeness, and risk-taking can account for 48.2% of the variation in competitive advantage at a 5% significant level. Other factors not included in the model account for 51.8% of the variation in competitive advantage. This indicates that, regardless of competitive advantage, SMEs' three traits of proactively, innovation, and risk-taking accounted for 48.2% of the variance. In other words, the elements of an entrepreneurial mindset such as proactiveness, innovativeness, and risk-taking collectively explain 48.2% of the variation in the competitive advantage of small and medium-sized enterprises in the Nigeria. R2 values are evaluated as follows, per Cohen (1988): 0.26 considerable, 0.13 moderate, and 0.02 weak. With an R-square value of 0.48, the impact of the independent factors on the dependent variable in this instance is significant. Thus, in this study, proactivity, inventiveness, and risk-taking are significant factors that determine competitive advantage. From the coefficients in table 6, the established predictive and prescriptive regression equation for the direct effect of Pro-activeness, Innovativeness and Risk-Taking on competitive advantage were:

According to the regression equations, competitive advantage would be 1.893, which is positive because of the constant, assuming pro-activeness, innovativeness, and risk-taking remain constant. The prescriptive model's variables showed that competitive advantage would rise by 0.241, 0.300, and 0.177 units, respectively, for every unit improvement in each of the entrepreneurial orientation measures—pro-activeness, innovativeness, and risk-taking. This illustrated how alterations in pro-activeness, inventiveness, and risk-taking would result in modifications or enhancements to competitive advantage. At $p < 0.05$, the whole model's F-statistics ($df = 3, 239$) = 85.367 indicate significance. At the 5% level of significance, the p -value < 0.05 indicates that pro-activeness, innovativeness, and risk-taking have a substantial impact on competitive advantage. Additionally, this shows that among SMEs in Nigeria, the entrepreneurial orientation aspects of pro-activeness, innovativeness, and risk-taking significantly predict competitive advantage. The

null hypotheses one, two, and three (H01, H02, and H03), which contend that proactivity, inventiveness, and risk-taking have no appreciable impact on competitive advantage, were rejected in light of these findings.

4.3 Discussion of Findings

Finding revealed that entrepreneurial orientation measures such as Proactiveness, Innovativeness and Risk-Taking have positive and significant effect on competitive advantage of SMEs in Nigeria. Past studies such as Adamu, Wan, and Gorondutse (2019), Dansu (2013), Soto-Acosta et al. (2016), and Zaato, Ismail, Uthamaputhran and Owusu-Ansah (2020) supported the finding of this study that pro-activeness, innovativeness and risk-taking positively enhanced SMEs overall performance. Also, some of the study that tends to agree with the study is the findings of the study agreed with the findings of past studies such as Kamau and Njuguna (2022) and Ladipo et al (2017) among others.

Furthermore, the competitive advantage happens to be the bedrock of achieving a successful competitive strategy and this can also lead to the creation of a clear competitive advantage in business. Based on majority of past related studies agreement with the finding of this study, thus this study rejected the three null hypotheses.

5.1 Conclusions

The study emphasizes the importance of EO as a crucial component in gaining a competitive advantage, and the results show that EO has a favorable and substantial impact on SMEs in Nigeria that have a competitive advantage. The results show that product intelligence significantly and favorably affects SMEs in Nigeria ability to compete. The study's overall conclusion is that, for SMEs in Nigeria, identifying and gaining a competitive edge depends heavily on marketing intelligence.

The findings of the study are consistent with Li & Huang (2020) who found that effective EO (marketing intelligence) practices were associated with higher levels of competitive advantage amongst SMEs in the manufacturing sector. Another study that resonates with the current study is Diamantopoulos et al. (2012) who explored the relationship between EO and competitive advantage in a broader context. The study discovered that firms with superior EO were more likely to achieve and sustain competitive advantage over their rivals.

The positive influence EO on SMEs' competitive advantage aligns with studies that have emphasized the importance of product innovation and differentiation in gaining a competitive edge. Research by Chen et al. (2014) demonstrated that SMEs with a focus on product innovation and continuous improvement were more likely to outperform their competitors and achieve sustainable competitive advantage.

In conclusion, the findings of this study corroborate existing research highlighting the significance of pro-activeness, innovativeness and risk taking in driving SMEs' competitive advantage. By understanding the market, customers, and competitors, SMEs in Lagos State can enhance their competitive positioning and achieve long-term success in their respective industries.

5.2 Recommendations

This study has revealed the effect of EO dimensions of pro-activeness, innovations, risk taking and SMEs competitive advantage. However, it is therefore recommended that:

- i. SMEs should improve on their products and services by creating value and also ensure creativity to enable good positioning of their business to competitive advantage.
- ii. SMEs should continuously gather industries information and analyze, which will be used in the future for strategic direction in order to achieve business growth and improve the economy.
- iii. SMEs should develop interest in taking calculated risk at the expense of developing or improving competitive advantage.

References

- [1] ADAMU, A. A., WAN, C. Y., &GORONDUTSE, A. H. (2019). DETERMINANTS OF SUSTAINABLE PERFORMANCE OF SMES: A PROPOSED FRAMEWORK. *International Journal of Research and Scientific Innovation*, 6(6), 182– 188.
- [2] ADEKUNLE, O.J & OWOLABI, B.I (2022), IMPACT OF RESOURCES BASED VIEW THEORY ON ENTREPRENEURSHIP IN NIGERIA, *African Journal of Business Development and Management Resources*, 25(7), 22-31
- [3] BAKER, W.E & SINKULA J.M (2019). THE COMPLEMENTARY EFFECTS OF MARKET ORIENTATION ON PROFITABILITY IN SMALL BUSINESSES. *Journal of Small Business Management*, 10(6),45-57
- [4] BIERNACKI, P., & WALDORF, D. (1981). SNOWBALL SAMPLING: PROBLEMS AND TECHNIQUES OF CHAIN REFERRAL SAMPLING. *Sociological Methods & Research*, 10(2), 141-163.

- [5] BIRECH, K. F., KARONEY, L. C. & ALANG'O O. G. (2018). RELATIONSHIP BETWEEN ENTREPRENEURIAL ORIENTATION AND PERFORMANCE OF SMALL AND MEDIUM WOMEN OWNED ENTERPRISES IN UASIN GISHU COUNTY, Kenya. *International Journal of Small Business and Entrepreneurship Research*, 6(1), 57 – 79.
- [6] BUTKOUSKAYA, V., LIONCH-ANDREU, J & ALARCON-DEL-AMO, M. (2020). ENTREPRENEURIAL ORIENTATION (EO), INTEGRATED MARKETING COMMUNICATIONS (IMC), AND PERFORMANCE IN SMALL AND MEDIUM-SIZED ENTERPRISES (SMES): GENDER GAP AND INTER-COUNTRY CONTEXT. *Sustainability*; doi: 10.3390/su12177159 [www.mdpi.com/journal/sustainability12\(7159\)2](http://www.mdpi.com/journal/sustainability12(7159)2) – 18.
- [7] CIEMLEJA G., & LACE, N. (2011). THE MODEL OF SUSTAINABLE PERFORMANCE OF SMALL AND MEDIUM-SIZED ENTERPRISE. *Inzinerine Ekonomika-Engineering Economics*, 22(5), 501-509.
- [8] DANSU, F. (2013). SMES, BUSINESS RISK AND SUSTAINABILITY IN NIGERIA. *European Journal of Business and Social Sciences*, 2(9), 76-94. <http://www.ejbss.com/recent.aspx>.
- [9] GUPTA, V & NIRAJAN, (2020). THE IMPACT OF ENTREPRENEURIAL ORIENTATION ON FIRM PERFORMANCE OF THE TELECOMMUNICATION SECTOR IN SUDAN. *African Journal of Business Management*, 14(5), 71-84.
- [10] IBRAHIM, M.A, & ABBAS, U.I. (2020). INFLUENCE OF ENTREPRENEURIAL ORIENTATION ON FIRMS PERFORMANCE: EVIDENCE FROM SMALL AND MEDIUM ENTERPRISES IN NIGERIA.
- [11] ILESANMI, O.A, ONIKOYI, I.A, & BADIRU, N.I. (2022). ENTREPRENEURIAL ORIENTATION AND SMALL AND MEDIUM ENTERPRISES (SMES) PERFORMANCE IN LAGOS STATE, NIGERIA. *The Journal of Accounting and Management*, 12(1), 65 – 75.
- [12] IPIGANSI, P.& AJEMUNIGBOHUN, S.S. (2023). “RISK FINANCING TECHNIQUES AND SMES PERFORMANCE: EMPIRICAL EVIDENCE FROM NIGERIA”. *Annals of Spiru Haret University. Economic Series*, 23(1), 83-97, doi: <https://doi.org/10.26458/2314>
- [13] KRAUS, S., RIGTERING, J. P C., HUGHES, M., & HOSMAN, V. (2012). ENTREPRENEURIAL ORIENTATION AND THE BUSINESS PERFORMANCE OF SMES: A QUANTITATIVE STUDY FROM THE NETHERLANDS. *JEL Classification* 25(26) 161 – 182.
- [14] MANKGELE, K. P. & FATOKI O. (2020). STRATEGIC ORIENTATION AND PERFORMANCE OF SMALL BUSINESS IN SOUTH AFRICA. *Journal of Reviews on Global Economics*, 9, 459 – 467.
- [15] MILLER, D. (1983). THE CORRELATES OF ENTREPRENEURSHIP IN THREE TYPES OF FIRMS, 29, 770–791.

- [16] NATIONAL BUREAU OF STATISTICS REPORT (2019), “National survey of micro small & medium enterprises (MSMEs) 2017”, available at: <https://nigerianstat.gov.ng/elibrary>
- [17] OKOLI, N, I. E., NWOSU, K. C. & OKECHUKWU, M. E. (2021). ENTREPRENEURIAL ORIENTATION AND PERFORMANCE OF SELECTED SMES IN SOUTHEAST, NIGERIA. *European Journal of Business and Management Research*, 6(4), 108 – 115.
- [18] OLOWOFESO, E. (2021). THE EFFECT OF ENTREPRENEURIAL ORIENTATION ON COMPETITIVE ADVANTAGES OF SELECTED SMES’ IN LAGOS, NIGERIA. *Journal of Economics and Sustainable Development*, 12(22), 48 – 55.
- [19] Porter, M. (1980). *Competitive Advantage: Creating and Sustaining Competitive Performance*, New York: Free Press.
- [20] RUNTUK, J. K., NG, P. K., OOI, S. Y., PURWANTO, R., CHAIRAT, A. S. N., & NG, Y. J. (2023). SUSTAINABLE GROWTH FOR SMALL AND MEDIUM-SIZED ENTERPRISES: INTERPRETIVE STRUCTURAL MODELING APPROACH. *Sustainability*, 15(4555). (2–12)<https://doi.org/10.3390/su15054555>
<https://www.mdpi.com/journal/sustainability>.
- [21] SHODIYA, O.A. (2021). KNOWLEDGE MANAGEMENT AND COMPETITIVE ADVANTAGE OF LISTED CONSUMER GOODS MANUFACTURING COMPANIES IN NIGERIA. 11(2). doi 10.5195/emaj.2021.237
- [22] SMEDAN, (2021). SMEDAN and National Bureau of Statistics collaborative survey: Selected findings. Abuja: Small and Medium Enterprises Development Agency of Nigeria
- [23] TSENYIL, C.Y., DAKUNG, R.J., & GOYIT, M.G. (2018). COMPETITIVE ADVANTAGE OF SMALL AND MEDIUM ENTERPRISES IN NIGERIA: THE PREDICTING ROLE OF INNOVATIVE SERVICE DELIVERY. *European Journal of Business and management*, 10 (17), 121-132
- [24] ZAATO, S. G., ISMAIL, M., UTHAMAPUTHRAN S., & OWUSU-ANSAH, W. (2020). THE IMPACT OF ENTREPRENEURIAL ORIENTATION ON SMES PERFORMANCE IN GHANA: THE ROLE OF SOCIAL CAPITAL AND GOVERNMENT SUPPORT POLICIES. *Journal Manajemen Dan Kewirausahaan*, 22(2), 99 – 114.

SECTION A

INSTRUCTION: Please kindly tick $\{\sqrt{\}$ option that indicates your position:

Gender: Male () Female: ()

Marital Status: Single () Married: ()

Age: 28 - 35 () 36-45 () 46 + ()

Years of Experience: 6-15years () 16-25 years () Above 25 years ()

Educational Qualification: S.S.C.E () OND () HND/B.Ed/B.Sc () M.Sc () Other ()

SECTION B

INSTRUCTION: Kindly tick $\{\sqrt{\}$ the most appropriate options that express your opinion on the questions below. Note that SA denotes Strongly Agree = 5, A denotes Agree = 4, U denotes Undecided = 3, D denotes Disagree = 2 and SD denotes Strongly Disagree = 1

	Pro-activeness	Strongly Agree (SA)	Agree (A)	Undecided(U)	Disagree (D)	Strongly Disagree (SD)
1	Being active in business by the SMEs helps in increasing the sales factor.					
2	Activeness by the SMEs will always make them remember the goal of the business.					
3	Activeness mostly brings about selfish interest by the SMEs which makes them monitor their sales growth so as to increase their profitability.					
4	When activeness is applied in business by the SMEs this is highly healthy for the business.					
5	SMEs should rely on being active in the operations of the daily business.					

	Pro-activeness	Strongly Agree (SA)	Agree (A)	Undecided(U)	Disagree (D)	Strongly Disagree (SD)
6	Being active in the business also brings about a framework in which helps in the development of the SMEs generally.					
7	The SMES managements should get all resources or the technical support needed in getting active daily in the business so as to increase the market share.					
8	SMEs activeness brings about loyalty to the business itself and increase the sales and revenue of the SMEs.					
9	With the intervention of SMEs owners' activeness it is certain that performances will surely be increased.					
10	There are not much SMEs that achieve more positive results without the owner getting actively involved in the daily running of the business.					

	Innovativeness	Strongly Agree (SA)	Agree (A)	Undecided(U)	Disagree (D)	Strongly Disagree (SD)
1	New ideas helps in the SMEs competitive advantage					
2	The SMEs should make sure that there is deep thinking on the means of creating innovation frequently so as to stay relevant.					
3	Innovation helps in bringing out the best competitive advantage from SMEs					
4	The organizational goals should be targeted with the use of motivation.					
5	With innovation those SMEs can get the best on sales.					
6	There are no other ways of getting more profit from a SMEs rather than creating innovation.					
7	Most organization that bring in new idea often tends to achieve more profit and increase in their sales growth.					
8	Organizations that put more strength on innovations tends to achieve more market share of customers.					
9	Innovation in business environments should be made relevant because it					

	is only new ideas that can increase the company share of profit					
10	The competitive advantage and the results of the organizations solely depend on the new ideas which is been introduced to the managements.					

	Risk taking	Strongly Agree (SA)	Agree (A)	Undecided(U)	Disagree (D)	Strongly Disagree (SD)
1	Knowing that risk taking in businesses helps in the decision making of SMEs and give them more reasons to think deep					
2	Risk taking is a responsibilities which is shouldered by the SMEs this is one or two ways increased the competitive advantage of the SMES					
3	Having the business as a separate entity with the owner helps in the risk taking processes of an entrepreneur,					
4	Making profit in businesses demand taking different risks					
5	Risk taking in happens helps in improving and increasing the customer base of the SMEs					
6	If the SMEs give recognition to risk taking this means that the owner					

	would tends to make more profit					
7	Every SMEs should try and take more good risk because it helps in increasing the competitive advantage and results of the SMEs.					
8	If the know more about risk taking the organization productivity will increase					
9.	Risk taking by the SMEs helps to give motivation to the owner					
10	All SMEs needs the risk taking idea so as to flourish in the business line.					

	Competitive Advantage	Strongly Agree (SA)	Agree (A)	Undecided(U)	Disagree (D)	Strongly Disagree (SD)
1	My company's current market share in its industry is significant.					
2	I have observed positive changes in my company's market share over the past year.					
3	My company's profitability is better than other firms in the industry					
4	Customers are highly satisfied with the products or services offered by my company.					
5	There are consistent patterns of repeat business					

	and customer retention.					
6	My company's offerings are unique and distinctive compared to competitors.					
7	My company's prices are highly competitive compared to similar products/services in the market.					
8	My company's brand has an excellent reputation in the industry.					
9.	Customers perceive my company's brand as trustworthy, reliable, and of high quality.					
10	Specific features or benefits set my company's products/services apart in the market.					

UTILIZING BANK LOANS TO ENHANCE THE ENERGY EFFICIENCY OF ENTERPRISES IN THE WESTERN BALKAN COUNTRIES

Milena NIKOLIĆ¹, Mirjana JEMOVIĆ², Danka MILOJKOVIĆ³

¹*Singidunum University in Belgrade, Danijelova 32, 11010 Belgrade, Serbia,*

Phone: +381 62 433 158,

E-mail address: milena.nikolic@singidunum.ac.rs

²*University of Niš, Faculty of Economics, Trg Kralja Aleksandra*

Ujedinitelja 11, 18000 Niš, Serbia, Phone: +381 62 505 915,

E-mail address: mirjana.jemovic@eknfak.ni.ac.rs

³*Singidunum University in Belgrade, Danijelova 32, 11010 Belgrade, Serbia,*

Phone: +381 65 520 71 21,

E-mail address: dmilojkovic@singidunum.ac.rs

How to cite: Nikolić , M., Jemović , J., & Milojković, D. (2024). “Utilizing Bank Loans to Enhance The Energy Efficiency of Enterprises in The Western Balkan Countries”. *Annals of Spiru Haret University. Economic Series*, 24(1), 187-207, doi: <https://doi.org/10.26458/24111>

Abstract

The improvement of energy efficiency and transitioning to renewable energy sources in conditions of intense efforts to reduce global warming has become a need. Numerous programs were adopted for financing these activities by international financial institutions and development organizations, whereby a significant part of these programs are implemented by banks. This paper analyses bank loans that have been approved within the Western Balkans Investment Framework (WBIF) program to evaluate their contribution to the realization of the energy performance of enterprises in the Western Balkans countries. By applying content analysis, case study, and comparative methods on the analysed enterprises, it was determined that the mentioned programs were implemented in the Republic of Serbia, North

Macedonia and Bosnia and Herzegovina. These programs and credit lines contributed to increasing the energy efficiency of enterprises in the analysed countries. Considering the dominant role of banks in the financial sectors of the Western Balkans countries, banks should take on the role of project creditors oriented towards the improvement of energy efficiency in the future, especially when crediting SMEs. In order to be able to support as many of these projects as possible, banks need to strengthen

Keywords: green banking, WBIF, energy efficiency, Serbia, North Macedonia, Bosnia and Herzegovina

JEL Classification: F33, G21, O13

Introduction

Global warming and the energy crisis are major challenges that society is presently facing. Being such, they present the drivers of numerous changes in the economies of European countries and worldwide towards improving the energy efficiency of business operations and the introduction of new, renewable energy sources that will expand the energy mix that enterprises use for their business operations, and at the same time reduce dependence on a certain energy source and increase the resilience of business operations to changes in the energy sector. This is especially important in the industrial, transportation, and energy supply sectors where there are large emissions of carbon dioxide (Xia et al., 2023, p. 59249). In addition, all the mentioned activities are in line with the goal of keeping the global temperature below 2°C and then reducing it to 1.5°C (IFF, 2021, p. 66), as well as to enable the development of business practices that will lead to the transformation of a high-carbon to a low-carbon economy through the defined sustainable development goals (SDGs).

Despite the efforts to ensure the balance between the economic, social and environmental dimensions of development, numerous studies have shown that the limiting circumstances for the achievement of SDGs belong to the financial ones (Masukujjaman & Aktar, 2013; Jin et al., 2021; Bhutta et al., 2022; Zeng et al., 2022; Rasoulinezhad & Taghizadeh-Hesary, 2022; Zhang et al., 2023). In order to increase energy efficiency and achieve the defined SDGs, “greening” the financial system is necessary, which implies the development of various financial instruments that would support the implementation of the green agenda, namely

green lending, green private equity funds, green bonds, shares and insurance (Nikolić & Milojković, 2023). Among the listed instruments, green lending has an advantage in financing green projects of small and medium-sized enterprises (SMEs), as well as the retail sector, bearing in mind the limited access of these sectors to capital market instruments (Nikolić & Milojković, 2023; Migliorelli & Dessertine, 2019). At the same time, banks most frequently approve bank loans for financing green projects of enterprises from credit lines of international financial institutions, where they have the role of intermediaries and partners. Apart from the financial support, enterprises also receive all the technical and expert-advisory support necessary for the implementation of these programs in this way (Nikolić & Milojković, 2023; Sovilj, 2020, p. 278).

The Western Balkans countries (Serbia, Montenegro, Bosnia and Herzegovina, North Macedonia and Albania) are characterized by energy-intensive economies (higher than the EU average). The potential for increasing the energy efficiency of these countries is very large. Despite this, there are no significant changes in these countries in the mentioned sectors, due to the lack of financial resources, insufficient financial and advisory support for the introduction of “green” innovations that would result in increased energy and economic efficiency of business operations. Green finance in these countries is in the initial development phase (Nikolić & Milojković, 2023; World Bank, 2022, pp. 53-55). Previous research was mainly focused on the green economy and sustainable development of the Western Balkans countries (Đorić, 2021), sustainable financial measures of energy efficiency policy and financial incentives (Madžar, 2018), the importance of credit lines that the European Bank for Reconstruction and Development (EBRD) through the Green Economy Financing Facility (GEFF) is distributed to the retail sector, corporate and SMEs sector in Serbia (Zelenović et al., 2019). However, these studies did not include specific credit lines used to finance green projects and innovations in the Western Balkans countries and did not analyse their contribution to the energy efficiency of enterprises. This paper analyses the bank loans granted by banks to these enterprises within the Western Balkans Investment Framework (WBIF) program in the Western Balkans countries, to determine their impact on the energy efficiency of enterprises in the context of sustainable development.

This paper is structured into three parts. The subject of the first part of the paper is concerned with a literature review on the impact of green finances on increasing energy efficiency. The second and third parts of the paper present the

methodological framework and analysis and discussion of research, whereas the last part of the paper contains conclusions and final considerations.

Literature Review

Liu et al. (2023) investigated the relatedness of green finances with renewable electricity generation and energy efficiency using the data envelopment analysis (DEA) technique in developed and developing countries in the period from 2016 to 2020. They determined that green financing is significant for energy efficiency through higher renewable energy generation.

Using the STIRPAT model, Rasoulinezhad and Taghizadeh-Hesary (2022) empirically investigated the relationship between carbon dioxide emissions, energy efficiency, green energy index and green finance in the first 10 economies that support the development of green financing in the period from 2002 to 2018. The results of their research show that green finance and the use of green energy can help countries reduce carbon dioxide emissions only in the long term. The authors believe that green bonds are suitable for financing green energy projects.

Abbas et al., (2020) and Xia et al. (2023) point out that green finance has a positive effect on green energy projects, especially on projects involving investments in energy infrastructure. Hailiang et al. (2023) analysed the role of renewable energy and green finance in environmental quality based on B.R.I.C.S. data in the period from 2000 to 2018, using quantile regressions and other techniques for solving cross-sectional dependence and heterogeneity issues. They discovered that green finance, renewable energy consumption and technology innovations reduce carbon dioxide emissions and have a positive impact on the environment.

In addition to authors who believe that the positive impact of green finance on the reduction of carbon dioxide emissions and sustainable development in the long term can be achieved through the use of bonds, another group of authors emphasizes the importance of bank loans for these purposes and points out to their importance for initiating the development of green finance and promoting this concept. Thus, Migliorelli & Dessertine (2019) point out that banks are significant due to the high level of funds they transfer by performing their intermediary role, and the ability to reach households and SMEs, which have no other sources of financing. According to them, the role of banks is significant for the promotion of green finance in Europe, where the participation of banks' intermediary funds is very high. Over the period from 2005 to 2019, utilizing both the coupling

coordination model and the Panel Vector Autoregression (PVAR) model, Hu and Zheng (2021) observed a substantial influence of green credit on carbon emissions. The mentioned researchers found out that the green credits were important for promoting the achievement of the “double carbon” goal - carbon peak and carbon neutralization. They determined that green loans have a significant impact on the reduction of carbon dioxide emissions and pointed out that they are important for promoting the achievement of the “double carbon” goal.

The Western Balkans countries are significantly lagging behind the European countries in terms of green economy and green finance development. Đorić (2021) analysed the green economy and sustainability in the Western Balkans countries using the case study method, intending to determine the potential and opportunities for establishing a balance between the economic, social, and environmental development of these countries. In his research, he pointed out that the Western Balkans countries are small and poor, but that they have great potential for the development of green economies and ecological entrepreneurship, not only in the area of reducing air pollution through the reduction of carbon dioxide emissions and the introduction of renewable energy sources, but also in increasing energy efficiency in the construction sector industry and transport. Innovations contributing to the improvement of the performance of production processes and the development of new products, as well as infrastructure innovations can have a manifold significance for the sustainable development of the Western Balkans countries. The analysis of crediting energy-efficient projects was also carried out by Zelenović et al. (2019), who pointed out the importance of the credit lines that EBRD distributes through GEFF to the retail and corporate sector, with the fact that they analysed only Serbia and did not analyse case studies of enterprises that used WBIF funds.

Data and Methodology

Bearing in mind that the Western Balkans countries are characterized by energy-intensive economies and a three times higher energy inefficiency compared to the EU average (WBIF, 2023), the potential for increasing the energy efficiency of these countries is very large. Due to the insufficient potential of the banks operating in the markets of these countries to finance these projects, three key initiatives were made: the credit lines mechanism by international financial institutions - The Energy Efficiency Finance Facility (EEFF); the investment fund for financing energy efficiency and renewable energy sources established in 2009

(The Green for Growth Fund, GGF), as well as the Regional Energy Efficiency Program (REEP) launched in 2013 for exclusive credit and technical support of public and private projects in the Western Balkans countries (WBIF, 2016). Within the last program, through the Western Balkans Sustainable Energy Financing Facility (WeBSEFF 2), 92 million euros of funds were approved through banks to local administrative units and enterprises. Furthermore, international financial institutions provide significant support, namely the European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB), and KfW Development Bank (KfW). These programs are implemented by international development financial institutions not only directly, but also through credit support programs of banks (Table 1) and other institutions operating in the markets of the Western Balkan countries (European Commission, 2016).

Table 1. Bank loans for the improvement of energy efficiency of enterprises

Country	Bank loans	Support programs
Albania	√	–
Bosnia and Herzegovina	√	GGF, REEP/WeBSEFF 2, KfW
North Macedonia	√	GGF, REEP/WeBSEFF 2
Montenegro	√	KfW
Serbia	√	GGF, REEP/WeBSEFF 2, KfW

Source: Adapted from: WBIF. (2016). Financing Energy Efficiency Investments in the Western Balkans. Western Balkans Investment Framework

Notes: GGF - Green for Growth Fund; REEP - Regional Energy Efficiency Program; WeBSEFF 2 - Western Balkans Sustainable Energy Financing Facility; KfW – German Development Bank

In the observed countries of the Western Balkans (except Albania), international financial institutions and development organizations provide their financial support indirectly, through partner banks, through dedicated loans for the improvement of energy efficiency. The largest part of the support was implemented within the WBIF program. To analyse the impact of green loans on innovations in business, the energy and economic efficiency of enterprises, and environmental pollution in the Western Balkans countries, secondary data available in case studies of enterprises, supported by the WBIF for implementing innovations, were used.

Bearing in mind that case studies on financing enterprises from this investment fund are available only for Serbia, North Macedonia and Bosnia and Herzegovina, research was carried out for these three countries. The analytical method, content

analysis method, and comparison method were used to analyse the collected data, and the hypothetical and deductive method was used to test the hypotheses. The following hypotheses were tested in the research:

- H1: Loans for the improvement of energy efficiency have a positive effect on the energy efficiency of enterprises and the quality of the environment in the observed countries;
- H2: Innovations contribute to increasing the economic efficiency of the enterprise;
- H3: Credit lines approved through WBIF encourage socially responsible business operations of enterprises in the industrial, transportation, and energy supply sectors.

Results and Discussion

Considering the fact that the financial sector of the Western Balkan countries is bank-centric, and due to the dominant role of banks in financing the needs of the retail, the SMEs, and the corporate sector, bank loans have a key role in financing green and energy-sustainable projects. This support is mainly implemented within the support programs of international financial institutions, which are of particular importance for the promotion of green business and green banking in these countries. Through their proactive action, they influence banks and other organizations to follow them and raise clients' awareness of the importance of green products (Jemović & Radojičić, 2021, p. 341; Stakić & Barjaktarović, 2023, p. 313). Having that in mind, commercial banks and international financial institutions are crucial for the promotion of financial development, as well as the role of green management in enterprises (Zelenović et al., 2019; Yuleva-Chuchulayna et al., 2023).

Analysis of energy efficiency financing programs in the Western Balkans countries showed the presence of GGF and REEP programs, with the greatest application in the Republic of Serbia, North Macedonia and Bosnia and Herzegovina. In these countries, financing takes place predominantly through bank loans, which was expected given the bank-centric of these financial sectors. The impact of green loans on the energy efficiency of enterprises that used WBIF funds was analysed in Serbia, North Macedonia and Bosnia and Herzegovina (Table 2, Table 3, Table 4).

Serbia

Crvenka Sugar Factory JSC was founded in 1911. The main activity of the enterprise is the production of sugar, and the supplementary production includes the production of ethanol, yeast and refined sugar cubes (Crvenka Sugar Factory JSC, 2023). Bearing in mind that compared to its contemporary European competitors, it had twice the energy consumption, the management decided to improve the energy efficiency of this enterprise (GEFF, 2023d). After the evaluation of the WeBSEFF team, it was determined that Crvenka Sugar Factory JSC can achieve energy savings and increase the quality of produced sugar by investing in evaporators, heat exchangers, measuring and magma control systems, a gas-powered dryer and a new slicer for finer cutting of sugar beet (GEFF, 2023d). The enterprise management decided to invest 2,538,000 euros in these measures and equipment, whereby the reduction of carbon dioxide emissions by 24,407 tonnes/year and energy savings of 110,848 MWh/year were achieved. It was estimated that the invested funds would be returned in approximately 8 months through the realized savings (GEFF, 2023d).

Impol Seval Aluminium Rolling Mill JSC from Sevojno is an enterprise with a long tradition. The Sevojno Aluminium Rolling Mill was founded in 1969, and aluminium production began in 1975, which was distinguished even then by exceptional technical and technological solutions that were of a world-class quality (Tešić et al., 2012, p. 5). After privatization in 2022, it became a part of the enterprise IMPOL d.d. Slovenska Bistrica (Impol Seval Aluminium Industry, 2023). Impol Seval Aluminium Rolling Mill JSC produces a wide range of aluminium materials today that are sold on markets worldwide and they are used to obtain final aluminium products (GEFF, 2023c). Commitment to sustainable development is shown by striving to reduce negative effects on the environment through its business activities, intensively increasing the share of secondary recycled aluminium consumption, and reducing energy consumption (Impol Seval Aluminium Industry, 2023). To increasing the efficiency of its production and reduce the consumption of natural gas, with the financial and advisory support of the WeBSEFF team, this enterprise invested 2,608,752 euros in replacing the old energy-intensive blast furnace with two new efficient furnaces for melting aluminium blocks and waste, equipped with regenerative burners that recapitulate and use waste heat from flue gases (GEFF, 2023c). This investment made it possible to improve the working conditions, to save energy by 50%, and reduce operational and maintenance costs. The enterprise Impol Seval Aluminium Rolling

Mill JSC has achieved annual savings of 724,828 euros, with a reduction in carbon dioxide emissions of 3,396 tonnes/year and a reduction in energy consumption of 19,072 MWh/year (GEFF, 2023c).

Eminent Ltd. from Subotica was founded in 1990 in the field of manufacturing textile clothing for men and women (Legend World Wide, 2023). Over the years, it created the globally recognizable brand Legend World Wide, and it significantly expanded its business and became the market leader in the fashion industry of the country (Legend World Wide, 2023). It has expanded the distribution and sale of its products to the market of Bosnia and Herzegovina and Montenegro (GEFF, 2023e; GEFF, 2023i). Management Eminent Ltd. invested 239,100 euros in replacing old machines for washing, drying and spraying clothes with new and more efficient ones, which reduced carbon dioxide emissions by 226 tonnes/year and energy consumption by 966 MWh/year. This also brought financial savings to the enterprise in the amount of 36,406 euros/year, which will enable the funds invested in this investment to be returned in about 6 years (GEFF, 2023e; GEFF, 2023i).

Deltaplast Ltd. is an enterprise based in Užice. It was founded as a family business in 1990, and engaged in paper production (Deltaplast, 2023). Since 2000, it has expanded its product range by adding aluminium lids for dairy products (sour cream, sour milk, cream, etc.) and foil for butter, wraps for labels, and foil packaging used in the pharmaceutical industry. It sells its products on the domestic market and the markets of Montenegro, Bosnia and Herzegovina, North Macedonia, and Croatia (GEFF, 2023k). In order to increase the efficiency of the production process, 370,000 euros were invested in the purchase of a new rotary die-cutting machine and automated stacking machine, which enabled the reduction in carbon dioxide emissions by 93% per year, energy savings of 95 MWh/year, speeding up the production process and reducing operating costs. Annual savings are estimated at 74,500 euros, so on this basis, it is expected that the funds invested in new equipment will be returned in 5 years (GEFF, 2023k).

Table 2. Enterprises that used WBIF funds in Serbia

Investor	Location	Investment	Investment Size (eur)	Financial Results (PBP)	Energy Savings (MWh/year)	CO2 Savings (tonnes/year)
Crvenka Sugar Factory JSC	Crvenka, Serbia	Various energy efficiency measures	2,538,000	-	110,848	24,407
Impol Seval JSC Aluminium Industry	Sevojno, Serbia	Replacement of two energy-intensive blast furnaces	2,608,752	-	19,072	3,396
Eminent Ltd., a clothing manufacturer	Subotica, Serbia	Washing machines, driers and a textile spray cabin	239,100	about 6 years	966	-
Deltaplast Ltd.	Užice, Serbia	Die cutting machine and automated stacking machine	370,000	5 years	95	-
DIV Traders Ltd.	Bačka Palanka, Serbia	Processing equipment	706,500	4 years	3,117	1
FMB Ltd.	Šabac, Serbia	Plastic moulding machines	370,800	4 years	1,300	-
ExpressTrans Ltd.	Novi Sad, Serbia	Five trucks	474,000	4 years	650	164

Source: Adapted from: GEF. (2023). *Green Economy Financing Facilities*.

Notes: PBP – payback period, MWh/year – MWh per year, tonnes/year – tonnes per year.

DIV Trades Ltd. was founded in 1996 in Čelarevo, in the municipality of Bačka Palanka, as an enterprise dealing with the sale of paper, and after two years it became a producer of big bags (DIV Trades, 2023). Today it is recognized as an enterprise engaged in the production of container bags used in the mining, food, chemical, and construction industries (GEFF, 2023n). It is the largest producer of

big bags in Serbia and the leader both in the domestic market and in the markets of Bosnia and Herzegovina, North Macedonia, and Croatia. It also supplies the market of Russia and the European Union with its products (DIV Trades, 2023). Investment in new process equipment - PP strip extrusion line, equipment seven weaving looms, shriller and compressor in the value of 706,500 euros reduced carbon dioxide emissions by 1 tonne/year and energy consumption by 3,117 MWh/year. These changes were brought by *DIV Trades Ltd.* savings in the amount of 169,000 euros/year, that is, they enabled the invested funds to be returned in 4 years (GEFF, 2023n).

FMB Ltd. was founded as a family business in Šabac in 1998, dealing with the production of plastic packaging made of polyethylene and polypropylene. It distributes and sells its products on the Serbian market, but also the regional and European Union markets (FMB, 2023; GEFF, 2023m). Since its establishment, this enterprise has been investing in new and high-quality equipment. To replace the existing processing equipment, which includes three plastic moulding machines, with new, more efficient machines, 370,800 euros were invested in this equipment. This investment resulted in a reduction of carbon dioxide emissions by 80% and energy savings of 1,300 MWh/year. This resulted in savings of 78,000 euros/year, that is, the entire investment can be returned in 4 years (GEFF, 2023m).

ExpressTrans Ltd. from Novi Sad was founded in 1993 in the field of domestic and international road transport of goods. It has a fleet of 100 vehicles, 15 of which are buses from the world's leading manufacturers Scania, Mercedes, Renault, and Iveco (ExpressTrans, 2023). *ExpressTrans Ltd.* aims to follow environmental protection regulations and EU emission standards in its business operations regarding the use of Euro 5 and Euro 6 engine standards (ExpressTrans, 2023). To improve the performance of its fleet in terms of reducing the emission of carbon dioxide and other gases and particles, the enterprise management decided to replace five old trucks with new ones. This was done by using a loan for this investment in the amount of 474,000 euros. Owing to this investment, carbon dioxide emissions were reduced by 164 tonnes/year and energy consumption by 650 MWh/year. The investment also contributed to the realization of financial savings, which will allow the complete invested funds to be returned in 4 years (GEFF, 2023f).

North Macedonia

BNB Enerdzi Ltd. was founded in Skopje as a joint venture by merging BNB Kompani and Vetrostalna, to develop a small power plant *Brza voda 3* on Shar Planina, with a capacity of 677 kW (GEFF, 2023a). Bearing in mind the dependence of North Macedonia on energy import, investments in capacities that will enable the use of hydro potentials in the country are of great importance. By investing 1.4 million euros in the development of this hydroelectric plant, *BNB Enerdzi Ltd.* strives to ensure the production and distribution of energy through the energy network and with the reduction of carbon dioxide emissions and the transition to renewable energy sources. The estimated reduction of carbon dioxide emissions is over 2,500 tonnes/year, the production of over 6,800 MWh of annual primary renewable energy equivalent, while the estimated financial savings are 189,000 euros/year (GEFF, 2023a).

Table 3. Enterprises that used WBIF funds in North Macedonia

Investor	Location	Investment	Investment Size (eur)	Financial Results (PBP)	Energy Savings (MWh/year)	CO2 Savings (tonnes/year)
BNB Enerdzi Ltd.	Shar Planina, North Macedonia	Small hydropower plant	1,400,000	7 years	6,800	2,500
Alkaloid JSC Skopje	Skopje, North Macedonia	Refurbishment of two buildings	590,000	9 years	1,200	344
VIA	Vevchani North Macedonia	Thermal insulation, heating system	1,200,000	4 years	3,930	2,160
Evropa JSC	Skopje, North Macedonia	Replacement of a boiler, rehabilitation of a steam system, modernization of two production lines	903,000	less than 3.6 years	2,381	490

Source: Adapted from: GEFF. (2023). *Green Economy Financing Facilities*; GEFF. (2023b). *Confectionary Company in North Macedonia Saves Energy and Improves Product Quality*

Notes: PBP – payback period, MWh/year – MWh per year, tonnes/year – tonnes per year.



Issue 1/2024

Alkaloid JSC Skopje was founded in 1936 in the field of production of raw materials for the pharmaceutical industry. Today, it is an enterprise engaged in the production of medicinal products, cosmetic and chemical products, as well as the processing of botanical raw materials. It markets its products on the domestic market and on the international market, which covers a large number of countries: Serbia, Montenegro, Bosnia and Herzegovina, Slovenia, Croatia, Albania, Bulgaria, Turkey, Romania, Ukraine, the Russian Federation, UK, USA (Alkaloid, 2023). In order to continue improving its working conditions and business efficiency, the management of Alkaloid JSC Skopje decided to renovate two buildings - a warehouse of raw materials and packaging, and a quality control centre. The investment worth 590,000 euros enabled the reduction of energy consumption for heating and cooling, as well as carbon dioxide emissions of over 340 tonnes/year (GEFF, 2023i).

VIA from Vevchani is a developer of residential and non-residential buildings. The government of North Macedonia chose this enterprise to carry out the reconstruction of one building of the “Goce Delcev” student dormitory located in Skopje (GEFF, 2023j). For this job, which is worth 1.2 million euros, VIA received a WeBSEFF loan for 38%, that is, in the value of 477,000 euros and an incentive of 47,000 euros. The investment includes the replacement of windows and doors, heating and lighting systems, elevators, refrigerators and stoves, as well as thermal insulation of the roof and floors (GEFF, 2023j). This investment reduces carbon dioxide emissions by about 2,160 tonnes/year, saves energy in the amount of 3,930 MWh/year, and saves financial resources of about 113,700 euros/year (GEFF, 2023j).

Evropa JSC was founded in 1882 in Skopje. It is one of the oldest in the confectionery industry in the Balkans. It was originally known for the production of candies and Turkish delights, and today it is recognized for the production of chocolates, wafers and similar products (Evropa, 2023). It markets its products on the domestic and foreign markets. It operates by taking into account social responsibility and by adhering to the ethical principles of business operations, by providing humanitarian aid to the community and sponsorship, but also by taking care of the environment (Evropa, 2023). Accordingly, the management of Evropa JSC decided to make multiple investments to replace the old equipment with the support of WBIF and WeBSEFF. The obtained funds in the amount of 903,000 euros were invested in the purchase of a new boiler, the upgrade of the enrobing production line, the replacement of the vacuum system of the pastille production

line and the rehabilitation of the steam and condensation system (GEFF, 2023b). This investment made possible the 2,381 MWh/year savings of primary energy, and 4,100 tonnes of water/year. *Evropa JSC* made savings of 262,000 euros, allowing the invested funds to be returned in less than 3.6 years. At the same time, the decrease in carbon dioxide emissions to 490 tonnes/year was realized (GEFF, 2023b).

Bosnia and Herzegovina

IEE Ltd. was founded in 2008 in Banja Luka. The main activity of this enterprise is production, engineering and business consulting in the fields of renewable energy sources, energy efficiency, ecology and sustainable development (GEFF, 2023h). After the contract was signed with the municipality of Gradiška on the production and delivery of thermal energy and the management, operation and maintenance of the infrastructure of the city heating plant, the management of *IEE Ltd.* decided to reconstruct the boiler room, by replacing the heavy fuel oil boilers with two new biomass boilers (GEFF, 2023h). Investment in boilers that use renewable energy of 1,426,000 euros enabled this enterprise to achieve energy savings of 18,000 MWh/year, to reduce carbon dioxide emissions by 6,456 tonnes/year. The implemented innovation made it possible to save 433,576 euros/year and to return the invested funds in less than 5 years (GEFF, 2023h).

Esco Eco Energija Ltd. was founded in 2008 as a public-private partnership between the municipality of Livno and the enterprise *Dvokut* to produce and distribute heat energy from renewable energy sources. The Municipality of Livno ceded the building of the City Heating Plant and the land in which the heat pipes were laid and thus obtained a 10% share in *Esco Eco Energija Ltd.*, while all other investments came from the funds of the enterprise *Dvokut*, which has a 90% share in this enterprise (ESCO ECO Energija, 2023). In the second development stage of the energy park, the enterprise management in *Esco Eco Energija Ltd.* used funds in the amount of 652,000 euros to provide biomass boilers and connections to the heat energy distribution network. The results of this innovation are the savings of thermal energy of 4,097 MWh/year, which is sold and, on this basis, it realizes a gross profit of 121,324 euros, and the reduction of carbon dioxide emissions by 1,468 tonnes/year. The estimated period for the return of invested funds is less than 5.5 years (GEFF, 2023).

Table 4. Enterprises that used WBIF funds in Bosnia and Herzegovina

Investor	Location	Investment	Investment Size (euro)	Financial Results (PBP)	Energy Savings (MWh/year)	CO2 Savings (tonnes/year)
IEE Ltd.	Banja Luka, Bosnia and Herzegovina	Replacement of fuel oil boilers and reconstruction of the heat plant	1,426,000	less than 5 years	18,000	6,456
Esco Eco Energija Ltd.	Livno, Bosnia and Herzegovina	Introduction of biomass boiler station and connection to energy distribution grid	652,000	less than 5.5 years	4,097	1,468

Source: Adapted from: GEF. (2023h). ESCO Project Improves Heating Supply; GEF. (2023g). *ESCO Financed Renewable Energy Project.*

Notes: PBP – payback period, MWh/year – MWh per year, tonnes/year – tonnes per year.

Conclusions

An energy-intensive economy and extremely high energy inefficiency are present in all Western Balkans countries. The potential of increasing energy efficiency in the economies of these countries is great. The lack of funds and information about the possibilities of using them for introducing innovations that would increase energy efficiency and enable the use of renewable energy sources are the main obstacles to improving the energy efficiency of these countries. The initial phase of the development of green finance, the bank-centric nature of the financial sector and the aforementioned obstacles in the Western Balkans countries have impacted the fact that for the introduction of more energy and environmentally efficient innovations, financing through credit lines that international financial institutions place in these countries in cooperation with commercial banks, are crucial.

The analysis of case studies of enterprises in the Western Balkans countries was carried out for those enterprises that used credit lines, professional and advisory support of WBIF and mainly the services and finances of the WebSEFF team in

Serbia, North Macedonia and Bosnia and Herzegovina. Research results indicated that investments in Serbia were related to the acquisition of more energy-efficient process equipment and more energy-efficient means of transport, while in North Macedonia investments in construction related to the renovation and adaptation of certain buildings and hydroelectric power plants as an infrastructure project were dominant. In Bosnia and Herzegovina, the case studies are related to innovations in equipment that uses renewable energy sources for heating residential, business and public buildings. The defined hypotheses were confirmed in this research. The analysed enterprises using WBIF and WeBSEFF credit lines certainly made innovations resulting in the reduction of carbon dioxide emissions and a still modest but positive impact on the environment. At the same time, energy savings were achieved, as well as savings in other business resources, which enabled the improvement of energy efficiency and economic efficiency of business operations. Investments, advisory, professional and financial support through these credit lines, together with the benefits that these enterprises achieved, had a positive effect on the awareness of their management about the importance of such investments and business changes and they contributed to the creation of the image of organizations that operate socially responsibly in key areas - industry, construction, transport and energy supply sectors.

The analysis of examples of successful business practices and the experience of enterprises that used funds from the WBIF credit line and the professional, advisory and financial support they received from the WeBSEFF team can act as a stimulus for enterprises that have not done so to dare and contact their bank for obtaining these types of loans in order to modernize their process equipment and improve their energy, economic and environmental efficiency. The results of this research contribute to the promotion of socially responsible business operations of the analysed enterprises and better positioning with customers, which positively creates an opportunity to improve the competitiveness of these enterprises. The competitors of the analysed organizations may begin to follow them in these investments, in order to ensure profitable business operations in the long term. Sharing experience and examples of successful business practice is crucial in the initial stage of developing awareness of energy efficiency, sustainable business operations, and the social responsibility of organizations. Banks that approve these loans show that they follow modern trends and that they are ready to adapt their business operations to meet the new needs of clients. This results in greater client satisfaction and it positively affects its competitiveness. Promoting examples of

successful business practices creates opportunities for increasing the demand for these credit lines and for accelerating the development of green banking in the Western Balkans countries. Accordingly, in the coming period, the credit policy of commercial banks operating in these countries should be focused on green projects, increasing the supply of loans for energy efficiency in the economy, with a special focus on SMEs that need such lending. This requires strengthening the institutional and personnel capacities of banks. Finally, the results of this research can encourage the Western Balkan countries that have not used WBIF funds to start using them, as well as the businessmen who have used them, but have not shared their experiences, to do so.

Bearing in mind that the research was conducted based on case studies of a small number of enterprises due to the lack of relevant data on other enterprises that used these credit lines in the analysed countries, this analysis can be expanded and the relevance of the conclusions can be increased with an increase in the number of enterprises that share their experience and publish the achieved results. A comparative analysis between a larger numbers of countries, along with the analysis of other funds, can give a broader picture of the impact of various credit lines of international financial institutions on the energy, economic and environmental efficiency of business operations in the Western Balkans countries.

References

- [1] Abbas, Q., Nurunnabi, M., Alfakhri, Y., Khan, W., Hussain, A., & Iqbal, W. (2020). The Role of Fixed Capital Formation, Renewable and Non-Renewable Energy in Economic Growth and Carbon Emission: A Case Study of Belt and Road Initiative Project. *Environmental Science and Pollution Research*, 27(36), 45476–45486. Retrieved from <https://doi.org/10.1007/s11356-020-10413-y>
- [2] Alkaloid. (2023). Retrieved November 7, 2023, from <https://alkaloid.com.mk/our-company>
- [3] Bhutta, U. S., Tariq, A., Farrukh, M., Raza, A., & Iqbal, M. K. (2022). Green Bonds for Sustainable Development: Review of Literature on Development and Impact of Green Bonds. *Technological Forecasting and Social Change*, 175, 121378. Retrieved from <https://doi.org/10.1016/j.techfore.2021.121378>
- [4] Crvenka Sugar Factory JSC. (2023). Retrieved November 1, 2023, from <https://www.secerana-crvenka.rs/>
- [5] Deltaplast. (2023). Retrieved November 3, 2023, from <https://deltaplast.rs/>
- [6] DIV Trades. (2023). Retrieved November 3, 2023, from <http://divtrades.com/en/about-us>

- [7] Đorić, Ž. (2021). Zelena ekonomija i održivi razvoj u zemljama Zapadnog Balkana. *Ekonomске ideje i praksa*(41), 67-91.
- [8] ESCO ECO Energija. (2023). *ESCO ECO Energija*. Retrieved December 13, 2023, from <https://www.energije.ba/>
- [9] European Commission. (2016). *Instrument for Pre-Accession Assistance (IPA II). Regional Energy Efficiency Programme for the Western Balkans (REEP Plus)*. Retrieved December 1, 2023, from https://neighbourhood-enlargement.ec.europa.eu/system/files/2017-01/ipa_ii_2016_039-858.10_mc_reep_plus-amend.pdf.
- [10] Evropa. (2023). Retrieved December 12, 2023, from <https://evropa.com.mk/>
- [11] ExpressTrans. (2023). Retrieved November 3 2023, from <https://www.expresstrans.rs/o-nama/>
- [12] FMB. (2023). Retrieved November 3, 2023, from <https://fimbdo.net/o-nama/>
- [13] GEFF. (2023). *Green Economy Financing Facilities*. Retrieved December 1, 2023, from https://ebrdgeff.com/?country%5B%5D=379&country%5B%5D=33&country%5B%5D=39&country%5B%5D=36&country%5B%5D=46&country%5B%5D=50&benefit%5B%5D=189&benefit%5B%5D=193&donor%5B%5D=369&content_type%5B%5D=projects
- [14] GEFF. (2023a). *Boosting Hydro Power in North Macedonia*. Retrieved December 1, 2023, from <https://ebrdgeff.com/projects/boosting-hydro-power-in-fyr-macedonia/>
- [15] GEFF. (2023b). *Confectionary Company in North Macedonia Saves Energy and Improves Product Quality*. Retrieved December 12, 2023, from <https://ebrdgeff.com/projects/confectionary-company-upgrades-its-technologies-to-save-energy-and-enhance-product-quality/>
- [16] GEFF. (2023c). *Efficient Furnaces in Serbia Aluminium Production*. Retrieved November 1, 2023, from <https://ebrdgeff.com/projects/efficient-furnaces-in-aluminium-production/>
- [17] GEFF. (2023d). *Energy Efficient Sugar Production in Serbia*. Retrieved November 1, 2023, from <https://ebrdgeff.com/projects/energy-efficiency-sugar-production/>
- [18] GEFF. (2023e). *Energy Savings Achieved in Clothes Production*. Retrieved November 2, 2023, from <https://ebrdgeff.com/projects/energy-savings-achieved-in-clothes-production/>
- [19] GEFF. (2023f). *Energy-Efficient Truck Save Costs and Reduce Emissions*. Retrieved November 3, 2023, from <https://ebrdgeff.com/projects/energy-efficient-truck-save-costs-and-reduce-emissions/>
- [20] GEFF. (2023g). *ESCO Financed Renewable Energy Project*. Retrieved December 13, 2023, from <https://ebrdgeff.com/projects/esco-financed-renewable-energy-project/>
- [21] GEFF. (2023h). *ESCO Project Improves Heating Supply*. Retrieved December 13, 2023, from <https://ebrdgeff.com/projects/esco-project-improves-heating-supply/>

- [22] GEF. (2023i). *North Macedonian Pharmaceuticals Company Undergoes Refurbishment*. Retrieved November 7, 2023, from <https://ebrdgeff.com/projects/macedonian-pharmaceuticals-company-undergoes-refurbishment/>
- [23] GEF. (2023j). *North Macedonian Property Developer Reconstructs a Student Dormitory with Energy-Efficiency in Mind*. Retrieved December 1, 2023, from <https://ebrdgeff.com/projects/macedonian-property-developer-reconstructs-a-student-dormitory-with-energy-efficiency-in-mind/>
- [24] GEF. (2023k). *Serbian Aluminium Lid Manufacturer Invests in New Production Equipment*. Retrieved November 3, 2023, from <https://ebrdgeff.com/projects/serbian-aluminium-lid-manufacturer-invests-in-new-production-equipment/>
- [25] GEF. (2023l). *Serbian Clothing Manufacturer Becomes More Energy-Efficient with New Equipment*. Retrieved November 2, 2023, from <https://ebrdgeff.com/projects/clothing-manufacturer-becomes-more-energy-efficient/>
- [26] GEF. (2023m). *Serbian Packaging Manufacturer Reduces CO2 Emissions by 80 per cent*. Retrieved November 3, 2023, from <https://ebrdgeff.com/projects/serbian-packaging-manufacturer-reduces-co2-emissions-by-80-per-cent/>
- [27] GEF. (2023n). *Serbian Packaging Manufacturer Upgrades Old Processing Equipment*. Retrieved November 3, 2023, from <https://ebrdgeff.com/projects/serbian-packaging-manufacturer-upgrades-old-processing-equipment/>
- [28] Hailiang, Z., Iqbal, W., Chau, K. Y., Shah, S. A., Ahmad, W., & Hua, H. (2023). Green Finance, Renewable Energy Investment, and Environmental Protection: Empirical Evidence from B.R.I.C.S. Countries. *Economic Research-Ekonomska Istraživanja*, 36(2), 2125032. Retrieved from <https://doi.org/10.1080/1331677X.2022.2125032>
- [29] Hu, Y., & Zheng, J. (2021). Is Green Credit a Good Tool to Achieve “Double Carbon” Goal? Based on Coupling Coordination Model and PVAR Model. *Sustainability*, 13(24), 14074-14074. Retrieved from <https://doi.org/10.3390/su132414074>
- [30] IFF. (2021). *Global Finance and Development Report 2021*. China: International Finance Forum. Retrieved September 15, 2023, from <http://iff.org.cn/uploads/2021GAM/GFAD-report20211206.pdf>
- [31] Impol Seval Aluminium Industry. (2023). Retrieved November 1, 2023, from <https://www.impol.rs/>
- [32] Jemović, M., & Radojičić, J. (2021). Sustainable Finance and Banking: A Challenge for Regulators and a Risk Management System. *Facta Universitatis Series: Economics and Organization*, 18(4), 341-356. Retrieved from <https://doi.org/10.22190/FUEO210609024J>
- [33] Jin, Y., Gao, X., & Wang, M. (2021). The Financing Efficiency of Listed Energy Conservation and Environmental Protection Firms: Evidence and Implications for

- Green Finance in China. *Energy Policy*, 153, 112254. Retrieved from <https://doi.org/10.1016/j.enpol.2021.112254>
- [34] Legend World Wide. (2023). Retrieved November 2, 2023, from <https://www.legend.rs/onama>
- [35] Liu, Z., Xu, J., Wei, Y., Hatab, A. A., & Lan, J. (2023). Nexus Between Green Financing, Renewable Energy Generation, and Energy Efficiency: Empirical Insight Through DEA Technique. *Environmental Science and Pollution Research*, 30(22), 61290-61303. Retrieved from <https://doi.org/10.1007/s11356-021-17092-3>
- [36] Madžar, L. (2018). Finansijske mere politike energetske efikasnosti u Srbiji. *Ekonomski vidici*, 23(3-4), 209-222.
- [37] Masukujjaman, M., & Aktar, S. (2013). Green Banking in Bangladesh: A Commitment Towards the Global Initiatives. *Journal of Business and Technology (Dhaka)*, 8(1-2), 17-40. Retrieved from <https://doi.org/10.3329/jbt.v8i1-2.18284>
- [38] Migliorelli, M., & Dessertine, P. (2019). From Transition-Based to Mainstream Green Finance. In M. Migliorelli, & P. Dessertine, *The Rise of Green Finance in Europe: Opportunities and Challenges for Issuers, Investors and Marketplaces* (pp. 153-175). Rome: Palgrave Macmillan. Retrieved from <https://doi.org/10.007/978-3-030-22510-0>
- [39] Nikolić, M., & Milojković, D. (2023). The Role of Green Finance in the Management of Sustainable Development in Serbia. *Book of Proceedings "Sustainable Development as a Measure of Modern Business Success"* (pp. 50-55). Belgrade: Singidunum University. Retrieved from <https://doi.org/10.15308/finiz-2023-50-55>
- [40] Rasoulinezhad, E., & Taghizadeh-Hesary, F. (2022). Role of Green Finance in Improving Energy Efficiency and Renewable Energy Development. *Energy Efficiency*, 15(2). Retrieved from <https://doi.org/10.1007/s12053-022-10021-4>
- [41] Sovilj, R. (2020). Koncept održivog razvoja u savremenom bankarstvu - zeleno bankarstvo. In P. Jovanović, & S. Stojković-Zlatanović, *Izazovi održivog razvoja u Srbiji i Evropskoj uniji* (pp. 265-281). Beograd: Institut društvenih nauka
- [42] Stakić, N., & Barjaktarović, L. (2023). Sustainable Banking and its Main Determinants - Evidence from the Serbian Banking Sector. *TEME*, 47(2), 299-316. Retrieved from <https://doi.org/10.22190/TEME220721020S>
- [43] Tešić, N., Dodok, R., Bosiljčić, S., & Savić, G. (2012). *Deset godina od uspešne privatizacije 2002-2012*. Sevojno: Impol Seval a.d.
- [44] WBIF. (2016). *Financing Energy Efficiency Investments in the Western Balkans*. Western Balkans Investment Framework.
- [45] WBIF. (2023). Investing Sustainable Energy Has Never Been So Easy. Western Balkans Investment Framework. Retrieved December 12, 2023, from <https://www.wbif.eu/10-years-success-stories/success-stories/investing-sustainable-energy-has-never-been-so-easy>

- [46] World Bank. (2022). *Western Balkans Regular Economic Report No. 22: Beyond the Crises*. World Bank Group. Retrieved from <https://openknowledge.worldbank.org/server/api/core/bitstreams/8fbb19e3-e2b9-5522-9c19-e001ac29465f/content>
- [47] Xia, L., Liu, Y., & Yang, X. (2023). The Response of Green Finance Toward the Sustainable Environment: The Role of Renewable Energy Development and Institutional Quality. *Environmental Science and Pollution Research*, 30(21), 59249-59261. Retrieved from <https://doi.org/10.1007/s11356-023-26430-6>
- [48] Yuleva-Chuchulayna R., Filipova M., Stefanova-Bogdanska D, Mihali A.-M. & Cretoiu R.I. (2023). The Role of Management for the Sustainability and Efficiency of Enterprises. *Annals of Spiru Haret University. Economic Series*, 23(4), 628-641, Retrieved from <https://doi.org/10.26458/23434>
- [49] Zelenović, V., Radović, M., & Vitomir, J. (2019). Kreditiranje energetske projekata od strane EBRD sa osvrtom na Srbiju. *Zbornik radova sa VII međunarodnog naučnog skupa EkonBiz* (pp. 235-248). Bijeljina: Fakultet poslovne ekonomije Bijeljina, Univerzitet u Istočnom Sarajevu. Retrieved from <http://www.ekonbiz.ues.rs.ba/ojs/issue/view/25.html?journal=ekonbiz&page=issue&op=view&path%255B%255D=25>
- [50] Zeng, Y., Wang, F., & Wu, J. (2022). The Impact of Green Finance on Urban Haze Pollution in China: A Technological Innovation Perspective. *Energies*, 15(3), 801. Retrieved from <https://doi.org/10.3390/en15030801>
- [51] Zhang, H., Wang, Y., Li, R., Si, H., & Liu, W. (2023). Can Green Finance Promote Urban Green Development? Evidence from Green Finance Reform and Innovation Pilot Zone in China. *Environmental Science and Pollution Research*, 30(5), 12041-12058. Retrieved from <https://doi.org/10.1007/s11356-022-22886-0>

ANALYSIS OF THE PROCESSES RELATED TO GLOBALIZATION OF ENTERPRISES IN BULGARIA

Gergana YOICHEVA¹

¹ Faculty of Economics, SWU „Neofit Rilski”, Blagoevgrad, Ivan
Mihailov str.66, 2700, phone +359 898 879 469, e-mail:
geryiocheva@abv.bg

How to cite: Yoicheva , G. (2024). “Analysis of the Processes Related to Globalization of Enterprises in Bulgaria”. *Annals of Spiru Haret University. Economic Series*, 24(1), 208-218, doi: <https://doi.org/10.26458/24112>

Abstract

People have been interacting with each other for a long period, through their businesses. Enterprises are the structure of the social economy. Due to the successive economic and social crises in Bulgaria, many companies are on the verge of survival. Through them, society's expectations for the employment of the population are characterised, which is the main objective of every enterprise. The main objective of this paper is to characterize and analyse the process of increasing economic, social, technical and political interconnections between individuals, countries and organizations. The current context impose a need to develop a system of indicators for the analysis and assessment of the globalization processes that is affecting the whole economy of the country. There is also a need for targeted management actions and the development and implementation of effective strategies that are appropriate to the dynamic changes in the competitive environment.

Key words: globalization; enterprises; economy; employment; economic activity; Bulgaria.

JEL Classification: E24, H12, J64, J65, J68

Introduction

The globalization of the economy in Bulgaria is going through one of its most difficult periods of development. The past global and economic crises in the world still have their negative impact on the enterprises in the country. Increasingly profound changes related to working conditions, ensuring the necessary means of existence of the activities of enterprises are observed. The complex situation related to the world economic and political crises, as well as the COVID-19 crisis, have led to a major transformation in the economy of Bulgarian enterprises. Many of them have reoriented themselves towards new businesses and new ways of achieving their goals and objectives.

The main objective of the article is to analyse and characterize the process of increasing economic, social, technical and political interconnections between individuals, countries and organizations. All enterprises in Bulgaria are forced to continuously seek alternative ways to achieve goals, to work, to offer quality workforce. The impact of globalization on the Bulgarian market can be analysed from the perspective of multiple layers, which include increased emigration waves of the population to more developed and prosperous countries leading to open markets, new information and communication technologies that have found application in all areas of human activity, changes in consumer demands that have led to a new structure of production and last but not least the introduction of innovation and advances in the activities of larger and more prosperous companies.

1. Analysis and Discussion

Adverse globalization processes have a negative impact on the country's economic, social, technical and political factors. On the basis of the unfavourable situations that have arisen, enterprises in Bulgaria are on the verge of survival. The continuous rise in the prices of services and the main raw materials and supplies needed for their activities have made it difficult to develop and implement the main orders and to sell the finished product. The major global economic and political crises have been characterised by restructuring and reduced productivity of enterprises, downsizing and laying off of essential manpower.

The importance of regions in the national economy has changed significantly in recent years as a result of globalization and the implementation of structural adjustment programmes, the main objective of which is to reduce fiscal imbalances in the short and medium term and to make adjustments in economic development

to achieve long-term growth. Naturally, in terms of regional economic development, an important place must be given to the preparation of specialised schemes for the development of industry, which is expressed in the realisation of opportunities for the implementation of support for existing and the creation of new industrial and business zones, the improvement of the transport system, the development of tourist infrastructure, identifying specific activities and projects of regional and extra-municipal importance [Ivanov & Naydenov, 2018].

In the conditions of development of globalization processes, the use of new management technologies related to the efficiency of enterprise management becomes of great importance, in which the need for theoretical substantiation of "management efficiency" arises. It is necessary to study, research and analyse the approaches, criteria, indicators for assessing the effectiveness of management in enterprises. Efficiency should be characterized as a qualitative-quantitative characteristic of all phases of work activity, related to the essence and content of important economic laws and covers the interests of all sides of economic activity [Milcheva, 2012]. The situation both inside and outside the country is difficult and tangled, which is caused by many different factors related to the challenges of the new digital society, the processes of globalization, the impact of the demographic crisis [Andreeva, 2019]. It is characterised by a low level of total government spending, a high level of inequality and a low level of spending on social protection, where subsidisation of social services is poor, state intervention is weak and, last but not least, there is little social dialogue [Moraliiyska, 2019]. For this reason, many businesses have been forced to close their doors and suspend operations. The globalization of the economy in recent years is in its worst period since it became the dominant economic doctrine. The free movement of capital, goods, services, the removal of trade barriers and economic taxes have somewhat removed interconnectedness, prosperity and peace. The corona virus pandemic has disrupted global supply chains of goods, and the war in Ukraine has shown that free trade across the globe cannot be taken for granted by people.

The quality of enterprises is recognized by high flexibility and autonomy, good pay, high qualification and age of staff, job security of staff.

Globalization and the development of information and communication technologies have led to the formation of a digital society, a digital economy, a global digital labour market, which in turn has led to the development of instability in employment in its precarious form and a reduction in social support for the working population.

It is necessary to undertake various measures to stabilize means of livelihood and incomes through accelerated social protection and employment measures; promoting increased employment and decent work opportunities and social economic reintegration; promoting sustainable employment and decent work, securing social protection, creating sustainable industrial enterprises, specifically for small and medium enterprises, the transition from informal to formal economy, accessibility to the public and services.

The contemporary post-industrial society is characterized by evolving knowledge, globalization, and digitalization, impacting economic behavior and necessitating strategic adaptation. Progress hinges on human development, prompting enterprises to invest, research, and market effectively. Long-term strategies, emphasizing innovation and comprehensive analysis, are essential for success. Competitiveness assessment and efficient resource utilization are crucial for strategy implementation. Enterprises must consider various influencing characteristics when crafting their development strategies [Hurzhyi et al., 2022].

In the same time, rapid globalization during the last few decades has caused many difficulties for firms to survive, sustain, and maximize shareholders' wealth. In this context, companies are using different tools – like Enterprise Resource Planning (ERP) systems in order to manage the challenges from the business external environment and requirements at the level of the internal environment in the same time, and are developing a Innovative Organizational Culture (IOC) capable to ensure an efficient change management at the level of the organization [Ashraf & Ali, 2022].

The growing reach of globalization broadens the scope of economic interactions, making it more challenging for individual economic entities or people to make decisions while considering potential risks. Businesses can mitigate identified risks through expertise-driven strategies or by developing risk management techniques. Yet, the primary challenge lies not in the methods themselves, but rather in the lack of adequate knowledge and experience needed to effectively implement them [Glonti et al, 2023].

A constant need for every organization, in order to properly address different risks is the capacity of companies to innovate. Innovation enables organizations to effectively integrate sustainability principles, necessitating strategic resource allocation, meticulous planning, and continuous process auditing.

Innovation is a constant necessity for small and medium-sized enterprises (SMEs) within the framework of globalization. In a world of continual change and

intense competition, SMEs must adopt an innovative approach to maintain and enhance their market position. Innovation enables them to stay relevant, adapt to market demands, and maximize their growth potential and success in a globalized environment. By embracing and promoting innovation in all aspects of their business, SMEs can gain a competitive edge and continue to thrive in an ever-changing landscape (Carrasco-Carvajal, Castillo-Vergara, & García-Pérez-de-Lema, 2023).

Recently, experts have been discussing green innovation as a key aspect of a comprehensive approach. In addition to the ways innovation is linked to a company's sustainability, green innovation practices are seen as a natural response to customer demands. Customers are increasingly willing to pay extra for sustainable products and expect firms to offer responsible products and services. Green innovation initiatives not only enhance a company's performance and competitiveness but also increase product value and create competitive advantages through ecological differentiation (Guinot, Barghouti, & Chiva, 2022).

In order to boost the innovation capacity of enterprises, managers are developing different approaches on concepts like sustainability, organizational culture, intellectual capital etc, perceptions that are considering one of the following areas being essential in the process of the adaptation of the organization to global challenges: sustainability as a framework for managing business environment threats, sustainable leadership development and its relationship with sustainability, application of sustainability principles in risk management, sustainability framework: corporate social responsibility, innovation promotion, and performance enhancement, enhancing organizational learning and innovation through sustainability [Gârdan et al., 2022]. Actually, in a context of a global change, innovation for companies stands out as a key driver, empowering businesses to elevate their standards and enhance their competitiveness on a global scale. This means that companies are entangled into a process of internationalization that puts them in different situations in order to adapt and grow [Lei & Xie, 2023]. Maintaining a balanced level of technological diversity is crucial for fostering technological innovation within organizations. Excessive diversity can impede effective communication and stifle innovation. Additionally, the layout of organizational structures and addressing microstructure gaps play a substantial role in amplifying the impact of technological heterogeneity on innovation. By optimizing organizational structures and managing these gaps, organizations can significantly enhance their overall innovation capacity. Flexible organizational

frameworks are essential for maximizing the connection between technological diversity and innovation. Managers must delicately balance heterogeneity and coherence, making informed strategic decisions to propel corporate growth [Wang et al., 2024].

There is a need also to promote the active participation of organisations, employers and workers in the planning, implementation, enforcement and monitoring of economic recovery measures and their sustainability; characterizing the significance of the employment impact of national programmes, with the aim of promoting full, productive, free but chosen employment and decent work for all, primarily youth and persons with disabilities.

It is also a practice to promoting social dialogue and collective negotiation; creating or rebuilding labour market institutions; taking effective measures to identify, prevent, mitigate and analyse the risks of adverse impacts on human rights and workers' performance of labour activities; prospering the capacity of the government to provide income opportunities, stable employment and decent work for all young people, including the development and implementation of training and employment programmes [Viktorovna, 2017].

One of the huge difficulties of enterprises in Bulgaria is related to the conditions of globalization and the transition of the economy to an innovative path of development. The most important of these is the rational use of the resources of enterprises and improving their competitiveness.

Table 1 shows the number of enterprises in Bulgaria, according to the number of employees by enterprise group and by economic activity, at the end of 2022.

Table 1: The number of enterprises in Bulgaria, according to the number of employees by enterprise group and by economic activity, at the end of 2022

Economic activities	2022				
	Total	"Groups of enterprises according to number of employed persons"			
		0-9	10-49	50-249	250 +
Total	448 409	418 951	24 169	4 518	771
Rural, forest and fishing economy	46 090	44 472	1 502	106	10
Mining industry	334	230	68	27	9
Processing industry	30 199	23 565	4 926	1 444	264
Production and distribution of electrical and thermal energy and gaseous fuels	4 360	4 243	74	27	16

Water supply; sewage services, waste management and recovery	844	592	153	65	34
Construction	23 748	20 697	2 558	465	28
Trade, repair of cars and motorcycles	137 294	130 152	6 258	795	89
Transport, warehousing and mail	22 967	20 931	1 715	270	51
Hotels and restaurants	24 732	22 207	2 220	288	17
Creation and distribution of information and creative products; telecommunications	17 404	15 999	1 035	296	74
Real estate operations	28 463	28 026	401
Professional activities and scientific research	49 826	48 588	1 084	130	24
Administrative and auxiliary activities	12 136	10 965	858	252	61
Education	4 267	4 068	172
Human health care and social work	14 636	13 643	697	216	80
Culture, sport and entertainment	5 377	5 032	265	71	9
Other activities	25 732	25 541	183	8	-

Source: National Statistical Institute, 2023

The above table shows that the number of non-financial enterprises in Bulgaria will total 448,409 in 2022, which is actually only 1.08% more than the previous year 2021. The number of persons employed in them converted into full-time equivalents is 2,220,091, or 1.04% more than a year earlier [Infostat, 2023]. The largest share in 2022 is accounted for by economically active non-financial enterprises in the services and trade sector (76.5%), which in turn account for 62.5% of all employees (Table 1).

The share of non-financial enterprises in the industry, construction and agriculture, forestry and fishing sectors is 23.5% of all active enterprises in 2022, and their employees account for 37.5% of all employees in the non-financial sector, converted into full-time equivalents. A more in-depth analysis of the current situation cannot be made, as the data for the current year 2023 is pending receipt and post-processing, validation and final filtering.

Figure 1 presented below shows the relative share of economically active enterprises in Bulgaria at the end of 2022, at the end of 2022.

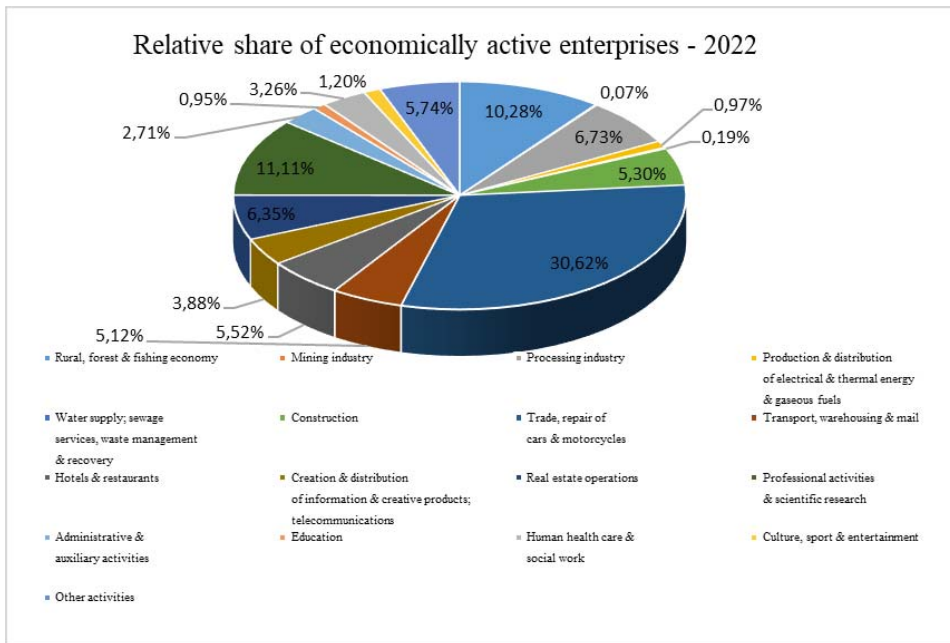


Figure 1. Relative share of economically active enterprises in Bulgaria at the end of 2022

Source: National Statistical Institute, 2023

Increasing globalization in recent years has necessitated a rethinking of approaches to the management of all enterprises in the country, as well as the indicators of their functioning - sectors, subsectors, groups of economic activities [Petrova & Dimitrova, 2011]. The complex political, social and economic situation worldwide has set two main goals for the Bulgarian state - to succeed in retaining the big investors who have already entered the market in the country and to make huge efforts to attract new investors. This is a considerably difficult task, but the Bulgarian state can take several steps to facilitate the process of investing in the country, and thus to increase economic growth, the rate of natural increase in the average wage and thus partially counter the problems of inflation [Divident, 2022].

With its political, economic, foreign trade, financial, demographic, social, environmental, information, communication and other dimensions, globalization is

shaping the environment in which Bulgaria's transformation and development will take place over the next few decades. Successful development is not possible if it is not in line with the fundamental processes of globalization. Globalization itself is an objective process. If it is understood and, in a sense, "mastered", it can be "managed" in such a way that the positive results prevail and the negative ones are mitigated. In the 'management' of globalization, the world's largest countries have played, and still play, a major role because of their economic, scientific, political and military potential. A small country like Bulgaria cannot be under any illusions that it is a significant accomplice in the 'governance' of globalization. The most that Bulgaria can do is to find appropriate loopholes in this process and adapt to the requirements of the "big ones" [Institute for Economic Studies, 2021].

„The "big" countries certainly influence Bulgaria's development and prosperity by stopping and influencing in a more negative way the country's prosperity in terms of economy, politics and social activities. Bulgaria is a small country and is heavily dependent on them, both to attract large and significant economic investors and to obtain funding for the development of business in the country. Globalization, as a process of development of modern society, brings in its wake the basic injustices of global e-commerce, unstable financial and economic systems, and to recurrent crises. A small and poor country like Bulgaria finds itself burdened with heavy and painful debts, which in turn prevents access to life-saving financial 'injections' necessary for the survival of enterprises and hence reaching their subordinates. In the end, uniting our country with the big and rich countries leads to positive outcomes based on the opportunities a small country can get.

Conclusion

Globalization has both positive and negative impacts on Bulgarian enterprises. In each enterprise it has a different manifestation, some of them seeking assistance from the state. Globalization itself has increased competitiveness of some of them, while others are closing their doors and ceasing operations. In the context of globalization processes, the use of new management technologies related to the efficiency of enterprise management is important. The objective is to rethink approaches to enterprise management and performance indicators, aiming for more and greater competitiveness and more jobs.

Globalization in Bulgaria has more negative than positive impacts, as local trade and production are declining, inequality between workers and employees in enterprises is increasing, and labour exploitation is on the rise. There is an outflow

of foreign investment, which is essential for the country's economy, as this in turn has led to a deterioration in the quality of life and a decline in the level of population. The impact of globalization processes is characterised by a low level of total government expenditure, a high level of inequality and a low level of social protection expenditure, subsidisation of social services is weak, state intervention in the labour market is weak and, lastly, there is little social dialogue.

Globalization has had a positive impact on enterprises in Bulgaria, characterized by the development of information and communication technologies leading to the formation of a digital society, digital economy, global digital labour market, which in turn lead to the development of instability in employment in its precarious form and to a reduction in social support for the working population.

There is a need to develop a system of indicators for the analysis and assessment of the globalization processes affecting the whole economy of the country and the additional incentives for the competitiveness of employees in the public and public sectors. There is also a need for targeted management actions and the development and implementation of effective strategies that are appropriate to the dynamic changes in the competitive environment.

Reference s

- [1] Andreeva, A. (2019) *Legal Regulation of the Social and Solidarity Economy and its Impact on Employment*, University of Economics - Varna, p. 27-31.
- [2] Ashraf, Y., & Ali, F. (2022). How innovative organization culture affects firm performance in the wake of enterprise resource planning? evidence from energy-and non-energy-sector firms in Pakistan. *Frontiers in Environmental Science*, 10, 991319.
- [3] Carrasco-Carvajal, O., Castillo-Vergara, M., & García-Pérez-de-Lema, D. (2023). Measuring open innovation in SMEs: an overview of current research. *Review of Managerial Science*, 17(2), 397-442).
- [4] Gârdan, D.A., State, O., Gârdan, I.P., Baicu, C.G., & Țicău, I.R. (2022). Managers perception of sustainability - A driver for sustainable leadership, innovation, and performance, *Annales Universitatis Apulensis Series Oeconomica*, 2(24), 1-15.
- [5] Gârdan, I. P., Gârdan, A., Baicu, C. G., & Jiroveanu, D. (2021). A Systematic View Regarding Business Rethinking in the Context of Supply Chains Sustainability. *Annals of Spiru Haret University. Economic Series*, 21(4), 377-397.
- [6] Gârdan, I. P., & Gârdan, D. A. (2014). Healthcare services consumer's behaviour and sustainable development. *Annals of Spiru Haret University. Economic Series*, 14(3), 9-20.

- [7] Geangu, P. I., Crețoiu, R., & Gârdan, D. A. (2011). Particularities of dental medical services and consumers in the context of globalization. *Annals of Spiru Haret, Economic Series*, 2(11), 71-80.
- [8] Glonti, V., Tsintsadze, A., Oniani, L., & Ghoghoberidze, T. (2023). Risk Management Problems and the Role of Insurance in Developing Countries. *Montenegrin Journal of Economics*, 19(2), 153-165.
- [9] Guinot, J., Barghouti, Z., & Chiva, R. (2022). Understanding green innovation: A conceptual framework. *Sustainability*, 14(10), 5787.
- [10] Hurzhyi, N., Kravchenko, A., Kulinich, T., Saienko, V., Chopko, N., & Skomorovskiy, A. (2022). Enterprise development strategies in a post-industrial society. *Postmodern Openings*, 13(1 Sup1), 173-183.
- [11] Institute for Economic Studies (2021) *Bulgaria's Economy on the Threshold of the New Century*, Sofia, p. 1.
- [12] Ivanov, M., & Naydenov, K. (2018) *Specific Features of Regional Economic Development in Bulgaria*, Regional Economy and Sustainable Development, Collection of Proceedings of a Scientific Conference of the Scientific Research Institute with the University of Economics of Varna, 17.11.2017, Vol. 1, Publ. „Nauka i Ikonomica”, UE of Varna, p. 65-71.
- [13] Lei, T., & Xie, P. (2023). Fostering enterprise innovation: The impact of China's pilot free trade zones. *Journal of the Knowledge Economy*, 1-30.
- [14] Milcheva, D. (2012) *Approaches, criteria and indicators for assessing the effectiveness of industrial production management*, Management and Sustainable Development Magazine, Sofia, No. 4, p. 1-2.
- [15] Moraliyska, M. (2019) *Contemporary challenges to the European social model*, UNWE, Sofia, p. 3-4.
- [16] Petrova, D., Dimitrova, S. (2011) *Productivity Dynamics in Bulgarian Industry in the Globalizing Economy*, XX International Scientific and Technical Conference „ADP-2011”, p.1.
- [17] Viktorovna, N. (2017) *Employment Instability and the Problem of Decent Work*, Collection of Proceedings of the VII Forum "Labour Market and Employment Policy: Status and Prospects of Development“, Moscow, p. 57-60.
- [18] Wang, L., Lin, S., Zhang, M., Ding, J., & Zhang, L. (2024). Technological Innovation Through Complex Networks: a Study of 100 Listed Companies on China's Growth Enterprise Market. *Journal of the Knowledge Economy*, 1-48.
- [19] <https://dividend.bg/analyses/gotova-li-e-balgariya-za-razpada-na-bezgranichnata-globalizaciya, 2022>
- [20] <https://infostat.nsi.bg/infostat/pages/external/login.jsf, 2023>

NEW BUSINESS MODELS IN AGROECOLOGY. STUDY CASE - INNOVATION HUB BIO DANUBIUS AS PRIVATE (VOLUNTARY) STANDARDS BASED ON INDICATORS

Costin LIANU¹, Irina Gabriela RADULESCU², Cosmin LIANU³

¹*Spiru Haret University, 13 Ion Ghica Street, Bucharest, 030045, Romania*
+40214551000, clianu@gmail.com

²*Petroleum-Gas University of Ploiesti, 39 Bucuresti Avenue, Ploiesti,*
100680, Romania

+40244575847, iradulescu@upg-ploiesti.ro

³*Academy of Economic Studies, 6 Romana Square, Bucharest, 010374,*
Romania

+40213191900, cosminlia@hotmail.com

How to cite: Lianu, C, Radulescu, I.G., LianU C.C. (2024). “New Business Models in Agroecology: Study Case - Innovation Hub Bio Danubius as Private (Voluntary) Standards Based on Indicators”. *Annals of Spiru Haret University. Economic Series*, 24(1), 219-233, doi: <https://doi.org/10.26458/24113>

Abstract

Agroecology is a new area of knowledge and emerging body of experience linking in a transdisciplinary manner, experiments, research, and action-oriented innovations targeting enhanced food systems' resilience, environmental and socio-economic sustainability at the farm, organizational and institutional levels. Authors view is that applying ecological principles and social values to agricultural production and consumption has to have a market recognition. This paper investigates in which conditions agroecology can also offer new business models that are more inclusive, diverse, and profitable for farmers and other food system actors especially those small farmers actioning in a regional context and willing to cooperate to co-create new business models. These business models involve the adoption of innovations such as integrated management, organic fertilizers, participatory guarantee systems,

and collective marketing in a regional value chain perspective. The paper investigates as well some pathways to agroecology developed in IH Bio Danubius, a regional cluster already engaged in organic agricultural practices and willing to further embrace new agroecological principles. One important pathway, in which our research is conducted are conditions under which private (voluntary) standards based on indicators can meet market requirement through a viable business model.

Key words: agroecology, organic agriculture, business model

JEL Classification: Q13, Q16, M21

Introduction

Agroecology, is a dynamic and transdisciplinary concept encompassing a scientific areas such as sustainable agricultural practices, environment management, consumer behaviour or social aspect. There are many principles, up to thirteen as per figure below:



Figure nr. 1. Thirteen principles of Agroecology

Source: HLPE 2019

Our research being concentrated on the regional cluster perspective, we investigate the prospect of a cluster value chain management in this area in order to achieve a market recognition through private voluntary standards. The agroecological value chain, in our market-oriented analyses, should be ecologically, socially and economically sustainable, incorporating agroecological principles, if at farm, business and institutional levels the cohesive forces of transformation are able to [Gliessman, 2016]:

- ✓ include and promote the participation of all relevant stakeholders in the co-creation of a common VC vision.
- ✓ strengthen stakeholder engagement and addressing power differences.
- ✓ support diversified, nutrition-sensitive and resilient production systems, including mixed livestock and agroforestry, which preserve and enhance biodiversity, as well as the natural resource base [HLPE, 2016].
- ✓ promote diversified and healthy diets as a pathway to support transitions towards more sustainable, diversified and resilient food systems.
- ✓ adopt agroecological innovations (both technological and institutional) that foster co-creation and co-learning through the integration of science and local knowledge.
- ✓ create strategic partnerships with food VC innovation platforms, incubators and aggregation mechanisms in which private and public sector actors invest in and reward sustainable food producers and the production of public goods [Jonasz & Varga, 2022].
- ✓ support the development of local and regional markets, processing hubs and transportation infrastructures to increase employment and business opportunities, and to promote circular economies.

Since our research focusses on a cluster business we assume that such an ecosystem may create and deliver value to its members and stakeholders, such as customers, suppliers, investors, and authorities. To be successful a cluster business model should describe how a cluster generates revenue and covers its costs, as well as how it measures and improves its performance and impact. On the other hand, a value chain approach is a way of analyzing and optimizing all activities to deliver a product or service, from the initial design to the final customer taking into consideration all costs and revenues, associated with each activity. Therefore, a value chain approach should identify all activities that add value to the product or service from a customer perspective. A value chain analyses has also to look into

the linkages and interactions among the activities and actors involved in the value creation process, such as suppliers, producers, distributors, and buyers.

Both cluster business model and value chain model are useful frameworks for understanding and improving the performance and competitiveness of a cluster but also a company within a cluster. However, the cluster model and the value chain model are not identical. A cluster business model is more focused on the strategic and financial aspects of a cluster, while a value chain model is more focused on the operational and organizational aspects of a company or a cluster. A cluster business model can help a cluster to define and communicate its value proposition, while a value chain model can help a company or a cluster to deliver and enhance its value proposition [Gartenstein, 2019].

Theoretical background

Voluntary standards in agri-business are norms or rules that are developed by private actors like farmers, processors, suppliers or trader, such as agri-business associations, non-governmental organizations, or multi-stakeholder initiatives, and that are not enforced by the state. Voluntary standards in agriculture may cover wide range of areas like product schemes, management standards, food security or a combination of these or more other topics.

Voluntary standards are becoming increasingly important in the agri-business and food systems, as they can help address some of the sustainability challenges that the global food system faces, such as climate change, biodiversity loss, water scarcity, food insecurity, poverty, and malnutrition [UNCTAD, 2020].

As voluntary standards can all provide opportunities for small-scale producers to access new markets, improve their productivity and income, and enhance their body of experience has been developed by UN organizations like FAO and UNCTAD. However, voluntary standards also pose some challenges and risks for the agri-business and food systems, such as:

- ✓ Confusions triggered by over proliferation and fragmentation of voluntary standards, which may be market inconsistent;
- ✓ The potential exclusion or marginalization of small-scale producers, especially in developing countries, who may lack the capacity, resources, or information to comply with the requirements of voluntary standards;
- ✓ Trade distortion or brand captivity;
- ✓ Uncertainty of economic outcomes in the implementation phase.

Voluntary standards may need pre-evaluation, and governance to ensure that they contribute to the sustainable development of the agri-business and food systems, and that they benefit all the stakeholders involved.

Several models have been experimented and are linked to regional value chains for different food products and we have different options where research has been done. Identifying through value chain analyzes opportunities and challenges can be a very useful tool in the research carried out as follows [Charry, Narjes, Gonzalez, Chege & Tran, 2022]:

- ✓ The initiative is also conducting rapid agroecological value chain analyses (RAVCAs) to identify the opportunities and challenges of integrating agroecology into the existing and potential business models in the region.
- ✓ In other situation it has been revealed the potential of diversification of the value chain with new products like native potatoes or sorghum.
- ✓ The initiative is also looking at the potential of diversifying the quinoa value chain with other crops and products that are compatible with agroecology, such as amaranth, cañihua, and native potatoes.
- ✓ The initiative is also promoting the diversification of the sorghum value chain with other crops and livestock that can enhance the agroecosystem services and resilience. Last but not least, certifications schemes and linkages between stakeholders has been a good pathway towards a valid business model.
- ✓ The initiative is also facilitating the linkages between date producers and consumers, as well as the access to finance and certification schemes.

New business models in agriculture

As anywhere, in agri-businesses, business models address profitability as well as sales revenue, describing the ways that a company invests capital in order to generate income, by creating and selling inventory, or creating a business location that attracts paying customers. To clarify how new models can be created we analyzed the resource nexus, a concept that analyses the interconnections between different natural resources, such as food, land, water, energy, and materials, and how they affect each other and the environment in the context of European Green Deal and its set of policies and actions that aim to make Europe the first climate-neutral continent by 2050, while also ensuring a fair and prosperous society. In this context, taking into consideration the case of an organic cluster (Bio Danubius) we investigate potential synergies and trade-offs associated

with increasing organic farming illustrated for the ‘Food-Land-Ecosystem services’ nexus (EEA analyses).

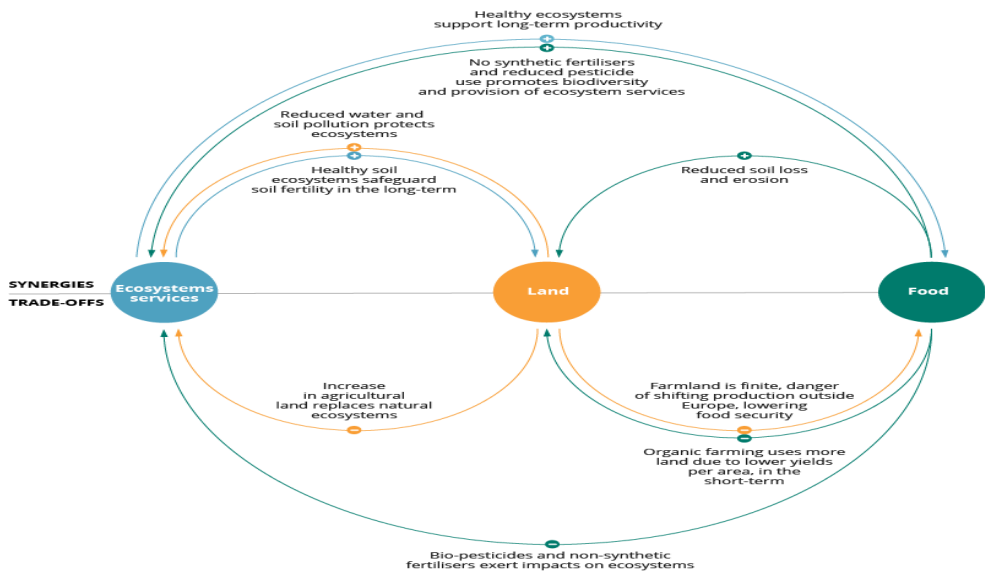


Figure nr. 2. **Sinergies and trade-offs associated with organic farming**

Source: EEA

As per figure above most of the positive trade-offs are associated to organic agriculture advocated in favour of actions proposed by the European Green Deal is to increase the share of organic farming in the EU, which is currently around 8% of the agricultural land. Indeed organic farming is a type of agriculture that relies on natural processes and inputs, and avoids the use of synthetic chemicals, genetically modified organisms, and intensive animal production. Organic farming can have several benefits for the environment, such as reducing greenhouse gas emissions, enhancing soil quality, biodiversity, and water resources, and providing ecosystem services [FAO, 2023].

However, organic farming also faces some challenges and trade-offs, such as lower yields, higher costs, and potential conflicts with other land uses. For example, increasing organic farming could require more land to produce the same amount of food, which could compete with other needs such as forest conservation,

urban development, or bioenergy production. Moreover, organic farming could have different impacts on different regions, depending on the local conditions, markets, and policies [FAO, 2020].

Therefore, it is important to assess the potential synergies and trade-offs associated with increasing organic farming, taking into account the complex interactions between food, land, and ecosystem services. This is what the European Environment Agency (EEA) did in one of its case studies, using a resource nexus approach. The EEA analysed four scenarios of increasing organic farming in the EU, ranging from 25% to 100% of the agricultural land, and compared them with a baseline scenario of 8%. The EEA used a set of indicators to measure the impacts of each scenario on food production, land use, greenhouse gas emissions, soil, nitrogen surplus, water use, biodiversity, and ecosystem services [EEA, 2022].

The results of the EEA analysis showed that increasing organic farming could have positive effects on some indicators, such as soil organic carbon, nitrogen surplus, water use, and biodiversity, but negative effects on others, such as food production, land use, and greenhouse gas emissions. The magnitude and direction of these effects varied depending on the level of organic farming and the assumptions made about the demand and supply of food, the trade of agricultural products, and the management of organic waste. The EEA also identified some knowledge gaps and uncertainties that need to be addressed to improve the robustness and relevance of the analysis.

The EEA case study illustrates the usefulness of the resource nexus approach for identifying the opportunities and challenges of increasing organic farming in the EU, and for informing policy decisions that support the European Green Deal. The resource nexus approach can also be applied to other topics and sectors, such as advanced biofuels, electric vehicles, circular economy, etc., to provide a holistic and systemic understanding of the sustainability issues and solutions.

Based on this assessments, we made the following scenario for food business models in agriculture.

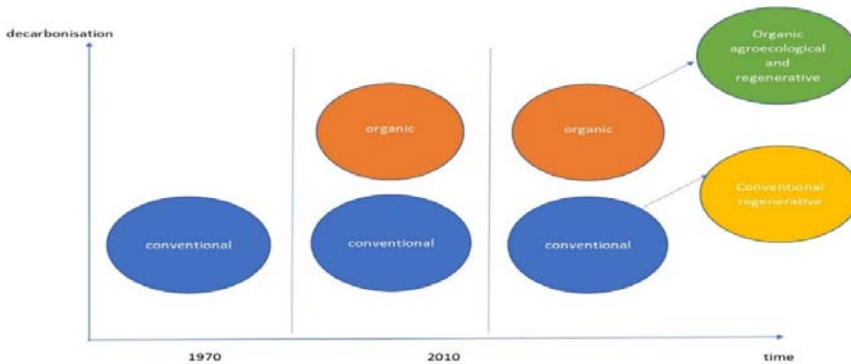


Figure nr. 3. **Scenario for food business models**

Source: authors interpretation

In this figure we consider that organic model in the next 20 year will co-exist with conventional one, but both will adopt new more practices based on agroecological principles.

Private standards of the Bio Danubius innovation hub based on indicators

Bio Danubius is a well-individualized cluster since its focus is organic product in wetlands along the Danube River. It was founded in February 2015, as a cluster of the Danube Delta region for those who believe in organic agriculture, bioeconomy and sustainability. It became a significant cluster of the Danube River wetlands region. By joining the cluster, member became aware and active to sustainable development on the principles of the agroecology. The Bio Danubius cluster aims to make the voice of organic producers heard through lobbying campaigns as well.

Since its formation, the leader of this cluster has been farmers cooperatives and associations backed as main facilitator by Spiru Haret University and its entrepreneurial center USH Pro Business, which had important results in the promotion of organic products. It also has a close relationship with local and central authorities. He is also among the members of Inter-Bio, the professional association of organic farmers nation-wide.

The Bio Danubius cluster was created at the initiative of the local associations and business environments from Tulcea county, but it has been extended gradually to other wetlands along Danube in Ialomita, Constanta, Calarasi and Dolj, thus becoming an emblematic cluster for the wetlands (Danube Delta and other humid areas along Danube). These wetlands are a refuge for birds, fish, insects, reptiles, plants of diverse types and is located in a region with rich cultural diversity. The Danube wetlands are threatened by harm-generating activities related to activities in conventional agriculture, industry, households, etc. The main problems were identified both in the field of sustainable environmental development and social development. The Danube is the main waterway, river and sea and the most important source of water in the county. The abundance of fluvial, deltaic, and coastal lakes is as many natural water resources, with fish importance, as a means of communication and as bases for leisure or water supply of the population. The Danube Delta and the wetlands are among the largest in the world - as a habitat for waterfowl, the largest area of compact reeds on Earth and a true museum of biodiversity.

The largest surface of arable land certified ecologically is in Tulcea County. The Danube Delta is ideal for organic farming, along with fish farming and tourism, representing non-polluting economic activities. Currently, in Tulcea County, about one hundred thousand tons of ecologically certified cereals and oil plants are produced annually, which are destined for export. The cluster was formed to address some regional threats like depopulation, poor infrastructure: lack of running water, sewerage, roads, irrigation systems, lack of young people willing / able to develop agriculture or aquaculture in a sustainable way, lack of job offers the possibility to start agricultural activities, too slow conversion of producers in organic agriculture and aquaculture, lack of support for smallholders, lack of financial support (training, etc.) to facilitate access to agriculture and development.

Bio Danubius cluster profile

The Bio Danubius cluster has emerged as unique platform for collaboration towards competitiveness in the Danube rivers region of Romania. The cluster aims to harmonize and represent the interests of enterprises, research, administration and catalyst entities economic and job creation, sustainable development, internationalization of members, professional development of managers and employees, administration of a common database, participation in national and European networks, increasing the innovation potential of enterprises in the sectors

like: organic farming and processing, eco-tourism, transportation logistics, environmental protection and conservation renewable energies, R&D and digitalization.

From the beginning Bio Danubius developed innovative, processed products and services and their marketing internationalization, marketing, networking promotion. In this way, based on promotion, it became a quality brand for organic producers based on an advanced certification system in organic. The cluster supported participation and / or initiation of projects for SMEs, research, administration, cluster, with funding from public and / or European funds and collaboration with other clusters in the country and abroad in order to achieve strategic partnerships, cross-border and transnational collaboration (EU Strategy for the Danube Region and other international programs) as well as participation in national and European networks where not neglected.

Among main objective of the cluster development of its own private, voluntary standard it became very important going hand in hand with other objectives like stimulating innovation, research, and competitiveness of cluster members, promoting organic agriculture and food, development of eco-bio products, services and technological processes, protecting the environment and biodiversity.

Engagement towards agro-ecological standards - flagship project of the cluster

Using the center's infrastructure, the cluster conducted research among its members related to business models. At the same time cluster has started joint research in the value chain sector, for the ecological plants in the Danube Delta and their use for health. Other research areas considered in the cluster are:

- ✓ Future value chains in the bioeconomy
- ✓ Traceability of organic products and food safety
- ✓ Development of real value chains
- ✓ Creation of interprofessional organizations for organic products
- ✓ Development of cluster distribution chains
- ✓ Links between bio value chains and other industries (tourism, IT&C, logistics)

Bio Danubius is concerned with creating and promoting the standard of organic farming and protecting the Biosphere of the Danube Delta and the surrounding area by addressing the following issues related to environmental sustainability reported by the cluster:

- ✓ *Eutrophication*: due to the excess of organic elements (mostly N + P compounds) in water and soil;
- ✓ *Emissions* to soil, water and air, many types of manure in addition to pesticides, chemicals etc.;
- ✓ *Contamination*: heavy metals, pesticides, other harmful substances, also waste of various types;
- ✓ *Erosion*: largely caused by human activities, such as upstream dams, widening and deepening of Delta canals for navigation, lack of land cover and inadequate crop rotation;
- ✓ *Waste*: different types and causes, insufficient waste management;
- ✓ *Water management*: insufficient management;
- ✓ *Loss of biodiversity*: extinction of local species, emergence, and multiplication; Invasive species (especially fish);
- ✓ *Global warming*.

Initial pathways for implementation of a private standard

During 2019-2022 a core group of farmers, consultants and researchers in the cluster started to work on options for a standard. Their main activities can be summarized as follows:

- ✓ Awareness building among certified organic farmers and processors in wetlands areas, about the necessity to measure the impact of their activities (crop management, energy consumption, waste management, etc.) on water, soil, and air, in order to detect weaknesses and to prevent or at least reduce the negative impact to acceptable limits.
- ✓ Awareness that performances should be defined in metrics resulting from a set of indicators.
- ✓ Awareness that authorized farmers and processors should report measures to promote the biodiversity and fertility of the soil, to protect local fauna and flora, in particular relevant local species and they should strive to develop new innovative cultivation methods, such as: agroforestry, simultaneous agricultural crops (intercrops), mixed crops, permaculture, testing of new varieties adapted to organic farming and others.
- ✓ Awareness building among other type of stakeholders such as farmers in conventional, fisheries and tourism and aquaculture branches, to develop synergies in optimizing good practice and to take appropriate measures to encourage rural development.

- ✓ Use of advanced technology and digitalization.
- ✓ Financial instruments identification.

For all of these, several exploratory awareness campaigns were organized such as workshops with local partners and international partners, financing the project through national programs, possible funding institutions. The idea of the standard was discussed with relevant stakeholders in Romania, Germany, and Switzerland. In several meetings, we received feedback from all stakeholders consulted and were able to integrate comments into the first draft standard. The standard was developed, formulating risks and requirements for wetlands. Possible indicators were further analysed, such as:

- ✓ Systems for measuring N and P emissions in soil and water;
- ✓ Irrigation management: good practices, opportunities and difficulties;
- ✓ Waste collection: good practices and difficulties;
- ✓ Carbon retention;
- ✓ Promoting biodiversity, measuring energy consumption, reducing emission;
- ✓ Seeds management;
- ✓ Social indicators.

At the local level, the cluster was involved in the debates and conferences on poverty and social exclusion in the Danube region, sustainable development of the region through organic agriculture and the opportunity to link it with development tourism consistently covered by the press. Preoccupations of the cluster to develop a competitive identity was launched in Biofach Nurnberg which captured the attention at national level and internationally.

The idea of organic operators (farmers and processors) to have a private standard, documented by a credible certification, started got momentum since the event in Murighiol in October 2022. It was clearly assessed at that meeting, that this process will have a positive influence on the active insertion of organic agriculture in efforts to maintain and develop wetlands areas, to improve the image of the organic sector in Romania, encourage exports and stimulating producers from other parts of the country (and even outside Romania). It was better perceived the positive role of organic farming in terms of issues such as climate change, global warming, deforestation, biodiversity loss, etc. It was more clear as well how previous efforts will contribute to the inclusion of organic farming in projects with relevant regional, national, and international stakeholders.

Important enabler factor at national level recognized

To support emulation towards a private label in the innovation hub Bio Danubius Cluster, ASRO - The National Standardization Body, IBA Bucharest - National Research and Development Institute for Food Bioresources, Spiru Haret University and Inter-Bio Association (where the university is a founding member together with farmers associations Bioterra Association and Bio Danubius) during 2019, developed a parallel project at national level, to ensure a national standard of organic and agroecological producers and processors. Farmers and researcher both members of innovation hub and outside of it, got together and developed, during 2 years of research *the Romania original standard based on good international practice*. Due to their effort highly appreciated, in collaboration with ASRO, the first national standard for agroecology addressed to organic farmers was developed and launched in May 2022. The standard *SR 13595* is now in place offering a good anchor to the farmers in the wetlands to get inspiration for a quality scheme. During 2022 and 2023, extensive awareness campaigns among farmers and researchers, contributed to a faster understanding of the new agroecological practices. The outcome of this process is the initialization of a voluntary scheme for the organic cereal's products.

The innovation hub Bio Danubius members organized events, sight visits and held presentations to all potential interested entities. Some farmers inside and outside the hub initiated audit procedures to identify the most suitable programmes available for their activity. Enablers in the area of certification (SRAC, TUV, RENAR) clearly accepted by the farmers as an important pathway to the scheme. Most important lesson is to take responsibility to choose a scheme owner among the core team of innovation hub and to explore options. Another important gain (already asserted in the innovation hub history before being involved in the European project) is that we do not have to stick to the Danube Delta farmers, but also farmers with a common "terroir" in the wetland along the Danube. Through TRANSECT project, the innovation hub legacy grew and is better perceived as a strategic player.

Conclusions

The idea of organic operators (farmers and processors) to have a private standard, documented by a credible certification got momentum, but the process may last. It is important to ensure a proper governance of the standard through scheme ownership. It was clearly assessed that this process will have a positive

influence on the active insertion of organic agriculture in efforts to maintain and develop wetlands areas, to improve the image of the organic sector in Romania, encourage exports and stimulating producers from other parts of the country (and even outside Romania). At the same time, in an “*organic plus*” perspective, the standard fits into organic-agroecology scenario predicted by us in section 3.

The national standard *SR 13595* is offering a good anchor to the farmers in the wetlands to get inspiration for an “*organic plus*” voluntary scheme. During 2023, extensive awareness campaigns among farmers and researchers, contributed to a faster understanding of the new agroecological practices took place to see the advantages of the concept “*organic plus*”.

It became also more clear that enablers in the area of accreditation and certification (accreditation body RENAR) are of strategic importance in the governance of the scheme. Based on the existing learning history of the cluster one main obstacle for the private standard is the revenue model. In spite of the fact that agroecology and organic farming have a strong positive impact on sustainability nature-inclusive agriculture can only be scaled up if it goes hand in hand with a viable model for generating revenue. The limited possibilities for individual farmers to achieve a viable revenue model can be overpast through co-creation and increased cohesion forces and market approach. Options should be developed inside the farmers communities for sharing costs and benefits These are:

- ✓ Carbon credit schemes which may help in reducing investment costs;
- ✓ Voluntary membership fee from the farmers and other stakeholder at a differentiating rate based not only in compliance to the standards requirements, but also on their position in the cluster value chain;
- ✓ Combined cost-revenue model both in a value chain and cluster approach can bring more light into the problem of financing;
- ✓ Possible outside investments for the scheme, either from the authority level or from interested private companies (buyers, certification bodies, consumers organizations).

Acknowledgment: This work was supported by the project *Trans-disciplinary approaches for systemic economic, ecological and climate change transitions - Agroecology-TRANSECT*, ID 101060816, where the authors are researchers.

References

- [1] Charry, A., Narjes, M., Gonzalez, C., Chege, C. & Tran, N. (2022). Integrating agroecological principles into rapid value chain analysis: An operational guideline. (December 2022)
- [2] EEA. (2022). Resource nexus and the European Green Deal. <https://www.eea.europa.eu/publications/resource-nexus-challenges-and-opportunities/resource-nexus-and-the-european/download.pdf.static>
- [3] FAO. (2018). The 10 elements of agroecology: guiding the transition to sustainable food and agricultural systems. <https://www.fao.org/3/i9037en/i9037en.pdf>
- [4] FAO. (2020). A summary to assess synergies and trade-offs among the twenty interconnected sustainable food and agriculture (SFA) actions. <https://www.fao.org/3/ca9923en/ca9923en.pdf>
- [5] FAO. (2023). Organic agriculture. <https://www.fao.org/organicag/oa-faq/oa-faq6/en/>
- [6] Gartenstein, D. (2019). The Difference Between a Business Model & a Value Chain Model (www.chron.com)
- [7] Gliessman, S. (2016). Transforming food systems with agroecology, *Agroecology and Sustainable Food Systems*, 40:3, 187-189, DOI: 10.1080/21683565.2015.1130765
- [8] HLPE. (2016). Sustainable agricultural development for food security and nutrition: what roles for livestock? A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. <https://www.fao.org/3/i5795e/i5795e.pdf>
- [9] HLPE. (2019). Agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. <https://www.fao.org/3/ca5602en/ca5602en.pdf>
- [10] Jonasz, G. & Varga, K. (2022). Organic living labs & lighthouse farms in Europe. TP Organics, Brussels
- [11] Nicholls, C., Altieri, M.A. & Vazquez, L. (2016). Agroecology: principles for the conversion and redesign of farming systems. *Journal of Ecosystem & Ecography*, S5: 010
- [12] UNCTAD. (2020). Framework for the Voluntary Sustainability Standards (VSS) Assessment Toolkit

VALUE CHAIN AND RISK MANAGEMENT IN THE 4IR: ANALYSIS FROM THE AGRO-ALLIED SECTOR

Francis Ezieshi MONYEI¹, Wilfred Isioma UKPERE²

¹*Department of Industrial Psychology and People Management, School of Management, College of Business and Economics, University of Johannesburg, South Africa*

Phone: +27-833453201; Email: fmonyeyi@uj.ac.za

²*Department of Industrial Psychology and People Management, School of Management, College of Business and Economics, University of Johannesburg, South Africa*

Phone: +27-735295587; Email: wiukpere@uj.ac.za

How to cite: Monyei, F. E., & Ukpere W.I. (2024). "Value Chain and Risk Management in the 4IR: Analysis from the Agro-Allied Sector". *Annals of Spiru Haret University. Economic Series*, 24(1), 234-258, doi: <https://doi.org/10.26458/24114>

Abstract

Scholars and professionals have recently called for the need to look at how value chains affect risk management in the agro-allied industry. Therefore, in response to this call for empiricism, the present study is conducted. In achieving this, the descriptive survey method was applied, inculcating Five (5) randomly selected Agro-allied firms in Enugu State, Nigeria as its study respondents. They include - Enugu San Carlos Farms Limited; Link-Chris Global & Agro Resource Nigeria Limited; Veggie-fresh Farms Enterprise; San Savannah Oil Limited; and Tropical Veterinary Consult Limited. The criteria in selecting the firms were on the basis which included their economic contributions to the state, number of years in service delivery, and product/produce viability. These criteria permit a valid generalization of the research findings. The Regression statistical tools of the statistical package for social sciences used in testing the hypotheses yielded the following results: $r = 0.767$; $F = 62.720$; $t = 7.920$; $p = 0.05$. These show that the agro-allied enterprises under study had more effective and substantial risk management as

a result of the value chain network that was put in place. Thus the conclusion emphasizes that the value chain promotes and supports the risk management of agro-allied businesses as well as the region in which they operate economically.

Keywords: *Agriculture, Agro-allied, Nigeria, Risk management, Value chain.*

JEL Classification: P42; O1; D6

1. Introduction

In recognition of the wave of globalisation, the expansion of worldwide marketplaces, and the sharp increase in income levels of nations, many producers in developing countries now have the opportunity to engage in the burgeoning national and international agricultural market. Farmers must assume greater responsibility for their production, trade, and distribution to ensure the higher quality and added value of their agricultural products as well as to manage their enterprises profitably. The legal frameworks and strict safety and quality requirements that apply to these markets also need to be adjusted by these businesses. Dolan and Humphrey in 2004. A product's design, manufacture, marketing, distribution, and support are all sequential processes that are carried out (Kangiesser, 2008). Michael Porter coined the term "value chain" in 1985. In addition to adding value, a supply chain consists of a sequence of commercialization and processing stages that move goods from production to consumption. In agriculture, the terms "value chain" and "flow" refer to the sequence of events and processes that start with the purchase of inputs and end with their processing, marketing, and consumption. Value chains are defined and restricted globally by the decline in trade barriers brought about by the removal of export subsidies, price assistance, and tariffs during the past ten years. However, modern information technology and decreased transportation costs have made it easier for chain actors to coordinate (Gibbon, Bair, & Ponte, 2008). This is achieved through process standardisation, advanced information and communication technology, and vertical integration in addition to other means. Value chain systems were frequently acknowledged as a revolutionary phase, signifying an ideal flow of industrial processes, according to Onwualu (2012). Throughout corporate history, there have been several adjustments, shocks, and

changes that have impacted industrial and economic ties and contributed to better risk management. The digital and data management aspects of corporate operations are currently being driven by the fourth industrial revolution (4IR). The global environment is being impacted by these shifts, especially in the creative pursuit of seamless creation (Hay-Gibson, 2008). The driving drivers behind this revolution were production technologies that were essentially distinct from those that preceded them. Thus, the advancement of industrial and operational technology is what necessitates the 4IR. Hence, two of the 4IR's most distinctive characteristics may be the combination of data and the digitization of activities, structures, and systems (Daemmrch, 2017). Peasant farmers seek out new ways to collaborate to fortify their bargaining position farther down the value chain, as evidenced by the numerous studies that have been included in the body of current research (Rondot & Collion 2001). For the great majority of Nigerian agro-producers, however, overcoming these value chains and making improvements remains a key obstacle to competing in these new markets. Rather than raising productivity, the majority of agricultural expansion, particularly in Nigeria, is linked to an increase in the area under exploitation. In 2015, it was estimated that if present trends persisted, Nigeria's food supply would be insufficient to feed more than half of its population. But despite that prediction, there has been a reversal in the interest in agricultural technologies due to the rising cost of food grains and the escalating global trend of inflation. The African Development Bank (2013) asserts that to meet the "2015" projection, money and subsidies for agriculture must be made accessible.

The distribution of costs and profits among chain players is influenced by asymmetric network and power interactions, which discourages value-adding activities in Nigerian agro-producers' attempts to join global value chains. Value chains are seen to be a means of introducing new technology, labour practices, organisational networks, and modes of production as well as logistics. The automobile industry serves as a prime example, as global production and distribution networks are becoming increasingly intricate, and certain suppliers from developing nations are achieving unprecedented levels of success in their R&D and advanced manufacturing processes (Ivarsson & Alvstam 2005). Developing country agro-producers are increasingly using these technological systems to participate in these value chains and the newly emerging modern domestic markets. This example demonstrates how these systems have guided and controlled processes and flows of goods and information to a whole new level. In the food industry, supermarkets have also started implementing Total Quality

Management systems for perishable goods including fresh fish, meat, and vegetables in several Latin American and Asian nations. Nigeria's agricultural producers encounter several risks and problems, such as inadequate institutional and infrastructure support, resource scarcity, and inefficient coordination of value chain operations. Especially the small-scale manufacturers who are disadvantaged because of their lack of funding, employment of antiquated methods, reliance on low-skilled personnel, and lack of connections to players in the international market. For this reason, De Janvry and Sadoulet (2005), and Daviron and Gibbon (2002) aver that coordinating value chain operations will be part of its integrated strategy to lessen the risks and challenges faced by agricultural producers. Aside from standard economic risks like changes in demand and pricing, agriculture appears to be more vulnerable to a variety of risks (Sulewski & Kłoczko-Gajewska, 2014; Reardon & Barret, 2000). Risk management has its roots in ancient Mesopotamia, according to Krinsky and Plough (1988). Additionally, risk management derives from a more precise and linear postulation derived from the linguistics of the term "risk," which originated from "decision theory" in its early stages and is mathematically defined as chance and probability (Arrow, 1965; Bannister & Bawcutt, 1981; Althaus, 2005, as cited by Hay-Gibson, 2008). Agricultural and livestock diseases, weather patterns, and other risk factors specific to their industry must be managed by farmers. Effective risk management requires coordination between the state, markets, and farms—three separate stages of action. To address price risks, the market offers a range of insurance and strategies (such as futures and options), and to help manage catastrophic risks, the government frequently sets up institutional frameworks with supporting instruments (OECD, 2011). Nevertheless, effective risk management in agriculture depends on the actions of farmers. It specifically alludes to the risk variables referred to as "normal risk" factors. Risk aversion and perception are two behavioural characteristics that are crucial for effective risk management in this discipline. Therefore, from the perspective of policymakers as well as the farm risk value chains, research on farmers' risk perception and aversion is extremely important. In the past agriculture was said to be the major source of Nigerian's wealth, foreign exchange earnings and an agent of economic prosperity. Consequently, this is evidenced in the rapid development it brought about in the 1960s and 1970s when the sector witnessed an unprecedented boom in the cultivation and sale of some of its yields. In the then Western region of Nigeria was Cocoa, the pyramid of Groundnut in the North and Coal/Palm produce in the

Eastern region. All of these made the agricultural sector serve as the most employer of labour. Today; however unfortunate, the agricultural sector in Nigeria is bisected by a myriad of issues ranging from poor agricultural financing to declining agro-produce, poor governmental subsidies and funding, inconsistent value/supply chains, improper/ deficient risk management strategies, un-mechanized farming implements, an un-due rate of importation of agro-produce due to its neglect and shift to crude oil (resources) rendering it unattractive, and have also resulted in demotivating farmers and a lack of farming practices. To some extent, these and some other factors have resulted in the sector's somewhat morbidity and in-viability. A look at the industry/sectorial scope reveals that agriculture accounts for over 50% of foreign exchange earnings in Nigeria, during the pre-colonial and shortly after the independence era, and the geography is consequent upon the fact that Nigeria's landscape and soil fertility are unmatched for agricultural farming/practices, Onwualu, (2012). The Nigeria Agendum is an integrated approach to the agricultural value chain and its risk management, and this study intends to investigate it in light of the aforementioned aspects. This work examines the relationship between risk management and value chains in agro-allied firms. Given the current industrial unrest, the calls for empiricism, and the dearth of academic publications on the construct variables, industry, and study area, it has gained more significance. The work includes an empirical foundation and theoretical framework. As such, for these agro-allied firms to return to their flourishing era, a proper retooling of their value chain and risk management must be re-engineered. Otherwise, the looming of its utmost floundering.

1.2 Research objective

The objective of this study is to:

- To investigate the value chain and risk management of Agro-allied firms in Enugu State, Nigeria.

2. Theoretical Foundation

The theory of supply chain management serve as the central tenets that is used to underpin this investigation. As the study's theoretical underpinning, the theory offers the study's dynamic foundation.

2.1 Theory of Supply Chain Management

Value chains and risk management have been the subject of deep and wide theoretical postulations, which are mirrored in a variety of definitions and

analytical techniques (Lazzarini, 2008). Supply chain management theory is one area of study that looks at value chain activity risk management. The 1980s saw the emergence of supply chain management theory in the field of logistics, with a focus on supply chain inventory planning and optimisation. According to Trienekens (2011), the supply chain management philosophy prioritises the demands of the client and is consumer-centric. It attempts to integrate business goals and balance supply and demand at every stage of the supply chain, from the first manufacturer to the final client or customer. With inspiration from systems theory, Michael Porter (1985) popularised the terms "value chain" and "commodity chain" in the 1970s and 1980s (Raikes, Friis & Ponte, 2000). These concepts represented the value-adding aspects of business processes that took place inside the boundaries of the organisation. The primary activities at the centre of value chain and supply chain approaches are the transformation and transaction processes that occur both within and across vertically related firms. The notion of supply chain management is advantageous for developing countries as it facilitates the improvement of processes and quality, along with the optimisation of distribution processes. To increase the quality of the red meat supply chain connecting Argentina and the United Kingdom, Francis and Simons (2008) looked into how the food industry was implementing integrated quality management systems. This study illustrates the usefulness of supply chain management theory about value chain and risk management in the agricultural sector (Trienekens, 2011; Ruben, Boekel, Tilburg & Trienekens, 2007).

2.2 Conceptual Understanding of Value Chain

The Food and Agricultural Organisation (2011) states that value chains are made up of individuals connected by a common activity that produces a particular good. These supply chains contain the inputs needed to create and deliver a good to a customer. The people who participate in a value chain set the rules for how people can work together, produce goods, and move them. They are also driven by consumer demand and operate within the confines of local and federal laws as well as customs. Value chains are defined by Kaplinsky and Morris (2001) as the entire set of procedures needed to bring an idea or product through all phases of production, including delivery to customers, disposal at the end of its useful life, and physical transformation and the input of various producer services. Value chain analysis is ideally adapted to comprehending how impoverished individuals in rural developing nations might participate in, or enhance their terms of participation in,

local, regional, or global trade. The value chain analysis methodology, according to Mitchell, Keane, and Coles (2009), has several advantages. Some of these are the ability to ascertain how the rules of the game set by more powerful firms in the value chain are affected by the limited financial resources of beneficiaries; the fact that its main focus is on the market guarantees commercial sustainability and economic viability; it is a useful diagnostic tool that can pinpoint crucial problems and obstacles for specific target groups; and it provides a framework for interventions meant to improve the lives of the financially disadvantaged. Value chain (VC): The sequence of events that transform resources and raw materials into products that may be sold. Value is added to agricultural products in agro-allied value chains (AVCs), which are value-added supply chains that travel through several phases from field production to final consumption. Services providers, the public sector, or the private sector may be the actors in the AVCs. There are several instances, including production, handling, packing, keeping, transporting, and distribution. For every link in a chain, there exist one or more backward and forward linkages. Distinctive production, risk management, information demands, interconnected farmers, and integrated systems form the foundation of the AVC. The African Development Bank (2013) states that there are five primary elements to take into account when conducting a value chain analysis. These components include the parties who directly supply the raw materials, carry out the production, and distribute the finished good; the connections and mutually reinforcing services that these parties have; the marketplaces; the general, specialised, and financial services that originate from sources outside the chain of production and distribution; and the supportive legal framework, such as trade and tax regulations.

2.3 Sustainable Agricultural Development Is Enhanced by Value Chain

A system of integrated plant and animal production techniques with site-specific applications is referred to as sustainable agriculture. Over time, this system produces the following benefits:

- i. Meeting dietary and fibre needs for humans.
- ii. Enhancing the condition of the natural resources and the environment to better support the agriculture industry.
- iii. When necessary, incorporating natural biological cycles and controls and making the best use of farm resources and non-renewable resources.
- iv. Preserving the financial viability of farming businesses.
- v. Raising society's and farmers' standards of living.

Achieving agricultural sustainability is critical for Africa and other developing regions, as stated in the 2012 Millennium Development Goals. Agriculture is the foundation of these regions' economies and is required to meet one of the MDGs, which is to cut the proportion of the population suffering from extreme poverty and hunger in half by the year 2015. As per the World Bank (2008), the majority of disadvantaged citizens in developing nations live in rural areas, with three out of every four of them depending on agriculture as a means of subsistence. 65% of the labour force is employed in agriculture, which accounts for 32% of Africa's GDP. These millions of small farmers manage their companies under challenging and restrictive conditions; they are customers, traders, investors, and entrepreneurs all rolled into one. Therefore, the transformation and commercialization of agriculture as well as the improvement of the sustainability of farmers' income sources are facilitated by the use of appropriate financial mechanisms to ensure the best profitable investment decisions. According to the African Development Bank (2013), value chain finance thus promotes the growing commercialization and transformation of agriculture, which is the foundation of its sustainability.

2.4 Structure for Creating Value Chains

Value chains are seen under our concept as production networks or systems where business participants operate within an institutional setting and take advantage of competitive resources. To put it another way, a "value chain" is a collection of companies that work together to deliver goods or services to a market and are connected both vertically and horizontally. Using the network structure, value addition patterns, and governance form of the work of Ruben, van Boekel, van Tilburg, and Trienekens (2007) as a guide, we created a value chain:

- Network set-up: With the use of supply chain management and network theory, the value chain's network configuration—which comprises the local, regional, or global market outlet—is established. Establishing vertical ties between economic players to jointly produce items for a market is the aim of supply chain management.
- Value addition pattern: Value chain analysis, supply chain management, and the new institutional economics theory can also yield value addition patterns. The main goal of supply chain management is to add value at every link in the network. Value addition can be defined by factors like delivery time, cost, etc. Transaction costs are the main emphasis of new institutional economics, and more especially of transaction cost economics. Value chain theory tackles crucial conversations about value addition points along the chain.

- Governance form: The governance, bargaining power, and related benefit distribution of value chain participants are finally derived from network theory, value chain theory, and new institutional economics. In New Institutional Economics, the optimal structure of governance among economic participants is investigated. Formal and informal rules governing horizontal and vertical linkages are the main focus of network theory.

The functioning and performance of value chains can be disrupted by shifts in the institutional framework, competitive landscape, supporting infrastructures, and available resources. This may result in restrictions on the value chains' ability to develop. The African Development Bank, on the other hand, states that value chain players must be motivated to solidify their place within the chain (2013). This can be done by entering a new market channel, increasing added value (by improving delivery and quality standards or reducing costs), or reorganising the partnership with value chain participants. Public-private partnerships, development groups, and governmental and non-governmental agencies are examples of non-value chain participants who might support such re-engineered/upgrading processes.

2.5 Financial Infrastructure for Agricultural Value Chain

Similar to all forms of funding, AVCF necessitates an effective financial framework to support the operations of the financing organisations. Generally speaking, the financial infrastructure offers the following services:

- Systems for clearing and payments that boost productivity and lower transaction costs. Secure, quick, and efficient wholesale payment systems are being implemented in several nations, and in a few of them, mobile banking has also been made possible by the use of IT platforms.
- Information infrastructure, which includes creditor information, private credit bureaus, rating agencies, public credit registries, voter registration, national ID databases, and vehicle collateral and asset registries; auditors who improve risk mitigation by increasing transparency on institutional performance and transactions;
- Services such as research firms, universities, training and technical assistance providers, consultants, and capacity building and education that support technical innovation and improve financial innovation (African Development Bank, 2013).

2.6 Models and Drivers of Agricultural Value Chain Financing

Agricultural value chain financing (AVCF) has many participants, but understanding the business strategy in depth is necessary to maximise value chain

financing (VCF) and recognise its benefits. A business model outlines how a company creates and profits from value within a network of suppliers, consumers, and producers. It is often referred to as "what a corporation does and how it obtains money from doing it." In terms of inclusivity, equity, durability, and financial sustainability, models that strengthen the trading relationships between small farmers and downstream agribusiness (processors, exporters, and retailers) are especially crucial when it comes to AVCF, according to the African Development Bank (2013). Managing costs related to small-scale producer dispersion, scale diseconomies, information asymmetry, technology asymmetry, finance, irregular volume and quality, lack of traceability, and risk management are all necessary to expand inclusive agricultural business models. Coordination and cooperation are two of VCs' key traits, and they are crucial for overcoming these costs and risks. The cooperative element emphasises social and developmental objectives as well as fair value allocation along the value chain. The African Development Bank (2013) states that the coordinating aspect is a notion that gives chain actors entrepreneurial ability priority when executing a competitive economic activity. It places a strong emphasis on resource allocation efficiency without always taking distributional concerns into account.

2.7 Risk Management

According to Hay-Gibson (2008), the word "risk" is frequently used interchangeably with "danger" or "hazards." More correctly, it expresses the likelihood of an event occurring as well as the risk of it happening, typically with a negative connotation, particularly when discussing topics like finance. According to Hardaker (2000), risk is the opposite of stability and is defined as the likelihood of an unfavourable result as well as the variability of outcomes. (Nguyen, Coventry, Russell, Cameron, Wegener, & Cooper, 2008) Risk is an interdisciplinary topic that is present in both records management and the construction sector. Additionally, seen as the likelihood of an event occurring and a gauge of its potential negative effects. The process of evaluating, communicating, and taking appropriate action in response to risk, either on its own or within the parameters of a particular discipline, is known as risk management. Risk management has traditionally been associated with the use of market insurance to protect individuals and organisations against a variety of losses brought on by accidents (Harrington & Niehaus, 2003).

2.8 Farmers' Risk Perception and Risk Aversion

Effective risk management strategies are said to need a certain level of risk perception, as a farmer who lacks awareness of the hazards he faces will be unable to control them. To determine which risk factors are most significant, some authors have examined how most farmers perceive risk. Farmers consider a wide range of risk factors to be important, including drought (Greiner, Patterson, & Miller, 2008); pests; animal disease; hazards to human health and safety (McDonald, 1995); yield risk and price risk for agricultural products (Palinkas & Székely, 2008); institutional risk associated with farm support (Flaten, Lien, Koesling, Valle, & Ebbesvik, 2005), and many more. In addition to other variables, Palinkas and Székely (2008) mention the weather and natural disasters. Finding the factors influencing variations in risk perception intensities was the main goal of various risk perception authors (Borges & Machado, 2012). They concluded that the socioeconomic traits of the farmers and the elements of their farms are what generate these differences. It is important to highlight that farmers from different nations experience varying climatic and institutional conditions. As a result, there may be variations in the likelihood of specific risk factors, as well as variations in the mindset and awareness of farmers, or a combination of these factors, which can explain differences in how they perceive risk. Although risk aversion is a challenging concept to operationalize, numerous academics have tried to gauge its degree. To ascertain risk aversion, experiments and procedures involving hypothetical alternatives are typically employed. According to Sulewski and Kłoczko-Gajewska (2014), this method was employed by earlier researchers in the field to identify particular risk management techniques. The second method is based on the idea that risk aversion is a latent characteristic that can only be detected indirectly, as by looking at farmers' investing activity. Binswanger (1982) noted that hypothetical alternatives and tests conducted in a lab setting can produce results that differ from those obtained in real-world scenarios, making their conclusions potentially deceptive. Different kinds of opinion surveys are the most widely used substitute for trials, according to Sulewski and Kłoczko-Gajewska (2014).

2.9 Measures to Enhance Sustainable Agricultural Development

African initiatives aimed at enhancing AVCs must address these issues as well. Priorities in this regard would be as follows:

Boost Agricultural production: With the right extension service, agricultural production can be raised by using better techniques and inputs, such as better fertilisers, seeds, harvesters, tractors, irrigation systems, and ploughs. This will facilitate the transmission of laboratory technology to the field. The producer will be able to increase farm productivity with the aid of field-based demonstrations of the newest production techniques and easier access to expert contact.

Enhance Infrastructure Development: As per Sulewski and Kłoczko-Gajewska (2014), India has lagged behind other countries in terms of the infrastructure needed for agricultural development. Although there has been substantial progress in India's rural road network, the areas of electricity, marketing, storage, and agro-processing still require attention. As per the African Development Bank (2009), transportation costs are among the highest globally, accounting for as much as 77% of export value, and the average farmer in Africa is five hours distant from a market. This makes it especially important. Since the existence of infrastructure like consistent energy, market, storage/warehousing, and agro-processing implements all incentivize investments and develop good value chains, Africa may concentrate on these essential economic levers early on. In actuality, these physical infrastructures would be significant sources of competitiveness in agricultural value chains if they were made affordable. Kahan and Warner (2008). In addition to increasing the productivity of physical resources, rural infrastructure—which includes transportation, energy, storage facilities, and agricultural research and extension—also plays a crucial role in value addition and supply chain management of the agricultural industry. While it is obvious that the national and local governments should continue to focus on this, financial institutions might also play a big role in building the necessary infrastructure to enable the expansion of agriculture.

Information Technology to Close the Information Gap: Information at different VC levels must be made easier with the assistance of information technology. For instance, this might refer to calls or texts made to mobile phones to access financial services, weather forecasts and information, and crop pricing.

2.10 Critique and Empirical Insight of Reviewed Literature

Sulewski and Kłoczko-Gajewska (2014) conducted an empirical study in Poland to look at farmers' coping strategies, risk aversion, and perceptions of risk related to production. A stratified random selection procedure was used to choose the 600 farms that are part of the Polish Farm Accountancy Data Network (FADN) systems. The Nayman technique was used to identify the number of farms in each tier that were examined. The data were analysed using correlations, regression analysis, and descriptive statistics at the 0.05 significance level. A significant relationship has been observed between insufficient overwintering and spring frosts. While taking into consideration the effects of production fragmentation and farmers' degree of participation in different stages of Global Value Chains (GVCs), Montalbano, Nenci, and Salvatici (2015) looked at the existent interplay concerning food and trade security. The data were empirically analysed using detailed microdata and a synopsis of prior GVC case studies. The research consistently found a positive relationship between commerce and food security. Moreover, farmers' involvement in the varying periods of the value chain and the impact of production fragmentation are significant factors.

The existing literature does not provide an integrated method to address concerns like how much institutional voids affect risk avoidance or how much physical infrastructure affects risk reduction, among other issues. A framework comprising essential components for a combined analysis of value chains and risk management is also absent. This study fills this vacuum in the literature by proposing a paradigm for future research on the value chain of Nigerian agro-allied enterprises. In keeping with this, suggestions for enhancing these chains and management will be raised.

3. Methodology

The methodology used in the inquiry was a descriptive survey. A total of five companies that satisfied the criteria for this study were selected from the Agro and Allied Firms (AAF) in Enugu State, South-East Nigeria. The criteria basis includes their economic contributions to society, number of years in service delivery, and product/produce viability. These criteria permit a valid generalization of the research findings. The 5 AAFs - Enugu San Carlos Farms Limited; Link-Chris Global & Agro Resource Nigeria Limited; Veggie-fresh Farms Enterprise; San Savannah Oil Limited; and Tropical Veterinary Consult Limited were chosen at

random. 3126 employees overall, drawn from the five AAIs, were selected to participate in the study. By applying Bill Godden's formula, a sample size of 359 workers was selected. Owing to the limited sample size, respondents from each of the firms were chosen using stratified proportional sampling and Bowley's proportional allocation system. A five-point Likert scale was used in the questionnaire's design, and it was delivered in person to the respondents. Regression analysis is a statistical method used to assess the study's assumptions. It synthesises data from the ordinal scale and shows how latent and observable variables are related. The computed P-value at a 5% significance level and with the proper degree of freedom must be greater than the table value for the null hypothesis to be rejected as a criterion of decision. Otherwise, it is to be accepted.

3.1. Using Cronbach Alpha to Assess Research Validity and Reliability

Academics and AAF executives used the content and face technique to determine the validity of the questionnaire. This was carried out to guarantee the accuracy of the instrument and its ability to successfully address the study's hypotheses. To guarantee the instrument's consistency and dependability, a test-retest strategy was employed, which entails distributing the questionnaire twice in two weeks. Because of this, the length of the gap between administration and retrieval was considered, as well as the fact that the correlation increased with interval length. The survey items were consistent, as seen by the 0.83 Cronbach alpha reliability result.

4. Results

As shown in Table 1, a total of 359 questionnaires were issued. A total of 125 surveys were submitted to various organisations. Of these, 125 were given to Link-Chris Global & Agro Resource Nigeria Limited (10 administrative staff and 115 low-cadre staff); 46 of these were returned; 54 were given to Enugu San Carlos Farms Limited (7 administrative staff and 47 low-cadre staff); 54 were given to Tropical Veterinary Consult Limited (5 administrative staff and 24 low-cadre staff); 23 of these were returned. Veggie-fresh Farms Enterprise received 103 of the returned 393 and the remaining 6 administrative staff and 97 low-cadre staff. 29 of the 48 items—7 administrative workers and 41 low-cadre staff—were returned to San Savannah Oil Limited.

Table 1. The Survey's Distribution and Collection

	Distributed No.		Returned No.		No. Not Returned	
<i>Agro-Allied Firms</i>	<i>Adm. staff</i>	<i>Low-cadre staff</i>	<i>Adm. staff</i>	<i>Low-cadre staff</i>	<i>Adm. staff</i>	<i>Low-cadre staff</i>
<i>Link-Chris Global & Agro Resource Nigeria Limited</i>	10	115	8	92	2	23
<i>San Savannah Oil Limited</i>	7	41	6	39	1	2
<i>Enugu San Carlos Farms Limited</i>	7	47	4	42	3	5
<i>Tropical Veterinary Consult Limited</i>	5	24	3	20	2	4
<i>Veggie-fresh Farms Enterprise</i>	6	97	5	88	1	9
Total	35	324	26	281	9	43
Grand Total	359		307		52	

Source: Field Survey, 2024.

4.1. The Research Objective's Descriptive Statistics

To ascertain the impact of the value chain on the risk management of AAF.

Table 2 demonstrates that 8 (3%), and 25 (8%) people disagree with the proposition, respectively. 104 (34%) and 137 (45%) of the respondents, respectively, strongly agreed or agreed that agro-insurance plans do not guarantee a long-term farming practice. Thirty-three individuals, or eleven per cent, expressed uncertainty.

Among the 307 participants, Table 3 indicates that 53 (17%) and 7 (32%) concurred that the overall economic system impacts the supply and demand of commodities. In contrast, 34 (11%) expressed uncertainty, 77 (25%) disagreed, and 46 (15%) extremely disagreed.

Of the 307 respondents, Table 4 shows that 104 (34%) and 137 (45%) agreed that agricultural government policies affect sales profitability, while 33 (11%) disagreed, 8 (3%) disagreed, and 25 (8%) severely disagreed.

Table 5 demonstrates that 117 (38%) and 129 (42%) of the 307 respondents agreed that training and orientation programmes centred on farms do not enhance the abilities of farmers. However, a total of 15 people (5%), 22 people (7%) severely disagreed, and 24 people (8%) disagreed.

Among the 307 participants, Table 6 indicates that 130 (42%) and 139 (45%) concurred that crop cultivation and storage facilities are affected by climate change. In contrast, 7 (2%), 9 (3%), and 22 (7%) expressed uncertainty, disagreement, or strong disagreement, respectively.

Table 2. Agro-insurance policies do not guarantee a long-term farming practice.

	Link- Chris	Low- cadre Team	San Savannah Adm. Team	Low- cadre Team	Enugu San Adm. Team	Low- cadre Team	Tropical Veterinary Adm. Team	Low- cadre Team	Veggie- fresh Adm. Team	Low- cadre Team	Total	(%)
SA	4	20	4	11	2	10	2	5	2	44	104	33.8
A	2	32	2	28	2	22		13	2	34	137	44.6
U	1	20				5	1	1		5	33	10.7
SD		8									8	2.6
D	1	12				5		1	1	5	25	8.1
Total	8	92	6	39	4	42	3	20	5	88	307	100

Source: Field Survey, 2024.

Table 3. The general economic system affects the demand and supply of commodities

	Link- Chris	San Savannah		Enugu San		Tropical Veterinary		Veggie- fresh				
	Adm. Team	Low- cadre Team	Adm. Team	Low- cadre Team	Adm. Team	Low- cadre Team	Adm. Team	Low- cadre Team	Adm. Team	Low- cadre Team	Total	(%)
SA		12	5	7	2	10	1	5	1	10	53	17.3
A	5	20		15	1	12	1	10	3	30	7	31.6
U		10		10		2		2		10	34	11.1
SD	3	30	1	2	1	8		3	1	28	77	25.1
D		20		5		10	1			10	46	14.9
Total	8	92	6	39	4	42	3	20	5	88	307	100

Source: Field Survey, 2024.

Table 4. Government policies on agriculture affect profitability on the sale of commodities/goods

	Link- Chris	San Savannah		Enugu San		Tropical Veterinary		Veggie- fresh				
	Adm. Team	Low- cadre Team	Adm. Team	Low- cadre Team	Adm. Team	Low- cadre Team	Adm. Team	Low- cadre Team	Adm. Team	Low- cadre Team	Total	(%)
SA	3	20	2	18	1	5	2	14	1	36	104	33.8
A	4	40	4	21		5	1	6	30	32	137	44.6
U	1	12			1					10	33	10.7
SD		5			2	22				3	8	2.6
D		15				10			1	7	25	8.1
Total	8	92	6	39	4	42	3	20	5	88	307	100

Source: Field Survey, 2024.

Table 5. Farm-based training and orientation programmes do not improve farmers' skills

	Link- Chris	San Savannah		Enugu San		Tropical Veterinary		Veggie- fresh					
	Adm. Team	Low- cadre Team	Adm. Team	Low- cadre Team	Adm. Team	Low- cadre Team	Adm. Team	Low- cadre Team	Adm. Team	Low- cadre Team	Total	(%)	
SA		2	42	1	10	2	12	1	8	1	38	117	38.1
A		5	30	3	19	2	22	2	12	4	30	129	42.0
U			5	1			4				5	15	4.9
SD			5		3		2				12	22	7.2
D	1		10	1	7		2				3	24	7.8
Total	8	92	6	39	4	42	3	20	5	88	307	100	

Source: Field Survey, 2024.

Table 6. Climate change affects crop farming and warehousing facilities

	Link- Chris	San Savannah		Enugu San		Tropical Veterinary		Veggie- fresh				
	Adm. Team	Low- cadre Team	Adm. Team	Low- cadre Team	Adm. Team	Low- cadre Team	Adm. Team	Low- cadre Team	Adm. Team	Low- cadre Team	Total	(%)
SA	6	42	2	19	3	22	1	15	2	18	130	42.3
A	1	30	3	15	1	20	2	4	3	60	139	45.3
U		5								2	7	2.3
SD	1	8									9	2.9
D		7	1	5				1		8	22	7.2
Total	8	92	6	39	4	42	3	20	5	88	307	100

Source:: Field Survey, 2024.

4.2. Testing the Hypotheses

H_0 : Value chain does not significantly affect risk management of Agro-allied firms.

H_1 : Value chain significantly affects risk management of Agro-allied firms.

The tested hypotheses are shown in the following Tables 7–9.

Table 7. Model Summary^b.

	R	R Square	Adjusted R Square	Std. The error in the Estimate	Durbin-Watson
1	0.767^a	0.588	0.578	0.32795	0.241

a. Predictors: (Constant), value chain

b. Dependent Variable: risk management

Table 8. Coefficients^a

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	<i>(Constant)</i>	3.662	.119		30.813	.000
	Value chain	.254	.032	.767	7.920	.000

Table 9. Coefficients^a.

		95.0% Confidence Interval for B	
		Lower Bound	Upper Bound
1	<i>(Constant)</i>	3.422	3.901
	Value chain	.189	.318

a. Dependent Variable: risk management

$$R = 0.767$$

$$R^2 = 0.588$$

$$F = 62.720$$

$$T = 7.920$$

$$DW = 0.241$$

$$\text{Regression sum of squares} = 6.746$$

$$\text{Residual sum of squares} = 4.732$$

$$\text{Std. Error of the Estimate} = 0.32795$$

4.3. Interpretation

The regression sum of squares (6.746) differs from the residual sum of squares (4.732), indicating that a larger proportion of the variance of the dependent variable remains unexplained. R shows the degree of correlation between the independent variable, value chain, and the dependent variable, risk management. The F statistics, which display a significant value of (0.000), which is less than 0.05, demonstrate that the explained variance is not random. The agricultural value chain and increased risk management are strongly correlated, as indicated by the correlation coefficient, which is 0.767. 58.8% of the variance in risk management may be explained by the R square, also known as the coefficient of determination. This illustrates the close relationship between value chain systems and risk management. The low estimate of the anticipated error in the linear regression is about 0.33. The autocorrelation was computed using Durbin-Watson statistics, and the result was 0.24, which is not more than 2. Indicating a statistically significant and overall positive correlation between risk management and the agricultural value chain ($t = 7.920$; value chain = 0.588). Thus, it is necessary to invalidate the

null hypothesis to accept the alternate hypothesis. This confirms that efficient risk management has a significant and positive influence on the development of effective value chain networks.

5. Discussion of Results

The study's objective, to find out how value chains affect agro-allied enterprises' risk management, is taken into consideration when drawing the result. Regression analysis was performed to validate the hypothesis. The results ($r = 0.767$; $F = 62.720$; $t = 7.920$; $p = 0.05$) show that the value chain of the study impacts positively on agro-allied firms' risk management. The outcome is also supported by extensive empirical research. For example, Sulewski and Kłoczko-Gajewska's (2014) study looked at Polish farmers' risk perception, risk aversion, and risk management techniques. They claimed that there is a significant and strong correlation between risk perceptions and measurements like spring frost and poor wintering. Additionally, in the study conducted by Montalbano et al. (2015), they suggested potential lines of inquiry for figuring out how trade and food security are related, while also accounting for the impact of production fragmentation and the extent to which farmers participate in various stages of global value chains. Their analysis revealed a strong correlation between the variables—trade, food security, decreased productivity, and a high degree of farmer participation in the value chain. Furthermore, it was discovered that the development of the agricultural value chain's financing and its financing for increased export competitiveness correlated with studies on agriculture sector strategy for advancing the region's microfinance sector conducted by Onwualu (2012) and the African Development Bank (2013, 2009). Borges and Machado (2012) discovered a relationship between agricultural commodity producers' perceptions and risk and its management techniques. Farmers who own global commodity chains have a good possibility of developing worldwide export capabilities, according to Daviron and Gibbon's (2002) theory. Profitability and the rate at which the governance patterns in the fresh vegetable trade are changing have been found to interact significantly in other research as well. The agricultural practitioners in rural settlements can also profit from a value chain strategy (Montalbano et al., 2015; Dolan & Humphrey, 2004; Mitchell et al., 2009).

5.1. Managerial Implications

Through the use of innovative farming practices, this study has shown from both an academic and managerial standpoint that implementing a comprehensive system along the value chain of agro-allied firms can have positive effects on the economy, businesses, and stakeholders by providing opportunities for reduced risk, higher profitability, and improved outputs. In the same vein, the management of risk has continued to be closely monitored by administrators of the agro-allied firms, because it is the means through which an effective value chain is ensured. Value chain strategies are therefore efficient and effective, and when applied to all aspects of agro-allied businesses, they help industry participants make more informed decisions by helping them better understand the potential benefits and complexities of changing their production and trading practices. Therefore, it can be inferred that the agro-allied companies under investigation—Enugu San Carlos Farms Limited, Link-Chris Global & Agro Resource Nigeria Limited, Veggie-fresh Farms Enterprise, San Savannah Oil Limited, and Tropical Veterinary Consult Limited—have all continued to expand in all domains, such as the adoption of agro-insurance policies, longer-term farming practices, overall economic wellbeing, facilitating the prompt delivery of customer demands, improved knowledge of governmental policies regarding agriculture, farm-based training and orientation programmes that have enhanced farming skills, and an awareness of how crop farming and warehousing facilities are impacted by climate change.

6. Conclusion and Policy Recommendations

For agro-allied businesses, the ability to establish a reliable and objective value chain is essential to their ability to remain effective in agricultural risk management, which allows farmers to safeguard or insure their resources, key competencies, and output. Because of this, the industry's capacity to leverage the skills and output of its practitioners is crucial to its viability, innovation, and engagement. Value chain system development has been shown to improve farmers' and stakeholders' long-term farming practices. The investigation's findings indicate that the risk management practices of the Ago-allied companies were optimised in terms of implementation and execution, which significantly improved the value chain systems and increased overall productivity. Based on results from tested hypotheses, this conclusion was drawn from respondents who indicated that they agreed or strongly agreed with the survey. The relationship between value chain

improvement and risk management for agro-allied firms in Enugu State, Nigeria, is the primary emphasis of this study. The empirical contribution and structure of this study, which supports the connection between risk management and the value chain of agro-allied enterprises, make it topical, particularly in light of the current 4IR. The aforementioned statement aligns with the recent advocacy for empiricism and the continuous scarcity of academic literature about the study's construct variables (risk management and value chain), the sector scope (agro-allied enterprises), and the area scope (Enugu State, Nigeria). Therefore, this study suggests as a recommendation for a policy that agro-allied businesses should implement and maintain agro-insurance policies, set up platforms to support long-term farming cultures, expedite the delivery of customer demands, comprehend the climate change's effects on crop farming and warehousing facilities, and so on. These actions affect risk management and value chain networks. Giving stakeholders in general and agro-allied businesses in particular insight into proactively preparing for either new or known risks related to their operational environment.

6.1. Limitation of the Study and Future Research Perspectives

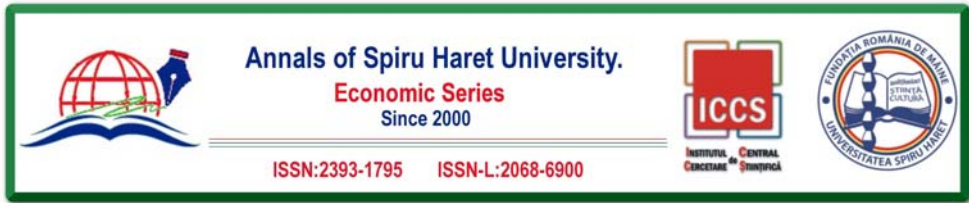
A drawback to this investigation is the unpredictability of the value chain being investigated in a combined measure of risk management. An influential construct that could have been quantified and combined would have been the strategies in the value chain. Furthermore, taking into account the study's industry focus—agro-allied firms—provides an additional constraint, highlighting the study's focus and importance in the context of the fourth industrial revolution. According to how well their job descriptions complemented automated technology—which has been shown to increase workplace and individual productivity—industries including manufacturing and healthcare may have been investigated. Thus, research on risk management's mediating function and how it affects value chain strategies ought to be conducted in the future. As the industrial and healthcare industries are included in the industry's purview, the 4IR is also changing how these sectors conduct business.

References

- [1] African Development Bank (2009). Agricultural sector strategy; 2010 – 2014: advancing the African microfinance sector. *Extraordinary Conference of African Ministers of Economy and Finance (CAMEF)*, 14-17.

- [2] African Development Bank (2013). *Agricultural value chain financing (AVCF) and development for enhanced export competitiveness*. Retrieved on at: www.afdb.org.
- [3] Binswanger, H.P. (1982). Empirical estimation and use of risk preferences: discussion. *American Journal of Agricultural Economics*, 64(2), 391-393. <http://dx.doi.org/10.2307/1241154>.
- [4] Borges, J.A.R. & Machado, J.A.D. (2012). Risks and risk management mechanisms: an analysis of the perceptions of producers of agricultural commodities. *Interdisciplinary Journal of Research in Business*, 2(5), 27-39.
- [5] Daemrich, A. (2017). The invention, innovation systems, and the fourth industrial revolution. *Technol. Innov.* 18, 257–265.
- [6] Daviron, B. & Gibbon, P. (2002). Global commodity chains and the African export agriculture. *Journal of Agrarian Change*, 2,137-161
- [7] De Janvry, A. & Sadoulet, E. (2005). Achieving success in rural development: toward implementation of an integral approach. *Agricultural Economics*, 32(1), 75-89.
- [8] Dolan, C., & Humphrey, J. (2004). Changing governance patterns in the trade in fresh Vegetables between Africa and the United Kingdom. *Environment and Planning*, 36, 491-509.
- [9] FAO (2011). *A value chain approach to animal diseases risk management – Technical foundations and practical framework for field application*. Animal Production and Health Guidelines, 4. Rome.
- [10] Flaten, O., Lien, G., Koesling, M., Valle, P.S. & Ebbesvik, M. (2005). Comparing risk perceptions and risk management in organic and conventional dairy farming: empirical results from Norway. *Livestock Production Science*, 95, 11-25. <http://dx.doi.org/10.1016/j.livprodsci.2004.10.014>.
- [11] Francis, M., Simmons, D. & Bourlakis, M. (2008). Value chain analysis in the UK Beef food service sector. *Supply Chain Management-an International Journal*, 13(1), 83-91.
- [12] Gibbon, P., Bair, J. & Ponte, S. (2008). Governing global value chains: an introduction. *Economy and Society*, (3), 315-338.
- [13] Greiner, R., Patterson, L. & Miller, O. (2008). Motivation, risk perceptions and adoption of conservation practices by farmers. *Agricultural Systems*, 99(2-3), 86-104. <http://dx.doi.org/10.1016/j.agsy.2008.10.003>.
- [14] Hardaker J. B. (2000). *Some issues in dealing with risk in agriculture*, Working Paper Series in Agricultural and Resource Economics, University of New England, Armidale, NSW, Australia.
- [15] Hay-Gibson, N.V. (2008). A river of risk: a diagram of the history and historiography of risk management. *Northumbria Built and Virtual Environment. Working Paper Series*. 1(2).

- [16] Ivarsson, I. & Alvstam, C. G. (2005). Technology transfer from TNCs to local suppliers in developing countries: A study of AB Volvo's truck and bus plants in Brazil, China, India, and Mexico. *World Development*, 33(8), 1325-1344.
- [17] Kannegiesser, M. (2008). Value chain management in the chemical industry global value chain planning of commodities. *Physica-Verlag Heidelberg publication*. 978-3-7908-2031-7. Retrieved online from: <http://www.springer.com/978-3-7908-2031-7>
- [18] Lazzarini, S.G., (2008). Horizontal and vertical relationships in developing economies: implications from SMEs access to global markets. *Academy of Management Journal*, 51(2), 359-380.
- [19] Millennium Development Goal (2012). MDG: Goal 1; Eradicate extreme poverty and hunger. *Millennium Development Goals Report*, 7. United Nations, New York.
- [20] Mitchell, J., Keane, J. & Coles, C. (2009). *Trading up: how a value chain approach can benefit the rural poor*. Comercio y Pobreza en Latinoamérica and the Overseas Development Institute. Retrieved online at: www.odi.org.uk
- [21] Montalbano, P., Nenci, S. & Salvatici, L. (2015). *Trade, value chains and food security*. Food and Agriculture Organization of the United Nations. Rome.
- [22] Nguyen, N.C., Wegener, M., Russell, I., Cameron, I., Coventry, D. & Cooper, I (2008). Risk management strategies by Australian farmers: two case studies. *AFBM Journal*, 4(1-2). Retrieved online at: <http://www.csu.edu.au/faculty/sciagr/rman/afbmnetwork/afbmjournal/index.htm>
- [23] Onwualu, A.P. (2012). *Agricultural sector and national development: focus on value chain approach*. The 5th Edition of the Annual Lecture of Onitsha Chamber of Commerce. Retrieved online at: <https://www.researchgate.net/publication/297710567>
- [24] Palinkas, P. & Székely, C. (2008). Farmers' perceptions on risk and crisis risk management, in M.P.M. Meuwissen, M.A.P.M. Asseldonk and R.B.M. Huirne (eds), *Income stabilization in European agriculture. Design and economic impact of risk management tools*. Wageningen: Wageningen Academic Publishers, 97-122.
- [25] Raikes, P. M., Friis, J. & Ponte, S. (2000). Global commodity chain analysis and the French filière approach: Comparison and critique. *Economy and Society*, 29(3), 319-417.
- [26] Reardon, T., & Barrett, C.B. (2000). Agro-industrialization, globalization, and international development. An overview of issues, patterns, and determinants. *Agricultural Economics*, 23,195-205.
- [27] Rondot, P. & Collion, M.H. (2001). *Agricultural producer organizations; their contribution to rural capacity building and poverty reduction*. World Bank.
- [28] Ruben R., M., van Boekel, A., van Tilburg & Trienekens, J. (2007). *Governance for quality in tropical food chains*, 309. The Netherlands: Wageningen Academic Publishers.
- [29] Sharma, M.K. (2012). *Agricultural finance, for sustainable development, expanding agricultural market opportunities and promotion of disadvantaged small farmers and*



Issue 1/2024

- MSMEs*. A Workshop on Enhancing Exports' Competitiveness Through Value Chain Finance. November 15-16. South Africa.
- [30] Sulewski, P. and Kłoczko-Gajewska, A. (2014). Farmers' risk perception, risk aversion and strategies to cope with production risk: an empirical study from Poland. *Studies in Agricultural Economics*. 140-147, <http://dx.doi.org/10.7896/j.1414>.
- [31] Trienekens, J.H (2011). Agricultural value chains in developing countries, a framework for analysis. *International Food and Agribusiness Management Review*, 14(2).
- [32] Warner, M. & Kahan, D. (2008). *Market-oriented agricultural infrastructure: Appraisal of public-private partnerships*. ODI, Project Brief, 9.
- [33] World Bank (2008). *World Development Report*. Washington, D.C, 2007. Retrieved from: <http://go.worldbank.org/2DNNMCBG10>

WORK SCHEDULE FLEXIBILITY AND EMPLOYEES' RETENTION: USING ACADEMIC STAFF OF OGUN STATE INSTITUTE OF TECHNOLOGY, IGBESA, OGUN STATE AS A STUDY.

Abayomi Olarewaju ADEOYE¹, Kafiu Sunkanmi ODUSANYA²,
Gloria Chinagozi OSADEME³

¹*Dept. of Business Administration, Lagos State University, Ojo, Lagos State, Nigeria*

07057115063, abayomi.adeoye@lasu.edu.ng

²*Doctoral Candidate, Dept. of Business Administration, Lagos State University, Ojo, Lagos State, Nigeria*

08027610952, sunkanmiodusanya@gmail.com

³*Dept. of Business Administration, Lagos State University, Ojo, Lagos State, Nigeria*

09066362682, gloriaosademe2@gmail.com

How to cite: Adeoye, A.O., Odusanya, K.S. & Osademe, G.C. (2024). "Work Schedule Flexibility and Employees' Retention: Using Academic Staff of Ogun State Institute of Technology, Igbesa, Ogun State as a Study Case". *Annals of Spiru Haret University. Economic Series*, 24(1), 259-275, doi: <https://doi.org/10.26458/24115>

Abstract

The study examined work schedule flexibility and employee's retention using academic staff of Ogun State Institute of Technology, Igbesa as a focus. The research population was 136, and the sample size was 102 staff of the total population which consisted of both senior and junior staff. Multistage sampling technique was adopted in this study; which was stratified and simple random sampling techniques. A total of 102 copies of the questionnaire were administered while a total of 98 copies of the questionnaire were received from respondents and 95 copies were valid for data analysis. The 10-items measuring instruments were tested using test-retest reliability by administering

the test once and then administering the same test again three weeks after the first administration. The hypothesis formulated for the study was analysed using Pearson Correlation Analysis. The findings revealed that there was a significant positive relationship between work schedule flexibility and employee's retention (r –statistics 0.317), P – values (0.002). The study recommended that managers should create an enabling environment for work schedule flexibility so as to retain their employee for the development of the organisation.

Keywords: *Employee's Engagement, Employee's Retention, Work Flexibility, Work Life, Work Schedule.*

JEL Classification: M10, M19

Introduction

The concept of work flexibility and its relationship with employee's engagement to work has its root in 1947 in England, when Fernandez-Rios discovered that employee's engagement to work were on the decline as workers were leaving before the closure of work, absenteeism were on the increase as a result of work and life imbalance. His attempt to strike a balance between work-life balance and issue of employee's engagement to work led to the introduction of work flexibility. The introduction of work flexibility in organisations offered different work arrangement flexibility strategies like flexi-hours, part-time working options, and compressed work period which allowed the workers to attend to their family issues and perform their jobs effectively within the allotted time frame (Berlin & Kerl, 2017).

In consonance with the social and economic changes of the world; such as COVID-19 pandemic, this also translated, into changes in different organisations as well. The work flexibility is as a result of consequence of globalization, which represents the general connection and movement of people, goods, services and information around the world. Due to globalization, the social context of business is changing, which lead to transformation of work and management. Moreover, different labour becomes rigid to meet up with unfolding situations and new interaction between employers of labour and employees, which resulted into reduction of employee's right and worsening of their position. Work flexibility therefore become necessary giving the changes in the nature of labour relations and

globalization effects that lead to the abandonment of the labour law standard, paving the way for flexible forms of work (Sladjana & Sanja, 2021). Tapas and Regina (2021) opined that organisation's practices, including non-standard work arrangements, flexible schedules, and the use of technology and automation, are going through substantial changes globally. In addition to this, the demographic, technological, and economic changes that have been molding the ways work is organized seem more pronounced than immediate past.

Noorliza and Muhammad Hasmi (2019) stressed the changing nature of organisation and the quest for operational excellence had made businesses to yearn for superior skills, enhanced efficiency and improved work-related-attitude necessary for achieving competitive advantage in the industry. Fowler (2018) concurred that, the difficulties in striking a balance between work requirements and meeting family responsibilities made most organizations to adopt work flexibility as an organisation strategy in addressing work-life balance.

Competitive nature of work settings and the need to achieve competitive advantage in the industry had made organisations to consistently design ways of enhancing employee's engagement through product quality that meet customer's need. This concern, however, made the management to reconfigure their production management techniques through the procurement of additional module in operations as addendum to work stations, assembly lines etc., without recruitment of additional staff to fill the new positions, as a result of this, the workers are over-loaded with tasks, and most of them work through-out the night, thereby creating problems of work-life imbalance. The flexi-time work arrangements that ought to have provided adequate time-framework for the workers to have work-life balance is questioned, since the workers are over-loaded with work and most times, work through-out the night with little or no attention to their family needs, personal upkeep etc. This situation may be affecting employee's engagement, but the extent to which it has affected their engagement is yet to be established (Chinedu & Amadi, 2018).

In the view of Barredo and Mahon (2007), working for a long period of time with a computer, especially at home, is associated with a sedentary lifestyle, static and constraining posture, repetitive movements and extreme positions of the forearm and wrist; which can be viewed as the side effects of work flexibility. Work life imbalances and work related stress among employees of different organisations have been discussed in different academic journals. Therefore, work

flexibility can be used as a panacea to the employee's work related stress and employee's work-life imbalances.

Moreover, Ogun State Institute of Technology, Igbesa was chosen as a case study, because of her adoption of teleworking modality during the COVID-19 pandemic where majority of the semester lectures during that period were done through technological means, which eventually won her an academic award, as showed by (www.nigeriannewsdirect.com). The teleworking policy and the work schedule flexibility of the organisation eventually contributed to such award. In view of this, the study is informed to examine the relationship of work schedule flexibility and employee's retention among Academic Staff of Ogun State Institute of Technology.

The following research question was formulated for the study:

- i. Is there any positive relationship between work schedule flexibility and employee's retention among Academic Staff of Ogun State Institute of Technology?

In order to test the above relationship between the variables, the following hypothesis was formulated for the study:

H₀₁: Work schedule flexibility does not have any positive relationship with employee's retention among Academic Staff of Ogun State Institute of Technology.

Literature Review

Conceptual Review

Work Flexibility

In the opinion of Vivien, Kalu and Victor (2021), work flexibility is an organisation offered assistances that allowed employee; some certain level of control over when and where work is done outside the standard working days. Similarly, it was also concurred that work flexibility is any one of a range of work conditions that varies the time and place where work is performed on a routine basis.

In the view of Jung and Yoon (2021) work flexibility is an opportunity for employees to make choices that influence when, where, and for how long they participate in work-related tasks. It also refers to the extent to which employees can select and adjust key aspects of their work lives. When employees are granted the opportunity to use flexibility, they can secure more resources and better control their tasks to achieve work-related goals.

Justin (2021) opined that work flexibility can be viewed from two different perspectives. These are organisational perspective and employee perspective. The organisational perspective is the degree to which an organisation incorporates flexibility to adapt to change. An example of this would be supplementing a workforce with temporary contingent workers or the practice of just-in-time production. Comparatively, the employee perspective addresses the degree to which a worker can choose when, where, and for how long work is done.

Work flexibility become inevitable given the changes in the nature of labor relations, considering the effect of globalization that lead to the abandonment of the labor law standard, in the form of regular full employment status, paving the way for flexible forms of work that are manifested during regular full employment and contractual employment, as well as through new forms of work such as telework and work at home, with new forms of work platform through ICT technology (Sladjana & Sanja, 2021).

Work Schedule Flexibility

Work schedule flexibility is the capacity of employers to effect changes on where, when and the aggregate period employees can engage or spend in performing work-related task. This definition suggests that work schedule flexibility provides the management with schedule arrangement paradigm as human resource strategy which is used to motivate, attract and retain their skilled and experienced employees (Nwekpa, Offor & Ezezue, 2020).

Pruchno, Litchfield and Fried (2017) viewed work schedule flexibility as a win-win situation for both the organisation and the workers in which the workers are allowed to control their time of work within the time-frame. Work schedule flexibility is the mutual meritorious relationship between employer and employee so as to improve employee's engagement towards organisational objectives and goals.

Employee's Retention

Ghani et al., (2022) perceived retention as a systematic effort to create and improve an environment that continues to encourage employee to work while implementing policies and practices, such as work schedule flexibility that suit their diverse needs. Employee's retention is the process of retaining employees, or encouraging them to stay with the company for as long as possible. Employee's retention is a method by which companies maintain an efficient workforce and meet operational requirements.

Elsafy and Oraby (2022) asserted that employee retention strategies are one of the most important factors needed to maintain experienced employees, so as to ensure that knowledge and expertise do not migrate from the organisation, which will lead to reduction in cost of recruitment and training new employees. The major problem from uncontrolled employee retention within the organisation are the high turnover rates and losses, as employees move to an organisation's competitors with their experience and skills gained in the old organisation.

Work Schedule Flexibility and Employee's Retention

Retention of employee is the task of keeping employee as key experts within the organisation, while retention of employee can also be carried out to find solutions to reduce turnover and to increase staff comfort in an organisation. Employee should also be able and allowed to adapt to the flexible work arrangement within the organisation (Basnyat & Clarence Lao, 2019).

Due to a lack of the required workplace culture, the employee looks forward to new opportunities. The employee needs to have a liking for the culture linked to the organisation. The employee requires a constant learning environment; need to upgrade their academic and other types of qualifications. The work-life balance comprises employee well-being, free holidays, changes in the working schedule and flexible hours that the company may offer (Ushakov & Shatila, 2021).

H0₁: Work schedule flexibility is not having any positive relationship with employee's retention among Academic Staff of Ogun State Institute of Technology.

Empirical Review

Vivien et al., (2021) examined workplace flexibility and performance of medical employees, using teaching hospitals in North-Central, Nigeria as a study. The study adopted survey research design, while the sample size consisted of 373 medical employees drawn from six teaching hospitals in the North- Central. The data was analysed using Regression statistical tools. The study found out that workplace flexibility significantly influences the performance of medical employees. The result of this study cannot be generalized in the other sectors in Nigeria.

Nwekpa et al., (2020) investigated the extent of relationship between work schedule flexibility and employee's commitment of Nigerian Breweries in Ama, Local Government Area of Enugu state in Nigeria. The study adopted survey research design, and the sample size was 286 employee of the organisation. The

study found out a significant and positive relationship between flexi-time and affective commitment, it also found out that, there was a significant relationship between compressed work week and normative commitment among the employee. The findings of this study cannot be generalized in service oriented sectors of Nigeria.

Fernando and Nishanthi (2021) investigated the impact of total reward perceptions on employee's retention with the mediating effect of work engagement of executive-level employees in the Sri Lankan insurance industry. The sample size consisted of 196 executive-level employees working in three general insurance companies. Regression analysis was used to test the effects that existed between the variables. The study revealed that, there was a significant effect of total reward perceptions and work engagement on employee's retention. The result of the study cannot be generalized in insurance industries of developing countries, where there is high labour turn-over.

Amushila and Bussin (2021) investigated the effect of talent management practices on employee's retention among the middle-level administration staff of Namibia University of Science and Technology. The study adopted qualitative research design. The target population consisted of 39 staff of the middle administrative level. The study found out that there was a relationship between talent management and employee retention. The result of the study cannot be generalized in other universities in Africa, because it was a qualitative research carried out with the aid of interview.

Theoretical Background

Research Methods

The study was carried out using survey research design. The population consisted of 136 Academic staff of Ogun State Institute of Technology, Igbesa, Ogun State, Nigeria. This study focused on the population of the entire Academic staff of the organisation. According to Registry Unit of the organisation (2021), the total population of Academic staff was 136. The breakdown of the staff is shown in table 1. The population consisted of 136 Academic staff, which consisted of senior staff and junior staff category. The senior staff category included; senior lecturers, principal lecturers and chief lecturers' cadre. While the junior staff category included; technologists, assistant lecturers, lecturers ranging from lecturer one to lecturer three.

Table 1: Distribution of Academic Staff of Ogun State Institute of Technology Igbesa, Ogun State

Staff level	Frequency	Percentage
Senior Staff	34	25
Junior Staff	102	75
Total	136	100

Source: Field survey, 2024

In order to get the appropriate sample size, the researcher employed the Taro Yamane (1967) Sample Size determination formula. Sample size selected was 102 respondents, which is shown as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where: n = Sample size, N = Total population, e = Error Margin (0.5%),

$$n = \frac{136}{1 + 136(0.05)^2}, n = \frac{136}{1 + 136(0.0025)}, n = \frac{136}{1.34}, n = 102$$

Moreover, due to the fact that the population consisted of different categories of group of staff, the study adopted multistage sampling techniques (stratified and simple random sampling techniques).

Having gotten the sample size through Taro Yamane as shown in previous page, the study further adopted the following formula so as to determine each group sample size:

$$cn = \frac{CN}{N} \times \frac{n}{1}$$

Where: cn = Estimated participant per allocation per each segment, CN = Population per each segment, N = Total population of the study, n = sample size of the study

$$cn = CN/N \times n/1$$

Where: cn = Estimated participant per allocation per each segment,

CN = Population per each segment, N = Total population of the study, n = sample size of the study

Senior Staff

$$cn = \frac{CN}{N} \times \frac{n}{1} \Rightarrow cn = \frac{34}{136} \times 102 \Rightarrow \therefore cn = 26$$

Therefore, senior staff sample of the study is 26

Junior Staff

$$cn = \frac{CN}{N} \times \frac{n}{1} \Rightarrow cn = \frac{102}{136} \times 102 \Rightarrow \therefore cn = 76$$

Therefore, junior staff sample of the study is 76

Thus, from the above analysis, 26 respondents were selected from the senior staff categories, while a total of 76 respondents were selected from the junior staff category, which were 102 in total, which is in accordance with the sample size figure realized through Taro Yamane sampling size determination formula.

Questionnaire Administration

Data collection was done using questionnaire administration. Moreover, 102 copies of questionnaire were distributed, while 98 copies were retrieved and 95 copies were valid for usage. The questionnaire was divided into two sections. Section A solicited for information on respondent's bio-data, while section B focused on work flexibility and employee's engagement among Academic staff of Ogun State Institute of Technology with six (6) point Likert -type rating scale for measuring data. The items had six-point scale of strongly agree, agree, partially agree, partially disagree, disagree and strongly disagree with corresponding value of 6, 5, 4, 3, 2 and 1 respectively. The instrument for data collection was 10 items questionnaires which were adapted. Instruments on work schedule flexibility made up of 5 items was adapted from Majella (2014), while instruments on employee's retention made up of 5 items was adapted from Kyndt, Dochy, Michielsen and Moeyaert (2009). This study adopted test-retest reliability survey, which was administered to the respondents twice between two to three weeks interval in order to determine reliability of the measuring instruments, and coefficient of the test-retest value was 0.71.

The instrument was validated by an expert in the Department of Business Administration, Lagos State University. For the purpose of this study, the face and

content validity of the instrument was carried out by presenting a copy of the intended instrument to some experts before the actual administration. Moreover, Cronbach Alpha coefficient test was used to determine the mean reliability coefficient, with the aid of Statistical Package for Social Science (SPSS), version 25, the Cronbach Alpha test result for the instruments is shown in table 3.2, which is 0.723 and it implied that it is an acceptable value based on some scholars views, who opined that any value above 0.7 is an acceptable reliability statistics. In this section (or set of sections, as the case might be) the author shall present and support the results he/she intends to communicate by means of the paper.

Table 2 Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
.723	10

Source: SPSS version 25

Analysis of Demographic Information of Respondents

Personal information of the respondents were analysed in this section and they contain information on the gender, age, marital status, educational qualification and working experience. The analysis of the demographic was done using percentages. This is shown in table 3

Table 3. Demographic Information

		Frequency	Percentage (%)
Gender	Male	52	54.74
	Female	43	45.26
Marital Status	Single	23	24.21
	Married	70	73.68
	Divorced	2	2.11
Age	0-30 years	16	16.84
	31-50 years	69	72.63
	51 years above	10	10.53
Educational Qualification	HND/B.Sc/B.Ed	23	24.21
	PGDE/M.Sc/M.Ed	71	74.74
	Others	1	1.05

		Frequency	Percentage (%)
Working Experience	0-5 years	28	29.48
	6-10 years	18	18.94
	11-15 years	30	31.58
	16 years above	19	20

Source: Field survey, 2024

From the demographic information table, 54.74% of the respondents were males while 45.26% of the respondents were females, hence majority of the respondents were male. Also, 73.68% of the staff were married, while 24.21% were single and 2.11% were divorced, therefore majority of the respondents were married. In analysing the age of the respondents, 16.84% falls within the age range of 0-30 years, while 72.63% falls between 31-50 years and 10.53% falls above 51 years. In analyzing the level of education, 24.21% of the respondents were HND/ B.Sc/B.Ed holders, while 74.74% were PGDE/ M.Sc/ M.Ed holders, while others were 1.05%. Hence, there is high literacy rate among the respondents. As regards the working experience, 29.48% of the staff had less than 5 years working experience, 18.94% falls between 6-10 years working experience, 31.58% ranged between 11-15 years and 20% falls between 16 years and above.

Test Of Hypotheses

Hypothesis One

Work schedule flexibility is not having any positive relationship with employee's retention among Academic Staff of Ogun State Institute of Technology

Table: 4.: Correlation Result of Hypothesis One

Correlations			
		Work Schedule Flexibility	Employee's Retention
Work Schedule Flexibility	Pearson Correlation	1	.317**
	Sig. (2-tailed)		.002
	N	95	95
Employee's Retention	Pearson Correlation	.317**	1
	Sig. (2-tailed)	.002	
	N	95	95

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Authour's computation 2024

The correlation analysis of table 4.1 showed the strength and direction of relationship between work schedule flexibility and employee's retention. From table 4.1, the Pearson correlation coefficient between work schedule flexibility and employee's retention was 0.317, it showed a positive relationship between the two variables and it indicated the impact of work schedule flexibility on employee's retention. Therefore, the null hypothesis was rejected while the alternative hypothesis was accepted. In view of this, there was a significant positive relationship between work schedule flexibility and employee's retention.

Discussion of Results

The result of the hypothesis revealed that, there was a significant positive relationship between work schedule flexibility and employee's retention, which is in tandem with the findings of Nwekpa et al., (2020) who investigated the extent of relationship between work schedule flexibility and employee's commitment, they found out that there was a significant positive relationship between work schedule flexibility and employee's commitment.

Conclusions

The study concluded that there was a significant positive relationship between work schedule flexibility and employees' retention. It was also concluded that organisation should create an enabling environment for work schedule flexibility so that employee can be committed to their works so as to enhance employee's retention behavior towards the organisation. The study also concluded that managers should pay attention to work schedule flexibility, as it can serve as a solution to work-life imbalances.

Limitations and Suggestion for Further Studies

Every research has several limitations associated with it. As a result of this, some limitations were identified in course of the research.

- i. The study examined work flexibility among the academic staff of higher institutions, further studies can be carried out which can be extended to the non-academic staff of higher institutions.
- ii. There was a problem of measurement of flexibility as regards location flexibility; there was problem in defining the specific location of where work was actually carried out.
- iii. Future study should conceptualize boundaries of teleworking and home working.

References

- [1] AMUSHILA, J., & BUSSIN, M. H. (2021). THE EFFECT OF TALENT MANAGEMENT PRACTICES ON EMPLOYEE RETENTION AT THE NAMIBIA UNIVERSITY OF SCIENCE AND TECHNOLOGY: MIDDLE-LEVEL ADMINISTRATION STAFF. *SA Journal of Human Resource Management*, 19 (1), 1-11. Retrieved online from <https://doi.org/10.4102/sajhrm.v19i0.1485> on 04/04/2022
- [2] BARREDO, R. D. V., & MAHON, K. (2007). THE EFFECTS OF EXERCISE AND REST BREAKS ON MUSCULOSKELETAL DISCOMFORT DURING COMPUTER TASKS: AN EVIDENCE-BASED PERSPECTIVE. *J. Phys. Ther. Sci.*, 19, 151–163.
- [3] BASNYAT, S., & CLARENCE LAO, C. S. (2019). EMPLOYEES' PERCEPTIONS ON THE RELATIONSHIP BETWEEN HUMAN RESOURCE MANAGEMENT PRACTICES AND EMPLOYEE TURNOVER: A QUALITATIVE STUDY. *Employee Relations*, 42 (2), 453–470.
- [4] BERLIN, K., & KERL, H. D. (2017). MAKING THE LINK BETWEEN WORK-LIFE BALANCE PRACTICES AND ORGANISATIONAL PERFORMANCE. *Human Resource Management Review*, 19 (10), 9- 22.
- [5] CHINEDU, F., & AMADI, M. (2018). THE EFFECTS OF WORK ARRANGEMENTS ON PERCEPTION OF WORK FAMILY BALANCE. *Business Process Management Journal*, 20 (1), 25-46.
- [6] Edward, K., & Bagozzi, T. (1998). *Job component arrangement*, New-Dehil: Prince Hill. Retrieved online from <https://www.semanticscholar.org> on 14/07/2022
- [7] ELSAFTY, A. & ORABY, M. (2022). THE IMPACT OF TRAINING ON EMPLOYEE RETENTION: AN EMPIRICAL RESEARCH ON THE PRIVATE SECTOR IN EGYPT. *International Journal of Business and Management*, 17(5), 58-74. Retrieved online from <https://www.researchgate.net/profile/Ashraf-Elsafaty/public> on 04/05/2022
- [8] FOWLER, H. (2018). RECONCEPTUALIZING THE NATURE AND CONSEQUENCES OF PART-TIME WORK. *Academy of Management Review*, 1 (5), 103-112.

- [9] GHANI, B., ZADA, M., MEMON, K. R., ULLAH, R., KHATTAK, A., HAN, H., ARIZA-MONTES, A. & ARAYA-CASTILLO, L. (2022). CHALLENGES AND STRATEGIES FOR EMPLOYEE RETENTION IN THE HOSPITALITY INDUSTRY: A REVIEW. *Sustainability*, 14, 28-48. <https://doi.org/10.3390/su14052885> on 04/05/2022
- [10] JUNG, H. S., & YOON, H. H. (2021). GENERATIONAL EFFECTS OF WORKPLACE FLEXIBILITY ON WORK ENGAGEMENT, SATISFACTION, AND COMMITMENT IN SOUTH KOREAN DELUXE HOTELS. *Sustainability*, 13, 9143. Retrieved online from <https://doi.org/10.3390/su13169143> on 31/03/2022
- [11] Justin, N. Y. (2021). The impact of flexible work arrangements on employee's engagement among higher education professional staff. Unpublished PhD Theses. Retrieved online from <https://thescholarship.ecu.edu/bitstream/handle/10342/9> on 31/03/2022
- [12] MAJELLA, J. A. (2014). A MEASURE OF ATTITUDES TOWARDS FLEXIBLE WORK OPTIONS. *Australian Journal of Management*, 29, (275- 294). Retrieved online from <https://www.researchgate.net> on 03/05/2022
- [13] NOORLIZA, K. & MUHAMMAD HASMI, A. H. (2019). LEADERSHIP ATTRIBUTES AND THEIR IMPACT ON WORK-RELATED ATTITUDES. *International Journal of Productivity and Performance Management*, 68(5), 903-919. Retrieved online from <https://doi.org/10.1108/IJPPM-02-2018-0058> on 04/04/2022
- [14] NWEKPA, K. C., OFFOR, P. G. & EZEZUE, B. O. (2020). WORK SCHEDULE FLEXIBILITY AND EMPLOYEE COMMITMENT: A STUDY OF NIGERIAN BREWERIES, AMA, ENUGU, NIGERIA. *International Journal of Development and Management Review*, 15, (1), 1- 16. Retrieved online from <https://www.ajol.info/index.php/ijdmr/article/view/19722> on 03/04/2022
- [15] PRUCHNO, R., LITCHFIELD, R., & FRIED, P. (2017). ORGANIZATIONAL COMMITMENT, JOB SATISFACTION AND TURNOVER AMONG PSYCHIATRIC TECHNICIANS. *Journal of Applied Psychology*, 59(1), 603-609.
- [16] SLADJANA, G. M., & SANJA, S. (2021). FLEXIBLE FORMS OF WORK AND WORK ENGAGEMENT. *Law Theory and Practice*, 4(1), 87-100. Retrieved online from <https://casopis.pravni-fakultet.edu.rs/index.php/ltp/ar> on 05/03/2022

Issue 1/2024

- [17] TAPAS, K. R., & REGINA, P. C. (2021). WORK FLEXIBILITY AND WORK-RELATED WELL-BEING. *International Journal of Environmental Research and Public health*, 18, (3254), 2-17.
- [18] USHAKOV, D.. & SHATILA, K. (2021). THE IMPACT OF WORKPLACE CULTURE ON EMPLOYEE RETENTION: AN EMPIRICAL STUDY FROM LEBANON. *Journal of Asian Finance, Economics and Business*, 8 (12), 541– 551. Retrieved online from <https://www.koreascience.or.kr/article/JAKO202133452443041> on 04/03/2022
- [19] VIVIEN, A. U., KALU, E. A., & VICTOR, U. (2021). WORKPLACE FLEXIBILITY AND PERFORMANCE OF MEDICAL EMPLOYEES: A STUDY OF TEACHING HOSPITALS IN NORTH-CENTRAL, NIGERIA, *International Journal of Management*, 12(1), 1099-1114. Retrieved online <http://www.iaeme.com/IJM/issues.asp?JType=IJM&VType=12&IType=1> on 03/04/2022
- [20] www.nigeriannewsdirect.com . Article on JAMB awards N375m to OGITECH, ABU, 3 others. Retrieved online from <https://google.com/url?q=https://nigeriannewsdirect.com/jamb-awards-n375m-to-ogitech-abu-3-others> on 28/06/2022

Appendix

Department of Business Administration,
Faculty of Management Sciences,
Lagos State University,
Ojo,
Lagos State.

Dear Respondent,

Questionnaire

I am a researcher from the above named institution conducting research on “Work Schedule Flexibility and Employee’s Retention”. Your assistance in completing this questionnaire is highly solicited.

I promise that the information realized will be treated with utmost confidence and used only for academic purpose.

Thanks in anticipation of your cooperation.

Yours faithfully,

.....

Researcher

Part A

Instruction: Please indicate appropriate information with (√)

1. Sex: Male [] Female []
2. Marital Status: Married [] Single [] Divorced [] widow []
3. Age of Respondent: Below 30 years [] 31-50 years [] 51 years and above []
4. Educational qualification: OND/NCE [] HND/ B.Ed. / B.Sc. []
+PGDE/ M.Sc. / M.Ed. [] others (please specify)
5. Working Experience: 5 years and below [] 6-10 years [] 11-15 years []
16 years and above []

Section B

Note

- SA= Strongly Agree
A = Agree
PA = Partially Agree
PD = Partially Disagree
D = Disagree
SD = Strongly Disagree

QUESTIONNAIRE

	Work Schedule Flexibility	SA	A	PA	PD	D	SD
1.	Flexible work arrangements helps employee to balance life commitment						
2.	Flexible schedule enhances time utilization						
3.	Work schedule flexibility makes employee focus more on the job						
4.	Employee using flexible work plans often miss important work event.						
5.	People using flexible work arrangement usually have less commitment to their work role						
	Employee's Retention	SA	A	PA	PD	D	SD
6.	Working within an organisation that allow flexible work option gives employee satisfaction						
7.	Employee loves working for an organisation that implement flexible work plans						
8.	Employee tends to be loyal to an organisation as result of its flexible work policies						
9.	A worker can recommend an organisation that has flexible work arrangements to a friend						
10.	An employee can commit his or her future to an organisation that have flexible work arrangements						

ASUU STRIKE AND MENTAL HEALTH OF BUSINESS ADMINISTRATION STUDENTS IN NNAMDI AZIKIWE UNIVERSITY, AWKA, ANAMBRA STATE, NIGERIA

Uchechukwu Roselyn IGNATIUS¹, Henry Sonna OJUKWU², Ijeamaka Charity MGBEMENA³, Catherine Nkechi NWANKWO⁴

¹Department of Business Administration, Nnamdi Azikiwe University, Awka
+2349063202012, roselynignatius@gmail.com

²Department of Business Administration, Nnamdi Azikiwe University, Awka
Phone: +2347035188000, hs.ojukwu@unizik.edu.ng

⁴Department of Business Administration, Nnamdi Azikiwe University, Awka
+2348060276865, ic.mgbemena@unizik.edu.ng

Department of Business Administration, Nnamdi Azikiwe University, Awka
+2348035971308, cn.nwankwo@unizik.edu.ng

How to cite: Ignatius , U.R., Ojukwu , H.S., Mgbemena, I.C., & Nwankwo, C.N.. (2024). “ASUU Strike and Mental Health of Business Administration Students in Nnamdi Azikiwe University, Awka, Anambra State, Nigeria”. *Annals of Spiru Haret University. Economic Series*, 24(1), 276-294, doi: <https://doi.org/10.26458/24116>

Abstract: ASUU Strikes pose challenge to Nigeria’s educational sector. In view of this, the study aimed to determine the relationship between ASUU strike and mental health of Business Administration students in Nnamdi Azikiwe University, Awka, Anambra State. A survey research design was adopted, and convenience sampling technique was utilized. Through questionnaire, data were collected from 237 participants. Data on personal information of participants were presented and quantified using frequency tables and arithmetic mean. Hypotheses were tested using Pearson Product Moment Correlation Coefficient. Findings revealed significant relationship between ASUU Strike and Mental Health of Business Administration students in Nnamdi Azikiwe University, Awka. Specifically, a moderate positive relationship was found to exist between institutional underfunding and

Students' academic performance. Additionally, Lecturers remuneration strongly correlated with students' financial stress. The study recommended the presence of adequate institutional funding through increased governmental funding, or through philanthropic donations, and partnerships with industry and Alumni. The study further recommends a systematic process of financial assessment and strategic planning within the university through conducting a review of institutional financial health, identifying potential areas of improvement and developing achievement strategies.

Keywords: ASUU, Academic Performance, Financial Stress, Institutional Underfunding.

JEL Classification: H52, H75, L16, J5, J51

Introduction

Strikes by the Academic Staff Union of Universities (ASUU) have become constant in Nigeria's academic system, where academic programs are delayed, thus interfering with students' life. ASUU has gone on strike over a number of problems concerning the well-being of its members and the non-implementation of agreements agreed with the Federal Government. Deborah (2022) reveals that ASUU strike in Nigeria has become a period when academic activities are stalled in public University where academic staff go on strike because of governmental failure to honor reached agreement. In effect, courses slated for four, five, and six years extend beyond normal, thereby forcing students to stay longer than anticipated (Ewa & Eze, 2023). Due to these frequent strikes, Chukwudi and Idowu (2021) found that Nigeria's development agenda is threatened because of poor graduates that are produced from the country's Ivory Towers. Also, these incessant strikes and University closure leading cause of students' examination malpractice, corruption and other social vices in the society (Nwagbala, Okafor & Ani, 2023). Mental health of University students as a result of ASUU strikes is an under-researched area. Though the strikes effect on students' grades have been well-documented, the toll it takes on their emotional well-being is less frequently considered. The purpose of this research is to determine if and how the ASUU strike affects students' emotional well-being. Anxiety, sadness, and other mental health problems are common among college students, and the ASUU strike just makes matters complicated. Strike-related financial stress can exacerbate mental

health problems, which disproportionately impacts students from low-income households. These students rely on scholarships, grants, and part-time jobs to fund their education. The strike disrupts their sources of income, leading to financial stress, which contributes to mental health issues (Liu *et al.*, 2021). Also, overloading students due to an extended academic calendar due to strike is another potential outcome. This situation leads to anxiety, depression, and even burnout (Chowdhury, 2020). Moreover, the ASUU strike can also lead to social isolation for students. Students' mental health may be negatively impacted by isolation caused by the strike among students that are not societally engaged. To prevent the ASUU strike from having a negative effect on students' mental health, it is crucial to take action. Many studies have looked at how the ASUU strike affected students, with a focus on how it affected their emotional well-being. ASUU strikes have resulted in students passing through anxiety, depression, and becoming unmotivated towards academic activities (Adeoye & Adebisi, 2016); thus complaining of aimless feelings towards life goals. Studies recalled that students who were emotionally strong through societal engagements show more resilience in the face of strikes adverse effect (Agada & Oseni, 2019). Consequently, Olowomofe and Ikusika (2020) report that during strike actions, drug use and abuse becomes prevalent among unengaged students; thus, long-term school absenteeism was also linked to frequent drug misuse in the research. As a result, the ASUU strike has had a major negative impact on the emotional well-being of Nigerian college students. The extended academic calendar resulting from the strike leads to compressed academic activities, including exams, assignments, and projects.

To this end, this study aims to assess the impact if any, that industrial actions such as ASUU strikes pose on the mental health of Business Administration students, in Nnamdi Azikiwe University, Awka. Specifically, the study seeks to:

1. ascertain the impact of institutional underfunding on students' academic performance in Nnamdi Azikiwe University, Awka, Anambra State.
2. to examine the correlation between lecturers' remuneration and students' financial stress in Nnamdi Azikiwe University, Awka, Anambra State.

Literature Review and Hypotheses Development

ASUU Strike

The frequent strike action by the Academic Staff Union of Universities (ASUU) in Nigeria has remained disturbing and worrisome. There was hardly any academic session that ASUU did not make strike utterances or embarked on strike (Omeje, &

Ogbu, 2019); via withdrawal of services which served as means of expressing grievances against government failure to implement and honour agreements with the union (Adeyanju et al., 2018). However, what seemed to be the first ASUU strike in Nigeria was observed in 1988 with the major reason of pursuing fair wages and University autonomy. Since then till date, Academic Staff Union of Universities had embarked on strike actions of different durations (Egbegi & Iheriohanma,2018) with the reasons that were not unconnected to adequate funding, provision of sufficient teaching and learning facilities and equipment, University autonomy and implementation of the provisions of 2014 Pension Reform Act and the introduction of the University Transparency Accountability Solution (UTAS) as against the imposed Integrated Personnel Payroll Information System (IPPIS) by the Federal Government among others (Akah, 2018; Ejike, 2015). Despite these reasons for embarking on strike, Nigerian Universities had continued to show adverse effects on the academic activities of public University students in Nigeria. ASUU strike disrupted academic teaching and learning, prolonged the study period and de-motivated students which may have hampered academic activities (Wojuade,2019). As guide, academic activities refer to actions that have a strictly academic focus. Therefore, academic activities of public University students include class assignments, homework assignments, projects and reports, teamwork, debates, role playing, group discussions, presentations, quizzes, tests and exams (Kapur, 2021). In view of the incessant strike by ASUU, the issue of qualitative education and high educational standard are hardly obtainable in the Nigerian University system (Kawugana, 2016). ASUU Strike is an organized cessation or slowdown of work by University lecturers to force acceptance of their demands by the Federal Government (Omeje & Ogbu, 2019). ASUU Strike refers to academic Staff union of Universities industrial actions or academic refusal to work for inadequate services or poor condition of service (Etodike, 2020). In the education sector, industrial actions by academic staff can lead to disruptions in academic teaching and learning, prolonged study period, students' examination malpractice and other social ill. ASUU uses strike as a means to enforce the government to respect the demands of the union. ASUU strike has made some positive impacts on the educational system and has had negative effects on the academic activities of public University students in Nigeria. Academic Activities refers to effective actions prevalent in educational institutions of all levels that promote students learning and facilitates the achievement of academic goals (Kapur,2021).

Institutional underfunding

One of the major causes of ASUU strike in Nigerian Universities is inadequate funding of public higher institutions (Shimawua, 2020). The agreement that Federal Government had with ASUU which was signed in 2009 provided for adequate funding of Universities and conditions of service for University lecturers, University autonomy, academic freedom and issues that required legislation before implementation. Thus, ASUU's agitations and actions over the years appeared to emphasize more on funding of Universities and renegotiation of the 2009 FGN/ASUU agreement (Lagi, 2020). Particularly, the ASUU strike of 2020 and that of February, 7, 2019 bothered on revitalization fund for public Universities (Muhammad, 2020). The non-release of the revitalization fund as agreed in the 2013 Memorandum of Understanding (MoU) and refusal to renegotiate the 2009 agreement and insufficient teaching facilities were some of the factors that propelled the ASUU strike (Shimawua & Onuka 2020 & Ejike, 2015). Consequently, ASUU declared indefinite strike to get government on board in addressing matters of revitalization fund for Universities (Ogunyemi, 2020). Importantly, all over the world, public Universities are expected to be initially and adequately funded by the government that established them. The Federal Government of Nigeria allocates 7% or 8% of her annual budget to the education sector when the minimum percentage recommended by the United National Educational, Scientific and Cultural Organization is 26% (Kammy, 2020). At the current rate of funding in Nigerian Universities, strike may seem the only way to vent frustration.

Lecturer Remuneration

Another major cause of ASUU strike is nonpayment of financial entitlements of academic staff by Government (Yusuf, 2017). However, the 2019 and 2020 strikes embarked upon by ASUU were mainly due to government's negligence in paying arrears of Earned Academic Allowances (EAA) (Akinwale, 2020; & Lagi, 2020). Even more still, the same strike was still embarked on by ASUU in 2022 which mainly hooves on remuneration given current economic condition. Other areas of negligence to the needs of the academic staff include delay in the payment of outstanding academic allowances, salaries, non-remittance of third-party deductions from the workers' salaries, visitation panel reports, provision of teaching facilities, constitution of visitation panel to Federal universities as well as delay in honoring other agreements reached with the Academic Staff Unions of

Universities (Badekale, Ngige & Hammanjada, 2016). Mnyani, Onajaefe and Ukpere (2023) discovered a strong and significant correlation between work motivation and job satisfaction among the administrative staff in a selected university in Cape Town South Africa. It therefore means that employee job satisfaction is determined by these key factors; attractive remuneration, good working condition, and relationship with superior and subordinates.

Academic performance

Student's academic performance and graduation rates have been the area of interest for higher education institutions. Investigation of factors related to the academic performance of University students become a topic of growing interest in higher educational circles. Many recent studies were carried out to explore factors affecting University student's academic performance. Hanson (2000) reported that Student performance is affected by different factors such as learning abilities, gender and race. Simmons, *et al.* (2005) avers that family income level, attending full time, receiving grant aid and completing advanced level classes in high school having statistically significant effects on college persistence among first generation college students. Garton, *et al.* (2000) carried out a study with freshmen college students to evaluate the efficiency of students' learning style and other University admission variables in predicting student academic performance and retention. ACT composite score, high school class rank, high school core GPA, and learning style were used as predictors. Results showed that core GPA and ACT score were best predictors for predicting academic performance of first year of college. McKenzie and Schweitzer (2001) conducted a prospective study to explore the psychosocial, cognitive, and demographic predictors of academic performance of first year Australian university students. Results demonstrate that previous academic performance was identified as the most significant predictor of university performance. Integration into university, self-efficacy, and employment responsibilities were also predictors of University academic performance. Hijazi and Naqvi (2006) conducted a study to find out the factors which affect college students' performance. They conclude that attitude towards attendance to classes, time allocation for studies, parents' level of income, mother's age and mother's education were main factors that affect performance of students of private colleges.

Students' *home environment* plays a great role towards academic performance. In the view of Ajila and Olutola (2007), the state of the home affects the individual since the parents are the first socializing agents in an individual's life. This is

because the family background and context of a child affect his reaction to life situations and his level of academic performance. Emmanuella (2022) reveals that the overall academic performance of students in Benue State University, Makurdi, Nigeria dropped due to strike actions which adversely affected their reading habit. Also, in similar study, Abanobi et al. (2022) report that academic performance of students in tertiary institutions in Delta state Nigeria was affected by the instability in governmental policies where welfare and remuneration package of the staff of academic institutions are not carefully considered.

Financial Stress

Student life is the most vibrant phase in an individual's life with experiences that they can cherish and enjoy. The various academic, cultural and co-curricular activities nurture students and prepare them for the challenges of adulthood. Viewing this scenario from a deeper perspective, one can understand the predicament of college students in their daily life. The entire idea of an exciting college life is rife with concerns which, in turn, contribute to stress. If these are not dealt with, they may escalate and disrupt their academic performance and their emotional and social well-being. Over the last few decades, financing higher education has changed dramatically. This could be owing to various factors arising from numerous elements ranging from cost of education, curriculum and workloads combined with economic deprivation.

Factors that trigger stress affecting like academics, social, emotional and financial has an impact on the academic achievements of a college student. Poor academic performance of students can be a consequence of poor time management, economic hardships, lack of sleep and societal engagements. Various studies indicate that stressors like social, emotional and financial conditions at large, affect the academic performance of students although academics is a stressor all by itself. Studies done in a diverse set of countries show that the returns on college education have been increasing compared to the primary education. The governments are trying to boost higher education by providing various loan schemes and making it available by various financial institutions. Education loan is an effective tool for financing graduation and post-graduation. National Sample Survey (NSS) data shows that participation in higher education has been diverted in favour of consumption expenditure. Well drafted loans make educational loans affordable and accessible to the common man. Financial inclusion by means of education loans help in financial upliftment by getting returns out of higher education. The

college students' stressors include internal and external pressures exerted by the environment to thrive and success, economic hardships, worries about future, societal problems and opportunities. The average student is financially vulnerable as they typically have few assets and partly incomes. Studies have demonstrated that students have little financial knowledge. Consequently, it is not surprising that financial stress is the leading stressor among college students. Abreedy (2015) observed that being financially literate would mean that an individual would benefit from a palette of abilities and attitudes such as a comprehension of money management concept, knowledge of financial institutions and attitudes which enable effective and responsible management of financial affairs. (Guan, 2015) opines that college students with financial difficulties are those whose families can hardly afford high tuition fees in Universities, and should be supported by modern funding system. Dobria (2016) found that college students frequently cite financial difficulties among the top reasons for dropping out from school. From a financial standpoint, student attrition can be contextualized in terms of personal circumstances and beliefs. Keenamer (2010) observed that the most obvious cause of financial stressor is the cost of attending college and most students rely on substantial loans to cover their tuitions fees. He further established that student financial aid acts as a retention tool, it may in fact serve low income college students whose access is more vitally important than for choice. Valadez (2012) in their study implied that tuition fees increases significantly affects low income students compared to those not of low income background. This poses another issue for low income borrowers as they now find high debt amounts discouraging, or as a barrier, to pursue a college degree (Joo So-Hyun et al, 2008). Ehlinger (2008) found that financial stress creates adverse health issues. Financial stress or worries if not controlled can lead to students' depression. Depression is a huge critical psychological concern worldwide because of high prevalence rates, the chronic nature of the condition and difficult treatment and recovery (Carrillo, *et.al*, 2012). University students face numerous difficulties including independent living, academic stress, peer pressure as well as family problems and this predispose them to depression (Shamsuddin *et.al*, 2013). This emotional and mental stresses can influence them to high risk behaviors' such as increased levels of smoking, increased alcohol and drug consumption, increased self-injurious behaviours (Serras et. al, 2010). When students spend seven months at home, some looking forward to graduation having finished their examinations, and waiting for their results, they can be predisposed to mental illness if they are at risk. The ASUU

strike has significant impact on both the students and the lecturers. For the students, depending on their expectations or plans, seven months' delay will surely lead to stress as the expectations are dashed. The higher the expectation, the bigger the frustration and the higher the stress; similarly, with lecturers, lack of salary, delayed promotion, inability to conclude a programme, school fees of the children, etc. also create stress in them.

Hypotheses Development

To Critically guide this study, hypotheses were developed. Emanating hypotheses are given as;

H₀₁: Institutional underfunding has no relationship with students' academic performance in Nnamdi Azikiwe University, Awka.

H₀₁: There is no link between lecturers' remuneration and students' financial worries in Nnamdi Azikiwe University, Awka.

Theoretical Framework

The study is anchored on conflict theory as the theoretical base of our discourse. Conflict theory draws its strength from the Karl Marx revolutionary idea which depicts inevitability of conflict in the Society (Tucker,1969). Arguing from this point, Koop (2019) notes that every society is in a state of perpetual conflict because of unrestricted and intense competition existing among the various classes over limited resources. This seems to suggest that the focus of the society on economic factors is the sole criteria for all conflict in the Society (Kinge & Nweke,2019). Put differently, conflict theory sees society as a state in which two or more social entities or parties (such as ASUU and Federal Government) perceive that they possess mutually incompatible goals. (Mitchell,1981). Hence, Conflict theory shows a sequence of interaction between ASUU and Federal Government which explains the basis of conflict in the University educational system. Applying this theory to our study, it is particularly useful for conceptualizing the conflict between ASUU and Federal Government which culminated into ASUU strike action in the Universities. The conflict between the two parties rest on resource distributional inequality as the demands of fair wages, payment of earned academic allowance, adequate funding of public Universities and provision of teaching and learning facilities made by ASUU in the agreement with Federal Government were not adequately fulfilled and enforced by the latter. The failure of government to implement these demands escalated the conflict leading to ASUU strike action with its attendant consequences on the academic activities of public University students

in Nigeria. Despite the relevance of conflict theory, critics have maintained that it tends to side with the people that have low social and economic power in the society and also violates scientific objectivity as it is most time counter-productive (Mohammed & Baba, 2018). Notwithstanding the criticism conceived against conflict theory, it is inevitable in the explanation of ASUU – Federal Government conflict, ASUU strike and its effect on the academic activities of public university students in Nigeria.

Research Methodology

Study Design, Population, Sample Size Determination, Sampling Technique

The study adopted a survey research design. The appropriateness of this design is on the fact that it permits interaction with study participants. Broadly, the population of this study comprises all Undergraduate students of Business Administration Department, Nnamdi Azikiwe University, Awka, Anambra State. The focus Faculty is Management Sciences. The study adopted Taro Yamane technique to determine the sample size. After necessary mathematical computations, the sample size stood at two hundred and thirty-seven (237). The study adopted convenience sampling technique since the researcher intends to select the samples it can comfortably collect data in relation to the study. questionnaire distribution was done using Bowley’s proportion allocation.

Table 1. Population Distribution and Bowley’s Allocation Outcome

S/N	Faculty	Department	Levels	Level population	Bowley’s Allocation
*	Management Sciences	Business Administration	100level	162	66
200level			138	57	
300level			161	66	
400level			118	48	
	Total			579	237

Source: Field Work, 2023

Reliability of the Instrument and Method of Data Analysis

The reliability of instrument was obtained through Cronbach Alpha Technique. Sixteen (16) copies of the questionnaire were administered to respondents of Roban Stores Ltd, Awka, which are different from the organisations of study.

Questionnaire was restructured and redistributed to the same respondents upon testing the reliability of responses to the items in test instrument using correlation analysis a figure of 0.942 was obtained which shows that this instrument is very reliable. The table below shows the figures and reliability figure;

Table 2. Reliability statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.942	.942	16

Study hypotheses were tested using Pearson product moment correlation coefficient at 5% level of significance. *Decision Rule:* Accept the Alternate hypothesis (H_a) if P-value is less than 0.05 ($P\text{-value} < 0.05$); otherwise accept the Null hypothesis (H_o).

Result Presentation and Discussion of Findings

Table 3. Questionnaire Distribution Schedule

	Distributed	Collected	Analysed
	237	237	237
	(100%)	(100%)	(100%)

Source: Field Survey, 2023.

Table 3 shows the total number of distributed copies of the questionnaire, retrieved copies, and the number analyzed for the study. From the table, a total of 237 copies of the questionnaire were distributed in accordance with the sample size of the study, 237 copies were collected representing 100% of the distributed copies of the questionnaire, while 237 copies were analyzed as they were all answered completely.

Test of Hypotheses

Test of Hypothesis One

H_{01} : Institutional underfunding does not affect students' academic performance in Nnamdi Azikiwe University, Awka.

Table 4. Correlation Result for Hypothesis One

		Institutional Underfunding	Student Academic Performance
Institutional Underfunding	Pearson Correlation	1	.519**
	Sig. (2-tailed)		.000
	N	237	237
Student Academic Performance	Pearson Correlation	.519**	1
	Sig. (2-tailed)	.000	
	N	237	237
**. Correlation is significant at the 0.01 level (2-tailed). Source: Field Survey, 2023.			

Table 4 shows the Pearson correlation coefficient, which is a measure of the strength and direction of a linear relationship between two variables. The value indicates a moderate to strong positive linear relationship between institutional underfunding and student academic performance. For "Institutional Underfunding" and "Student Academic Performance," the Pearson correlation coefficient is 0.519, which is a positive correlation indicating that as one variable increases, the other variable tends to increase. The significance level, represented as "Sig. (2-tailed)," is used to determine if the observed correlation is statistically significant. The significance level for both correlations is reported as .000, which is less than the conventional threshold of 0.05. This suggests that there is a highly significant relationship.

Decision:

There is significant relationship between institutional underfunding and student academic performance with $r = 0.519$, $n = 237$ and p value of 0.000 ($p < 0.05$). Therefore, we accept the alternate hypothesis and conclude that there is significant relationship between institutional underfunding and student academic performance in Nnamdi Azikiwe University, Awka.

Test of Hypothesis Two

H₀₂: There is no link between lecturers’ remuneration and students' financial stress in Nnamdi Azikiwe University, Awka.

Table 5. Correlation Result for Hypothesis Two

		Lecturers Remuneration	Students Financial Worries
Lecturers Remuneration	Pearson Correlation	1	.773**
	Sig. (2-tailed)		.000
	N	237	237
Students Financial Stress	Pearson Correlation	.773**	1
	Sig. (2-tailed)	.000	
	N	237	237
<p>** . Correlation is significant at the 0.01 level (2-tailed). Source: Field Survey, 2023.</p>			

Table 5 indicates a strong positive linear relationship between Lecturers’ Remuneration and Students’ Financial Worries. For “lecturers’ remuneration” and “students’ financial stress,” the Pearson correlation coefficient is 0.773, which is a positive correlation indicating that as lecturers’ remuneration increases, student financial stress increases. The significance level, represented as “Sig. (2-tailed),” is used to determine if the observed correlation is statistically significant. The significance level for both correlations is reported as .000, which is less than the conventional threshold of 0.05. This suggests that there is a highly significant relationship.

Decision:

So, table 5 shows that there is significant relationship between Lecturers’ Remuneration and Students’ Financial Worries with $r = 0.773$, $n = 237$ and p value of 0.000 ($p < 0.05$). Therefore, we reject the null hypothesis and accept the alternate hypothesis and conclude that there is significant relationship between Lecturer Remuneration and Student Financial Worries in Nnamdi Azikiwe University, Awka. This finding is against the study expectation.

Discussion of Findings

The objectives set by the study and the hypotheses stated have all been tested with appropriate analytical techniques and findings have been observed. Here, the findings and their implications will be x-rayed. Starting from the first objective which was to determine the relationship between institutional underfunding and student academic performance in Nnamdi Azikiwe University, Awka, Anambra State, together with its hypothesis which stated that institutional underfunding does not relate to students' academic performance in Nnamdi Azikiwe University, Awka, Anambra State. This relationship was observed to be a positive moderate relationship between institutional underfunding and student academic performance. It raises intriguing questions about the potential impact of financial resources on educational outcomes. The statistically significant relationship implies that as institutional underfunding increases, student academic performance tends to improve. This finding may seem counterintuitive at first, as underfunding typically implies a lack of resources. However, several factors could contribute to this observation. One possible explanation is that institutions with limited funding may allocate their resources more efficiently or prioritize specific programs that directly enhance student performance. Alternatively, students in underfunded institutions might be more resilient or motivated, overcoming challenges associated with resource constraints. It's crucial to recognize that relationship does not imply causation, and further investigation is necessary to uncover the underlying dynamics. Understanding the nuanced interplay between funding, institutional policies, and student outcomes is essential for educational policymakers and administrators. A more detailed analysis could explore specific areas of institutional spending, teaching methodologies, or student support services to identify factors influencing this correlation.

The second objective was to assess the link between lecturer remuneration and student financial stress in Nnamdi Azikiwe University, Awka, Anambra State and the hypothesis accompanying this objective was that there is no link between lecturers' remuneration and students' financial worries in Nnamdi Azikiwe University, Awka, Anambra State. The analysis was carried out using correlation coefficient and the finding reveals that, there is a statistically significant relationship existing between lecturers' remuneration and students' financial stress in Nnamdi Azikiwe University, Awka, Anambra State. It is also instructive to note that the relationship observed was a positive one and the extent of the relationship seen was a great relationship. The strong positive relationship between Lecturers'

Remuneration and Students' Financial stress highlights a potential link between Faculty compensation and student financial stress. While this relationship is statistically significant, it's important to approach the findings with caution, as correlation does not establish causation. Several interpretations could be considered. It's plausible that Universities facing budget constraints might prioritize Faculty salaries over student financial aid, leading to a scenario where improved remuneration for lecturers coincides with increased financial stress for students. Alternatively, the correlation may be influenced by external economic factors impacting both Faculty salaries and student financial well-being. Addressing the concerns raised by this correlation requires a comprehensive examination of University financial policies, allocation of resources, and student support systems.

Conclusion and Recommendations

In conclusion, the study highlights the relationship between ASUU strike actions variables (institutional underfunding, and lecturer remuneration) and various aspects of mental health of Business Administration students (student academic performance, and students' financial stress) in the context of Nnamdi Azikiwe University, Awka, Anambra State. The observed moderate positive relationship between institutional underfunding and student academic performance suggests that when educational institutions face financial constraints, it can impact various aspects of the academic environment. Limited resources may result in challenges such as outdated infrastructure, inadequate teaching materials, and a shortage of qualified staff. These factors collectively contribute to a moderate negative influence on student academic performance. As a conclusion note, it emphasizes the importance of addressing financial constraints at the institutional level to foster a more conducive learning environment. The strong positive relationship between lecturers' remuneration and students' financial worries highlights a potential trade-off within the University setting. While higher remuneration for lecturers may be necessary for attracting and retaining qualified faculty member, it appears to correlate with increased financial concerns among students. This suggests that a careful balance needs to be struck to ensure competitive compensation for Faculty members without disproportionately burdening students financially. This conclusion emphasizes the need for comprehensive financial planning that considers the welfare of both Faculty members and students. The conclusions drawn from the data underscore the complexity of financial dynamics within the University. Further research is

warranted to delve deeper into the specific factors contributing to institutional underfunding and its impact on academic performance, as well as the nuances of how lecturers' remuneration affects students' financial well-being. Additionally, it calls for proactive measures and policy considerations to address these issues. Universities may benefit from implementing strategic financial management practices, seeking external funding sources, and exploring innovative solutions to enhance both the academic experience and financial stability for all stakeholders.

As a result, the following were recommendations emanated;

Given the observed moderate positive relationship between institutional underfunding and student academic performance, it is imperative to prioritize and enhance institutional funding for Nnamdi Azikiwe University. This involves exploring avenues for increased government funding, seeking philanthropic donations, and establishing partnerships with industry and alumni. Adequate financial support will enable the University invest in updated infrastructure, modern teaching materials, and Faculty development, thereby creating an environment conducive to academic learning.

Recognizing the strong positive correlation between lecturers' remuneration and students' financial stress, there is a need to implement comprehensive financial aid programs. These programs should be designed to alleviate the financial burden on students, especially those from economically disadvantaged backgrounds. This might include scholarships, grants, and work-study opportunities. Simultaneously, the University should work towards fair and competitive remuneration packages for Faculty members, ensuring that the financial well-being of both students and staff is prioritized.

Establish a systematic and regular process for financial assessments and strategic planning within the University. This involves conducting thorough reviews of the institution's financial health, identifying potential areas of improvement, and developing strategic plans to address financial challenges. Engaging with financial experts and educational consultants can provide valuable insights. By adopting proactive financial management practices, the university can navigate challenges, optimize resource allocation, and ensure the long-term sustainability of both academic and financial aspects.

Contribution to Knowledge

Several key contributions can be identified:

The understanding of how financial constraints within educational institutions impact the learning environment. This knowledge can inform educational

policymakers, administrators, and researchers about the need for strategic financial planning to enhance academic outcomes. It highlights the importance of addressing underfunding as a multifaceted challenge that goes beyond its immediate financial implications.

The recognition provides insights into the delicate balance required in managing faculty compensation to avoid negative consequences for students. This contribution to knowledge sheds light on the interconnectedness of financial elements within the University system. It emphasizes the necessity of considering both Faculty and student financial well-being in compensation and financial planning strategies.

The recommendations for enhanced institutional funding, comprehensive financial aid programs, and regular financial assessments contribute to the broader understanding of holistic financial planning in higher education. This knowledge can be instrumental for university leaders, policymakers, and stakeholders in developing sustainable financial models that support the diverse needs of both academic and financial aspects. It promotes a proactive and strategic approach to financial management, ensuring the long-term viability and success of educational institutions.

References

- [1] Abanobi, C.C., Abanobi, C. H., Ibeh, M. A., & Airiavbere, R. A. (2022). Perceived Impact of Industrial Actions on the Academic Performance of Students in Tertiary Institutions in Delta State Nigeria. *Innovare Journal of Education*,10(6), 14 – 19
- [2] Adeoye, O. A., & Adebiyi, A. O. (2016). ASUU strike and students' academic performance, mental health and future hope. *International Journal of Psychology and Counselling*, 8(2), 12-17.
- [3] Adeyanju, I., Oshinyadi, P. & Alhassan. F. (2018). The positive and negative sides of incessant ASUU strikes in Nigeria: An exploratory study based on academic staff perceptions. *African Journal of Educational Management*, 19 (1).
- [4] Agada, P. O., & Oseni, T. I. (2019). Coping strategies adopted by Nigerian university students during ASUU strike. *International Journal of Social Sciences and Humanities Reviews*, 10(1), 19-27.
- [5] Akah, A. U. (2018). ASUU Strike: The Federal government and Nigerian educational system. *International Journal of Education and Research*,6(5), 19-32.
- [6] Akinwale, A. (2020). ASUU gives conditions to end strike. Nigerian scholars school news. from-Nigerianscholars.com/school-news.
- [7] Badekale, A. F., Ngige, C. V. & Hammanjoda, I. (2016). Assessment of the impact of industrial disputes on teaching effectiveness of academic staff in Adamawa State polytechnic, Yola, Nigeria. *International Journal of Capacity Building in Education and Management*,3(1), 59-66.

- [8] Carillo M. A. (2012). Depressive symptoms among Mexican medical students: high prevalence and the effect of a group psycho education intervention. *Journal affective disorders*, 136;1098-103.
- [9] Chowdhury, S. (2020). Mental health problems faced by college students in India during COVID-19: A review. *Psychological Medicine*, 1-3. doi:10.1017/S0033291720004049
- [10] Chukwudi, E. C. and Idowu, S. S. (2021) ASUU Strike and the Nigerian Governments: Implications on Students and Society in a changing World. *South African Journal of Social Studies and Economics*, 12(4): 294 –304
- [11] Dobria, P. (2016). Financial Determinants of College Student drop out. University of Illinois at Chicago, 12.
- [12] Egbegi, F. R. & Iheriohanma, E. (2018). Exploring the synergic relationship between ASUU and federal government in restoring industrial harmony in Nigeria public Universities. *IOSR Journal of Humanities and Social Science (IOSR-JHSS)*, 3 (1), 14-23.
- [13] Ejike, A. (2015). Incessant strike action: Implications on students. *Journal of Research in Arts and Social Science*, 4(1), 89-99.
- [14] Emmanuella, G. (2022). Strike Action and the Academic Performance of Students in Benue State University, Makurdi, Nigeria, DOI: 10.14293/S2199-1006.1.SOR-PPF7U5X.v1
- [15] Ewa, I.M. & Eze, F.O. (2023). Effects of ASUU Strike on the Performance of Universities in the South Eastern States of Nigeria –2012 TO 2022. *International Journal of Research in Education and Sustainable Development*, 3(8), 17-33.
- [16] Etodike, V. K. (2020). The staff union of universities (ASUU) strike on public universities in Nigeria. How did it impact tertiary education?from-<http://www.grin.com/documents>
- [17] Garton, B.L., Dyer, J.E. & King, B.O. (2000). The Use of Learning Styles and Admission Criteria in Predicting Academic Performance and Retention of College Freshmen. *Journal of Agriculture Education*, 41(2), 46-53.
- [18] Hanson, J.B. (2000). Student performance and student growth as measure of success: A evaluator's perspective. Paper presented at annual meeting of the American educational research association New Orleans. Louisiana. 25 April.
- [19] Hijazi, S.T. and Naqvi, S.M.M.R. (2006). Factor Affecting Students' Performance: A case of Private Colleges. *Bangladesh e-journal of Sociology*, 3(1).
- [20] Joo, So-Hyun, Durband, D. B., & Grable, J. (2008). *Journal of College Student Retention: Research, Theory & Practice*, 10(3), 287-305.
- [21] Kammy' Team (2020). ASUU Strike: An endless phenomenon? (2). Federal Institutions Telegram platform.
- [22] Kapur, R. (2021). Understanding the significance of academic activities and fieldwork in the acquisition of education. Researchgate.net.
- [23] Kawugana, A. (2016). The impact of incessant strikes on the education sector in Nigeria. *International Journal of Education and Evaluation*, 2(5), 65-72.
- [24] Kennamer, M. A. (2010, 06 22). The Moving Target: Student Financial Aid in Community College Student Retention. *Journal of College Student Retention*.

- [25] Kinge, R. F. & Nweke, E. N. (2019). Herdsmen Farmers contention and sustainable national security in Nigeria. *Studies in Politics and Society*, 7, 355-366.
- [26] Koop, F. (2019). What is conflict theory? ZME Science. from-www.zmescience.com.
- [27] Lagi, T. (2020). ASUU lists 6 reasons for agitations, recurring strike. Daily Post Education published on March 12, 2020 by Wale Odunsi. From-Dailypost.ng.
- [28] Liu, C. H., Stevens, C., Conrad, R. C., Hahm, H. C., & Li, X. (2021). Prevalence and correlates of depression, anxiety and suicidality among university students. *American Journal of Orthopsychiatry*, 91(3), 372-379. doi:10.1037/ort0000501
- [29] Mckenzie, K. & Schweitzer, R. (2001). Who succeeds at University? Factors Predicting Academic Performance in First Australian University Students. *Higher Education Research and Development*, 20(1), 21-33.
- [30] Mnyani, Z., Onajaefe, D. & Ukpere W.I. (2023). “The Relationship between Motivation and Job Satisfaction of Administrative Staff at a Selected University in Cape Town”. *Annals of Spiru Haret University. Economic Series*, 23(4), 93-110, doi: <https://doi.org/10.26458/2343>
- [31] Nwagbala, S. C., Okafor, J. N., & Ani, A. E. (2023). ASUU Strike on the Academic Performance of Students in Tertiary Institutions in Nigeria. *European Journal of Science, Innovation and Technology*, 3(3), 274-287. Retrieved from
- [32] Ogunyemi, B. (2020). Text of the press conference of ASUU held at the Festus Iyayi National Secretariat Complex, University of Abuja, 18th August, 2020.
- [33] Omeje, P. N. & Ogbu M. O. (2019). Impact of labour union strikes on public institutions in Nigeria: A study of academic staff union of universities, Ebonyi State University, Abakaliki 2016/2017 strike. *Journal of Humanities and Social Science*, 24 (8), 56-68.
- [34] Serras A, S. K. (2010). Self-injury, substance use and associated risk factors in a multi-campus probability sample of college students. *Psychology of Addictive Behaviors*, 24:119.
- [35] Shimawua, D. (2020). Impact of industrial Unions on strike on the performance of public Universities in Nigeria. *International Journal of Innovation Research in Social Sciences and Strategic Management Technique*, 7(1), 247-256.
- [36] Simmons, A.B., Musoba, G.D & Choong, C.G. (2005). Persistence Among First-Generation College Students in Indiana: The Impact of Precollege Preparation, College Experiences, and financial Aid. *Indian project on academic success (IPAS), Research Report #05-01.*
- [37] Tucker, R. C. (1969). *The Marxian revolutionary idea*. New York: W.W. Norton and Coy.inc
- [38] Valadez, R. M. (2012). Financial and Stress Implications of Student Loans for Hispanics after Graduation from College research in *Higher Education Journal*, 16.
- [39] Yusuf, F.A. (2017). Student’s perception of strike actions on academic performance in Nigeria university: Implications for best practices and counselling. *SMCC Higher Education Research Journal*. 3,1-6

MULTILATERAL DIMENSIONS IN TALENT MANAGEMENT AND EMPLOYEES' TURNOVER INTENTIONS IN MANUFACTURING INDUSTRIES, SOUTH-WEST, NIGERIA

Dayo Idowu AKINTAYO¹, Adetoun Ramat, BALOGUN²

¹ *Department of Human Resource Development, Faculty of Management Science, Osun State University, Okuku Campus, Osun State, Nigeria.*

dayo.akintayo@uniosun.edu.ng, +2348033504542

² *Department of Human Resource Development, Faculty of Management Science, Osun State University, Okuku Campus, Osun State, Nigeria.*

adetoun.balogun@uniosun.edu.ng, +2348078092772

How to cite: Akintayo , D.I. & Balogun, A.R.. (2024). “Multilateral Dimensions in Talent Management and Employees’ Turnover Intentions in Manufacturing Industries, South-West, Nigeria”. *Annals of Spiru Haret University. Economic Series*, 24(1), 295-311, doi: <https://doi.org/10.26458/24117>

Abstract

The importance of employees to manufacturing industries cannot be overemphasised as they contribute to the industries’ performance and the consequent impact on the nation’s economy. This study, therefore, investigated the contributions of talent management strategies (human resource planning, recruitment and selection, employee development, employee retention, employee health and safety management, and employee performance appraisal) to employees’ turnover intentions in manufacturing industries in South-West Nigeria. The study employed a descriptive survey research design. The target population of the study comprised 3,172 staff working in six manufacturing industries in South-West Nigeria. The study made use of stratified and simple random sampling techniques to select 952 respondents. Two research instruments, the Integrated Talent Management Strategies Questionnaire (ITMSQ) and the Employees’ Turnover Intentions Questionnaire (ETIQ), were validated, and their reliability was ascertained. Two research questions were raised, and two hypotheses formulated were

analysed with inferential statistics. The findings reveal a low level of employees' turnout intentions, the adoption at a high rate of all examined talent management strategies, and significantly combined and relative contributions of talent management strategies to employees' turnout intentions. Recommendations made include organisations' need to adopt more talent management strategies, regularly evaluate the effectiveness of integrated talent management practices adopted, and improve retention programmes based on the identified integrated talent management strategies that contribute significantly to turnover employees' turnout intention.

Keywords: *Talent Management Strategies and Employees Turnover Intentions*

JEL Classification: L1

Introduction

The importance of employees to an organisation has been acknowledged for a long time, as they play a pivotal role in creating and maintaining a competitive advantage for their organisations (Akintayo et al., 2020). The biggest and most valuable asset of any company is its employees, as they can be described as a key asset in the world market (Akintayo et al., 2020). Besides, all other assets are nothing more than commodities that can be purchased at market prices, but only the human asset has the potential to learn, grow and contribute meaningfully to the growth of an organisation (Obisi, Samuel & Ilesanmi, 2020). This is more reason why, companies are competing against each other to acquire and keep talents in order to maintain their operations and continue to grow (Shafieian, 2014). Manufacturing industries, like every other organisation, are not known only by the physical structures (buildings), the reason being that such buildings, though as important as they may be in providing a face and shelter to the organisation and employees, are not the most important aspects of organisations (Pfeffer, 2010).

Most industries across the world depend largely on the efficiency of their manufacturing operations to generate quality outputs that can satisfy customers. An increasing inefficiency in the manufacturing process triggers higher production costs. (Verma & Kesari, 2020) Noted that the problem of inefficiency often degenerates from wrecked machines as well as low morale of employees, leading to a high rate of turnover. The consequences of such an upsurge in production cost

are higher product prices and possible shrinkage in the sales volume of the industry (Gulatti& Kletter, 2019). To mitigate the menace of inefficiency, it therefore becomes germane for industries to facilitate efficiency in manufacturing processes. Generally, manufacturing inefficiency could be attributed to the mismanagement of human and non-human resources as well as the quality of employees engaged in production (Bashir, Ali & Haruna 2021). The issue of attracting, engaging and retaining highly qualified employees stems from a managerial perspective that is more important than ever previously (Herzberg, 2005, cited in Sajeda, 2017). As employees are so vital for the functionality of organisations, employees' turnover intention is a subject matter that is considered to be one of the most serious obstacles facing different organisations considering the way and manner employees exit organisations (Lopes, 2018). This indicates that employee turnover places unnecessary pressure on the workforce, who are at work but experiencing an increased workload, thereby leading to low morale, high levels of stress and an increased rate of absenteeism (Yousef & Shadi 2021).

Statement of the Problem

The state of economic downfall in Nigeria has contributed negatively to the quality of work life of an ordinary government worker in Nigeria, and this has posed several challenges to the retention and overall performance of employees in many work organisations, particularly in the manufacturing industry (James & Mathew, 2020). In the manufacturing industry, for instance, there have been incidences where employees are resigning and jumping from one company to another, which results in a high cost of undertaking frequent recruitments training sessions and loss of valuable time to focus on customers (Benson, 2020).

The manufacturing industry in Southwest Nigeria is facing challenges in terms of employee retention and performance. Despite being a vital sector for economic growth and development, the industry is experiencing high turnover rates and suboptimal employee performance (Bikefe& Daniel, 2022). This raises concerns about the long-term sustainability and competitiveness of manufacturing companies in the region. The manufacturing industry in Southwest Nigeria is grappling with high employee turnover rates, resulting in significant costs for companies and hindering their ability to maintain a skilled and experienced workforce (Bikefe& Daniel, 2022). Furthermore, manufacturing in southwest Nigeria is facing challenges in maintaining high levels of employee performance.

Talent management strategies in manufacturing companies are poor and rife with unethical behaviours, such as selection bias, management preferences, Federal character syndrome, influences of ethnicity and social class, selection discrimination, favouritism, and godfather syndrome (Fajana, 2019). For instance, despite the importance of effective human resource planning in supporting talent management strategies, there are gaps, challenges, and shortcomings within the manufacturing industry in Southwest Nigeria. Okonkwo et al. (2022) claim that many firms, particularly those in the private sector, have given human resource planning—a crucial management function—less priority. Even the so-called large companies in the private sector lack well-articulated HR planning, which has serious financial repercussions for the organisations in the areas of excessive hiring, poor job performance, training, and transfers.

Furthermore, manufacturing companies in Nigeria face significant issues, gaps, challenges, and shortcomings related to employee retention strategies. The manufacturing industry in Nigeria has few opportunities for career growth, especially for entry-level and mid-level employees (Kojo et al., 2023). Thus, employees are less likely to stay with the same firm due to the lack of clear growth paths and development opportunities, which has also impacted their performance (Kojo et al., 2023). These hinder the effective execution of integrated talent management strategies, resulting in higher turnover intention and lower job performance. Thus, it is vital to rectify the specific challenges and gaps in employee retention practices to create a positive work environment and enhance employee satisfaction within the industry.

Furthermore, the turnover challenges facing organisations are taking their toll, leading to loss of highly skilled staff, loss of knowledge and experience, established customer relations. They may even result in poor customer satisfaction, poor sales, and resultant possible loss of revenue and market share (David, 2018). Essentially, it has been observed from the related studies that various researchers have conducted studies on different talent management variables as determinants of employees' turnover intentions and job performance at the workplace. Such variables include: compensation management, recruitment and selection, leadership styles, human resources planning, performance appraisal, training and development and career management, employee retention, health and safety management and the findings remain positive and were statistically significant (Wan & Syarif, 2015; Chipunza & Malo, 2017; Gareth, 2017; Harris & Williamson 2018; Onuorah et al.,

2019; Bello (2019); Onwukaet. al. 2020; Hezekiah, 2022; Adeoye & Elegunde, 2020; Debowale, 2021).

It is in light of the above that this study investigated the influence of integrated talent management strategies (human resource planning, recruitment and selection, employee development, employee retention, employee health and safety management, and employee performance appraisal) on employees' turnover intentions in manufacturing industries in South -West Nigeria. This is for the purpose of ascertaining the contribution of integrated talent management strategies to employees' turnover intentions in South-West Nigeria.

Research Hypotheses

- i. There is no significant combined contribution of integrated talent management strategies (Human resource planning, recruitment and selection, employee development, employee retention, employee health and safety management and performance appraisal) to employee turnover intention.

Literature Review

Conceptual Clarification

Talent Management

The concept of talent management has gained more ground and is relevant due to the evolution of corporate human resource management in today's present work environment. Talent management remains one of the most future-oriented practices in both private and public businesses (Ganaie& Haque, 2017). (Fatile et al., 2020), positioned that as talent remains scarce among other factors of production, there is a need to effectively manage and retain available ones in the interest of the organisation. Today, organisations now understand and appreciate the need to have the best talents if they must survive in this hypercompetitive and increasingly complex business environment (Smith, 2020). It also illustrates the need to fill up key positions promptly with employees whose talents were developed within the organisation (Cappelli, 2015).

Essentially, talent management signifies comprehensive and integrated human resource practices with the goal of attracting and retaining the right individuals for the right positions at the right time (Sajeda, 2017). Thus, Integrated talent management strategies are the combinations of a series of human resources

management practices of maintaining and retaining employees for better job performance. These strategies, according to Hazem (2018), include recruiting, retaining and developing the most talented and superior employees. The strategy also refers to the critical corporate function where the company strives to have the best talent, closing all the talent gaps and managing the talent by ensuring that the right person is in the right job at the right time to achieve the best possible results (Hezekiah, Opeyemi & Oluwatunmise, 2022). Keeping in view various strategies and indices of talent management as put forward by different researchers, this study considers it necessary to select integrated talent management strategies relevant to address the ravaging issues of employee turnover intentions and poor job performance. The strategies are human resource planning, recruitment and selection, employee development, employee retention, employee health and safety management, and employee performance appraisal.

Human Resources Planning

Akinremi and Adedeji (2019) define human resource planning as the supply and demand of skills according to their skills requirements and ensuring that top-performing employees are retained in the organisation. They explain further that human resource planning is one of the major strategies for understanding talent requirements. Employee planning is the foundation of staffing; hence, the process that identifies current and future human resources needs for an organisation to achieve its goals (Armstrong, 2016). Wheeler (2014) says that employee planning is the first step in the talent management process and entails understanding the talent requirements and aligning them with the organisational goals as well as the specific service delivery environment in which the public sector department functions. Olonade, Omotoye and Olalemi (2023) posit that there is a necessity to establish and execute a robust and strategic human resource planning framework in order to harness the optimal talent within the workforce and improve organisational efficacy.

Employee Development

Another important strategy of integrated talent management is employee development, i.e. provision of training and development in public and private organisations (career development, on /off the Job training, seminars, workshops, orientation, and mentoring). Kim (2014) defined employee development as a set of systematic and planned activities designed by an organisation to provide its members with the opportunities to learn the necessary skills to meet current and

future demands of work (Ogbeta, Nzewi & Chiekezie, 2015). Employee development is decisive by the personal development that occurs overtime depending on the experienced gained but also on the specific legislation (Chirimbu, 2022). Participation in staff development programmes by an employee is to begin immediately as a person is employed and should continue throughout a person's career (Werner & Desimone, 2011). They further opined that the objective of employee resource development in organisations like manufacturing industries is to increase the skills and knowledge of the workers. Employee development no doubt adds value to organisations in terms of increased productivity, morale and greater organisational efficiency (Rashid & Ayoode, 2020).

Employee Retention

Employee retention is also a very crucial integrated talent management strategy. This strategy can simply be put as the policies and plans organisations have in place and follow to satisfy the diverse needs of employees and create an environment for those employees to stay in the organisation (David, 2018). Ayantunji et al (2020) argued that if an organisation's retention rate is high, it encourages prospective employees to join the company. Financial and non-financial rewards policies, such as remuneration, compensation, recognition, promotion and fringe benefits, supervisors' support, etc., are commonly retention strategies for controlling employees' turnover intentions and job performance. Masindi et al., (2023) posited that employees' overall happiness with their colleagues, supervisors, and customers is associated with a decrease in their intention to leave the company, indicating a higher likelihood of retention. Employee retention can be represented by a simple statistic (for example, a retention rate of 80% usually indicates that an organisation kept 80% of its employees in a given period) (Smith, 2020).

Employee Health and Safety Management

Employee health and safety management, as part of integrated talent management strategies, depicts the general state of the physical, mental, and emotional well-being of an employee (Amponsah-Tawiah & Dartey-Baah, 2011). Organisation like the manufacturing industry is expected to comply with the Nigerian Labour Acts embedded under occupational safety and health (Ngwama, 2016). This is to ensure that the industry takes into consideration health and safety precaution measures against organisational work hazards (Ngwama, 2016). This is important because the healthy worker is free from illness, injury, and mental and

emotional problems that may impair his normal work activity or routine (Dwomoh, Owusu& Addo, 2013). (Boyede & Omotoye, 2021) opined that management of organizations should build a work environment that attracts, retain and motivates it employees to increase performance and productivity. Onoh-Linus (2021) put it more succinctly that in an organisation where employees feel that management ‘cares’ for them, there is an indication of positive management of the occupational health and safety system and as such, results in safer working practices and also a positive impact on employee job performance. However, Elegbede et al. (2024) conducted a study among nurses, and they found that industrial health and safety have a significant effect on employee attitude.

Employee Performance Appraisal

Employee performance appraisal is another talent strategy worth noting in this study. Onwuka, Ugwu and Kekeocha (2020) define performance appraisal as the means to gather essential information about employees for decision making. The authors further stressed that it determines employee performance, assists in communicating any areas of improvement to employees and helps the management to come up with a plan for ensuring good relations between supervisors and employees for enhanced organisational performance. Olonade et al., (2021) posited that management need to give more attention to workers for high job performance and low defiant work behaviour that could lead to employees turnover intention. This encourages employees to understand how their performance is contributing to the public sector department. They are committed to staying in the organisation (Linah, 2018). In his views, Bello (2019) submitted that globally, diverse performance evaluation practices are employed depending on the business, human resources cadre and corporation cultures. Organisations in diverse sectors have integrated performance appraisal in an attempt to strive and continue to exist in a globally competitive economy (Onwuka et al., 2020). Therefore, in any organisation, human capital is the most important asset that can be relied on to attain a competitive advantage.

Theoretical Background

Human Capital theory was first proposed by Theodore Williams Schultz in the 1960s (Oyeniyi, 2019) to examine the economic value of education, but more recently, it has been used in human resource management practices. The theory is the most popular in the studies that link human resource management and performance Oyewole & Adegoke (2018). This theory states that people possess

innate abilities, behaviour and personal energy that make up the human capital they bring to their work (Armstrong, 2006). People with collective skills, abilities and experience coupled with their ability to deploy these aspects in the interests of the employing organisations are now recognised as making a significant contribution to the organisational success and constituting significant sources of competitive advantage (Oyenyi, 2019). The human capital theory considers people as an asset and stresses that the investment in people by organisations always brings worthwhile returns. Armstrong (2006) points out that individuals generate, retain and use knowledge and skill; thus, human capital creates intellectual capital.

Human capital supports the notion that educational institutions need competent, motivated and committed employees who are willing to work and who can utilise their skills and knowledge towards effective attainment of the educational goals. Human capital theory is criticised for blaming individuals for defects of the system, making pseudo-capitalists out of workers, and fudging the real conflict of interest between the two and is regarded as a species of rational-exchange theory. Furthermore, it was said that human capital theory is a tautological or self-verifying theory and, therefore, not empirically testable (Oyenyi, 2019). In responding to this criticism, Rauf (2018) posits that, human resources need to be leveraged effectively by the organisation instead of simply possessed. He went further that the inclusion of dynamism of human capital compensation focuses on dynamic capabilities that help alleviate concerns and welfare of staff and consequently retain them.

Methodology

This study investigated the contribution of integrated talent management strategies (human resource planning, recruitment and selection, employee development, employee retention, employee health and safety management, and employee performance appraisal) to employees' turnover intentions in manufacturing industries in South-West Nigeria. The study employed a descriptive survey research design. The target population of the study comprised 3,172 staff working in six manufacturing industries (BUA Group, WAMCO Nigeria PLC, Lafarge Africa PLC Ewekoro, Rite Food Ltd, Nigerian Eagle Flour Mills Ltd and Premium Edible Oils Products Ltd) in six States of South-West Nigeria (Lagos, Ogun, Oyo, Osun, Ondo and Ekiti states). The study made use of stratified and simple random sampling techniques to select 952 respondents from 3 sampled states: Lagos, Ogun and Oyo.

Two research instruments were used to collect data for this study. The instruments are. Integrated Talent Management Strategies Questionnaire (ITMSQ) with 60 questionnaire items and Employees’ Turnover Intentions Questionnaire (ETIQ) with 10 items. Both instruments were measured with 4 Likert-type scales(Strongly Agree, Agree, Disagree and Strongly Disagree). The instruments were validated by the experts in Test and Measurement Adekunle Ajasin at University, Akungba Akoko, Ondo state. ITMSQ has a demographic section which includes the name of the industry, employees’ age, marital status, gender, highest educational qualifications, designation, and working experience. So also ITMSQ has six subscales with a reliability index obtained through the test and retest method and Cronbach and Alpha reliability technique: the Human Resources Planning Scale(0.93), Recruitment and Selection Scale (0.81), Employee Development Scale (0.83), Employee Retention Scale(0.76), Employee Health and Safety Management Scale(0.77) and Employee Performance Appraisal Scale(0.74). Meanwhile the reliability index of ETIQ obtained was 0.78. Two research questions were raised and two hypotheses formulated were analysed with inferential statistics.

Testing of Hypotheses

Hypothesis One: There is no significant combined contribution of integrated talent management strategies (Human resource planning, recruitment and selection, employee development, employee retention, employee health and safety management and performance appraisal) to employee turnover intention.

Table 1: Analysis of the Interaction between combined integrated talent management strategies and employee turnover intention

Mode	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.934a	.873	.872	1.45115

a. Predictors: (Constant), Employee Performance Appraisal, Recruitment and Selection Strategy, Human Resource Planning Strategy, Employee Retention Strategy, Employee Health and Safety Management, Employee Development Strategy

Source: Author’s Computation using SPSS 23.0, (2023)

Table 1 shows the model summary of the regression analysis of the interaction between combined integrated talent strategies and employee turnover intention with an (R) value of .934. This indicates a very strong association between combined integrated talent strategies and employee turnover intention. R² value of 0.873 indicates that combined integrated talent strategies accounted for employee turnover intention. Other major variables that accounted for about 13% of employee turnover intention are not contained in this model but are represented under the stochastic error term. This finding rejected the null hypothesis. Hence, there is a significant combined contribution of integrated talent management strategies (Human resource planning, recruitment and selection, employee development, employee retention, employee health and safety management and performance appraisal) to employees' turnover intention.

Table 2: Regression Showing Significance of Predictors to Employee Turnover Intention

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	13709.750	6	2284.958	1085.054	.000 ^b
Residual	1990.027	945	2.106		
Total	15699.777	951			

a. Dependent Variable: Employee Turnover Intention

b. Predictors: (Constant), Employee Performance Appraisal, Recruitment and Selection Strategy, Human Resource Planning Strategy, Employee Retention Strategy, Employee Health and Safety Management, Employee Development Strategy

Source: Author's Computation using SPSS 23.0, (2023)

Table 2. shows the F-statistics value for regression to test the overall significance of the independent variables in explaining the employee turnover intention. The results show that the combined integrated talent management (Employee Performance Appraisal, Recruitment and Selection Strategy, Human Resource Planning Strategy, Employee Retention Strategy, Employee Health and Safety Management, Employee Development Strategy) in the selected study area significantly predicted the level of employee turnover with the F value 6,951, P-value < 0.05 (Sig .000). This indicates strong evidence against the null hypothesis, as there is less than 5% probability that null hypothesis is correct. F – statistical indicates that the overall regression model is highly statistically significant in terms

of its goodness of fit since the value of $F_{tab} (6,951) > F_{cal} (1085.054)$. The study, therefore, concluded that there is a significant combined contribution of integrated talent management strategies (Human resource planning, recruitment and selection, employee development, employee retention, employee health and safety management and performance appraisal) to employees' turnover intention.

Table 3: Analysis of the Interaction between relative integrated talent management strategies and employee turnover intention

Model	Unstandardised Coefficients		Standardised Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.825	.353		2.340	.019
Human Resource Planning Strategy	.133	.050	.130	2.642	.008
Recruitment and Selection Strategy	.463	.042	.456	11.058	.000
Employee Retention Strategy	.001	.122	.001	.009	.004
Employee Development Strategy	.161	.133	.159	1.215	.025
Employee Health and Safety Management	.059	.055	.058	1.064	.047
Employee Performance Appraisal	.268	.046	.268	5.774	.000

Source: Author's Computation using SPSS 23.0, (2023)

Table 3 shows the regression coefficients of the significant relative contribution of integrated talent management strategies to employees' turnover intention. The results show that beta weight 0.463 and t value =-11.058 are the highest contributions, meaning that a 1% increase in recruitment and selection strategy will lead to a 46% immediate improvement (Reduction) in employee turnover intention. Also, the employee performance appraisal strategy yields a beta weight of 0.268 and t value = 5.774 contribution. Followed by employee health and safety management with beta weight of 0.059 and t value =1.064. Moreover, the Human resource planning strategy also contributes significantly with a beta weight of

0.133 and t value of 2.642, meaning that a 1% increase in Human resources planning policy will lead to a 26% improvement (reduction) in employees' turnover intention. However, the Employee retention strategy contributes significantly to employees' turnover intention, with a beta weight of 0.001 and a t value of 0.009. From the results obtained from Table 4.10, the p-value calculated is less than 5%, a critical value. Hence, the null hypothesis was rejected. The study, therefore, concluded that there is a significant relative contribution of integrated talent management strategies to employees' turnover intention.

Discussions of Findings

The study's findings indicate that organisations' talent management strategies are effectively meeting the needs of their employees. Akinremi et al. (2019) discovered that organisations that have implemented various talent management strategies have exceptionally low employee turnover intentions. This success is attributed to the collective impact of integrated talent management strategies, which include human resource planning, recruitment and selection, employee development, employee retention, employee health and safety management, and performance appraisal. The primary hypothesis finding reveals a significant combined contribution of these integrated talent management strategies to employees' turnover intentions. The study aligns with the findings of Al-Dalaweh et al. (2020), Zhaoyan (2022), and Ateufac (2021), which demonstrate that talent management strategies positively influence employee turnover intentions.

However, when testing the hypothesis on the relative contributions of integrated talent management strategies (including human resource planning, recruitment and selection, employee development, employee retention, employee health and safety management, and performance appraisal) to employees' turnover intentions, the findings confirm a significant combined contribution of these strategies to employees' turnover intentions. The study supports the conclusions of Galgallo and Matembe (2022), Gadi and Kee (2018), and Zhaoyan (2022), which highlight the significant effects of different talent management strategies on turnover intention.

Conclusion and Recommendations

Based on the findings of this study, it has been concluded that the manufacturing industries in Southwest Nigeria have implemented all of the integrated talent management strategies (human resource planning, recruitment and selection, employee development, employee retention, employee health and safety management, and performance appraisal) that were examined in this study.

Furthermore, it was found that employee turnover intention was low, and all of the examined talent management strategies collectively and individually had a significant impact on employees' turnover intentions in the manufacturing industries of South-West Nigeria. Based on these findings, the following recommendations have been proposed:

- i. Considering the dynamic nature of the workforce, organisations should adopt additional talent management strategies in order to mitigate turnover intention.
- ii. Organisations should regularly assess the effectiveness of the integrated talent management practices they have adopted, with the aim of enhancing employee retention.
- iii. Organisations should develop other retention programs based on the identified integrated talent management strategies that have a significant impact on turnover intention. These initiatives could include mentorship programs, career development opportunities, and recognition programs, which can foster employee engagement and loyalty.
- iv. The government and policymakers should implement policies that enhance talent management in both the civil services and private organisations.

References

- [1] Adeoye, A.O. & Elegunde, A.F. (2020). Compensation management and motivation: Cooking utensils for organisational performance, *Mediterranean Journal of Social Sciences*, 5(7), 88- 97.
- [2] Akinremi, M.O., & Adedeji A. O. (2019). Analysis of talent management and performance of employees in selected banks in Akure, Ondo State, Nigeria. *International Journal of Management Studies and Social Science Research*, 1(5), 1-13
- [3] Akintayo, D.I., Ayantunji, I.O., Ajibola, K.S.& Olaniyan, T.S.(2020). Family-friendly human resource management practices and Employees' behavioral outcomes in the Nigerian Banking Sector. *European Journal of Business and Management*, 12(11), 28-36
- [4] Amponsah-Tawiah, K., & Dartey-Baah, K. (2019). Occupational health and safety: key issues and concerns in Ghana. *International Journal of Business and Social Science*, 2(14).
- [5] Armstrong, M., & Taylor. S., (2016). *A handbook of human resource management practice.10thed.* Great Britain: Cambridge University.99-102.
- [6] Ayantunji, O., Olonade, Z., Adetunji, S., & Oluwatobi, O. (2021). Staffing Processes on Workers' Retention in Federal Polytechnic Ede, Osun State, Nigeria. *Jurnal Ilmiah Ilmu*

- Administrasi Publik: Jurnal Pemikiran dan Penelitian Administrasi Publik*, 11(2), 360-372.
- [7] Bashir, A. Ali, I.E. & Haruna, O. (2021). Effect of talent management on employee performance of selected commercial banks in Abuja, Nigeria. *World Journal of Management and Business Studies* 1(3), 1-20
- [8] Bello, A.B. (2019). The place of school based personnel management in enhancing the development and achievement of professional teachers. *Bayero Journal of Education Studies*.1 (1) 98-100.
- [9] Benson, G. S. (2020). Employee development, commitment and intention to turnover: a test of 'employability' policies in action. *Human Resource Management Journal*, 16(2), 173-192.
- [10] Bikefe, G.G., & Daniel, C.O. (2022). Employee retention practices and the performance of small and medium enterprises in Nigeria. *WSEAS Transactions on Business and Economics*, 19, 1493-1506.
- [11] Boyede M.A., & Omotoye O.O., (2021). " Worklife Balance on Employees Engagement among Women in Technical Education (Wited) in Polytechnics in Osun State, Nigeria". *Annals of Spiru Haret University. Economic Series*, 20(3), 89-107, doi: <https://doi.org/10.26458/2134>
- [12] Chirimbu, S.C.,(2022). "Aspects of Career Management and Success in Educational Organisations". *Annals of Spiru Haret University. Economic Series*, 22(3), 99-111, doi: <https://doi.org/10.26458/2235>
- [13] Cappelli, P. (2015). A market-driven approach to retaining talent. *Harvard Business Review*, 78(1), 103-111.
- [14] David T.M, (2018). Perception of selection interview, selection test and employee performance: An empirical analysis, *Journal of Public Administration and Policy Research*5(4) 55.
- [15] Debowale, F. (2021). The effect of training on employees' performance. *European Journal of Business and Management*, 5(4), 137-147.
- [16] Dwomoh, G., Owusu, E. E., & Addo, M. (2013). Impact of occupational health and safety policies on employees' performance in Ghana's timber industry: Evidence from Lumber and Logs Limited. *International Journal of Education and Research*, 1(12), 1-14.
- [17] Elegbede, S., Gbajumo-Sheriff, M., Gbadamosi, A., Kolawole, I., & Omotoye, O. (2024). The influence of industrial health and safety practices on employees' attitude among nurses in OAUTH, Osun State. *African Journal For The Psychological Studies Of Social Issues*, 27(1), 195-207
- [18] Fajana, S. (2019). HR Management in Africa: The social and economic framework. *Personal fuhrung*, 7(1), 80-86.

- [19] Fatale, J.O. Salami I. & Afegbua, E E (2019). Talent management and public sector performance: An investigation of Lagos State Ministry of Education, Nigeria. *Journal of Social Sciences Research* 6(9), 845-855.
- [20] Ganaie, M. U. and Haque, M. I. (2017). Talent management and value creation: A conceptual framework. *Academy of Strategic Management Journal*, 16(2), 1-7
- [21] Gareth, R. (2017). Recruitment and selection: A competency approach. Oxford University Press. 39-51.
- [22] Gulati, R., & Kletter, D. (2019). Shrinking core, expanding periphery: The relational architecture of high-performing organisations. *California Management Review*, 47(3), 77-104.
- [23] Harris, C. & Williamson, D. (2018). *Increasing productivity and decreasing turnover in a New Zealand Hotel*. Cauthe Conference 2018.
- [24] Hazem, B. H. (2018) Talent management and organisational performance: The mediating role of employee engagement a case study Bank of Palestine in the Gaza Strip an *Unpublished M.Sc Thesis submitted to the Department of Business Administration, The Islamic University-Gaza, Palenstine*.
- [25] Herschberg, C., Benschop, Y., & Van den Brink, M. (2018). The peril of potential: Gender practices in the recruitment and selection of early career researchers. In *gender and precarious research careers* (pp. 111-142). Routledge.
- [26] Hezekiah O. F., Opeyemi O. O., & Oluwatunmise O. O. (2022). Influence of workplace management initiative on talent management in the Nigeria pharmaceutical industry, *Journal of Business Studies*, 3(2), 1-21
- [27] James, L. & Mathew, L. (2020). Employee retention strategies: IT industry. *SCMS Journal of Indian Management*. 9(3): 80-82.
- [28] Kim, N. (2014). Employee turnover intention among newcomers in travel industry. *International Journal of Tourism Research*, 16(1), 56-64.
- [29] Lopes Morrison, R. (2018). *Informal relationships in the workplace: Associations with job satisfaction, organisational commitment and turnover intentions* (Doctoral dissertation, Massey University).
- [30] Masindi, T., Onojafe, D.P., Tengeh, R., & Ukpere, W.I.,(2023). "Influence of Job Satisfaction and Organisational Commitment on Employee Turnover Intention in the Chemical Industry in South Africa". *Annals of Spiru Haret University. Economic Series*, 23(4), 77-92, doi: <https://doi.org/10.26458/2342>
- [31] Ngwama, J. C. (2016). Framework for occupational health and safety in Nigeria: the implication for the trade union movement. *J. Econ. Sustain. Dev*, 7.
- [32] Obisi, C., Samuel, R. & Ilesanmi, A. (2020). Influence of workforce planning on organisational performance in the manufacturing industry in Lagos State, Nigeria. *Global Business Review*, 21(2), 40-47.
- [33] Ogbeta, M., Nzewi, H. & Chiekezie, O. (2015). Talent management and employee performance in selected commercial banks in Asaba, Delta State.

- [34] Olonade, Z.O., Balogun, A.R, Akinrinde, O.,& Omotoye, O.O. (2021) “Nexus between Emotional Intelligence and Work Outcomes in Osun State University”. *Annals of Spiru Haret University. Economic Series*, 21(1), 131-142, doi: <https://doi.org/10.26458/2116>
- [35] Olonade, Z., Omotoye, O., & Olalemi, O. (2023). Workforce planning and organisational effectiveness: perspective from Osun state civil servant. *RUDN Journal of Public Administration*, 10(2), 286–298
- [36] Onwuka, E.M. Ugwu K.E. & Kekeocha M. E. (2020). The relationship between talent management and employees performance in Nigerian public sector a study of selected firms in delta state. *International Journal of Economics, Commerce and Management*, 3(5), 1-16.
- [37] Rashid, N. & Ayode, O.I. (2020). Employee development and motivation. *International Journal of Science and Technology*, 4(12): 1778-1782.
- [38] Sajeda, A. A. (2017). The impact of talent management on attaining competitive advantage: A field study on Jordanian Telecommunications Companies. *Unpublished M.Sc. Thesis* submitted to the Department of Business Administration. Middle East University
- [39] Shafieian, M. (2014). *Developing managerial talent commitment. Exploring the link between management of talent commitment and perceived performance in multinational corporations*. Birmingham, UK: Brighton Publishers.
- [40] Smith, E. A. (2020). The role of tacit and explicit knowledge in the workplace. *Journal of*
- [41] Verma, B.K., & Kesari, B. (2020). Does the morale impact on employee turnover intention? An empirical investigation in the Indian steel industry. *Global Business Review*, 21(6), 1466-1488.
- [42] Werner, J. M., & DeSimone, R. L.. (2019). *Human resource development*. Cengage Learning.
- [43] Yousef, A. & Shadi. (2021). Human resource management practices and employee performance the role of job satisfaction. *Journal of Asian Finance, Economics and Business*, 5(8), 1-12.

INFLUENCE OF ABUSIVE SUPERVISION ON EMPLOYEES' MORALE AT WORK: EVIDENCE FROM THE MANUFACTURING ORGANISATIONS

Folake Olubunmi LANRE-BABALOLA¹, Babalola Oluwayemi
OGINNI², Mobolaji Omotayo OBIDIYA³ & Joseph Adeyinka
ADEWOLE⁴

¹*Department of Sociology, Faculty of Social Sciences
Osun State University Osogbo, Okuku Campus*

E-mail: folake.lanre-babalola@uniosun.edu.ng; +234 8084427587

²*Department of Human Resource Development, Faculty of Management
Sciences*

Osun State University Osogbo, Okuku Campus

E-mail: babalola.oginni@uniosun.edu.ng; +234 8028122512

³*Department of Geography, Faculty of Social Sciences
Osun State University Osogbo, Okuku Campus*

E-mail: mobolaji.obidiya@uniosun.edu.ng; +234 8067454200

⁴*Department of Banking and Finance, Faculty of Management Sciences
Osun State University Osogbo, Okuku Campus*

E-mail: joseph.adewole@uniosun.edu.ng; +2348030672138

How to cite: Lanre-Babalola , F.O., Oginni, B.O., Obidiya, M.O., & Adewole, J.A. (2024). "Influence of Abusive Supervision on Employees' Morale at Work: Evidence from The Manufacturing Organisations". *Annals of Spiru Haret University. Economic Series*, 24(1), 312-328, doi: <https://doi.org/10.26458/24118>

Abstract: *Organization is structured in such a way that people work together wherein some would be superiors and others would be subordinates which makes supervision a natural phenomenon while the quality of supervision will determine the result of operational activities daily. The study focused on the influence of abusive supervision on employee morale using the*

manufacturing sector as the unit of analysis, it identified the level of abusive supervision, the causes of abusive supervision, and the relationship between abusive supervision and employee morale. Yamane's sample size formula was used to get the sample size of 310 while a multistage sampling technique was used to select the sample and administer the questionnaire. it was found that abusive supervision is high, caused by leadership styles, absence of an alternative job, and family demands and there exists an inverse relationship between abusive supervision, and employee morale with implications on employee and behavioural outcomes and concluded that high abusive supervision heralds low job satisfaction, low commitment, and low loyalty thus, leading to decreased productivity, increased grievances, and increased turnover as well as hindering innovation and collaboration. Training was recommended to focus on supervision with empathy to improve interpersonal relationships and feelings of belongingness.

Keywords: *Abusive supervision, employee morale, training, employee, and behavioural outcomes, empathy*

JEL Classification: M12; M54; O14; O15

1. Introduction

The 21st Century organizations are characterized by a network of relationships on account of the significance of teamwork which is the bedrock of successful organizations, thus, buttressing the essence of cooperation and unity in the workplace (Oginni, Afolabi & Erigbe, 2014). The implication of this in the workplace is that there would be a kind of interaction between and among members of the team (s) within and across the entire organization wherein a supervisor oversees the activities of the team which revolves around planning, organising, controlling, and coordinating as well as leading without prejudice. This has made organizations increasingly concerned about the impact of supervision on employees (Oginni, et al, 2014; Cortina, Kabat-Farr, Magley. & Nelson, 2017). The position of Mullen, Fiset, and Rheaume (2018) also supported this concern and opined that organizations should be more concerned about destructive supervision which carries more negative implications on employee morale and behaviour at work especially where there is close contact in the network of their relationships. The earlier work of Oginni, et al (2014) revealed that abusive supervision was a form of destructive leadership in the workplace manifesting in the form of

emotional depletion, fatigue, procrastination, chronic stress, and low job satisfaction and similar to this, was that of the earlier work of Schyns and Schilling (2013) where it was postulated that abusive supervision is negative and has no economic benefit to the employee and organization, rather damaged employee morale and harm organizational profitability because of its impact on the employee and behavioural outcomes which has implication on absenteeism, excessive stress, emotional exhaustion, intention to quit, and low initiatives. In the end, it will affect employee job satisfaction, commitment, and loyalty to the organization thus, leading to decreased productivity, increased grievances, and increased turnover while Khoreva and Wechsler (2020) believed that employees under abusive supervision are prone to hindering innovation and collaboration as well as hoarding knowledge and expertise.

Abusive supervision emerged in the workplace because every business organization without an exemption is structured in such a way that people are going to work together wherein some would be superior while others would be subordinates (Oginni, et al. 2014; Oginni & Lanre-Babalola, 2020). Thus, the two parties are expected to work together and ensure that the objectives of the organizations are achieved i.e. the activities of both parties complement each other, one gives directives (order), and the other carries out the order (directives) within the legal framework approved by the management of the organization (Zhu & Zhang, 2019; Oginni & Ogunyomi, 2012). To this extent, supervision becomes the engine oil and hallmark for the growth of every business organization irrespective of the nature, scope, or size. Oginni and Faseyiku (2012) opined that compassionate or benevolent supervision benefitted organizations in many ways such as it supports growth, unites teams, gives room for excellent performance, enhances accountability, helps in verifying potentials, instils independence through delegation of responsibilities, reinforces relationships and improves communication. It is also an avenue that facilitates the proper evaluation of individual contributions towards achieving organizational goals (Hershcovis, Ogunfowora, Reich & Christie, 2017).

This predisposes the supervisor to control subordinates' roles, assignments, activities, and rewards towards the attainment of organizational objectives. Thus, implies that supervisor operates within the available legal framework to use their discretion on how best to perform a given task or a routine assignment. With this belief, there is a temptation on the part of the superior to display power over the work processes and work environment of the subordinates which has empowered

the superior to pick and channel abuse on employees or groups of employees in the name of getting things done (Oginni, Ajibola & Olaniyan, 2022; Zhu & Zhang, 2019). However, despite these highlighted benefits, some supervisors justify their actions of abusing their subordinates under the pretext of scrutinizing the work performed by subordinates to ensure compliance with the acceptable standard while some believe that abusive supervision is the best model to apply and practice regardless of their education, orientation, and work philosophy why?

There had been a consensus among scholars that abusive supervision in the workplace has a negative impact on the physical and psychological well-being of the victims and other people around them although it manifests in varying degrees depending on the nature of the industry (Oyewunmi & Oyewunmi, 2022; cc; Mullen et al, 2018; Tepper, Simon & Park, 2017; Samantha, 2016; Oginni, et al, 2014; Tepper, 2007). Most of the research on abusive supervision had concentrated on the Educational, Information Technology, and Service sectors with few in the manufacturing sectors highlighting the impact on the work behaviour of employees, consequences on the work atmosphere, employee's personality, and productivity while there is a dearth of such especially in the area of employee morale in the manufacturing sector where the nature of the network is structured like that of a cobweb. Therefore, this study seeks to investigate the degree/level of abusive supervision, identify causes of abusive supervision despite the understanding of its negative impact on the morale of employees, examine which of these factors affects the morale of employees more than the rest, and examine the relationship between abusive supervision and morale of employees at work in the manufacturing sector.

2. Literature Review

Abusive supervision as a concept in the modern-day work relationship has a legion of definitions and some of these were considered in line with the focus of the study. In the views of Tepper, Simon & Park, 2017; Tepper, 2007), abusive supervision was described as the display of hostile verbal and non-verbal behaviours, excluding physical contact towards the subordinates while Oginni and Faseyiku (2012) described exertion of power by a superior over subordinates in an awkward manner to instil fear. Hershcovis et al. (2017) opined that abusive supervision is an expression of any form of maltreatment from the superior to subordinating causing humiliation of any kind. c, et al (2019), described abusive supervision from the subordinates' perception to mean the extent to which they

perceived their supervisors engaging in the sustained display of hostile verbal and nonverbal behaviours while the views expressed by Williams (2020) and Adegoke (2021) agreed with this and opined that abusive supervision is the degree of derogatory comments about an individual to other members of the organization. It is therefore not out of place to say that abusive supervision is the use of language that depletes an individual personality at work or any act capable of undermining the ego of an individual at the workplace (Oyewunmi & Oyewunmi, 2022; Khoreva & Wechsler, 2020)).

Tepper (2000) observed that the consequences of abusive supervision are numerous ranging from the intention to quit their jobs to low job satisfaction, conflict between work and family as well as psychological distress. Hershcovis et al. (2017) maltreatment from supervisors' which often arises because of power tussles or differences and asserted that it has a significant negative effect on the performance of employees while Mullen et al, (2018) believed that employees with the perception of abuse from their supervisors tend to engage in counterproductive work behaviours aimed at both the supervisor and the organization. Oginni and Faseyiku (2012) linked deviant behaviour to abusive supervision as one of the many counterproductive activities in the workplace. Phulpoto, Hussian, Brohi and Memon (2021) revealed that abusive supervision impacts negatively on employees in terms of their behaviours, attitudes, and psychological health and concluded that there exists a negative relationship between abusive supervision and organizational commitment although it examined the possibility of a subordinate's hostility towards a supervisor as the factor impelling supervisors to exhibit abusive acts towards poor-performing subordinates. The earlier work of Nwani, Ofoke, Eze and Udechukwu (2017) was built upon by Phulpoto, et al. (2021) where it was opined that the victims of abusive supervision tend to emulate such behaviour and display the same towards their colleagues. Adegoke (2021) asserted that abusive supervision leads to absenteeism, excessive stress, depletion of dignity, and emotional exhaustion (Oyewunmi & Oyewunmi, 2022).

Williams (2020) observed that abusive supervision has many negative consequences on the organization and employees but believed it is a result of power abuse by supervisors wherein supervisor abuse their role as leader, mentor, and role model thus arrogating or wielding enormous power has not envisaged by the legal framework of the organization to suppress subordinates (Khoreva & Wechsler, 2020). Nwani et al (2017) and Adegoke (2021) presented the same views on the use of power by supervisors to suppress subordinates and posited that

where subordinates could not avoid suppression, subordinates are willing to accept abuses and suppression from their supervisors but over time devised means to cope with the abuse and suppression by manifesting dissatisfaction behaviour such as intention to quit, absenteeism, deviance behaviour, work accident, and poor productivity as well as disaffection among employees and low commitment (Masindi, Onojaefe, Tengeh & Ukpere, 2023) while Oginni, Ayantunji, Awolaja, Adesanya, and Ojodu. (2023) noted that sometimes, interpretation of policies often made supervisors to be abusive. Lawal and Benson (2022) also posited that abusive supervision imposes psychological stress on the subordinates and has a negative impact on the performance of the subordinates at work on account of work alienation. Therefore, abusive supervision affects employees' personalities, mindsets, self-esteem, and relationships with others whether at work or home with consequences on performance at work.

The works of Kimberly, Barbara, and Birgit (2021) on abusive supervision provided comprehensive insight into why abusive supervision has continued to thrive in the workplace not only in this direction but also why subordinates continue to stay under abusive supervision. They used the onion approach to argue that the prolonged nature of abuse cannot be understood within the limits of leader-follower dynamics alone but instead involves societal, organizational, dyadic, and intra-individual factors that should be taken into account and considerations i.e. the larger society context (societal culture, economy, job market, and law), organizational context (norms and values, corporate social responsibility, policies, and practices, team solidarity, and support), dyadic context (preventing employees from leaving, social isolation, the impact of abusive supervision, and coping with abusive supervision) and intra-individual context (social identification, conservation values, implicit leadership theories, personality).

The earlier works of Mackey et al., (2017) and that of Tierney and Farmer (2017) were in line with the classification of causes of abusive supervision in the workplace. Before the work of Kimberly, et al. (2021) some researchers have identified some reasons such as malicious supervisors, environmental factors, and individual factors as well as supervisors' rigidity or hostile intentions, followers' attribution styles, the interaction of several organization-level and individual-level factors (Felps, Mitchell & Byington, 2006; Tepper, 2007; Martinko, Harvey, Sikora, and Douglas, 2011; Oginni, et al, 2014). It can therefore be summarised that abusive supervision is not only caused by the characteristics of the supervisor but also by the followers'/subordinates' attributes and the characteristics of the

organization while Oyewunmi and Oyewunmi (2022) posited that abusive supervision results in decreased job satisfaction for the employee thus, lower job satisfaction which invariably leads to decreased productivity. It also leads to increased grievances and increased turnover. In the views of Masindi et al (2023), the degree of employee happiness at work depends on the competence and relationship of their supervisor, their remuneration, and their working circumstances.

2.1 Underpinning Theory

Many theories have been linked to abusive supervision such as social exchange theory, conservation of resources theory, self-regulation theory, self-efficacy theory (social learning theory), and social identity theory. Based on the content and context of this study, social self-efficacy theory was considered appropriate as the underpinning theory. Social self-efficacy theory was propounded by Albert Bandura in 1977 in an article published by the Journal Psychological Review titled “Self-Efficacy: Toward a Unifying Theory of Behavioural Change”. The theory was anchored on the belief that a person's feeling that their thoughts and actions influence a given outcome i.e. an individual's belief in his or her capacity to execute behaviours necessary to produce specific performance attainments. It emphasizes the importance of the individual and the individual's perceptions of his/her capabilities as key determinants of successful outcomes. The theory is deeply rooted in the concept of triadic reciprocal determinism in which there is a constant interplay between personal factors, behavioural, and environmental factors although a premium is placed on the relative importance of personal factors, at the same time acknowledged that behavioural and environmental factors have profound effects on outcomes. It further reinforces the idea that if the effects of the environment are consistent, then self-efficacy beliefs will take on an even greater role in determining human behaviour, and ultimately shaping outcomes concerning mastery experiences, vicarious experiences, emotional, physical, and psychological states, and verbal persuasion.

Tierney and Farmer (2017) and Bui and Baruch (2011) supported the construct of the theory by positing that the perception of individual employees and relationships in the work environment plays a significant role in shaping employee's behavioural outcomes although the theory has been criticized by some scholars on account of disregarded or ignoring the role of the environment on an individual (Eastman & Marzillier, 1984; Biglan; 1987; Lewis, 2018). Despite its

criticism, self-efficacy is significantly beneficial in understanding various life aspects, ranging from relationships and the psychology of employees in the workplace. It provides a reliable framework and avenue to explain how the relationship between the superior and subordinates will have a bearing on individuals, especially feeling about themselves in terms of mental, physical, and psychological health and positivism oozing from their perceptions.

3. Methodology

The study was situated in Ogun state which is one of the 36 States in Nigeria, and it has three Senatorial Districts namely Ogun West, Ogun East, and Ogun North, however, Ogun West was chosen as the unit of analysis out of the three Senatorial Districts because more than 60% of the manufacturing industries were located in this Senatorial District to include Cable, Plastic, Pharmaceutical, Beverages organizations. In all, seventeen (17) organizations were selected within the manufacturing industries wherein Cable organizations (3), Plastic organizations (5), Pharmaceutical organizations (5), and Beverage organizations (4) through purposive sampling technique. Yamane's sample size formula was used to get the sample size from the population study of 1375 to get 310 as the sample size and a proportional sampling technique was used to select the sample size from the selected organizations i.e. cable organization (63), Plastic organizations (95), Pharmaceutical organizations (78), and Beverage organizations (74) while random sampling was employed to administer 310 copies of questionnaire to the research respondents wherein 286 copies of the questionnaire were found useful for analysis.

The study made use of a structured questionnaire which was designed in line with the Likert 5-point rating scale and was influenced by the earlier 15-item measurement scale of Tepper (2000) and a 5-item scale developed by Mitchell and Ambrose (2007) on abusive supervision. Before the administration of the structured questionnaire, a mixture of an open-ended and closed questionnaire was administered to 50 respondents chosen from the manufacturing organizations between September and November 2023 for pretest study purposes. The respondents were to tick among options of factors found to be responsible for abusive supervision in the workplace, the respondents were asked to add if there is any outside the options provided. Based on the responses from the respondents, factors with 80% occurrence frequency were used for the study. The administration of the questionnaire to the respondents was between the period of three months

(December 2023 and February 2024). Data collected were analyzed by using descriptive (Percentage, Mean, and Kendall's W test) and inferential statistics (Pearson correlation coefficient and linear regression methods).

4. Results

4.1 Objective 1: to investigate the degree/level of abusive supervision among employees in the selected manufacturing sector

Table 1: Abusive Supervision Degree/Level of the Respondents

Variables	Low N (%)	Moderate N (%)	High N (%)	Total N (%)
Gender				
Male	29(14.2)	51(25)	124(60.8)	204(100)
Female	17(20.7)	30(36.6)	35(42.7)	82(100)
Total	46(16.1)	81(28.3)	159(55.6)	286(100)
Age				
Below 36yrs	17(19.8)	24(27.9)	45(52.3)	86(100)
Above 36yrs	57(28.5)	45(22.5)	98(49)	200(100)
Total	74(25.9)	69(24.1)	143(50)	286(100)
Marital Status				
Single	28(40)	19(27.1)	23(32.9)	70()
Married	23(12.7)	48(26.7)	109(60.6)	180()
Others	20(55.6)	9(25)	7(19.4)	36()
Total	71(24.8)	76(26.6)	139(48.6)	286(100)
Work Experience				
Below 10 yrs	24(20.5)	16(13.7)	77(65.8)	117(100)
Above 11 yrs	40(23.7)	38(22.5)	91(53.8)	169(100)
Total	64(22.4)	54(18.9)	168(58.7)	286(100)
Cadre Category				
Management	7(28)	6(24)	12(48)	25(100)
Senior staff	38(43.2)	30(34.1)	20(22.7)	88(100)
Junior staff	12(6.9)	35(20.3)	126(72.8)	173(100)
Total	57(19.9)	71(24.8)	158(55.2)	286(100)

Source: Field Survey, 2024

Table 1 shows the level of abusive supervision in the manufacturing sector which was rated on a 3-point rating scale i.e. low, moderate, and high levels. Out of a total of 286 employees sampled for the study, 159 respondents had high abusive supervision representing 55.6%, 81 respondents experienced moderate abusive supervision representing 26.3% while 46 of the respondents had low abusive supervision which represented 16.1%. This shows that the majority of the respondents experienced abusive supervision at a high level wherein the male gender experienced this more than the female gender. The age of the respondents indicates that there is a high level of abusive supervision among the respondents with 143 (50%) where respondents who aged above 36 years experiencing this more than those whose age is below 36 years. However, the marital status shows that the respondents also experienced a high level of abusive supervision with 139 (48.6%) although the married respondents (60.6%) experienced this more while the work experience shows a high level of abusive supervision among the respondents with 168 representing 58.7% especially those who had spent more than 11 years in their respective organizations, the cadre in the organization which was categorized into three had the same high-level abusive supervision with 158 of the respondents representing 55.2% wherein the junior staff had the lion share of the abusive supervision percentage i.e. 72.8.

4.2 Objective 2: to identify causes of abusive supervision in the manufacturing sector

Table 2: Kendall's W test and Mean Rank Statistics of the Causes of Abusive Supervision

<i>Abusive Supervision Variables</i>	<i>N</i>	<i>Mean Rank</i>	<i>Kendall's W</i>	<i>Chi-Square</i>	<i>DF</i>	<i>Asymp. Sig.</i>	<i>Rank Score</i>	<i>Remark</i>
<i>Subordinate provocative attitude</i>	286	3.567	0.816	75.327	8	0.000	8	A
<i>Work Demands</i>	286	3.672					7	A
<i>Absence of Alternative Job</i>	286	4.328					2	A
<i>Leadership Styles</i>	286	4.335					1	A

<i>Abusive Supervision Variables</i>	<i>N</i>	<i>Mean Rank</i>	<i>Kendall's W</i>	<i>Chi-Square</i>	<i>DF</i>	<i>Asymp. Sig.</i>	<i>Rank Score</i>	<i>Remark</i>
<i>Justice Perception</i>	286	3.112					9	A
<i>Family Demands</i>	286	4.101					3	A
<i>Emotional Instability</i>	286	3.942					4	A
<i>Inferiority Complex</i>	286	3.670					6	A
<i>Power Obsession</i>	286	3.843					5	A
<i>Intention to quit</i>	286	2.562					10	D

Source: Field Survey, 2024

Remark: where Agreement (A) is ≥ 3.0 and Disagreement (D), is ≤ 3.0

Table 2 has the information extracted from extant literature and the outcome of the pilot study which showed that ten (10) different items were identified as the major causes of abusive supervision in the manufacturing sector. Data were analyzed using Kendall's W test, a statistical tool used to measure the extent of agreement among raters wherein the result obtained from the data analysis provided information to understand the extent of agreement among the employees on the factors causing abusive supervision in the manufacturing sector. It was found that the statistical value of Kendall's W coefficient of concordance (where $W = 0.816$, $X^2 = 75.327$, $Df. = 8$, $Sig. = 0.000$) confirmed the high level of agreement among the respondents i.e. subordinate provocative attitude, work demands, absence of an alternative job, leadership styles, justice perception, family demands, emotional instability, inferiority complex, and power obsession represents the major causes of abusive supervision while the mean score of intention to quit has a remark indicating disagreement among the employees which implies nonunanimous decision on intention to quit as a major cause of abusive supervision in the manufacturing sector.

4.3 Objective 3: to examine which of the abusive supervision factors affect employees at work more than the others

Table 3: Coefficient Value of Factors Responsible for Abusive Supervision

<i>Variables</i>	<i>β</i>	<i>Sig</i>	<i>Potency</i>
<i>Subordinate provocative attitude</i>	0.188	0.001	6
<i>Work Demands</i>	0.221	0.004	4
<i>Absence of Alternative Job</i>	0.345	0.000	2
<i>Leadership Styles</i>	0.512	0.000	1
<i>Justice Perception</i>	0.111	0.000	9
<i>Family Demands</i>	0.215	0.000	5
<i>Emotional Instability</i>	0.287	0.001	3
<i>Inferiority Complex</i>	0.178	0.002	7
<i>Power Obsession</i>	0.138	0.000	8
<i>Intention to quit</i>	0.043	0.002	10

Source: Field Survey, 2024

Table 3 provides information on the degree of potency of each of the cause variables of abusive supervision wherein it shows that leadership styles were found to be the most potent variable of all the factors responsible for abusive supervision in the workplace followed by the absence of an alternative job. Emotional stability was next to the absence of an alternative job after which work demands, family demands, subordinate provocative attitude, inferior complex, power obsession, and justice perception. The implication is that leadership styles have more contribution to abusive supervision than the rest i.e. $\beta = 0.512$, $p = 0.000$ to imply 51.2% of the variation in the factors responsible for different forms of abusive supervision, followed by the absence of an alternative job with $\beta = 0.345$, $p = 0.000$ to represent 34.5% of contribution in abusive supervision, next was emotional instability which has $\beta = 0.287$, $p = 0.001$ implying 28.7% variation in the factors causing abusive supervision and work demands was ranked as among factors with strong potency of $\beta = 0.221$, $p = 0.004$ signifying 22.1% contributory effect in abusive supervision and was followed by family demands that $\beta = 0.215$, $p = 0.000$ indicating 21.5% of the variation in abusive supervision while subordinate provocative attitude shows 18.8% potency in abusive supervision, while inferiority complex has 17.8% and power obsession has a variation of 13.8% of the factors responsible for abusive supervision in the workplace while justice perception has 11.1% to indicate the

variation contributed to abusive supervision. However, the intention to quit as one of the causes of abusive supervision was not a unique contributor with a statistical value of $\beta = -0.043$, $p = 1.002$. Therefore, objective 2 which seeks to know which of the abusive supervision factors that affect the morale of employees at work more than the rest was achieved.

4.4 Objective 4: examine the relationship between abusive supervision and employee morale towards behavioural and employee outcomes at work.

Table 4: Correlation between Abusive Supervision and Employee Morale

<i>Variables</i>	<i>Abusive Supervision</i>	<i>Employee Morale</i>
<i>Abusive Supervision</i>	1	- 678*
<i>Employee Morale</i>	- 678*	1

*Correlation is significant at the 0.05 level (2 - tail)

Table 4 shows the correlation between abusive supervision and employee morale which indicates that there is a strong negative correlation between the independent and dependent variables. The negative correlation connotes an inverse relationship between abusive supervision and employee morale where $r = - 0.678$, $p < 0.05$ to imply that, as abusive supervision increases, employee morale decreases i.e. lower abusive supervision will herald higher employee morale, thus leading to positive behavioural and employee outcomes which invariably will yield higher organizational productivity.

Many researchers have posited that abusive supervision is prevalent in most organizations especially where there is an intertwin network of relationships where there is a presence of superiors and subordinates working together to achieve organizational objectives. The result of this present study confirmed the findings of other researchers before this study (Oyewunmi & Oyewunmi, 2022; Williams, 2020; Oginni & Lanre-Babalola, 2020; Zhu & Zhang, 2019; Hershcovis, Ogunfowora, Reich & Christie, 2017; Oginni, et al. 2014; Oginni & Ogunyomi, 2012) that abusive supervision evolved from a network of relationship in the workplace on account of attaining organizational objectives. It also buttressed the belief of supervisors that abusive supervision is a way to justify the actions of abusing subordinates under the pretext of scrutinizing the work performed and the best model to apply (Zhu & Zhang, 2019).

The results of the study are consistent with the studies conducted by different researchers on the causes of abusive supervision as highlighted including Oyewunmi and Oyewunmi (2022); Kimberly, Barbara, and Brrgit (2021); Mackey et al., (2017); Tierney and Farmer (2017); Oginni, et al, (2014); Martinko, Harvey, Sikora, & Douglas (2011); Tepper (2007); Felps, Mitchell, and Byington (2006) although the results singled out intention to quit as not unique or a strong contributor to the causes of abusive supervision in the manufacturing sector. The study also confirmed the positions of Lawal and Benson (2022), Adegoke (2021), Williams (2020), Tepper, (2000) and Nwani, et al (2017) where it was asserted that abusive supervision has many negative consequences on the organization and employees. The present study showed that there exists an inverse relationship between abusive supervision and employee morale with implications on employee and behavioural outcomes wherein the organizational productivity is being determined concerning employee job satisfaction, commitment, and loyalty to the organization.

5. Conclusion

The purpose of the study was to investigate the impact of abusive supervision on employee morale wherein the level of abusive supervision was examined, evaluate the causes of abusive supervision, and examine the relationship between and impact of abusive supervision and employee morale. From the results, it was evident that there is a high level of abusive supervision in the workplace of the manufacturing sector with males, married, and employees with more than eleven (11) years of experience feeling the abusive supervision more than the rest. Aside from this, causes of abusive supervision were identified which were found to be consistent with that of previous studies although the intention to quit was never considered dominant while the result of the study revealed further that an inverse relationship exists between abusive supervision and employee morale with implications on employee and behavioural outcomes. A high level of abusive supervision would imply low job satisfaction, low commitment, and low loyalty which invariably would result in decreased productivity, increased grievances, and increased turnover as well as hindering innovation and collaboration within the business environment while hoarding knowledge and expertise would be a common practice.

6. Recommendations

Based on the findings and conclusion of the study, it has been established that abusive supervision is prevalent and evident in the manufacturing sector wherein the performances of employees have been hindered by abusive supervision on account of employee and behavioural outcomes which affects productivity. Therefore, there is a need to institute training in the form of workshops with a focus on supervision with empathy to foster cooperation, improve interpersonal relationships, and feeling of belongingness in superior and subordinate relationships. The training should be for all, irrespective of the cadre in the organization although the training could be broken into three different levels to address the training needs of each individual along their respective cadres. The expectations of individuals in the supervisory role should be made known to them and the implication of abusive supervision in both the short and long run should be emphasized while attention should also be drawn to the health of the organization and that of the employee. There should be a high level of commitment from the management to ensure the success of the training program and provide a mechanism to monitor the result of the training whether the objective is achieved or otherwise.

REFERENCES

- [1] Adegoke, M. L (2021). Consequences of abusive supervision on employee performance in the Nigerian Tertiary Institution, *Journal of Management Sciences*, 4(6),167 - 181
- [2] Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioural change *Journal of Psychological Review*, 84, 191-215
- [3] Bui, H. & Baruch, Y (2011) Universities are learning organizations? An empirical evaluation within an international context. The 18th International Conference on Learning, Mauritius, Republic of, Mauritius.
- [4] Biglan, A (1987). A behaviour-analytic critique of Bandura's self-efficacy theory, *Behavioural Anal*, Spring 10(1), 1-15
- [5] Cortina, L.M., Kabat-Farr, D., Magley, V.J. & Nelson, K. (2017), "Researching rudeness: the past, present, and future of the science of incivility", *Journal of Occupational Health Psychology*, 22 (3), pp. 299-313,
- [6] Eastaman, C & Marzillier, J. S (1984). Theoretical and Methodological difficulties in Bandura's self-efficacy theory, *Cognitive theory research*, 8, 213-229
- [7] Felps, W., Mitchell, R., &Byington, E. (2006). How, when, and why bad apples spoil the barrel: Negative group members and dysfunctional groups. *Research in Organizational Behaviour*, 27, 175-222.

- [8] Hershcovis, M.S., Ogunfowora, B., Reich, T. & Christie, A. (2017). Targeted workplace incivility: the roles of belongingness, embarrassment, and power, *Journal of Organizational Behaviour*, 38, (7), pp. 1057-1075,
- [9] Kimberly, B., Barbara, W., & Birgit, S. (2021). Trapped at work: The barriers models of abusive supervision, *Academy of Management Perspectives*, 36 (3), 1-53.
- [10] Khoreva, V., & Wechtler, H. (2020). Exploring the consequences of knowledge hiding: an agency theory perspective, *Journal of Management Psychology*, 35, 71-84
- [11] Lawal, K. H & Benson, M. M (2022). Influence of abusive supervision on employee emotional stability, *Journal of Public Administration*, 6(7), 78 -93
- [12] Lewis, M. C. (2018). I think I can!" the influences of the four sources of self-efficacy upon the development of vocal performance belief in nine classical collegiate vocalists, Ph. D Thesis submitted to the College of Fine Arts, Boston University, published by ProQuest LLC, USA.
- [13] Mackey, J.D., Frieder, R.E., Brees, J. R. & Martinko, M.J. (2017). Abusive supervision: a meta-analysis and empirical review, *Journal of Management*, 43 (6), 1940-1965
- [14] Martinko, M., Harvey, P., Sikora, D., & Douglas, S. (2011). Perceptions of abusive supervision: The role of subordinates' attribution styles. *The Leadership Quarterly*, 22, 751-764.
- [15] Masindi, T., Onojaefe D.P., Tengeh R., & Ukpere W.I. (2023). "Influence of Job Satisfaction and Organisational Commitment on Employee Turnover Intention in the Chemical Industry in South Africa". *Annals of Spiru Haret University. Economic Series*, 23(4), 77-92, doi: <https://doi.org/10.26458/2342>
- [16] Mitchell, M.S. & Ambrose, M.L. (2007). Abusive supervision and workplace deviance and the moderating effects of negative reciprocity beliefs. *Journal of Applied Psychology*, 92, 1159-1168
- [17] Mullen, J., Fiset, J., & Rhéaume, A. (2018). Destructive forms of leadership: The effects of abusive supervision and incivility on employee health and safety. *Leadership & Organization Development Journal*, <https://doi.org/10.1108/LODJ-06-2018-0203>
- [18] Nwani, B. E., Ofoke S. M, Eze O. E, & Udechukwu C. D (2017). Abusive supervision and work tension as predictors of counterproductive work behaviour among Nigerian police, *Journal of Psychology and Sociology Studies*, 1(1), 42 – 61
- [19] Oginni B. O, Ajibola K. S & Olaniyan T. S (2022). A Study of the Effects of Occupational and Safety and Work Environment on Employee Job Performance in a Manufacturing Organisation of Lagos Metropolis, Lagos, Nigeria, *Annals of Spiru Haret University, Economics Series*, 22(1), 183-193, doi: <https://doi.org/10.26458/22100>
- [20] Oginni, B.O., Ayantunji, I.O., Awolaja, A., Adesanya, A.S. & Ojodu, H.O. (2023). A Study of Human Resource Management Policies, Practices and Employee Commitment: Evidence from Nigerian Small and Medium Enterprises (SMEs)". *Annals of Spiru Haret University. Economic Series*, 23(2), 254-277, doi: <https://doi.org/10.26458/23214>

- [21] Oginni, B. O. & Lanre-Babalola (2020). Literature review on the sociological implication of Psychological Contract on Employees' Satisfaction, *Journal of Banking and Finance Research*, 7(2), 120-129
- [22] Oginni, B. O. Afolabi G. V & Erigbe P (2014). A Study of Superior-Subordinate Relationship and Employees' Commitment to the Core Beliefs of Organisation in Public Universities of Southwest, Nigeria, *American Journal of Business and Management*, 3(1), 28-38
- [23] Oginni, B. O & Faseyiku, I. O (2012). *Dynamics of Industrial Relations*, Lagos, Mankore print.
- [24] Oginni, B. O & Ogunyomi, P. O (2012). The roles of employment processes in organizational image in insurance organizations in Nigeria: Employees and community perspectives, *Australian Journal of Business and Management*, 2(5), 52- 57
- [25] Oyewunmi, A. E., & Oyewunmi, O. A. (2022). Speaking Silence: Abusive Supervision, Subordinates' Citizenship Behavior, and Whistleblowing Intention. *Sage Open*, 12(1). <https://doi.org/10.1177/21582440221079912>
- [26] Phulpoto, K., Hussian, N., Brohi, M. A, & Memon, S. (2021). Abusive supervision and its influence on employee silence and organisational productivity, *Journal of Entrepreneurship, Management, and Innovation* 3(2), 335-384
- [27] Samantha, K. (2016). Abusive supervision in the workplace: An examination of current research and a proposal for preventive measures. University Honors Thesis paper 303.<https://doi.org/10.15760/honors.248>
- [28] Schyns, B., & Schilling, J. (2013). How bad are the effects of bad leaders? A meta-analysis of destructive leadership and its outcomes. *The Leadership Quarterly*, 24, 138–158.
- [29] Tepper, B. J., Simon, L., & Park, H. M (2017). Abusive supervision. *Annual Review of Organisational Psychology and Organisational Behaviour* 4, 123-152
- [30] Tepper, B. J. (2007). Abusive supervision in work organizations: Review, synthesis, and research agenda. *Journal of Management*, 33(3), 261–289
- [31] Tepper, B. J. (2000). Consequences of abusive supervision. *Academy of Management Journal*, 43(2), 178-190
- [32] Tierney, P. & Farmer, S. M. (2017). Considering Creative Self-Efficacy: Its Current State and Ideas for Future Inquiry, Edited by Karwowski, M &. Kaufman, J. C, In *Explorations in Creativity Research, The Creative Self*, Academic Press,
- [33] Williams, J. S (2020). Supervision and interpersonal relationship are two sides of the same coin, *Journal of Management Sciences*, 4(6),198 - 216.
- [34] Zhu, J., & Zhang, B. (2019). The double-edged sword effect of abusive supervision on subordinates' innovative behaviour. *Frontiers in Psychology*, 10, 66. <https://doi.org/10.3389/fpsyg.2019.00066>

WORKERS' PERCEPTIONS OF SOCIAL SECURITY, SOCIAL OPPORTUNITIES AND THE CHALLENGES IN HOTEL EMPLOYMENT

**Musediq Olufemi LAWAL¹, Olawale Olufemi AKINRINDE², Tajudeen
Yusuf ADEYINKA³, Rasaq Omokeji GANIYU⁴, Remi Kasali
ALATISE⁵, Kolawole Lateef KAZEEM⁶**

¹*Osun State University, Osogbo, Nigeria, E-mail: musediq.lawal@uj.ac.za,
<https://orcid.org/0000-0002-3667-2533>*

²*University of Johannesburg, Johannesburg, South Africa, Corner
Kingsway and University Road, Auckland Park, 2092, el (011) 559-2637.
Fax (011) 559-3956, oakinrinde@uj.ac.za,
<https://orcid.org/0000-0001-7350-2376>*

³*National Open University of Nigeria, Abuja, Nigeria, E-mail:
tadeyinka@noun.edu.ng, <https://orcid.org/0000-0002-2306-0749>*

⁴*Fountain University, Osogbo, Nigeria, E-mail: ganiyu.rasaq@fou.edu.ng*

⁵*Fountain University, Osogbo, Nigeria, E-mail:
rkalatise@fuo.edu.ng*

⁶*Fountain University, Osogbo, Nigeria, E-mail: kazykay2ky2@gmail.com*

How to cite: Lawal, M.O., Akinrinde, O.O., Adeyinka, T.Y..., Ganiyu, R.O., Alatise, R.K., & Kazeem, K.L.. (2024). "Workers' Perceptions of Social Security, Social Opportunities and The Challenges in Hotel Employment". *Annals of Spiru Haret University. Economic Series*, 24(1), 329-344, doi: <https://doi.org/10.26458/24119>

Abstract

The study delved into the concept of social security as a fundamental human right, emphasizing its relevance in the hospitality industry, which contributes significantly to the global economy. Despite its substantial impact, the sector faces challenges, particularly in the form of precarious work. In order to gain empirical insights into this problematic, we took a

comprehensive approach, engaging with 120 individuals from a dozen three-star hotels in Abuja, the Federal Capital Territory. To ensure consistency, we adhered to the European Hotelstars Union's classification criteria. Through thoughtfully crafted questionnaires, we delved into workers' perspectives on social security, social opportunities, and challenges. Employing both quantitative and qualitative methods, our analysis utilized frequency and simple percentage techniques, yielding 114 completed responses. The study unfolded the notion of social security as a fundamental human right, spotlighting its pivotal role in the vibrant hospitality industry, a cornerstone of the global economy. However, despite the industry's undeniable impact, the study reveals that hotel workers continue to grapple with social security and employment-related challenges that include human rights abuses, precarious working conditions, imposition of restrictive dress codes and gender-based violence. Based on findings, the study recommends the implementation of liberal dress codes among workers, provision of regular counseling and training, involvement of workers in the decision-making process, offering worker-friendly packages, and organizing relevant training programs to enhance staff skills and well-being, thus promoting sustainable development in the hospitality industry.

Keywords: *Tourism, Hotel, Social Security, Opportunities, Challenges, Sustainable development*

JEL Classification: *J00, J30, J81, J83*

Introduction

Social security has frequently been recognised as crucial to a decent, long-term way of life. Its existence is formally and informally acknowledged as a social welfare program of acts. The recognition of this in formal milieu informs the formulation of a variety of policies meant to provide protection to people and households through steady financial stability, access to health care, and other measures. The provision of such social coverage has been widely embraced by the weak, including the elderly, those without job, the ill, victims of work hazard, the pregnant, those whose primary providers were lost and so on. The formal social security programme often entails transfers (in cash or in kind) from the state to citizens to help smooth consumption and protect people or families from destitution (Gunawan *et al.*, 2017, Zein *et al.*, 2016). The informal social security

is the social safety measure provided outside the formally given social security paradigm (Olivier and Dekker, 2003). It may come in the form of cash or kind by family and community members to the poor and vulnerable in periods of difficulties (Anggraeni, 2015, Putra, 2015).

In African settings, traditional support systems operate as social security measure on the tenets of solidarity and generalized reciprocity commonly found on kinship and familial ties. People's link through kinship and family ties creates in them a sense of community involvement and belonging (Dykstra, 2009). These underlying values and beliefs of family and kinship connections enable members to assist one another when faced with life cycle crises. Ability to perform these roles and responsibilities by the significant others rests on their economic solvency occasioned by existence of tangible means of livelihood. With this, it is evident that only those who are gainfully employed would be able to take on societal obligations when necessary (Gunawan *et al.*, 2018, Zein *et al.*, 2016). Aside this, Haselbarth (1977) stresses the necessity of work in sustaining life and that it creates satisfaction and joy as well as making joys of rest and relaxation, recreation and festivity possible. This therefore justifies the high value placed on work in most cultures and traditions around the world as well as its importance when compared to other aspects of social integration like housing, health, and interpersonal relationships.

Akwaki and Egwu (2017) believe that work, which is infused with the unique human capacity for self-expression and self-realization, is one of God's means of completing man's existence. The foregoing underscores the fact that work is obviously a means towards achieving and sustaining social security due to its economic, social, and spiritual possibilities. In view of this, there arose a need for the understanding of workers' perspective of their social security in the face of opportunities and challenges being faced on their jobs. Specific attention is being given here to the hotel industry due to its peculiarity as one of the fastest-growing sectors of the global economy (Zarrina, 2020). It is also one of the top sectors for job creation owing to its labour-intensive nature and large multiplier effect on employment in other allied sectors. Understanding the position of the employees in the hotel industry in terms of quality of services being provided for effective working condition therefore becomes necessary in this paper.

The hospitality industry has become a prominent service sector in most countries across the world, particularly in those that experience high volumes of foreign travel. Studies have underscored the economic value of hotels to human

development as they provide goods and services that promote the welfare of countries and communities (Attila, 2016; Akinrinde & Telukdarie, 2023). Visitors who stay in hotels contribute directly or otherwise to local economies (Jurigová & Lencsésová, 2015). Generally, hotels provide two major services: (i) lodging, and (ii) dining. Domestic homes, foreign tourists, and institutional purchases are some of the clients in this market. Competitive price, service accessibility, and the range of free services are the main factors that affect the decision to stay in hotels and other lodging alternatives (Jurigová *et al.*, 2016, Sørensen & Jensen, 2015). This service sector continues to be the primary and most popular lodging choice for visitors from other nations (Jurigová & Lencsésová, 2015).

Factors like effectiveness and performance of the workforce were equally noted as affecting the success of these businesses. Lawson (2004) provides support for this claim by arguing that high levels of performance and productivity among employees can be linked to their level of job satisfaction. While this is pointing at motivation in general, it is also indicating the centrality of staff motivation in the sustenance the quality of ongoing services (Karatepe & Uluda, 2007, Hartline *et al.*, 2003, Hays & Hill, 1999). With all these identified, scholars (Khan *et al.*, 2015, Ogbonnikan, 2012) have pointed at pathetic working conditions among the employees in the hotel business hence the call for the managers and labour employers to establish common ground for satisfying workers' demands for better working environment.

In spite of its intrinsic qualities, Harkison (2017) noted that the hotel industry still has a bad image for its workplace. This was found to be caused by a variety of factors, including (a) the fragmentation of the industry, where the majority of employers are small and medium-sized businesses with low union density; (b) it is characterized by low wages and low levels of skill requirements; and (c) shift and night work as well as seasonality. It is in the course of this exposition that this study is making a modest contribution through exposition of employees' perceptions of opportunities and challenges in selected hotel establishments in Abuja FCT, Nigeria. It seeks to comprehend the opportunities and challenge(s) facing the employees, how they manage issues and the implications of this on service delivery and productivity. The study intends to make suitable recommendations for better service and increased patronage. This is against the backdrop of the fact that more patronage means more encouragement for further development and improved services.

Materials and Method

The study relied on primary data sourced from 120 respondents who were sampled from 12 hotels in Abuja, Federal Capital Territory. These hotels were classified as three stars (Comfort Hotels) based on criteria given by European Hotelstars Union. A total of 10 respondents were sampled from each of these hotels. Where a respondent sampled could not participate, voluntary desire to take part was used in the selection of other respondent(s) as replacement. A copy of questionnaire was administered on each of the 120 respondents so as to gather information that are relevant to the study. Out of this number, only 114 copies were retrieved from the respondents. Data generated for the study were analysed using frequency and simple percentage to express the findings.

Results and Discussion

The females constituted majority (60.5%) of this study population, while the males make up the 39.5% balance. Most of the respondents are in the age category of 31 – 40 years of age (35.1%). The least academic qualification of the respondents is secondary school certificate (15.8%) while the remaining have post-secondary education (National Diploma/Nigeria Certificate of Education, Higher National Diploma, Bachelor and Master degrees). Majority of the respondents are Christians (54.4%); substantial proportion of the respondents were unmarried (46.5%). In terms of years of experience gained on the job, majority of the respondents have spent more than 10 years in their places of work (22.8%), while the remaining respondents had gained between 3- and 10-years' experience on the job.

Table 1: Distribution by Unit of Operation within the Hotel

Occupation	Frequency	Percentage
Accommodation	17	14.9
Car hire services	12	10.5
Catering	10	8.8
Event centre/outdoor catering services	14	12.3
Food and Beverages	22	19.3
Laundry	11	9.6
Restaurant/Bar	15	13.2
Gymnasium/Swimming	13	11.4
Total	114	100.0

Source: Field Survey, 2024

As the findings show in table 1, there are 8 departments into which each of the sampled hotels were divided. These include: Accommodation, Car hire services, Catering, Event centre/outdoor catering services, Food and Beverages, Laundry, Restaurant/Bar, as well as Gymnasium/Swimming. The distribution of the respondents based on the Units of operation in the hotels is as follow: Accommodation (14.9%), Car hire services (10.5%), Catering (8.8%), Event centre/outdoor catering services (12.3%), Food and Beverages (19.3%), Laundry (9.6%), Restaurant/Bar (13.2%), as well as Gymnasium/Swimming (11.4%). Majority (31.6%) of the respondents have worked across all the departments available within the sampled hotels. Some (22.8%) have worked between 1 and 3 departments, 17.5% of the respondents have worked between 3 and 5 departments while the remaining 28.1% have their working experiences within the hotels cutting across 5 and 8 departments. The customers’ patronage of the selected hotels was rated as excellent by 42.9% of the respondents. Others rated the patronage as ever constant; this was premised on the strategic location of these hotels within the town (33.4%). The remaining group of respondents were not specific in the rating of customers’ patronage of their hotels, but maintained that the patronage was reasonable (23.7%).

Table 2: Factors Influencing Customers’ Patronage of the Hotel

Response	Frequency	Percentage
It is the best you can get in this part of the country	26	22.8
The services are affordable and of high quality	32	28.0
Food service is always prompt	40	35.1
Outdoor catering services are equally available	16	14.1
Total	114	100.0

Source: Field Survey, 2024

Several factors were given by the respondents as responsible for the rating of the hotels according to customer’s patronage. As some (22.8%) responded, patronage was possible because the sampled hotels were the best one can get in that part of the country. It was further reported that the hotels were of high standard in terms of quality and affordability of services, hence the high volumes of patronage they always attract (28%). Data gathered also show that prompt food services (35.1%) as well as availability of outdoor catering services (14.1%) accounted for why the hotels continue to receive impressive patronage.

Table 3: Available Opportunities within the Hotel Industry

Responses	Frequency	Percentage
Entrance into the hotel industry requires little or no special skill	10	8.8
Provides learning and training opportunities for new entrants	17	14.9
Avenue for acquisition of new skills and improvement on the existing ones	12	10.5
Serves as source of income and means of livelihood	14	12.3
Provides avenue for making functional social contacts	20	17.5
Encourages career advancement and job mobility	16	14.0
Opportunities for direct access to superior officers and mentoring	08	7.0
Opportunities to become service provider and entrepreneur	11	9.7
Staff and customers motivation for cordial relationship and commitment	06	5.3
Total	114	100.0

Source: Field Survey, 2024

The respondents further affirmed that opportunities abound for employees working in the hotels industry. The opportunities as listed include: little or no special skills as entry requirements into the hotels industry (8.8%); the industry provides learning and training opportunities for new entrants into the system (14.9%); working in the industry creates avenues for the acquisition of new skills and improvement on the existing ones (10.5%); hotel jobs constitute major sources of income and means of livelihood (12.3%); it provides avenue for making functional social contacts (17.5%); it encourages career advancement and job mobility (14%); it provides opportunities for direct access to superior officers and proper mentoring (7%); working in the hotels creates avenues for becoming service provider and subsequently transform to an entrepreneur (9.7%); it promotes staff motivation and customers motivation towards creating cordial relationship and higher commitment (5.3%) .

Table 4: Effects of the available Opportunities on Career Prospects of the Employees

Responses	Frequency	Percentage
Ability to predict and take necessary steps for my career advancement	25	21.9
Having people with like mind to share experience and dream with will translate to better career future for me in the industry	18	15.8
Conducive working environment is possible through friendly social contacts which encourages job productivity	38	33.4
Enhance employee commitment facilitate effective productivity	33	28.9
Total	114	100.0

Source: Field Survey, 2024

The effects of available opportunities on the career prospects of the hotel workers include: ability to predict and take necessary steps for career advancement (21.9%), having people with like mind to share experience and dream with for improved career future (15.8%), possibility of conducive working environment through friendly social networking that makes for increased productivity (33.4%), and enhancement of employees' commitment to facilitate effective productivity (28.9%).

Table 5: Challenges encountered by Hotel Employees

Responses	Frequency	Percentage
Pressure of work and absence of time to rest during the peak period	30	26.3
Occasional embarrassment from customers	21	18.4
Sexual harassment from the superiors in the work place	15	13.2
Sexual harassment from the customers	12	10.5
Occasional raiding from the law enforcement agents	26	22.8
Enforcement of dressing code that is against religious belief	10	8.8
Total	114	100.0

Source: Field Survey, 2024

Part of challenges of working in the hotels settings as identified by the respondents include: pressure of work and absence of time to rest during the peak period (26.3%); occasional embarrassment from customers (18.4%); sexual

harassment of female employees by superiors in the work setting (13.2%); sexual harassment from the customers (10.5%); occasional raiding from the law enforcement agents (22.8%); and enforcement of dressing code that may negate employee’s religious belief (8.8%). As Victoria (2019) notes, workplace challenges have implications for employees’ productivity and the socio-institutional well-being of the stakeholders of any organisation. The possible effects of the afore mentioned challenges on the hotel employees include: gradual withdrawal of interest from the work (26.3%), confusion on how to please the management and the customers (22.8%), inadequacy of experienced staff due to constant staff turnover (19.3%), constant stress affects service delivery (14.1%), and negative productivity (17.5%). These findings corroborate Chandrasekar’s (2011) conclusion that working environment impacts immensely on employees’ performance either towards negative or positive outcomes.

Table 6: Channels of Exposure to Opportunities and Challenges in the Hotel Industry

Responses	Frequency	Percentage
From superiors and other members of the management	42	36.8
From customers during service delivery	31	27.2
Encounters with the superiors and customers expose every worker to opportunities and challenges	22	19.3
Repetition of same job over time	19	16.7
Total	114	100.0

Source: Field Survey, 2024

The above reveal show how hotel workers are being exposed to both opportunities and challenges in their workplaces. As table 6 shows, 36.8% of the respondents reported that these usually occur from their superiors and other members of the management in the course of service delivery; 27.2% reported that the opportunities and challenges come from the customers only, while 19.3% was of the view that encounters with superiors and customers usually expose every worker to opportunities and challenges. The remaining 16.7% was of the view that constant repeating same job over some periods of time exposes workers to opportunities and challenges.

Table 7: Inevitability of Encountering Challenges in Hotel jobs

Responses	Frequency	Percentage
The challenges emerged in the course of daily activities at the working place	23	20.2
The challenges are the products of individual differences	19	16.7
They are workplace challenges that can only be resolved within the workplace alone	21	18.4
They are necessary ingredient for effectiveness and developmental process of the establishment	27	23.7
The challenges are inevitable and can only end with the establishment	24	21.0
Total	114	100.0

Source: Field Survey, 2024

The inevitability of meeting challenges in the course of working with hotel establishments as depicted in table 7 above has been stressed. As the respondents note, encountering challenges while working in the hospitality setting is inevitable. This was justified by the fact that most of these challenges do emerge in the course of daily activities at work place (20.2%), while some are products of individual differences (16.7%); the challenges are basically workplace related, and its solution should be workplace specific (18.4%); the challenges are necessary ingredient for effectiveness and developmental process of the establishment (23.7%), the challenges can only end when the establishment ended (21%). All the above make these occupational challenges inevitable.

Table 8: The Existing Mechanisms for Managing Workplace Challenges

Responses	Frequency	Percentage
Feedback mechanism exists through which opinion of customers were obtained and understood to avoid unpleasant encounter between customers and staff	30	26.3
Supervisors are always available to ensure that unpleasant situation is resolved without getting to the management level	45	39.5
The staff were trained to acknowledge that customers are always the Kings and Queens	39	34.2
Total	114	100.0

Source: Field Survey, 2024

All the respondents have encountered challenges in the course of their works as staff of these hotels. The existing mechanisms and those adopted by the workers for the management of these challenges included: existence of feedback mechanism through which the opinion of the customers are gotten and understood to avoid unpleasant encounter between the customers and staff (26.3%), supervisors are always available to ensure that unpleasant situation is resolved without getting to the management level (39.5%), the staff were trained to acknowledge that customers are always the Kings and Queens (34.2%).

Research findings and Social Security Advocacy for Hotel Employment

Social security is one of the concepts adopted in the social sciences for addressing the challenges of poverty and underdevelopment. The idea flowed from the global concerns regarding how to guarantee a wide-ranging human security. Article 22 of the Universal Declaration of Human Rights, specifically captured the concept of social security as a fundamental human right issue under which “everyone is granted the right to social security coverage”. The hospitality industry being one of the largest economic sectors of the world has in the last four decades recorded considerable growth which justifies the pride of place it currently enjoys as one of the largest global industries (Draskovic, et al, 2022). The sector, as a top employment contributor, accounts for an estimated 10.3% of global GDP, translating to a US\$8.9 trillion contribution to the world’s GDP and 330 million jobs in 2019 (Ngwenya, 2020).

Despite the cruciality of the sector’s contribution, the number of depreciating and precarious types of work in the industry keeps growing (Standing, 2011). This has prompted scholars’ conclusion that international tourism has an influence on structural changes of the employees’ work; and by so doing creates a lot of low-paid jobs and low-skilled precarious types of work (Tung & Cuong, 2020; Kosikova et al., 2019; Pavlic et al., 2019). Precarious work as conceptualised by Draskovic, et al (2022) are characterised by those occupational challenges created by the global industrial environment. Delibasic et al. (2022) specifically associate it with nonstandard or substandard work contracts, including temporary, fixed term, and short-term contract, part-time contract, agency work, freelance work, on-call employment and civil contracts. The fact that the hotel industry employs a lot of precarious workers (Pupavac et al., 2020) explains why social security coverage should be extended to cover employees in the hotel industry.

Given the nature, structure and social context of jobs in the hotel industry, there exists various strands of exploitation, sexual harassment (mostly against females) by customers and superiors, harassment of employees by the law enforcement agents, lack of freedom due to dress code imposition and more. All this underscores the urgent need to redirect the social policy frameworks towards extending social security coverage to employees in the hotel industry so as to guarantee an improved quality of life and its sustainability.

Summary and Conclusion

This study showcased the prevailing working conditions, the medium of exposure to opportunities and challenges and mechanisms adopted to manage the challenges. The respondents identified availability of motivation for friendly relationships and commitment among staff and guests as what made their hotels deserving of steadfast patronage. The challenges encountered at work include (a) psychological breakdown brought on by stress and lack of time for rest during peak times (b) occasional consumer embarrassment (c) sexual harassment by supervisors at work (d) sexual harassment by customers (e) sporadic raids by law enforcement officials (f) Enforcement of dressing code that is against religious belief. The effects of these noted workplace challenges on service delivery and productivity, according to the respondents, include: (a) Gradual loss of interest in work due to management's failure to meet workers' needs; (b) confusion over how to please management and customers without lowering one's self-esteem; (c) inadequacy of experienced staff due to staff members' constant withdrawal of services; and (d) ongoing stress due to insufficient break time, (e) constant repetition of the same job over periods of time. (f) Productivity is also affected negatively as a result of (i) fluidity in the modes of their entrance into the hotels where people with little or no special skill are recruited, and (ii) high level of staff turnover and loss of resources invested in training to instil skills into the staff members recruited without skills in the first place.

Opportunities identified as available to these hotels workers included (i) securing of jobs with little or no skills, thereby corroborating the expositions of WTTC (2015), Dayananda (2014), Amirtharaj, *et al.* (2011), UNWTO (2011), ILO (2010), Kovac (2008), Analoui (2007), Decenzo and Robbins (2007), Dessler (2007, 2006), Beardwell, *et al.* (2006), Bounken and Pyo (2002), Cook, *et al.* (2002), Lashley (2001) and Armstrong (1992). Virtually all the workers saw the challenges being encountered as inevitable hence their adaptation to the situation

probably to avoid job loss in the face of unfavourable social and economic situations in Nigeria. The exposition of challenges in spite of available opportunities therefore calls for action on how the best of the hotels could be attained. It is necessary that constant review of workers' condition of service be taken into cognizance with utmost attention. The overall ramifications of this when actions are taken will enhance the well-being of the workers. When this is achieved, the associated array of physical health benefits, such as lower blood pressure, reduced risk of stroke, a stronger immune system, and even a longer life will suffice to grow the hospitality industry. Other tourism-related industries will be benefited in the long run for sustainable development.

Recommendations

The following recommendations were adapted from the suggestions offered by the respondents as possible way out in sustaining and improving on the available opportunities and overcoming service challenges among the employees of selected hotels in the study area.

- A liberal but decent dress code that will go in line with every religious practice should be introduced
- Regular counselling of staff and in-house training should be organised.
- Channels should be created for staff to make inputs into the running of the hotels
- Provision should be for compensation of staff to take pressure off their feelings of work-related embarrassment
- Annual award for the best staff and most loyal customers for effective management, employees and customers' interactions
- Enforcement of meaningful workers-friendly packages to retain experienced staff
- Appropriate training programmes is a welcome development in the organization for as long as they would be relevant to address the aforementioned areas so as to enhance skills amongst workers

References

- [1] Akinrinde, O. O. & Telukdarie A. (2023). "Policy (In)Consistency and Sustainable Development Goals in Africa: A Systematic Literature Review". Annals of Spiru Haret University. Economic Series, 23(4), 129-158, doi: <https://doi.org/10.26458/2345>

- [2] Akwaki, N.A. and Egwu, F.A. (2017). Christian Ethics and Labour: An Exegetical Discourse of II Thessalonians 3:6-15 and Its MORAL Implication for Work Ethics in Nigeria. *Journal of Moral Education in Africa (JMEA)*, 3:74-91
- [3] Amirtharaj, B., Cross, K.R. and Vembar, V. (2011). Role of training and development in promoting the growth of hospitality industry, *International Journal of Management (IJM)*, 2(1): 126-133.
- [4] Analoui, F. (2007). *Strategic Human Resource Management*, Thomson, London
- [5] Angraeni, L.S. (2015). The Influence of Productivity, Efficiency, Job Satisfaction on Marketing Employees' Turnover. *Journal of Management Science and Research*, 4 (5): 1-18.
- [6] Armstrong, M. (1992), *Human Resource Management Strategy and Action*, Kogan Page, London,
- [7] Attila, A.T. (2016). The Impact of the Hotel Industry on the Competitiveness of Tourism Destinations in Hungary. *Journal of Competitiveness*, 8(4): 85 - 104, December
- [8] Beardwell, I., Holden, L. and Claydon, T. (2006). *Human Resource Management A Contemporary Approach*, 4th edition, Pearson Education Limited, England,
- [9] Bounken, R.B. and Pyo, S. (2002). *Achieving Competitiveness through knowledge management*, Haworth Press, accessed at <http://www.haworthpress.com/store/product.asp?sku+J162> on 21/06/2022
- [10] Chandrasekar, K. (2011). Workplace Environment and its Impact on Organizational Performance in Public Sector Organizations, *International Journal of Enterprise Computing and Business Systems*, Vol:1, Issue:1.
- [11] Cook, R.A., Yale, L.J. and Marqua, J.J. (2002). *Tourism-the business of travel*, Prentice Hall, New Jersey,
- [12] Dayananda, K. (2014). Tourism and Employment: Opportunities and Challenges in Karnataka Special Reference to Kodagu District, *IOSR Journal of Humanities and Social Science*, 19:11
- [13] Decenzo, D.A. and Robbins, S.P. (2007). *Fundamentals of Human Resource Management, 9th Edition*, John Wiley and Sons, USA,
- [14] Delibasic, M., Pupavac, J., Budic, H. & Shilina, M.G. (2022). Employment in the hotel industries of Croatia and Montenegro: Current state and outlook. *Montenegrin Journal of Economics*, 18(3), 57-67.
- [15] Dessler, G. (2006). *A Framework for Human Resource Management, 4th edition*, Prentice Hall Inc., New Jersey.
- [16] Dessler, G. (2007). *Human Resource Management (10th Edition)*, Prentice Hall Inc., accessed at <http://www.usu.edu/teachall/text/behavior/BEHAVglos.htm> on 21/06/2022
- [17] Draskovic, V., Pupavac, J., Delibasic, M., & Bilan, S. (2022). Trade unions and hotel industry: Current trends. *Journal of International Studies*, 15(1), 104-116. doi:10.14254/2071-8330.2022/15-1/7

- [18] Dykstra, P. A. (2009). "Kin Relationships." In Reis, H. T., & Sprecher, S. (Eds.) *Encyclopedia of human relationships*. (pp. 951-954). SAGE Publications, Inc., <https://dx.doi.org/10.4135/9781412958479>
- [19] Gunawan, H., Gunawan, B.I. and Nur, N. (2018). Effect of Labor Social Security on Job Satisfaction. *International Journal of Scientific & Technology Research*, 7(12): 86-89.
- [20] Gunawan, H., Haming, M., Zakaria, J. and Djamareng, A. (2017). Effect of Organizational Commitment, Competence and Good Governance on Employees Performance and Quality Asset Management. *Institute of Research Advance (IRA) - International Journal of Social Sciences Management*, 08 (01): 17-30.
- [21] Harkison, T. (2017). The importance of the human touch in the luxury accommodation sector. *Research in Hospitality Management*, 7(1): 59-64.
- [22] Hartline, M., Wooldridge, B. and Jones, K. (2003). Guest perceptions of hotel quality: determining which employee groups count most, *Cornell Hotel and Restaurant Administration Quarterly* (February), 43-52.
- [23] Haselbarth, H. (1977). *Christian Ethics in African Context*; Ibadan: Daystar Press.
- [24] Hays, M.J. and Hill, V.A. (1999). Gaining competitive service value through performance motivation, *Journal of Strategic Performance Measurement*, (October/November), 36-40.
- [25] International Labour Organization (ILO, 2010). *Development and Challenges in Tourism and Hospitality Sector*, Geneva: Switzerland
- [26] Jurigová, Z. and Lencsésóvá, Z. (2015). Monitoring System of Sustainable Development in Cultural and Mountain Tourism Destinations, *Journal of Competitiveness*, 7(1): 35- 52
- [27] Jurigová, Z., Tučková, Z. and Kuncová, M. (2016). Economic sustainability as a future phenomenon: Moving towards a sustainable hotel industry, *Journal of Security and Sustainability Issues*, 6 (1): pp. 103-112
- [28] Karatepe, M. O. and Uludağ, O. (2007). Conflict, exhaustion and motivation: a study of frontline employees in Northern Cyprus hotels, *Hospitality Management*, 26: 645-665.
- [29] Khan, M., Garg, R.J. and Rahman, J. (2015). Customer service experience in Hotel operations: An empirical Analysis. *Procedia-Social and Behavioural Sciences*, 189, 266-274
- [30] Kosikova, M., Vasanicova, P., & Litavcova, E. (2019). Analysis of aspects of the tourism development in Slovakia in the Context of the European Space. *Montenegrin Journal of Economics*, 15(2), 127-137.
- [31] Kovac, D. (2008). Competence model in education and training process, *Tourism and Hospitality Management*, 14(1): 141-152
- [32] Lashley, C. (2001). Costing staff turnover in hospitality Service Organizations, *Journal of Services Research*, 1(2) (October).
- [33] Lawson, F. (2004). *Hotel and resorts: Planning, Design and refurbishment*, Woburn, Ma: Butterworth Heinemann.

- [34] Ngwenya, M. (2020). Extension of social security to the informal hospitality industry workers in South Africa. *University of Western Cape Library Services*, <http://hdl.handle.net/11394/8128>
- [35] Ogbonnikan, E.O. (2012). Job Satisfaction and Efficiency among Hotel Workers: Case Study of Giant Star Hotel Lagos, Nigeria (Thesis submitted to the Department of Tourism, Central Ostrobothnia University of Applied Science, Finland)
- [36] Olivier and Dekker (2003). Informal Social Security. In M. Olivier et al. (Ed.), *Social Security: A Legal Analysis* (p. 562). Durban: LexisNexis Butterworths.
- [37] Pavlic, I., Portolan, A., & Puh, B. (2019). Does tourism cut the branch it is sitting on? Local residents perspective. *Montenegrin Journal of Economics*, 15(2), 153-164.
- [38] Pupavac, J. (2020). Assessing the employees' performance in the hotel industry. *Tourism & Hospitality Industry 2020 Trends and Challenges / Crnjar, K; Smolcic Jurdana, D. (ed.)*, 216-225), Opatija: Faculty of Tourism and Hospitality Management.
- [39] Putra, F.P. (2015). Effect of Wages, Incentives and Social Security on Employees of Yoshinoya Restaurant, Galaxy Mall Surabaya Branch. Essay. Faculty of Economics. Universitas Wijaya Putra. Surabaya.
- [40] Sørensen, F. and Jensen, J.F. (2015). Value creation and knowledge development in tourism experience encounters. *Tourism Management*, 46, 336-346.
- [41] Standing, G. (2011). *The Precariat: The New Dangerous Class*, Bloomsbury, New York
- [42] Tung, L.T., & Cuong, L.K. (2020). Impact of tourism on poverty reduction: evidence from an emerging tourism market. *Montenegrin Journal of Economics*, 16(3), 45-55.
- [43] United Nations World Tourism Organization (UNWTO, 2011). *A report on the opportunities and challenges which face women with respect to employment in Tourism*, UNWTO Global Report on Women in Tourism, 2010, Madrid
- [44] Victoria, K. S. (2019). Employee productivity and organizational performance: A theoretical perspective. Munich Personal RePEc Archive, Retrieved from https://mpira.ub.uni-muenchen.de/93294/1/MPRA_paper_93294.pdf on 06/11/2022
- [45] World Travel and Tourism Commission (WTTC, 2015). *Travel and Tourism Economic Impact of Ethiopia*, London: United Kingdom.
- [46] Zarrina, M. (2020). The Importance of Marketing Strategies in the Hotel Industry, *International Journal of Academix Research in Business, Arts and Science*, 2(5): 66-74.
- [47] Zein, P., Setyaningrum, R. and Marlinae, L. (2016). Effect of Age, Education and Social Security on Job Satisfaction of Operators in PT Cakrawala Putra Bersama. *Indonesian Public Health Publication Journal*. 3 (2): 38-44.

IMPRESSION MANAGEMENT AT WORK: INTENTION OF CASUAL WORKERS

Nyasha MAPIRA¹, Jeremy MITONGA-MONGA² and Wilfred Isioma
UKPERE³

^{1,2,3}*Department of Industrial Psychology and People Management, School
of Management, College of Business Economics, University of
Johannesburg, Auckland Park Kingsway Campus, Corner Kingsway &
University Road, PO Box 524, Auckland Park, 2006, South Africa, Tel:
+27115592722, Email: dmapira@gmail.com, jeremym@uj.ac.za,
wiukpere@uj.ac.za*

How to cite: Mapira, N., Mitonga-Monga, J., & Ukpere W.I. (2024).
“Impression Management at Work: Intentions of Casual Workers” *Annals of
Spiru Haret University. Economic Series*, 24(1), 345-366, doi:
<https://doi.org/10.26458/24120>

Abstract:

The purpose of this study was to investigate why casual employees at a global firm in Zimbabwe engaged in impression management. This exploratory qualitative study investigated casual workers' intention for engaging in impression management at the case global firm in Zimbabwe using the interpretivism research philosophy. Face to face, semi-structured interviews were used to collect data from ten research participants who had been employed by the global firm in Zimbabwe for a minimum of five months. The study found that casual workers at the case global firm in Zimbabwe are driven to control their work impressions to preserve their good reputation, build social capital, and accomplish career-related objectives including moving up the corporate ladder, receiving high performance reviews, obtaining a permanent position, and getting promoted. Therefore, as it is, casual workers at the case global firm in Zimbabwe use impression management tactics with the overall aim of maintaining job security. The current study recommends that casual workers should identify the circumstances in which impression management is most appropriate and make

an effort to become more aware of when and how often to manage impressions. They could do this by practicing self-monitoring, receiving feedback, or participating in other professional development activities. The study also urges managers at the global firm in Zimbabwe to encourage workers to utilize impressions that are authentic and discourage employees from managing images that are destructive to the organization.

Keywords: *Casual worker; Global firm; Job security; Impressions; Impression management*

JEL Classification: C31, J22, J23, L61, M54, O19

1. Introduction

The precarious nature of atypical employment means that atypical workers worldwide are exposed to a range of vulnerabilities, particularly in terms of income, health and safety at work and job insecurity (Kalleberg, 2012; Carr, 2023; Shin, 2023; Irabor et al, 2019). Sassenrath (2020) argue that the proportion of workers experiencing job insecurity is increasing worldwide and is currently over 25%. A long-term study by Burgard, Brand and House (2019) found that employees who experience job insecurity suffer negative behavioural and attitudinal effects that affect both their employers and them. The study identified high absenteeism rates, high turnover, low job satisfaction and poor performance as some of the behavioural and attitudinal effects of job insecurity. When confronted with uncertainty, people develop strategies to cope and improve (House, 2019; Masindi et al., 2023; Sassenrath, 2020). Shin (2023) argues that given the above sentiments, it is imperative to examine the strategies that non-standard workers employ to combat job insecurity. Several authors believe that employees who practice impression management may be able to reduce the insecurity associated with a job (Xu, 2022; De Cuyper, 2014; House, 2019; Carr, 2023). Similarly, Burgard (2019) argues that the unstable characteristic of non-standard employment is the reason why alternate safety measures like impression management are necessary. Chen and Fang (2018) characterise impression management as any action a person takes to influence or control how others perceive them. Researchers have shown that the factors that drive impression management are the consequence of the impressions formed, the significance of the preferred outcomes, and the disparity between the preferred and actual image (Sassenrath, 2020; Shin, 2023;

Carr, 2023). House (2019) claim that employing impression management techniques help workers to get instrumental and social support of superiors as well as sway their opinion.. For most people, keeping their job is a top priority, and maintaining a positive image in the workplace is extremely important if you care about your career (Sessenrath, 2020). Bolino (2016) further state that impression management practices can give workers hope that they can reduce the possibility of an unfavorable career action. When supervisors are concerned, they may also have an impact on the actual likelihood of job loss. Lam (2020), who claims that proactive measures such as impression management can make employees feel more effective and reduce their feelings of job insecurity. While some studies (Lam, 2020; Bolino, 2016) have attempted to examine the nature and prevalence of managing impressions in organizations, the majority of studies have concentrated on techniques used by non-standard workers to manage their impressions. (Klotz, 2018; Xu, 2022; House, 2019; Mpabanga et al., 2023). Considering how common impression management is, it would be beneficial to investigate why employees use it. The purpose of this research is to investigate the reasons why casual workers at the global organization in Zimbabwe engage in impression management. The study's research question is structured as follows:

- a. Why do workers choose to manage impressions at work?

2. Literature Review

1. This section covers the theories behind impression management, tactics for managing impressions, and reasons to manage impressions.

2.1. Leary and Kowalski (1990)'s Two Factor Model

The Two-factor model conceptualizes impression management in terms of impression construction and motivation (Bourdage et al., 2020). Leary and Kowalski (1990)'s model assumes that the eight major components listed in Table 1 below have an impact on impression creation and motivation. Madan and Srivastava (2016) characterise impression drive as the way in which external cues lead individuals to direct the images that others create of them. The process by which an individual modifies their behavior in order to affect how others perceive them is known as impression creation (Leary and Kowalski, 1990; Madan and Srivastava, 2016; Bourdage et al., 2020). The decision about the impression to be created and how to create it, including the selection of an appropriate method to create the impression, is made during the impression creation process (Krauss,

2022; Ishikawa et al., 2021). Table 1 below shows the factors determining impression motivation and creation as given by the two-factor model.

Table 1: Factors determining impression motivation and construction

Impression motivation antecedents	Impression construction determinants
<ul style="list-style-type: none"> • Significance of required goal • Discrepancies between needed and present image • Impression goal relevance 	<ul style="list-style-type: none"> • Needed and undesired self images • Role constraints • Target’s value • present or possible social images

Source: Leary and Kowalski, 1990

The preconditions for building an impression and the motivation for impression management are listed in Table 1. The three most important preconditions for impression building motivation are goal relevance of impression, importance of the required goal and the differences between needed and present image. Employees who are driven by impression formation process are influenced by their self-image, their role constraints, and the value of the target, their current or potential image, and their desired and undesired identity image.

2.2. Compensatory Control Model (CCM)

The basic idea of Hockey's (1997) Compensatory control model is that people actively manage to adapt to stressful or unsafe working conditions. Employees who actively cope make more effort to achieve their goals. According to the theory of compensatory control, active coping increases the resources available to fulfil the demands, but also has psychological and physical consequences. According to Landau, Kay and Whitson (2015), people who feel powerless in a situation use compensatory techniques or personal resources to normalize their sense of control. Impression management techniques are some of the strategies that can be used to meet the needs of the organisation (Landau et al., 2015). The compensatory control model assumes that personal resources such as impression management can be used to secure social support and achieve economic goals in the organization. Compensatory control model also assumes that employees could use impression management as a means to achieve their desired goal (Whitson, 2015). Researchers have used the compensatory control model because it facilitates analyzing the motivations for impression management.

2.3. Conceptualization of Impression Management

The behaviour of workers to uphold, secure the impression of their targets is referred to as impression management (Ho and Stanley, 2021; Krauss, 2022). According to Bolino and Turnley (2016), impression management is the use of strategies by employees to influence how others perceive them. Atypical workers use impression management, according to Bass et al., (2023), to persuade prospective or present employers of their value to the company. Bourdage et al (2020) also state that then components of impression management affect a number of dimensions, including career success and supervisor evaluation.

2.4. Impression Management Behaviors

Bolino (1999) classified behaviors of managing impressions into three categories. Table 2 below shows the classified behaviors of managing impressions against the impression management tactics adopted.

Table 2: Impression management behavior and tactics

Impression management behavior	Tactic of managing impression
Supervisor focused	Ingratiation
Job focused	Self-promotion
Self-focused	Exemplification

Source: Bolino, 1999

2.4.1. Supervisor Focused Impression Management

Being popular and looking good are the goals of impression-control behaviours of superiors (Varela et al., 2016; Shi et al., 2024; Xin et al., 2014; Crețoiu; 2019). According to Shi et al., (2024), workers who utilize supervisor focused impression management behaviours attempt to project attractiveness and likeability by either showing conformity of opinion or complimenting the supervisor. According to Kingsley and Westerman (2019), ingratiation is associated with supervisor-focused impression management behaviour. Ni et al., (2023) define flattery as a tactic used by employees to gain the respect and favour of their targets. Some actions, such as behaviour that matches the target's preferences (Halbesleben et al., 2020) or providing favours for the target (Baumeister, 2018), are examples of how workers demonstrate their ingratiation. Rosenfeld et al. (2019) find that the ability of ingratiation to influence important outcomes in the workplace varies. Research by Higgins et al. (2018) found that a number of factors can influence the success of an

ingratiation attempt, such as who is ingratiating, who the target is, and under what circumstances the behaviour occurs. Proost et al (2018) found that those who used a combination of ingratiation and self-presentation had a higher chance of receiving a job offer than those who relied on ingratiation alone.

2.4.4. Job Focused Impression Management

The aim of behaviours that give the impression of being competent is to convey competence. One of these behaviours is the acceptance of recognition for completed tasks (Al-Shatti and Ohana, 2021; Curtis et al., 2023; Peck, 2017). Self-presentation is related to job-related impression management (Curtis et al., 2023; Levashina, 2017). The goal of self-promotion is to look like a successful, capable, knowledgeable and competent person (Peck, 2017). Self-promoters tend to emphasise their successes, claim credit for positive outcomes (Bolino, 2016) and mention notable people by name (Long, 2016; Jones and Pittman, 2015). However, similar to ingratiators, self-promoters also seek to enhance their reputation through a variety of actions, which can be risky for many people (Cialdini and De Nicholas 2019). The habits of self-promoters, if not well regulated, can lead to the paradox of the self-promoter (Berman et al. 2019). Paradox of self promoter means that employees appear less competent by over emphasizing their credentials and showing self-interest (Berman et al., 2014; Jones & Pittman, 2016). Similarly, Tsai (2015) claims that employees who constantly engage in self-promotion can alienate others. To overcome this contradiction, self-promoters should build credibility by projecting a modest self-image (Lalwani et al., 2023; Gardner and Avolio 2018).

2.4.3. Self-Focused Impression Management

To convey the image of an exemplary employee who is hardworking, cooperative, productive and kind, practice self-centred impression management associated with role modelling (Bolino and Turnley, 1999; Lalwani et al., 2023; Lewis & Neighbours, 2015; Wayne and Ferris, 2019). For example, it can be helpful to work harder when the target is present (Bolino et al., 2006). Exemplification is typically used in situations of extreme job insecurity (Learly, 2019), and certain workers find exemplification useful when they feel insecure (Sezer, 2022; Haynie, 2018). Employees who value exemplification project an image of diligence and loyalty to the organisation, which influences organisational decision-makers and reduces the likelihood of job loss (Pontari, 2019). Exemplars behave in an egocentric impression management manner to give the impression that they are keen to endure for a reason (Andrews, 2019). According to Leary (2019), employees who work a lot with exemplars run the risk of appearing pious and hypocritical to others.

2.5. Motivation for Impression Management

According to Leary and Kowalski (2010), it is motivation that drives people to use impression management techniques to achieve their goals. Due to the nature of atypical employment and its potential impact, temporary workers often employ a range of impression management strategies to demonstrate their value to the organisation and be considered for permanent employment (Grant, 2019). According to Pounders (2016), temporary workers' intentions to stay with the company or move up to a better position are directly linked to their impression management behaviour. On the contrary, a study by Sias, Kramer and Jenkins (2019) has shown that non-standard workers who neither believe nor expect to stay with the company much longer give little thought to their impression management behaviour. Some of the motivations for using impression management techniques at work are listed below.

2.5.1. Gaining Social Rewards and Approval

Managing impressions is the process of falsifying information to sway the opinions of others in order to promote one's own goals or those of society (Schlenker and Pontari, 2020). As they are social creatures, workers regularly socialise with their colleagues (Gardner, 2018). Gardner (2018) goes on to explain that consciously or unconsciously, attempts are made to change the image that is projected during social interactions. Social self-presentation is the most important means of gaining social advantage (Martinko, 2018). A study by Schlenker (2000) has shown that workers engage in impression management to strengthen their social relationships and to be popular with their targets. In addition, Rao (2015) claims that employees who show a positive impression benefit socially in many ways. Social incentives depend on the actor's ability to convince the target that they possess certain traits (Schmidt; 2015).

2.5.2. Getting a Permanent Job

Due to the large pool of potential competitors, impression management can serve as a ticket to permanent employment; a aim that the majority of casual workers pursue (Roulin, 2014; Gardner, 2018). According to Koopman (2021), the prospect of a permanent job offer motivates atypical workers to regulate their impression (Al-Shatti and Ohana, 2021). Kang et al. (2012) also state that effective self-presentation is crucial to obtaining and keeping a permanent job. According to Kang et al. (2019), impression management correlates favourably with internal quantitative and qualitative employability, which motivates employees to prove

their worth and contribute to their current company. In addition, a study by Wittekind (2017) has shown that employability strategies supported by external quantitative and qualitative perceived employability can lead to a supply-demand dynamic that benefits employees and can ultimately lead to them being hired for better positions.

2.5.3. Performance Evaluation

Employees are more likely to process impressions if they desire a permanent position or a better performance review (Krieg et al., 2018; Terracciano, 2017). According to the principle of goal relevance, employees are more inclined to regulate their perceptions if they have some influence on the outcomes they want to achieve (Houston et al., 2018). According to Chawla (2021), managing impressions is a critical emotional concern in the performance review. Managers regulate workers' access to crucial benefits such as favourable performance evaluations and therefore the impression their managers has of them is crucial (Tarraf, 2018). Researchers have documented various impression management strategies used by employees to improve their performance appraisals. These strategies include raising performance standards in public (Ferris and Porac, 2017), offering justifications and regrets for substandard work (Eagly and Acksen, 2016; Wood and Mitchell, 2019; Adagbairi and Okolie, 2019), and attempting to salvage one's reputation after a poor appraisal (Eagly, 2019; Schneider, 2018).

2.5.4. Promotion

In the internal labour market, impression management is known to create job and promotion opportunities (Arif et al., 2011; Olatunji et al., 2021). Hazer and Jacobson (2013) found that promotion, internal employability and self-presentation are positively correlated. Imran (2011) claims that both permanent and non-permanent workers often control their impression in order to move up. Similarly, Klotz (2014) claims that employees who want to be promoted usually need to create the impression that they are intelligent, committed and promising for their employers.

3. Research Methodology

3.1. Research Paradigm

In order to understand and appreciate casual workers' narratives about their reasons for impression management in the global company in Zimbabwe, the researchers opted for an interpretivist research philosophy. This philosophy enabled the researchers to capture the subjective interpretation of casual workers' reasons for impression management. The researchers also utilised the interpretivist

paradigm because it has the same philosophical underpinnings as the qualitative methodology used in this study.

3.2. Research Approach

The researchers used a qualitative research methodology. According to Myers (2013), a qualitative technique enables researchers to understand people's actions and behaviours. Using a qualitative research approach, the researchers were able to investigate the motivations of the study participants for using impression management in the global case company in Zimbabwe.

3.3. Research Setting

This study was done at a global organisation in Zimbabwe, which employs people from local, national and international labour markets, making the case organization a multi-ethnic site. The study site is easily accessible due to its proximity to a major railway line and major main road.

3.4. Population and Sampling

The study population consists of all casual workers in a global firm in Zimbabwe. The researchers used a non-probability sample. The casual workers who were most suitable and available for this study were selected using purposive sampling. The purposive sampling method was utilized in this study because it allowed the researchers to select representative participants with appropriate experience in relation to the topic under study.

3.5. Sample Size

Researchers usually categorize qualitative studies as studies with a small sample size, between one and thirty people. Nevertheless, the sample size was determined by the researchers according to the principle of data saturation. The researchers reached data saturation after conducting ten interviews. This therefore means that the researchers specifically selected a total of ten research participants. A prerequisite for participation in the study was casual labourers who had been working for the global firm in Zimbabwe for at least five months.

3.6. Data Collection Procedures

After agreeing to take part in this study, the study participants were called to arrange an appointment for a personal, semi-structured interview. According to Rabionet (2014), face-to-face semi-structured interviews allow researchers to discuss topics related to the study questions. Ten people working as casual

labourers were interviewed by the researcher. The interviews were conducted in locations that were convenient for the study participants. The duration of the interviews ranged from ten to twenty-four minutes.

3.7. Data Analysis

The researchers used thematic analysis to identify and analyse recurring themes in the collected data. The computerised qualitative analysis system NVivo supported the researchers in the thematic analysis. Buetow (2010) argues that thematic analysis allows the researcher to identify important themes and patterns that regularly emerge from the data. In analysing the interview data, the researchers also adhered to Braun and Clarke's (2006) six-phase framework for thematic data analysis. The steps that the researchers took in analysing the data are shown in Table 3 below.

Table 3: Thematic analysis stages

Step	Description of the step
1. Becoming familiar with the data	-Reading and re-reading transcripts to become familiar with the data and its content.
2. Generating initial codes	-After reviewing the interview responses, relevant codes were created in light of the participant's comments. -Organising information into segments of text and writing a word that represents a category (codes)
3. Searching for themes	-Different codes were grouped together under broader themes, and separate themes were generated in certain cases
4. Reviewing themes	-Themes were reviewed to make sure they represent the code-Themes were refined and themes that share same meaning were combined
5. Defining and naming themes	-Names were given to final themes identified -Themes were defined according to their meaning
6. Producing the report	-Quotes from interviewees were used to support the themes presented in the findings section. -Themes were aligned to the study objectives and literature

Source: Braun and Clarke (2006)

3.8. Strategies to ensure data quality and integrity

The researchers ensured research rigour by using the criteria of reliability, credibility, transferability and confirmability described by Lincoln and Guba (1986). Table 4 below shows the strategies used to measure trustworthiness and the strategies used to ensure data quality and integrity.

Table 4: Strategies to ensure data quality and integrity

Criteria	Strategies used
Credibility	-Peer debriefing - prolonged engagement with the participants
Transferability	-Data saturation -providing thick description of the interviews
Confirmability	- Results of the study were interpreted without the influence of researchers' personal opinions.
Dependability	-Compilation of rich description of research method and process

Source: Authors' fieldwork

3.9. Ethical considerations

The research participants were informed about the objectives of the research and their rights as participants. Participants in the study were also given the assurance that their participation was completely voluntary and they could withdraw at any moment. Finally, study participants were informed that their identity and confidentiality would be protected using pseudonyms.

3.10. Profiles of research participants

Participants in this study were identified by the letter "IM". The research participants' experience, qualifications and interview length are summarized in Table 5 below.

Table 5: Participants' profiles

No.	Pseudonyms	Age	Sex	Experience	Highest Qualification	Interview time
1	IM1	20	F	5months	A level certificate	15mins
2	IM2	24	F	24months	Diploma	16mins
3	IM3	27	M	13months	Bachelor's degree	17mins
4	IM4	21	F	9months	Diploma	11 mins
5	IM5	29	M	11months	Bachelor's degree	10mins
6	IM6	33	M	48months	Master's degree	24mins
7	IM7	30	F	24months	Bachelor's degree	20mins
8	IM8	32	M	36months	Bachelor's degree	21mins
9	IM9	19	F	7months	O level certificate	12mins
10	1M10	34	M	24months	Diploma	14mins

Source; Authors' fieldwork

4. Findings

After face-to-face semi-structured interviews were carried out, three broad themes emerged as shown in Table 6 below.

Table 6: Themes and sub-themes

Theme	Sub-themes
Getting a better job	-Landing a better job -Getting a permanent job -Promotion
Increase in social and economic capital	-Salary increment -Positive image -Getting extra rewards
Performance appraisal evaluations	-Better performance evaluations -Good performance appraisal rating -Better performance score for promotion

Source; Authors' fieldwork

4.1. Theme 1: Getting a Better Job

Most research participants stated that they use impression management to improve their chances of getting hired by the global firm in Zimbabwe. The responses of the participants are displayed in this regard in Table 7.

Table 7: Participants' quotes on getting a better job

Pseudonym	Quotes
IM1	<i>'Impression management is the best way to get a permanent job here'</i>
IM4	<i>'Appearing competent is the only way to contract renewal'</i>
IM5	<i>'Impression management and being promoted work hand in hand here my brother'</i>
IM6	<i>'It's hard to get a permanent job, so I try impression management to convince my superiors to give me a fulltime job'</i>
IM7	<i>"Considering the precarious nature of my contract, I don't have an option but to pretend as a dedicated worker. The ultimate goal is to get a promotion or contract renewal"</i>
IM8	<i>'Tinengetichidakutitigarepabasa, (The goal is to have a number of contract renewals)'</i>

Source: Authors' fieldwork

As demonstrated above, the majority of research participants stated that they used impression management in an effort to improve their employment prospects. They talked of getting a promotion, a permanent employment, and a better job.

4.2. Theme 2: Social Capital and Economic Gains

The results of the study show that eight of the ten research participants identified gaining social capital and economic gains as their motive for engaging in impression management. Their related quotes are presented below.

- *“Showing your positive image at work means you will be in good books with your supervisors.” (IM1);*
- *“As a casual worker you need favors from your bosses in terms of getting extra rewards through overtime, so the best is to appear good and dedicated in their eyes.” (IM2);*
- *“If you appear to be competent, there is room for contract renewal or promotion. Once promoted it then means salary increment.” (IM3);*
- *‘Impression management helps me to gain social capital and being loved by my bosses.’ (IM5);*
- *“Supervisors will always consider you first for better job opportunities if you appear to be dedicated. Better job opportunities mean getting extra incentives.” (IM7);*
- *“There is positive correlation between impression management and social capital.”(IM8)*
- *“Baba totoita yose yosekutiufarirwepabasanevakuruvedu ava, kuitirakutipakamuka something ndiweunopihwazvobvazvatofambapanyanyadzehomweidzi. (Impression management improves your financial position through promotion or contract renewals).” (IM9); and*
- *“Showing your positive image at work goes hand in hand with getting extra rewards through contract renewals.” (IM10).*

4.3. Theme 3: Performance Appraisal Evaluation

The underlying commonality for the research participants is that impression management enables them to get positive performance evaluation at the case global firm in Zimbabwe. Research participants believe that impression management

fosters better performance evaluations and performance appraisal ratings. For example, IM3 stated:

“I want a positive performance rating. Performance ratings are used for contract renewal and promotion.”

IM4 and IM7 shared the same sentiments, stating:

‘It’s difficult to get a promotion if your performance appraisal ratings are low, so we use impression management to make sure we get positive performance ratings’.

IM8 and IM9 revealed that they engage in impression management to improve performance rating for promotion. In this regard, IM8 remarked:

“Tozviiitirakutitinzitoshandazvakanyanya then we improve performance ratings for promotion.”

5. Discussion of the Findings

The aim of this study was to explore the reasons why casual workers in a global organisation in Zimbabwe engage in impression management. Three themes emerged from the quotes of the study participants, namely getting a better job, better performance appraisal and increased social and economic capital. The following section contains a discussion of the themes and sub-themes that emerged from the study.

5.1. Getting a Better Job

A number of research participants revealed that they engage in impression management with the aim of getting a better job at the case global firm in Zimbabwe. These participants identified the desire to get more job opportunities within, limited permanent position prospects and desire for promotion and getting a permanent job as factors which induce them to manage their impressions at work. In this regard, IM6 stated; *‘It’s hard to get a permanent job, so I try impression management to convince my superiors to give me a fulltime job’.*

Kang et al. (2012) support the above viewpoints and state that impression management can serve as a ticket to permanent employment. Similarly, a study by Wittekind (2017) has shown that impression management, supported by an external quantitative and qualitative perceived employability, can lead to a dynamic between supply and demand that is favourable to workers and can eventually get

them into better jobs. In another study by Al-Shatti & Ohana (2021), it was found that the motivation for impression management among atypical workers is the possibility of a permanent job offer.

5.2. Increase in Social Capital and Economic Gains

Some participants indicated that they engage in impression management in order to increase their social capital and have economic gains. These participants indicated that positive image generated from impression management help them to get extra income which comes with new job opportunities offered to them within the organisation. Seconding the above statements is IM2, who has this to say; *“As a casual worker you need favors from your bosses in terms of getting extra rewards through overtime and new job opportunities, so the best is to appear good and dedicated in their eyes.”*

The perspectives of IM2 are in line with a study by Schlenker (2000) which showed that workers engage in impression management to strengthen social relationships and be liked by their targets. In addition, Rao (2015) posits that if workers make favourable impressions, they may gain many social rewards from their targets. In contrast, Leary (2019) posits that workers who frequently use impression management to gain social capital run the risk of being seen by others as sanctimonious and hypocritical.

5.3. Performance Appraisal Evaluations

A total of eight of the ten research participants indicated that they engage in impression management in order to get positive performance appraisal evaluations. These research participants identified the need to have high performance appraisal ratings which are used for promotion and contract renewal. In this regard, IM7 said: *‘It’s difficult to get a promotion if your performance appraisal ratings are low, so we use impression management to make sure we get positive performance ratings’.*

IM7 aligns with Krieg et al., (2018)’s sentiments that the motivation to manage impressions increases when workers want to achieve a job or achieve a better performance evaluation. Similarly, Chawla (2021) argues that impression management is a central psychological issue in the performance appraisal process. In addition, Tarraf (2018) argues that supervisors control employees’ access to important rewards such as positive performance ratings and as such their supervisor’s impressions of them are critical.

5.4 Contribution of the Study

This study makes both a theoretical and a practical contribution by giving fresh insights into the reasons why casual workers engage in impression management. Employers should understand the motivations for impression management and identify organisational factors that encourage impression management behaviours. For casual employees, projecting the appropriate image is essential to their success in both their professional and personal lives. This study would also make employees aware that if impression management behaviours are known to managers and are detrimental to the company, the good reputation that was built through earlier impression management will be damaged, and the overall loss will be greater than the gain.

6. Limitations and Direction for Future Studies

The study had certain shortcomings. The researchers sought to understand the unique motivations for practising impression management. Therefore, the study only included casual workers and the results cannot be generalised to workers with other types of contracts. Our specific research site, a global firm in Zimbabwe, raises questions regarding the generalisability of the study's findings to other global companies in Zimbabwe. This qualitative study utilised semi-structured interviews which have a number of limitations in terms of the research. A quantitative or mixed methods research approach might have helped to clarify further the findings of the study. Future studies investigating the reasons why casual workers engage in impression management should strongly consider gender as a moderating element. In addition, future research needs to look more closely at how effective impression management is in achieving the goals of casual workers.

7. Conclusion

The ability to impress superiors is vital for workers who intend to reduce job insecurity, achieve career growth and better employment opportunities. The study's findings show that in the face of work insecurity, casual workers seek alternative ways to reduce the threat of impression management. In summary, casual workers in the global case firm in Zimbabwe engage in impression management to see more employment opportunities, receive positive performance appraisals, and get better work opportunities in the labour market. The study recommends managers to encourage staff members to make true impressions that are advantageous to the company, and forbid workers from managing impressions when doing so is counterproductive.

References

- [1] Al-Shatti, E., and Ohana, M. 2021. Impression management and career related outcomes: A systematic literature review. *Frontiers in psychology*, 12, 701694.
- [2] Adagbabiri, M., and Okolie, U. C. (2019). Job design and employee performance in nigeria bottling company plc, benin city. *Annals of Spiru Haret University, Economic Series*, 19(3), 65-89.
- [3] Arif, A., Rizvi, S. H., Abbas, Q., Akhtar, C. S., and Imran, M. 2011. Impact of impression management on performance rating. *Interdisciplinary Journal of Contemporary Research in Business*, 3(2), 711-729.
- [4] Arif, A., Rizvi, S. H., Abbas, Q., Akhtar, C. S., and Imran, M. 2011. Impact of impression management on performance rating. *Interdisciplinary Journal of Contemporary Research in Business*, 3(2), 711-729.
- [5] Bass, A.E., Pffarrer, M.D., Milosevic, I. and Titus Jr, V.K., 2023. Better to be loved by some? Firm flaunting as an impression management strategy. *Academy of management review*, 48(2), pp.292-312.
- [6] Bourdage, J.S., Schmidt, J., Wiltshire, J., Nguyen, B. and Lee, K., 2020. Personality, interview performance, and the mediating role of impression management. *Journal of Occupational and Organizational Psychology*, 93(3), pp.556-577.
- [7] Bolino, M. C., Kacmar, K. M., Turnley, W. H., and Gilstrap, J. B. 2018. A multi-level review of impression management motives and behaviors. *Journal of Management*, 34(6), 1080-1109.
- [8] Bolino, M. C., Kacmar, K. M., Turnley, W. H., and Gilstrap, J. B. 2008. A multi-level review of impression management motives and behaviors. *Journal of Management*, 34(6), 1080-1109.
- [9] Bolino, M. C., Varela, J. A., Bande, B., and Turnley, W. H. 2006. The impact of mpression-management tactics on supervisor ratings of organizational citizenship behavior. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 27(3), 281-297.
- [10] Bolino, M., C. Klotz, A., and Daniels, D. 2014. The impact of impression management over time. *Journal of Managerial Psychology*, 29(3), 266-284.
- [11] Bolino, M., C. Klotz, A., and Daniels, D. 2014. The impact of impression management over time. *Journal of Managerial Psychology*, 29(3), 266-284.
- [12] Bourdage, J. S., Roulin, N., and Tarraf, R. 2018. "I (might be) just that good": Honest and deceptive impression management in employment interviews. *Personnel Psychology*, 71(4), 597-632.
- [13] Bourdage, J. S., Roulin, N., and Tarraf, R. 2018. "I (might be) just that good": Honest and deceptive impression management in employment interviews. *Personnel Psychology*, 71(4), 597-632.

- [14] Carlson, D. S., Kacmar, K. M., Thompson, M. J., and Andrews, M. C. 2019. Looking good and doing good: family to work spillover through impression management. *Journal of Managerial Psychology*, 34(1), 31-45.
- [15] Carr, S. C., Hopner, V., Hodgetts, D. J., and Young, M. (Eds.). 2023. *Tackling precarious work: Toward sustainable livelihoods*. Taylor & Francis.
- [16] Chawla, N., Gabriel, A. S., Rosen, C. C., Evans, J. B., Koopman, J., Hochwarter, W. A., and Jordan, S. L. 2021. A person-centered view of impression management, inauthenticity, and employee behavior. *Personnel Psychology*, 74(4), 657-691.
- [17] Crețoiu, R. (2019). Approaches To Staff Behaviour From The Perspective Of Operations Management. *Annals of Spiru Haret University. Economic Series*, 19(1), 83-93.
- [18] Curtis, S.R., Carre, J.R., Mueller, S.M. and Jones, D.N., 2023. Hiding your dark side: Anticipatory impression management of communal traits. *Current Psychology*, 42(22), pp.18720-18730.
- [19] De Cuyper, N., and De Witte, H. 2010. Temporary employment and perceived employability: Mediation by impression management. *Journal of Career Development*, 37(3), 635-652.
- [20] De Cuyper, N., Schreurs, B., De Witte, H., and Selenko, E. 2020. Impact of job insecurity on job performance introduction. *Career Development International*, 25(3), 221-228.
- [21] De Cuyper, N., Schreurs, B., Vander Elst, T., Baillien, E., and De Witte, H. 2014. Exemplification and perceived job insecurity. *Journal of Personnel Psychology*.
- [22] DuBrin, A. J. 2010. *Impression management in the workplace: Research, theory and practice*. Routledge.
- [23] Edeh, F. O., Zayed, N. M., Darwish, S., Nitsenko, V., Hanechko, I., and Islam, K. A. 2023. Impression management and employee contextual performance in service organizations (enterprises). *Emerging Science Journal*, 7(2), 366-384.
- [24] Ernest, O. I. (2020). Psychological contract and employee retention: evidence from uyi grand hotel, Benin city, Edo State. *Annals of Spiru Haret University. Economic Series*, 20(1), 67-80.
- [25] Gardner, W. L., and Martinko, M. J. 2018. Impression management in organizations. *Journal of management*, 14(2), 321-338.
- [26] Grant, A. M., and Mayer, D. M. 2009. Good soldiers and good actors: prosocial and impression management motives as interactive predictors of affiliative citizenship behaviors. *Journal of applied psychology*, 94(4), 900.
- [27] Gunn, V., Kreshpaj, B., Matilla-Santander, N., Vignola, E. F., Wegman, D. H., Hogstedt, C., and Håkansta, C. 2022. Initiatives addressing precarious employment and its effects on workers' health and well-being: A systematic review. *International Journal of Environmental Research and Public Health*, 19(4), 2232.
- [28] Halbesleben, J. R., Bowler, W. M., Bolino, M. C., and Turnley, W. H. 2010. Organizational concern, prosocial values, or impression management? How supervisors attribute motives to organizational citizenship behavior. *Journal of Applied Social Psychology*, 40(6), 1450-1489.

- [29] Halbesleben, J. R., Bowler, W. M., Bolino, M. C., and Turnley, W. H. 2010. Organizational concern, prosocial values, or impression management? How supervisors attribute motives to organizational citizenship behavior. *Journal of Applied Social Psychology*, 40(6), 1450-1489.
- [30] Ho, J. L., Powell, D. M., and Stanley, D. J. 2021. The relation between deceptive impression management and employment interview ratings: A meta-analysis. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, 53(2), 164.
- [31] Irabor, I. E., and Okolie, U. C. (2019). A review of employees' job satisfaction and its affect on their retention. *Annals of Spiru Haret University. Economic Series*, 19(2), 93-114.
- [32] Ishikawa, K., Oyama, T. and Okubo, M., 2021. The malfunction of domain-specific attentional process in social anxiety: Attentional process of social and non-social stimuli. *Cognition and Emotion*, 35(6), pp.1163-1174.
- [33] Kalleberg, A. L. 2012. Job quality and precarious work: Clarifications, controversies, and challenges. *Work and Occupations*, 39(4), 427-448.
- [34] Kang, D. S., Gold, J., and Kim, D. 2012. Responses to job insecurity: The impact on discretionary extra-role and impression management behaviors and the moderating role of employability. *Career Development International*, 17(4), 314-332.
- [35] Kingsley Westerman, C. Y., and Westerman, D. 2010. Supervisor impression management: Message content and channel effects on impressions. *Communication Studies*, 61(5), 585-601.
- [36] Klotz, A. C., He, W., Yam, K. C., Bolino, M. C., Wei, W., and Houston III, L. 2018. Good actors but bad apples: Deviant consequences of daily impression management at work. *Journal of Applied Psychology*, 103(10), 1145.
- [37] Klotz, A. C., He, W., Yam, K. C., Bolino, M. C., Wei, W., and Houston III, L. 2018. Good actors but bad apples: Deviant consequences of daily impression management at work. *Journal of Applied Psychology*, 103(10), 1145.
- [38] Krieg, A., Ma, L., and Robinson, P. 2018. Making a good impression at work: National differences in employee impression management behaviors in Japan, Korea, and the United States. *The Journal of psychology*, 152(2), 110-130.
- [39] Leary, M. R. 2019. *Self-presentation: Impression management and interpersonal behavior*. Routledge.
- [40] Krauss, R.M., 2022. Impression formation, impression management, and nonverbal behaviors. In *Social cognition* (pp. 323-342). Routledge.
- [41] Mahmoud, A. B., Reisel, W. D., Fuxman, L., and Mohr, I. 2021. A motivational standpoint of job insecurity effects on organizational citizenship behaviors: A generational study. *Scandinavian journal of psychology*, 62(2), 267-275.
- [42] Masindi, T., Onojaefe, D. P., Tengeh, R., Ukpere, W., and Adekanmbi, F. (2023). Influence of Job Satisfaction and Organisational Commitment on Employee Turnover Intention in the Chemical Industry in South Africa. *Annals of Spiru Haret University. Economic Series*, 23(4).

- [43] Maxwell, K. L. 2016. The Impact of Chronic Pain Disclosure during the Employment Interview: A Study of Impression Management (Doctoral dissertation, The University of Wisconsin-Madison).
- [44] McFarland, L. A., Hendricks, J. L., and Ward, W. B. 2023. A contextual framework for understanding impression management. *Human Resource Management Review*, 33(1), 100912.
- [45] Mpabanga, Z. L., Ukpere W.I. and Knight X. (2023) "Globalisation and Current Employment Situation in South Africa: An Exploratory Enquiry". *Annals of Spiru Haret University. Economic Series*, 23(4), 403-416.
- [46] Nath, A., Rai, S., Bhatnagar, J., and Cooper, C. L. 2023. Coping strategies mediating the effects of job insecurity on subjective well-being, leading to presenteeism: an empirical study. *International Journal of Organizational Analysis*.
- [47] Ni, H. and Cao, Q., 2023. The double-edged sword effect of employee impression management and counterproductive work behavior: From the perspective of self-control resource theory. *Frontiers in Psychology*, 14, p.1053784.
- [48] Terracciano, N. (2017). Performance management at the organizational level. *Annals of Spiru Haret University. Economic Series*, 17(2), 19-28.
- [49] Olatunji, K. A., Olufemi, L. M., and Omotayo, R. S. (2021). Effects of fringe benefits on employee's productivity in selected food and beverages production companies in Ogun State, Nigeria. *Annals of Spiru Haret University. Economic Series*, 21(2), 55-72.
- [50] Okolie, U. C., and Omamuyovwi, A. I. (2020). Developing the human resources effectiveness through training and development. *Annals of Spiru Haret University. Economic Series*, 20(3), 81-95.
- [51] Peck, J. A., and Levashina, J. 2017. Impression management and interview and job performance ratings: A meta-analysis of research design with tactics in mind. *Frontiers in psychology*, 8, 201.
- [52] Pounders, K., Kowalczyk, C. M., and Stowers, K. 2016. Insight into the motivation of selfie postings: Impression management and self-esteem. *European Journal of Marketing*, 50(9/10), 1879-1892.
- [53] Qureshi, S. U., Ashfaq, J., Ul Hassan, M., and Imdadullah, M. 2015. Impact of extroversion and narcissism on in role and extra role performance: Moderating role of impression management motives. *Pakistan Journal of Commerce and Social Sciences (PJCSS)*, 9(1), 96-119.
- [54] Rao, A., Schmidt, S. M., and Murray, L. H. 1995. Upward impression management: Goals, influence strategies, and consequences. *Human Relations*, 48(2), 147-167.
- [55] Rao, A., Schmidt, S. M., and Murray, L. H. 2015. Upward impression management: Goals, influence strategies, and consequences. *Human Relations*, 48(2), 147-167.
- [56] Roulin, N., Bangerter, A., and Levashina, J. 2014. Interviewers' perceptions of impression management in employment interviews. *Journal of Managerial Psychology*, 29(2), 141-163.
- [57] Roulin, N., Bangerter, A., and Levashina, J. 2014. Interviewers' perceptions of impression management in employment interviews. *Journal of Managerial Psychology*, 29(2), 141-163.

- [58] Sassenrath, C. 2020. "Let me show you how nice I am": Impression management as bias in empathic responses. *Social Psychological and Personality Science*, 11(6), 752-760.
- [59] Schlenker, B. R. 2000. *Impression management* (Vol. 526). Monterey, CA: Brooks/Cole.
- [60] Shepherd, D. A., and Haynie, J. M. 2011. Venture failure, stigma, and impression management: A self-verification, self-determination view. *Strategic Entrepreneurship Journal*, 5(2), 178-197.
- [61] Shi, X., Wang, X. and McGinley, S., 2024. What happens to abusive actors? A study of managers' emotional responses and impression management tactics subsequent to enacted abusive supervision. *International Journal of Contemporary Hospitality Management*, 36(1), pp.218-238.
- [62] Shin, K. Y., Kalleberg, A. L., and Hewison, K. 2023. Precarious work: A global perspective. *Sociology Compass*, e13136.
- [63] Shoss, M. K., Su, S., Schlotzhauer, A. E., and Carusone, N. 2023. Working hard or hardly working? An examination of job preservation responses to job insecurity. *Journal of Management*, 49(7), 2387-2414.
- [64] To, W. M., Gao, J. H., and Leung, E. Y. 2020. The effects of job insecurity on employees' financial well-being and work satisfaction among Chinese pink-collar workers. *Sage Open*, 10(4), 2158244020982993.
- [65] Tsai, W. C., Chen, C. C., and Chiu, S. F. 2005. Exploring boundaries of the effects of applicant impression management tactics in job interviews. *Journal of Management*, 31(1), 108-125.
- [66] Turnley, W. H., and Bolino, M. C. 2001. Achieving desired images while avoiding undesired images: exploring the role of self-monitoring in impression management. *Journal of applied psychology*, 86(2), 351.
- [67] Wulani, F., Handoko, T. H., and Purwanto, B. M. 2022. Supervisor-directed OCB and deviant behaviors: the role of LMX and impression management motives. *Personnel Review*, 51(4), 1410-1426.
- [68] Xin, K. R. 2004. Asian American managers: An impression gap? An investigation of impression management and supervisor-subordinate relationships. *The Journal of Applied Behavioral Science*, 40(2), 160-181.
- [69] Xu, L., Wen, T., and Wang, J. 2022. How does job insecurity cause unethical pro-organizational behavior? The mediating role of impression management motivation and the moderating role of organizational identification. *Frontiers in Psychology*, 13, 941650.
- [70] Zheng, S., Ding, T., Chen, H., Wu, Y., and Cai, W. 2021. Precarious job makes me withdraw? The role of job insecurity and negative affect. *International Journal of Environmental Research and Public Health*, 18(24), 12999.

TELEWORKING AND EMPLOYEES' BRAND AMBASSADOR: USING ACADEMIC STAFF OF OGUN STATE INSTITUTE OF TECHNOLOGY, IGBESA, OGUN STATE AS A CASE STUDY

**Kafiu Sunkanmi ODUSANYA¹, Gloria Chinagozi OSADEME²,
Adewunmi Oluwakemi SODEKE³**

¹ *Dept. of Business Administration, Lagos State University, Ojo, Lagos
State, Nigeria*

08027610952, sunkanmiodusanya@gmail.com

² *Dept. of Business Administration, Lagos State University, Ojo, Lagos
State, Nigeria*

09066362682, gloriaosademe2@gmail.com

³ *Dept. of Marketing, Ogun State Institute of Technology, Igbesa, Ogun
State, Nigeria*

07061233464, sodekea@gmail.com

How to cite: Odusanya, K.S., Osademe, G.C., & Sodeke A.O. (2024).
“Teleworking and Employees’ Brand Ambassador: Using Academic Staff of
Ogun State Institute of Technology, Igbesa, Ogun State as a Case Study”
Annals of Spiru Haret University. Economic Series, 24(1), 367-379, doi:
<https://doi.org/10.26458/24121>

Abstract

The study examined teleworking and employee’s brand ambassador using academic staff of Ogun State Institute of Technology, Igbesa as a focus. The research population was 136, and the sample size was 102 staff of the total population which consisted of both senior and junior staff. Multistage sampling technique was adopted in this study; which was stratified and simple random sampling techniques. A total of 102 copies of the questionnaire were administered while a total of 98 copies of the questionnaire were received from respondents and 95 copies were valid for data analysis. The 10-items measuring instruments were tested using test-retest reliability by administering

the test once and then administering the same test again three weeks after the first administration. The hypotheses formulated for the study were analyzed using Pearson Correlation Analysis. The findings revealed that teleworking had significant positive relationship with employee's brand ambassador (r – statistics 0.611), P – values (0.000). The study recommended that managers should encourage teleworking among their employee so as to improve the organization's brand.

Keywords: *Employee's Brand Ambassador, Employee's Engagement, Teleworking.*

JEL Classification: M10, M14, M19

Introduction

The concept of teleworking and its relationship with employee's brand ambassador has its root in 1947 in England, when Fernandez-Rios discovered that employee's commitment to work; in form of brand ambassador were on the decline while working through telecommunication or virtual technologies. Therefore, his attempt to strike a balance between work-life balance and issue of employee's commitment to work through employees' brand ambassador led to the introduction of telecommunication as a form of work flexibility. The introduction of this teleworking in organizations offered the workers to attend to their family issues and perform their jobs effectively within the allotted time frame [Berlin & Kerl, 2017]. In consonance with the social and economic changes of the world; such as COVID-19 pandemic, this also translated into changes in different organizations as well. The pandemic led to re-introduction of teleworking as means of work flexibility [Sladjana & Sanja, 2021].

Tapas and Regina [2021] opined that organization's practices, including non-standard work arrangements, and the use of technology and automation, are going through substantial changes globally. In addition to this, the demographic, technological, and economic changes that have been molding the ways work is organized seem more pronounced than immediate past. Moreover, Noorliza and Muhammad Hasmi [2019] stressed the changing nature of organization and the quest for operational excellence had made businesses to yearn for superior skills, enhanced efficiency and improved work-related-attitude necessary for achieving competitive advantage in the industry. Fowler [2018] concurred that, the

difficulties in striking a balance between work requirements and meeting family responsibilities made most organizations to adopt teleworking as a strategy in addressing work–life balance.

In the view of Barredo and Mahon [2007], working for a long period of time with a computer, especially at home, is associated with a sedentary lifestyle, static and constraining posture, repetitive movements and extreme positions of the forearm and wrist; which can be viewed as the side effects of work flexibility. Work life imbalances and work-related stress among employees of different organizations have been discussed in different academic journals. Therefore, teleworking can be used as a panacea to the employee’s work-related stress and employee’s work-life imbalances [Chinedu & Amadi, 2018].

Moreover, Ogun State Institute of Technology, Igbesa was chosen as a case study, because of her adoption of teleworking modality during the COVID-19 pandemic where majority of the semester lectures during that period were done through technological means, which eventually won her an academic award, as showed by [www.nigeriannewsdirect.com]. The teleworking policy and of the organization eventually contributed to such award; in view of this, the study is informed to determine the relationship of teleworking and employee’s brand ambassador. Therefore, the major objective of the study is to examine the relationship of teleworking and employee’s brand ambassador among Academic Staff of Ogun State Institute of Technology.

The following research question was formulated for the study:

- i. Is there any significant relationship between teleworking and employee’s brand ambassador among Academic Staff of Ogun State Institute of Technology?

In order to test the above relationship between the variables, the following hypothesis was formulated for the study:

- H₀₁: Teleworking is not having any significant relationship with employee’s brand ambassador among Academic Staff of Ogun State Institute of Technology.

Literature Review

Teleworking

Bonacini, Gallo and Scicchitano [2021] asserted that teleworking in 2020 is more relevant than ever. The COVID-19 pandemic led to 46.6% of people

engaging in teleworking in April 2020 alone, 86% of whom reported ascribed this to the global pandemic. According to them, commentators suggested that a new normal of remote working has been established.

In the view of Green, Tappin and Bentley [2017], many terms have been used to describe teleworking, such as; telecommuting, home working, anywhere working, e-work, distributed work arrangements, virtual work and mobile work. Teleworking refers to the organizational practice where any form of work which could have been performed within the organization's premises is done by an employee outside these premises on a voluntary basis with the aid of information and communication technologies. In the opinion of Feeney and Stritch [2019] teleworking in the public sector has been viewed as an innovation to address crucial problems of modern workplaces. It is proposed as a means to enhance work-life balance. According to Georgescu, Gherghina, Duca, Postole and Constantinescu [2021], teleworking is an alternative of labour relations, having positive benefits for individuals and society, although some organizations do not enthusiastically implement it. Empirical analysis proves that there are some positive connections between teleworking and organizations' results. Teleworking improves employee's engagement and facilitates the reach for performance. They also affirmed that teleworking could provide relevant fuel and offices spaces saving, reduction of carbon emissions; it also improves productivity and responsibility.

Employee's Brand Ambassador

Employee's brand ambassador is an emerging concept in today's scenario. It is an effective and innovative tool to shape the behavior of employees for their daily activities and it promote employee's engagement, performance and identity in the organization. Employee's branding is a concept where organization transforms the employee into brand ambassador of the organization so as to attract customers and other business opportunities as well. Employee's brand ambassador is an effective and creative tool used to encourage employee's performance and engagement in the organization. Organization is sustained when employee communicate with the outside people, in a manner that will project the image of the organization in positive forms [Mala Sharma, 2022]. Meanwhile, Sakka and Ahammad [2020] postulated that employee's brand ambassador behavior is developed through a well-structured bi-directional communication channel, facilitating the exchange of information about the brand core values between an organization and internal stakeholders.

Wassler, Wang and Hung [2019] viewed employee's brand ambassador as a congruent behavior expressed by a person who is emotionally connected with the brand to the extent of living the brand through imbibes brand values as his values. It is a behavior expressed by a person who has long-term personal experiences on what the brand does; what the brand stands for and ready to position self as the face of the brand.

Teleworking and Employee's Brand Ambassador

Employee's brand ambassador has a theoretical root on positive word of mouth. Traditionally, employee's brand ambassador was defined as forms of behaviors expressed by an individual who advocates for the brand through positive word of mouth recommendations and communications. This means that a person who is an ambassador of the brand is committed to the brand, hence motivated to support the brand by engaging in positive word of mouth recommendations and communications through virtual means or through telecommunication [Ghasemi, 2019].

As organizations build their brands, the impact of teleworking towards employee's brand ambassador is becoming increasingly important. At the same time, employees are becoming increasingly empowered to voice their opinions on employer review sites and post work-related content on social media such as Twitter, WhatsApp, Facebook, Instagram, TikTok etc. This has given rise to employee influencers, which manifests as employees influencing consumers' perceptions, employees influencing other employees' perceptions towards the brand, employees' co-creating value and employees championing the brand [Donna, Jenna & Janice, 2021].

Theoretical Background

Attribution Theory

One of these theories underpinning this study is attribution theory, which was propounded by Fritz Heider in 1958. According to the theory, it tends to demonstrate how an individual interpreted an event and how such event relates to the thinking and behavior of such individual. The theory affirmed that teleworking may have different effects which are dependent on the extent to which managers form organization-related and self-related attributions for employees' use of teleworking arrangements [Vivien, Kalu & Victor 2021].

Research Methods

The study was carried out using survey research design. The population consisted of 136 Academic staff of Ogun State Institute of Technology, Igbesa, Ogun State, Nigeria. This study focused on the population of the entire Academic staff of the organization. According to Registry Unit of the organization (2021), the total population of Academic staff was 136. The breakdown of the staff is shown in table 1. The population consisted of 136 Academic staff which consisted of senior staff and junior staff category. The senior staff category included; senior lecturers, principal lecturers and chief lecturers' cadre. While the junior staff category included; technologists, assistant lecturers, lecturers ranging from lecturer one to lecturer three.

Table 1: Distribution of Academic Staff of Ogun State Institute of Technology Igbesa, Ogun State

Staff level	Frequency	Percentage
Senior Staff	34	25
Junior Staff	102	75
Total	136	100

Source: Field survey, 2024

In order to get the appropriate sample size, the researcher employed the Taro Yamane (1967) Sample Size determination formula. Sample size selected was 102 respondents, which is shown as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where: n = Sample size, N = Total population, e = Error Margin (0.5%),

$$N = \frac{136}{1 + 136(0.05)^2}, n = \frac{136}{1 + 136(0.0025)}, n = \frac{136}{1.34}, n = 102$$

Moreover, due to the fact that the population consisted of different categories of group of staff, the study adopted multistage sampling techniques (stratified and simple random sampling techniques).

Having gotten the sample size through Taro Yamane as shown in previous page, the study further adopted the following formula so as to determine each group sample size:

$$cn = \frac{CN}{N} \times \frac{n}{1}$$

Where: cn = Estimated participant per allocation per each segment, CN = Population per each segment, N = Total population of the study, n = sample size of the study

$$cn = CN/N \times n/1$$

Where: cn = Estimated participant per allocation per each segment,
CN = Population per each segment, N = Total population of the study,
n = sample size of the study.

Senior Staff

$$cn = \frac{CN}{N} \times \frac{n}{1} \Rightarrow cn = \frac{34}{136} \times 102 \Rightarrow \therefore cn = 26$$

Therefore, senior staff sample of the study is 26

Junior Staff

$$cn = \frac{CN}{N} \times \frac{n}{1} \Rightarrow cn = \frac{102}{136} \times 102 \Rightarrow \therefore cn = 76$$

Therefore, junior staff sample of the study is 76

Thus, from the above analysis, 26 respondents were selected from the senior staff categories, while a total of 76 respondents were selected from the junior staff category, which were 102 in total, which is in accordance with the sample size figure realized through Taro Yamane sampling size determination formula.

Questionnaire Administration

Data collection was done using questionnaire administration. Moreover, 102 copies of questionnaire were distributed, while 98 copies were retrieved and 95 copies were valid for usage. The questionnaire was divided into two sections. Section A solicited for information on respondent's bio-data, while section B focused on teleworking and employee's brand ambassador among Academic staff of Ogun State Institute of Technology with six (6) point Likert -type rating scale for measuring data. The items had six-point scale of strongly agree, agree, partially

agree, partially disagree, disagree and strongly disagree with corresponding value of 6, 5, 4, 3, 2 and 1 respectively. The instrument for data collection was 10 items questionnaires which were adapted. Instruments on teleworking made up of 5 items was adapted from Viviane, Allain and Rosette (2001), Sandi and Lynn (2003). While instruments on employee’s brand ambassador made up of 5 items was adapted from Mala Sharma (2022), Luca and Alessandra (2018). This study adopted test-retest reliability survey, which was administered to the respondents twice between two to three weeks interval in order to determine reliability of the measuring instruments, and coefficient of the test-retest value was 0.71.

The instrument was validated by an expert in the Department of Business Administration, Lagos State University. For the purpose of this study, the face and content validity of the instrument was carried out by presenting a copy of the intended instrument to some experts before the actual administration. Moreover, Cronbach Alpha coefficient test was used to determine the mean reliability coefficient, with the aid of Statistical Package for Social Science (SPSS), version 25, the Cronbach Alpha test result for the instruments is shown in table 3.2, which is 0.723 and it implied that it is an acceptable value based on some scholars’ views, who opined that any value above 0.7 is an acceptable reliability statistic.

Table 2 Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
.723	10

Source: SPSS version 25

Analysis of Demographic Information of Respondents

Personal information of the respondents were analysed in this section and they contain information on the gender, age, marital status, educational qualification and working experience. The analysis of the demographic was done using percentages. This is shown in table 3

Table 3. Demographic Information

		Frequency	Percentage (%)
Gender	Male	52	54.74
	Female	43	45.26
Marital Status	Single	23	24.21
	Married	70	73.68
	Divorced	2	2.11
Age	0-30 years	16	16.84
	31-50 years	69	72.63
	51 years above	10	10.53
Educational Qualification	HND/B.Sc/B.Ed	23	24.21
	PGDE/M.Sc/M.Ed	71	74.74
	Others	1	1.05
Working Experience	0-5 years	28	29.48
	6-10 years	18	18.94
	11-15 years	30	31.58
	16 years above	19	20

Source: Field survey, 2024

From the demographic information table, 54.74% of the respondents were males while 45.26% of the respondents were females, hence majority of the respondents were male. Also, 73.68% of the staff were married, while 24.21% were single and 2.11% were divorced, therefore majority of the respondents were married. In analysing the age of the respondents, 16.84% falls within the age range of 0-30 years, while 72.63% falls between 31-50 years and 10.53% falls above 51 years. In analyzing the level of education, 24.21% of the respondents were HND/ B.Sc/B.Ed holders, while 74.74% were PGDE/ M.Sc/ M.Ed holders, while others were 1.05%. Hence, there is high literacy rate among the respondents. As regards the working experience, 29.48% of the staff had less than 5 years working experience, 18.94% falls between 6-10 years working experience, 31.58% ranged between 11-15 years and 20% falls between 16 years and above.

Test Of Hypothesis

Hypothesis One

Teleworking is not having any significant relationship with employee’s brand ambassador among Academic Staff of Ogun State Institute of Technology.

Table 4.: Correlation Result of Hypothesis One

Correlations			
		Teleworking	Employee’s Brand Ambassador
Teleworking	Pearson Correlation	1	.611**
	Sig. (2-tailed)		.000
	N	95	95
Employee’s Brand Ambassador	Pearson Correlation	.611**	1
	Sig. (2-tailed)	.000	
	N	95	95
**. Correlation is significant at the 0.01 level (2-tailed).			

Source: Author’s computation (2024)

The correlation analysis of table 4 showed the strength and direction of relationship between teleworking and employee’s brand ambassador. From table 4.1, the Pearson correlation coefficient between teleworking and employee’s brand ambassador was 0.611, it showed a positive relationship between the two variables and it indicated the impact of teleworking on employee’s brand ambassador. Therefore, the null hypothesis was rejected. In view of this, teleworking has significant relationship with employee’s brand ambassador.

Discussion of Results

The correlation analysis of table 4 showed the strength and direction of relationship between teleworking and employee’s brand ambassador. From table 4.1, the Pearson correlation coefficient between teleworking and employee’s brand ambassador was 0.611, it showed a positive relationship between the two variables and it indicated the impact of teleworking on employee’s brand ambassador. Therefore, the null hypothesis was rejected. In view of this, teleworking has significant relationship with employee’s brand ambassador.

Conclusions

Having analyzed the data and tested the hypotheses using Pearson Correlation analysis, the following findings were made. The result of the first hypothesis showed that, there was a significant positive relationship between teleworking and

employee's brand ambassador which is in consonance with the findings of Lopez, Erro-Garces, Pinilla-Garcia and Kiriakou (2021) who investigated the effects of innovation, digitalization and teleworking processes that have occurred because of the coronavirus crisis. They found out that COVID-19 has accelerated a process of digitalization that has produced relevant and new changes within an organization. In view of the above study, it was recommended that organizations should encourage teleworking and virtual working means among their employees so as to improve organization's brands and images. Moreover, teleworking methodology can also be adopted so as to inspire the employee to show-case the organization's brand while working through telecommunication mediums. In addition to this, managers should endeavor to provide all necessities infrastructures that will foster teleworking within the organization. Every research has several limitations associated with it. As a result of this, some limitations were identified in course of the research:

- i. The study examined teleworking among the academic staff of higher institutions, further studies can be carried out which can be extended to the non-academic staff of higher institutions.
- ii. There was a problem of measurement of teleworking as regards time frame; there was problem in defining the specific time frame of work hours, as regards teleworking.
- iii. Future study should conceptualize boundaries of teleworking and home working.

References

- [1] AMANI, D. (2021). CULTIVATING UNIVERSITY BRAND AMBASSADORSHIP BEHAVIOUR TO STUDENTS OF HIGHER EDUCATION INSTITUTIONS IN TANZANIA. *East African Journal of Social and Applied Sciences*, 3(1), 46-59. Retrieved online from <https://mocu.ac.tz/wp-content/uploads/2021/06P4/AMANI-DAVID> on 31/01/2022.
- [2] BARREDO, R. D. V., & MAHON, K. (2007). THE EFFECTS OF EXERCISE AND REST BREAKS ON MUSCULOSKELETAL DISCOMFORT DURING COMPUTER TASKS: AN EVIDENCE-BASED PERSPECTIVE. *J. Phys. Ther. Sci.*, 19, 151-163.
- [3] BERLIN, K., & KERL, H. D. (2017). MAKING THE LINK BETWEEN WORK-LIFE BALANCE PRACTICES AND ORGANIZATIONAL PERFORMANCE. *Human Resource Management Review*, 19 (10), 9-22.

- [4] BONACINI, L., GALLO, G., & SCICCHITANO, S. (2021). WORKING FROM HOME AND INCOME INEQUALITY: RISKS OF A NEW NORMAL WITH COVID-19. *J. Popul. Econ*, 34, 303–360.
- [5] CHINEDU, F., & AMADI, M. (2018). THE EFFECTS OF WORK ARRANGEMENTS ON PERCEPTION OF WORK FAMILY BALANCE. *Business Process Management Journal*, 20 (1), 25–46.
- [6] DONNA, S., JENNA, J., & JANICE L. R. (2021). EMPLOYEES AS INFLUENCERS: MEASURING EMPLOYEE BRAND EQUITY IN A SOCIAL MEDIA AGE. *Journal of Product & Brand Management*, 30 (6), 834-853. Retrieved online from <https://www.emerald.com/insight/content/doi/10.1108/JPBM-03- on 15/04/2022>.
- [7] FEENEY, M. K., & STRITCH, J. M. (2019). FAMILY-FRIENDLY POLICIES, GENDER, AND WORK–LIFE BALANCE IN THE PUBLIC SECTOR. *Review of Public Personnel Administration*, 39 (3), 422–428.
- [8] FOWLER, H. (2018). RECONCEPTUALIZING THE NATURE AND CONSEQUENCES OF PART-TIME WORK. *Academy of Management Review*, 1 (5), 103-112.
- [9] F. Heider. *The psychology of interpersonal relations*. New York, Willey, 1958. Retrieved online from <https://research.clps.brown.edu> on 14/07/2022.
- [10] GEORGESCU, G. C., GHERGHINA, R., DUCA, I., POSTOLE, M. A., & CONSTANTINESCU, C. M. (2021). DETERMINANTS OF EMPLOYEES' OPTION FOR PRESERVING TELEWORKING AFTER THE COVID-19 PANDEMIC. *Amfiteatru Economic*, 23(58), 669-682. doi: 10.24818/EA/2021/58/669.
- [11] GHASEMI, V. (2019). HOST-GUEST INTERACTION: ANALYSING PERCEIVED SERVICE QUALITY, SATISFACTION, RESIDENTS SUPPORT, AND TOURIST'S BEHAVIOUR. *Journal of Tourism and Development*, 32(1), 265–280.
- [12] GREEN, N., TAPPIN, D., & BENTLEY, T. (2017). EXPLORING THE TELEWORKING EXPERIENCES OF ORGANIZATIONS IN A POST-DISASTER ENVIRONMENT. *N. Z. J. H. R. M.*, 7(1), 1-19.
- [13] LOPEZ, P. A., ERRO-GARCES, A., PINILLA-GARCIA, F. J., & KIRIAKOU, D. (2021). WORKING IN THE 21ST CENTURY. THE CORONAVIRUS CRISIS: A DRIVER OF DIGITALIZATION, TELEWORKING AND INNOVATION WITH UNINTENDED SOCIAL CONSEQUENCES. *Information*, 12(9), 377-387. Retrieved online from <https://doi.org/10/3390/info12090377> on 14/07/2022.
- [14] LUCA, Q., & ALESSANDRA, M. (2018). MANAGERIAL STRATEGIES TO PROMOTE EMPLOYEE BRAND CONSISTENT BEHAVIOR: THE NEW FRONTIER FOR BRAND BUILDING STRATEGIES. *Euromed Journal of Business*, 1450-2194. Retrieved online from <https://doi.org/10.1110/EMJB-02-2017-008> 03/05/2022.
- [15] MALA SHARMA, P. V. (2022). A STUDY OF ORGANIZATIONAL CULTURE AND WORK- LIFE BALANCE ON EMPLOYEE BRANDING WITH REFERENCE OF HIGHER EDUCATION IN INDIA. *Journal of Positive School Psychology*, 6(2), 5037–5043. Retrieved online from <http://journal/ppw.com/index/php> on 03/05/2022.

- [16] NOORLIZA, K., & MUHAMMAD HASMI, A. H. (2019). LEADERSHIP ATTRIBUTES AND THEIR IMPACT ON WORK-RELATED ATTITUDES. *International Journal of Productivity and Performance Management*, 68(5), 903-919. Retrieved online from <https://doi.org/10.1108/IJPPM-02-2018-0058> on 04/04/2022.
- [17] ONYEUKWU, P. E., ADENIYI, A., & AMIN, H. J. (2020). TELECOMMUTING: A PANACEA TO COVID-19 SPREAD IN NIGERIAN UNIVERSITIES. *International Journal of Innovation and Economic Development*, 6(1), 47-60. Retrieved online from <http://dx.doi.org/10.18775/ijied.1849-7551-7020.2015.61.2004> on 05/05/2022.
- [18] SAKKA, G., & AHAMMAD, M. F. (2020). UNPACKING THE RELATIONSHIP BETWEEN EMPLOYEE BRAND AMBASSADORSHIP AND EMPLOYEE SOCIAL MEDIA USAGE THROUGH EMPLOYEE WELLBEING IN THE WORKPLACE: A THEORETICAL CONTRIBUTION. *Journal of Business Research*, 11 (9), 354-363.
- [19] SLADJANA, G. M. AND SANJA, S. (2021). FLEXIBLE FORMS OF WORK AND WORK ENGAGEMENT. *Law Theory and Practice*, 4(1), 87-100. Retrieved online from <https://casopis.pravni fakultet.edu.rs/index.php/ltp/ar> on 05/03/2022.
- [20] TAPAS, K. R., & REGINA, P. C. (2021). WORK FLEXIBILITY AND WORK-RELATED WELL-BEING. *International Journal of Environmental Research and Public health*, 18, (3254), 2-17.
- [21] VIVIANE, I, ALLAIN, V., & ROSETTE, S. (2001). THE ORGANIZATIONAL CONTEXT OF TELEWORKING IMPLEMENTATION. *Technological Forecasting & Social Change*, 68 (275- 291). Retrieved online from <https://academia.edu> 03/04/2022.
- [22] VIVIEN, A. U., KALU, E. A., & VICTOR, U. (2021). WORKPLACE FLEXIBILITY AND PERFORMANCE OF MEDICAL EMPLOYEES: A STUDY OF TEACHING HOSPITALS IN NORTH-CENTRAL, NIGERIA. *International Journal of Management*, 12(1), 1099-1114. Retrieved online <http://www.iaeme.com/IJM/issues.asp?JType=IJM&VType=12&IType=1> on 03/04/2022.
- [23] WANG, X., ZHANG, Z., & CHUN, D. (2021). HOW DOES MOBILE WORKPLACE STRESS AFFECT EMPLOYEE INNOVATIVE BEHAVIOR? THE ROLE OF WORK-FAMILY CONFLICT AND EMPLOYEE ENGAGEMENT. *Behavioral Science*, 12(2), 1-14. <https://doi.org/10.3390/bs12010002> on 03/05/2022.
- [24] WASSLER, P., WANG, L., & HUNG, K. (2019). IDENTITY AND DESTINATION BRANDING AMONG RESIDENTS: HOW DOES BRAND SELF-CONGRUITY INFLUENC *Journal of Tourism Research*, 21(4), 437-446.
- [25] www.nigeriannewsdirect.com . Article on JAMB awards N375m to OGITECH, ABU, 3 others. Retrieved online from https://google.com/url?q=https://nigeriannewsdirect.com/jamb-awards_n375m-to-ogitech-abu-3-others on 28/06/2022.

ECONOMIC INVESTIGATION OF UTILITY MAXIMIZATION THROUGH MATHEMATICAL ANALYSIS

Devajit MOHAJAN¹, Haradhan Kumar MOHAJAN²

¹*Department of Civil Engineering, Chittagong University of Engineering
& Technology, Chittagong, Bangladesh*

Email: devajit1402@gmail.com

Mobile: +8801866207021

²*Department of Mathematics, Premier University, Chittagong, Bangladesh*

Email: haradhan1971@gmail.com

Mobile: +8801716397232

How to cite: Mohajan, D., & Mohajan, H. K. (2024). "Economic Investigation of Utility Maximization through Mathematical Analysis" *Annals of Spiru Haret University. Economic Series*, 24(1), 380-418, doi: <https://doi.org/10.26458/24122>

Abstract: *In this paper economic predictions among commodity prices and Lagrange multipliers are deliberated, where utility maximization policy is examined with sufficient mathematical investigation. In mathematical economics, utility reflects the propensity of an activity, which of course increases or decreases complete happiness of the individual/society. The system of Lagrange multiplier is a strongly valuable method in advanced calculus that is applied in this paper with a pair of constraints. This paper also tries to show the economic results of optimization precisely but elaborately.*

Keywords: Commodity price, economic predictions, utility maximization

JEL Codes: C61, C67, D21, D24, H32, I31

1. Introduction

“Mathematical modeling” is thought as a very important research area in modern economics [Samuelson, 1947]. It is an extremely theoretical and analytical research that covers many areas of sociology, such as economics, social science, psychology, behavioral science, political science, etc. [Zheng & Liu, 2022]. Mathematical modeling of utility maximization is necessary to find accurate outcome in sensitivity analysis [Gauthier, 1975]. In economics, Lagrange multiplier analysis is a popular mathematical policy [Islam et al., 2009a; Mohajan, 2021b].

The economic condition is such that after the use of commodities, can able to satisfy wishes of humanity is considered as utility [Bentham, 1780]. Utility is an important and fundamental concept in modern economics [Fishburn, 1970]. The idea of utility is settled in economics during the 18th century by philosophers Jeremy Bentham (1748-1832) and John Stuart Mill (1806-1873) (Bentham, 1780). They have realized that utility can raise or reduce the total happiness [Read, 2004]. Activities of utility indicate that citizens of the society try to find maximum satisfaction from their buying materials. Producers in the society always depend on the consumer’s satisfaction of their products [Kirsh, 2017]. Throughout the study mathematical calculations are given in some details.

2. Literature Review

In any research, the literature review indicates works of former researchers considers their prevailing facts [Polit & Hungler, 2013]. Charles W. Cobb (1875-1949) and Paul H. Douglas (1892-1976) obtains a function related to industrial production [Cobb & Douglas, 1928]. John V. Baxley and John C. Moorhouse analyze the optimization policy [Baxley & Moorhouse, 1984]. Well-known Professor Jamal Nazrul Islam (1939-2013) and his collaborators work on utility maximization policy in mathematical economics [Islam et al., 2010, 2011]. Pahlaj Moolio and his associates show the optimization with detail mathematical analysis [Moolio et al., 2009]. Lia Roy and her partners discuss the cost minimization with detail mathematical presentation [Roy et al., 2021].

Devajit Mohajan and Haradhan Kumar Mohajan work on profit maximization area, and they have revealed mathematical operations very elaborately [Mohajan & Mohajan, 2022a-d]. Later, Jannatul Ferdous and Haradhan Kumar Mohajan take endeavors for solving optimization relations [Ferdous & Mohajan, 2022]. Recently, Sabo Nelson Pandi and his colleagues have displayed lifetime utility maximization structure [Pandi et al., 2022].

3. Research Methodology

Research is a systematic inquiry to achieve new knowledge with the existing evidences. It tries to remove existing mistakes and misconceptions, and adds new knowledge with the present stock of knowledge [Pandey & Pandey, 2015]. Methodology is the scientific actions, techniques and instruments, and also a guideline to perform an acceptable research. It supports the new researchers to accomplish better research [Kothari, 2008]. Research methodology is a way for thoroughly solving the research activities (Legesse, 2014). A researcher faces numerous problems during data collection, statistical designs, and finally to prepare a seminal research work [Mohajan, 2011, 2012b,c, 2013a,b,c, 2014, 2017b,d,e, 2018a,b, 2020, 2021f].

We have started the paper with four commodity variables: M_1 , M_2 , M_3 , and M_4 to predict in the economic optimization on the basis of the results of sensitivity analysis. We have discussed sensitivity analysis using $\frac{\partial \lambda_1}{\partial p_1}$, $\frac{\partial \lambda_2}{\partial p_4}$, etc.

[Mohajan & Datta, 2012]. We have prepared this paper by consulting the books of famous authors, journals, handbooks, theses, and by taking the help from the internet, websites, etc. [Mohajan & Mohajan, 2023a-o].

4. Objective of the Study

Principal objective of the article is to discuss economic predictions among Lagrange multipliers and commodity prices during utility maximization observation. Some more subsidiary objectives are;

- to demonstrate the mathematical thoughts accurately,
- to give the economic predictions properly, and
- to encourage the young researchers in mathematical economic modeling research areas.

5. A Mathematical Model for Utility

To work on economic predictions we consider that there are only four commodities in the society, such as M_1 , M_2 , M_3 , and M_4 . Let a person buys m_1 , m_2 , m_3 , and m_4 quantities from these four goods M_1 , M_2 , M_3 , and M_4 ,

respectively. The utility function is [Islam et al., 2010; Mohajan & Mohajan, 2022b],

$$U(m_1, m_2, m_3, m_4) = m_1 m_2 m_3 m_4. \quad (1)$$

The budget constraint will be,

$$B(m_1, m_2, m_3, m_4) = p_1 m_1 + p_2 m_2 + p_3 m_3 + p_4 m_4 \quad (2)$$

where p_1 , p_2 , p_3 , and p_4 are the prices of per unit of goods m_1 , m_2 , m_3 , and m_4 , respectively. The coupon constraint is,

$$\Pi(m_1, m_2, m_3, m_4) = \pi_1 m_1 + \pi_2 m_2 + \pi_3 m_3 + \pi_4 m_4, \quad (3)$$

where π_1 , π_2 , π_3 , and π_4 are the coupons necessary to purchase a unit of commodity of m_1 , m_2 , m_3 , and m_4 , respectively.

Now we use relations (1) to (3) to present Lagrangian function $\Lambda(m_1, m_2, m_3, m_4, \lambda_1, \lambda_2)$ for Lagrange multipliers λ_1 and λ_2 as [Baxley & Moorhouse, 1984; Ferdous & Mohajan, 2022],

$$\begin{aligned} \Lambda(m_1, m_2, m_3, m_4, \lambda_1, \lambda_2) = & m_1 m_2 m_3 m_4 + \lambda_1 (B - p_1 m_1 - p_2 m_2 - p_3 m_3 - p_4 m_4) \\ & + \lambda_2 (\Pi - \pi_1 m_1 - \pi_2 m_2 - \pi_3 m_3 - \pi_4 m_4). \end{aligned} \quad (4)$$

Now we apply techniques of calculus in (4) to find [Islam et al. 2010; Mohajan & Mohajan, 2022c];

$$\begin{aligned} B_1 = p_1, B_2 = p_2, B_3 = p_3, B_4 = p_4; \\ \Pi_1 = \pi_1, \Pi_2 = \pi_2, \Pi_3 = \pi_3, \Pi_4 = \pi_4; \end{aligned} \quad (5)$$

$$\begin{aligned} \Lambda_{11} = 0, \Lambda_{12} = \Lambda_{21} = m_3 m_4, \Lambda_{13} = \Lambda_{31} = m_2 m_4, \\ \Lambda_{14} = \Lambda_{41} = m_2 m_3, \Lambda_{22} = 0, \Lambda_{23} = \Lambda_{32} = m_1 m_4, \\ \Lambda_{24} = \Lambda_{42} = m_1 m_3, \Lambda_{33} = 0, \Lambda_{34} = \Lambda_{43} = m_1 m_2, \Lambda_{44} = 0, \end{aligned} \quad (6)$$

where $\frac{\partial B}{\partial m_1} = B_1$, $\frac{\partial B}{\partial m_2} = B_2$, $\frac{\partial \Pi}{\partial m_1} = \Pi_1$, $\frac{\partial \Pi}{\partial m_2} = \Pi_2$, $\frac{\partial \Lambda}{\partial m_1} = \Lambda_1$, $\frac{\partial \Lambda}{\partial m_2 \partial m_3} = \Lambda_{32}$,

$\frac{\partial^2 \Lambda}{\partial m_2^2} = \Lambda_{22}$, etc. are partial differentiations of multivariate functions. We have the bordered Hessian [Islam et al., 2011a; Mohajan & Mohajan, 2022c],

$$|H| = \begin{vmatrix} 0 & 0 & -B_1 & -B_2 & -B_3 & -B_4 \\ 0 & 0 & -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ -B_1 & -\Pi_1 & \Lambda_{11} & \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ -B_2 & -\Pi_2 & \Lambda_{21} & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ -B_3 & -\Pi_3 & \Lambda_{31} & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ -B_4 & -\Pi_4 & \Lambda_{41} & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix}. \quad (7)$$

Simplify (7) we obtain [Mohajan & Mohajan, 2023a];

$$|H| = -2p_1p_2\pi_1\pi_2 < 0. \quad (8)$$

We obtain Lagrange multiplier $\lambda_1 > 0$ as [Mohajan & Mohajan, 2023b],

$$\lambda_1 = m_3m_4 \frac{m_1\pi_1 - m_2\pi_2}{\pi_1p_2 - \pi_2p_1} \quad (9)$$

where $\pi_1p_2 \neq \pi_2p_1$.

We find $\lambda_2 > 0$ as [Mohajan & Mohajan, 2023c],

$$\lambda_2 = m_3m_4 \frac{m_1p_1 - m_2p_2}{\pi_2p_1 - \pi_1p_2} \quad (10)$$

where $\pi_2p_1 - \pi_1p_2 \neq 0$.

For $m_1, m_2, m_3, m_4, \lambda_1$, and λ_2 in terms of $p_1, p_2, p_3, p_4, \pi_1, \pi_2, \pi_3, \pi_4,$

B , and Π , we can find $\frac{\partial \lambda_1}{\partial p_1}, \frac{\partial \lambda_2}{\partial p_1}, \dots, \frac{\partial \lambda_1}{\partial \pi_1}, \frac{\partial \lambda_2}{\partial \pi_1}, \dots, \frac{\partial m_1}{\partial p_1}, \dots, \frac{\partial m_1}{\partial \pi_1}, \dots,$

$\frac{\partial \lambda_1}{\partial B}, \dots, \frac{\partial \lambda_1}{\partial \Pi}$, etc., [Islam et al., 2011; Mohajan, 2021c]. Also we have [Mohajan,

2021b; Mohajan & Mohajan, 2023c];

$$J = H = \begin{vmatrix} 0 & 0 & -B_1 & -B_2 & -B_3 & -B_4 \\ 0 & 0 & -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ -B_1 & -\Pi_1 & \Lambda_{11} & \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ -B_2 & -\Pi_2 & \Lambda_{21} & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ -B_3 & -\Pi_3 & \Lambda_{31} & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ -B_4 & -\Pi_4 & \Lambda_{41} & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \quad (11)$$

which must be non-singular. Now we apply “The Implicit Function Theorem” as [Moolio et al., 2009; Islam et al., 2010];

$$\begin{bmatrix} \lambda_1 \\ \lambda_2 \\ m_1 \\ m_2 \\ m_3 \\ m_4 \end{bmatrix} = \mathbf{G}(p_1, p_2, p_3, p_4, \pi_1, \pi_2, \pi_3, \pi_4, B, \Pi). \quad (12)$$

Now the 6×10 Jacobian matrix for \mathbf{G} ; regarded as $J_G = \frac{\partial(\lambda_1, \lambda_2, m_1, m_2, m_3, m_4)}{\partial(p_1, p_2, p_3, p_4, \pi_1, \pi_2, \pi_3, \pi_4, B, \Pi)}$, and is presented as [Mohajan, 2021a; Mohajan & Mohajan, 2023d],



$$J_G = \begin{bmatrix} \frac{\partial \lambda_1}{\partial p_1} & \frac{\partial \lambda_1}{\partial p_2} & \frac{\partial \lambda_1}{\partial p_3} & \frac{\partial \lambda_1}{\partial p_4} & \frac{\partial \lambda_1}{\partial \pi_1} & \frac{\partial \lambda_1}{\partial \pi_2} & \frac{\partial \lambda_1}{\partial \pi_3} & \frac{\partial \lambda_1}{\partial \pi_4} & \frac{\partial \lambda_1}{\partial B} & \frac{\partial \lambda_1}{\partial \Pi} \\ \frac{\partial \lambda_2}{\partial p_1} & \frac{\partial \lambda_2}{\partial p_2} & \frac{\partial \lambda_2}{\partial p_3} & \frac{\partial \lambda_2}{\partial p_4} & \frac{\partial \lambda_2}{\partial \pi_1} & \frac{\partial \lambda_2}{\partial \pi_2} & \frac{\partial \lambda_2}{\partial \pi_3} & \frac{\partial \lambda_2}{\partial \pi_4} & \frac{\partial \lambda_2}{\partial B} & \frac{\partial \lambda_2}{\partial \Pi} \\ \frac{\partial m_1}{\partial p_1} & \frac{\partial m_1}{\partial p_2} & \frac{\partial m_1}{\partial p_3} & \frac{\partial m_1}{\partial p_4} & \frac{\partial m_1}{\partial \pi_1} & \frac{\partial m_1}{\partial \pi_2} & \frac{\partial m_1}{\partial \pi_3} & \frac{\partial m_1}{\partial \pi_4} & \frac{\partial m_1}{\partial B} & \frac{\partial m_1}{\partial \Pi} \\ \frac{\partial m_2}{\partial p_1} & \frac{\partial m_2}{\partial p_2} & \frac{\partial m_2}{\partial p_3} & \frac{\partial m_2}{\partial p_4} & \frac{\partial m_2}{\partial \pi_1} & \frac{\partial m_2}{\partial \pi_2} & \frac{\partial m_2}{\partial \pi_3} & \frac{\partial m_2}{\partial \pi_4} & \frac{\partial m_2}{\partial B} & \frac{\partial m_2}{\partial \Pi} \\ \frac{\partial m_3}{\partial p_1} & \frac{\partial m_3}{\partial p_2} & \frac{\partial m_3}{\partial p_3} & \frac{\partial m_3}{\partial p_4} & \frac{\partial m_3}{\partial \pi_1} & \frac{\partial m_3}{\partial \pi_2} & \frac{\partial m_3}{\partial \pi_3} & \frac{\partial m_3}{\partial \pi_4} & \frac{\partial m_3}{\partial B} & \frac{\partial m_3}{\partial \Pi} \\ \frac{\partial m_4}{\partial p_1} & \frac{\partial m_4}{\partial p_2} & \frac{\partial m_4}{\partial p_3} & \frac{\partial m_4}{\partial p_4} & \frac{\partial m_4}{\partial \pi_1} & \frac{\partial m_4}{\partial \pi_2} & \frac{\partial m_4}{\partial \pi_3} & \frac{\partial m_4}{\partial \pi_4} & \frac{\partial m_4}{\partial B} & \frac{\partial m_4}{\partial \Pi} \end{bmatrix} \quad (13)$$

$$= -J^{-1} \begin{bmatrix} -m_1 & -m_2 & -m_3 & -m_4 & 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & -m_1 & -m_2 & -m_3 & -m_4 & 0 & 1 \\ -\lambda_1 & 0 & 0 & 0 & -\lambda_2 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\lambda_1 & 0 & 0 & 0 & -\lambda_2 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\lambda_1 & 0 & 0 & 0 & -\lambda_2 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\lambda_1 & 0 & 0 & 0 & -\lambda_2 & 0 & 0 \end{bmatrix} \quad (14)$$

The inverse of Jacobian matrix is, $J^{-1} = \frac{1}{|J|} C^T$, where $C = (C_{ij})$, and (14) gives [Mohajan, 2017a; Islam et al., 2009b, 2011],



$$J_G = -\frac{1}{|J|} C^T \begin{bmatrix} -m_1 & -m_2 & -m_3 & -m_4 & 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & -m_1 & -m_2 & -m_3 & -m_4 & 0 & 1 \\ -\lambda_1 & 0 & 0 & 0 & -\lambda_2 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\lambda_1 & 0 & 0 & 0 & -\lambda_2 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\lambda_1 & 0 & 0 & 0 & -\lambda_2 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\lambda_1 & 0 & 0 & 0 & -\lambda_2 & 0 & 0 \end{bmatrix} \quad (15)$$

Now 6×6 transpose matrix C^T can be represented by,

$$C^T = \begin{bmatrix} C_{11} & C_{21} & C_{31} & C_{41} & C_{51} & C_{61} \\ C_{12} & C_{22} & C_{32} & C_{42} & C_{52} & C_{62} \\ C_{13} & C_{23} & C_{33} & C_{43} & C_{53} & C_{63} \\ C_{14} & C_{24} & C_{34} & C_{44} & C_{54} & C_{64} \\ C_{15} & C_{25} & C_{35} & C_{45} & C_{55} & C_{65} \\ C_{16} & C_{26} & C_{36} & C_{46} & C_{56} & C_{66} \end{bmatrix} \quad (16)$$

Using (16) we develop (13) as [Mohajan & Mohajan, 2022b];

$$J_G = -\frac{1}{|J|} \begin{bmatrix} -m_1 C_{11} - \lambda_1 C_{31} & -m_2 C_{11} - \lambda_1 C_{41} & -m_3 C_{11} - \lambda_1 C_{51} & -m_4 C_{11} - \lambda_1 C_{61} & -m_1 C_{21} - \lambda_2 C_{31} & -m_1 C_{21} - \lambda_2 C_{31} \\ -m_1 C_{12} - \lambda_1 C_{32} & -m_2 C_{12} - \lambda_1 C_{42} & -m_3 C_{12} - \lambda_1 C_{52} & -m_4 C_{12} - \lambda_1 C_{62} & -m_1 C_{22} - \lambda_2 C_{32} & -m_1 C_{22} - \lambda_2 C_{32} \\ -m_1 C_{13} - \lambda_1 C_{33} & -m_2 C_{13} - \lambda_1 C_{43} & -m_3 C_{13} - \lambda_1 C_{53} & -m_4 C_{13} - \lambda_1 C_{63} & -m_1 C_{23} - \lambda_2 C_{33} & -m_1 C_{23} - \lambda_2 C_{33} \\ -m_1 C_{14} - \lambda_1 C_{34} & -m_2 C_{14} - \lambda_1 C_{44} & -m_3 C_{14} - \lambda_1 C_{54} & -m_4 C_{14} - \lambda_1 C_{64} & -m_1 C_{24} - \lambda_2 C_{34} & -m_1 C_{24} - \lambda_2 C_{34} \\ -m_1 C_{15} - \lambda_1 C_{35} & -m_2 C_{15} - \lambda_1 C_{45} & -m_3 C_{15} - \lambda_1 C_{55} & -m_4 C_{15} - \lambda_1 C_{65} & -m_1 C_{25} - \lambda_2 C_{35} & -m_1 C_{25} - \lambda_2 C_{35} \\ -m_1 C_{16} - \lambda_1 C_{36} & -m_2 C_{16} - \lambda_1 C_{46} & -m_3 C_{16} - \lambda_1 C_{56} & -m_4 C_{16} - \lambda_1 C_{66} & -m_1 C_{26} - \lambda_2 C_{36} & -m_1 C_{26} - \lambda_2 C_{36} \\ -m_2 C_{21} - \lambda_2 C_{41} & -m_3 C_{21} - \lambda_2 C_{51} & -m_4 C_{21} - \lambda_2 C_{61} & C_{11} & C_{21} & \\ -m_2 C_{22} - \lambda_2 C_{42} & -m_3 C_{22} - \lambda_2 C_{52} & -m_4 C_{22} - \lambda_2 C_{62} & C_{12} & C_{22} & \\ -m_2 C_{23} - \lambda_2 C_{43} & -m_3 C_{23} - \lambda_2 C_{53} & -m_4 C_{23} - \lambda_2 C_{63} & C_{13} & C_{23} & \\ -m_2 C_{24} - \lambda_2 C_{44} & -m_3 C_{24} - \lambda_2 C_{54} & -m_4 C_{24} - \lambda_2 C_{64} & C_{14} & C_{24} & \\ -m_2 C_{25} - \lambda_2 C_{45} & -m_3 C_{25} - \lambda_2 C_{55} & -m_4 C_{25} - \lambda_2 C_{65} & C_{15} & C_{25} & \\ -m_2 C_{26} - \lambda_2 C_{46} & -m_3 C_{26} - \lambda_2 C_{56} & -m_4 C_{26} - \lambda_2 C_{66} & C_{16} & C_{26} & \end{bmatrix} \quad (17)$$

6. Sensitivity Analysis

Now we try with λ_1 when unit price p_1 of commodity m_1 upsurges. Considering T_{11} we can write [Islam et al., 2011; Mohajan & Mohajan, 2023c],

$$\begin{aligned} \frac{\partial \lambda_1}{\partial p_1} &= \frac{m_1}{|J|} [C_{11}] + \frac{\lambda_1}{|J|} [C_{31}] \\ &= \frac{m_1}{|J|} \text{Cofactor of } C_{11} + \frac{\lambda_1}{|J|} \text{Cofactor of } C_{31} \\ &= \frac{m_1}{|J|} \begin{vmatrix} 0 & -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ -\Pi_1 & \Lambda_{11} & \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ -\Pi_2 & \Lambda_{21} & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ -\Pi_3 & \Lambda_{31} & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ -\Pi_4 & \Lambda_{41} & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \\ &+ \frac{\lambda_1}{|J|} \begin{vmatrix} 0 & -B_1 & -B_2 & -B_3 & -B_4 \\ 0 & -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ -\Pi_2 & \Lambda_{21} & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ -\Pi_3 & \Lambda_{31} & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ -\Pi_4 & \Lambda_{41} & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \end{aligned}$$



$$\begin{aligned}
 &= \frac{m_1}{|J|} \left\{ \Pi_1 \begin{vmatrix} -\Pi_1 & \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ -\Pi_2 & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ -\Pi_3 & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ -\Pi_4 & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} - \Pi_2 \begin{vmatrix} -\Pi_1 & \Lambda_{11} & \Lambda_{13} & \Lambda_{14} \\ -\Pi_2 & \Lambda_{21} & \Lambda_{23} & \Lambda_{24} \\ -\Pi_3 & \Lambda_{31} & \Lambda_{33} & \Lambda_{34} \\ -\Pi_4 & \Lambda_{41} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \right. \\
 &+ \Pi_3 \left. \begin{vmatrix} -\Pi_1 & \Lambda_{11} & \Lambda_{12} & \Lambda_{14} \\ -\Pi_2 & \Lambda_{21} & \Lambda_{22} & \Lambda_{24} \\ -\Pi_3 & \Lambda_{31} & \Lambda_{32} & \Lambda_{34} \\ -\Pi_4 & \Lambda_{41} & \Lambda_{42} & \Lambda_{44} \end{vmatrix} - \Pi_4 \begin{vmatrix} -\Pi_1 & \Lambda_{11} & \Lambda_{12} & \Lambda_{13} \\ -\Pi_2 & \Lambda_{21} & \Lambda_{22} & \Lambda_{23} \\ -\Pi_3 & \Lambda_{31} & \Lambda_{32} & \Lambda_{33} \\ -\Pi_4 & \Lambda_{41} & \Lambda_{42} & \Lambda_{43} \end{vmatrix} \right\} \\
 &+ \frac{\lambda_1}{|J|} \left\{ -\Pi_2 \begin{vmatrix} -B_1 & -B_2 & -B_3 & -B_4 \\ -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ \Lambda_{31} & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ \Lambda_{41} & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} + \Pi_3 \begin{vmatrix} -B_1 & -B_2 & -B_3 & -B_4 \\ -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ \Lambda_{21} & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{41} & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \right. \\
 &- \Pi_4 \left. \begin{vmatrix} -B_1 & -B_2 & -B_3 & -B_4 \\ -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ \Lambda_{21} & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{31} & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \end{vmatrix} \right\} \\
 &= \frac{m_1}{|J|} \left[\Pi_1 \left\{ -\Pi_1 \begin{vmatrix} \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} - \Lambda_{12} \begin{vmatrix} -\Pi_2 & \Lambda_{23} & \Lambda_{24} \\ -\Pi_3 & \Lambda_{33} & \Lambda_{34} \\ -\Pi_4 & \Lambda_{43} & \Lambda_{44} \end{vmatrix} + \Lambda_{13} \begin{vmatrix} -\Pi_2 & \Lambda_{22} & \Lambda_{24} \\ -\Pi_3 & \Lambda_{32} & \Lambda_{34} \\ -\Pi_4 & \Lambda_{42} & \Lambda_{44} \end{vmatrix} \right. \right. \\
 &- \Lambda_{14} \left. \begin{vmatrix} -\Pi_2 & \Lambda_{22} & \Lambda_{23} \\ -\Pi_3 & \Lambda_{32} & \Lambda_{33} \\ -\Pi_4 & \Lambda_{42} & \Lambda_{43} \end{vmatrix} \right\} - \Pi_2 \left\{ -\Pi_1 \begin{vmatrix} \Lambda_{21} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{31} & \Lambda_{33} & \Lambda_{34} \\ \Lambda_{41} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} + \Lambda_{13} \begin{vmatrix} -\Pi_2 & \Lambda_{21} & \Lambda_{24} \\ -\Pi_3 & \Lambda_{31} & \Lambda_{34} \\ -\Pi_4 & \Lambda_{41} & \Lambda_{44} \end{vmatrix} \right. \\
 &\left. \left. \begin{vmatrix} -\Pi_2 & \Lambda_{21} & \Lambda_{24} \\ -\Pi_3 & \Lambda_{31} & \Lambda_{34} \\ -\Pi_4 & \Lambda_{41} & \Lambda_{44} \end{vmatrix} \right\} \right]
 \end{aligned}$$



$$\begin{aligned}
 & -\Lambda_{14} \left\{ \begin{array}{c} -\Pi_2 \quad \Lambda_{21} \quad \Lambda_{23} \\ -\Pi_3 \quad \Lambda_{31} \quad \Lambda_{33} \\ -\Pi_4 \quad \Lambda_{41} \quad \Lambda_{43} \end{array} \right\} + \Pi_3 \left\{ \begin{array}{c} \Lambda_{21} \quad \Lambda_{22} \quad \Lambda_{24} \\ \Lambda_{31} \quad \Lambda_{32} \quad \Lambda_{34} \\ \Lambda_{41} \quad \Lambda_{42} \quad \Lambda_{44} \end{array} \right\} + \Lambda_{12} \left\{ \begin{array}{c} -\Pi_2 \quad \Lambda_{21} \quad \Lambda_{24} \\ -\Pi_3 \quad \Lambda_{31} \quad \Lambda_{34} \\ -\Pi_4 \quad \Lambda_{41} \quad \Lambda_{44} \end{array} \right\} \\
 & -\Lambda_{14} \left\{ \begin{array}{c} -\Pi_2 \quad \Lambda_{21} \quad \Lambda_{22} \\ -\Pi_3 \quad \Lambda_{31} \quad \Lambda_{32} \\ -\Pi_4 \quad \Lambda_{41} \quad \Lambda_{42} \end{array} \right\} - \Pi_4 \left\{ \begin{array}{c} \Lambda_{21} \quad \Lambda_{22} \quad \Lambda_{23} \\ \Lambda_{31} \quad \Lambda_{32} \quad \Lambda_{33} \\ \Lambda_{41} \quad \Lambda_{42} \quad \Lambda_{43} \end{array} \right\} + \Lambda_{12} \left\{ \begin{array}{c} -\Pi_2 \quad \Lambda_{21} \quad \Lambda_{23} \\ -\Pi_3 \quad \Lambda_{31} \quad \Lambda_{33} \\ -\Pi_4 \quad \Lambda_{41} \quad \Lambda_{43} \end{array} \right\} \\
 & -\Lambda_{13} \left\{ \begin{array}{c} -\Pi_2 \quad \Lambda_{21} \quad \Lambda_{22} \\ -\Pi_3 \quad \Lambda_{31} \quad \Lambda_{32} \\ -\Pi_4 \quad \Lambda_{41} \quad \Lambda_{42} \end{array} \right\} + \frac{\lambda_1}{|J|} \left[-\Pi_2 \left\{ \begin{array}{c} -\Pi_2 \quad -\Pi_3 \quad -\Pi_4 \\ \Lambda_{32} \quad \Lambda_{33} \quad \Lambda_{34} \\ \Lambda_{42} \quad \Lambda_{43} \quad \Lambda_{44} \end{array} \right\} + B_2 \left\{ \begin{array}{c} -\Pi_1 \quad -\Pi_3 \quad -\Pi_4 \\ \Lambda_{31} \quad \Lambda_{33} \quad \Lambda_{34} \\ \Lambda_{41} \quad \Lambda_{43} \quad \Lambda_{44} \end{array} \right\} \right. \\
 & \left. -B_3 \left\{ \begin{array}{c} -\Pi_1 \quad -\Pi_2 \quad -\Pi_4 \\ \Lambda_{31} \quad \Lambda_{32} \quad \Lambda_{34} \\ \Lambda_{41} \quad \Lambda_{42} \quad \Lambda_{44} \end{array} \right\} \right. \\
 & \left. + B_4 \left\{ \begin{array}{c} -\Pi_1 \quad -\Pi_2 \quad -\Pi_3 \\ \Lambda_{31} \quad \Lambda_{32} \quad \Lambda_{33} \\ \Lambda_{41} \quad \Lambda_{42} \quad \Lambda_{43} \end{array} \right\} + \Pi_3 \left\{ \begin{array}{c} -\Pi_2 \quad -\Pi_3 \quad -\Pi_4 \\ \Lambda_{22} \quad \Lambda_{23} \quad \Lambda_{24} \\ \Lambda_{42} \quad \Lambda_{43} \quad \Lambda_{44} \end{array} \right\} + B_2 \left\{ \begin{array}{c} -\Pi_1 \quad -\Pi_3 \quad -\Pi_4 \\ \Lambda_{21} \quad \Lambda_{23} \quad \Lambda_{24} \\ \Lambda_{41} \quad \Lambda_{43} \quad \Lambda_{44} \end{array} \right\} \right. \\
 & \left. -B_3 \left\{ \begin{array}{c} -\Pi_1 \quad -\Pi_2 \quad -\Pi_4 \\ \Lambda_{21} \quad \Lambda_{22} \quad \Lambda_{24} \\ \Lambda_{41} \quad \Lambda_{42} \quad \Lambda_{44} \end{array} \right\} + B_4 \left\{ \begin{array}{c} -\Pi_1 \quad -\Pi_2 \quad -\Pi_3 \\ \Lambda_{21} \quad \Lambda_{22} \quad \Lambda_{23} \\ \Lambda_{41} \quad \Lambda_{42} \quad \Lambda_{43} \end{array} \right\} \right\} - \Pi_4 \left\{ \begin{array}{c} -\Pi_2 \quad -\Pi_3 \quad -\Pi_4 \\ \Lambda_{22} \quad \Lambda_{23} \quad \Lambda_{24} \\ \Lambda_{32} \quad \Lambda_{33} \quad \Lambda_{34} \end{array} \right\} \\
 & + B_2 \left\{ \begin{array}{c} -\Pi_1 \quad -\Pi_3 \quad -\Pi_4 \\ \Lambda_{21} \quad \Lambda_{23} \quad \Lambda_{24} \\ \Lambda_{31} \quad \Lambda_{33} \quad \Lambda_{34} \end{array} \right\} - B_3 \left\{ \begin{array}{c} -\Pi_1 \quad -\Pi_2 \quad -\Pi_4 \\ \Lambda_{21} \quad \Lambda_{22} \quad \Lambda_{24} \\ \Lambda_{31} \quad \Lambda_{32} \quad \Lambda_{34} \end{array} \right\}
 \end{aligned}$$



$$\begin{aligned}
 & + B_4 \left\{ \begin{array}{ccc} -\Pi_1 & -\Pi_2 & -\Pi_3 \\ \Lambda_{21} & \Lambda_{22} & \Lambda_{23} \\ \Lambda_{31} & \Lambda_{32} & \Lambda_{33} \end{array} \right\} \\
 & = \frac{m_1}{|J|} \left\{ \begin{array}{llll} -\Pi_1^2 \Lambda_{23} \Lambda_{24} \Lambda_{34} & -\Pi_1^2 \Lambda_{23} \Lambda_{24} \Lambda_{34} & -\Pi_1 \Pi_2 \Lambda_{12} \Lambda_{23}^2 & -\Pi_1 \Pi_4 \Lambda_{12} \Lambda_{23} \Lambda_{34} \\ +\Pi_1 \Pi_3 \Lambda_{12} \Lambda_{24} \Lambda_{34} & +\Pi_1 \Pi_4 \Lambda_{12} \Lambda_{23} \Lambda_{34} & +\Pi_1 \Pi_2 \Lambda_{13} \Lambda_{34}^2 & -\Pi_1 \Pi_3 \Lambda_{13} \Lambda_{24}^2 \\ +\Pi_1 \Pi_4 \Lambda_{13} \Lambda_{23} \Lambda_{24} & +\Pi_1 \Pi_2 \Lambda_{14} \Lambda_{23} \Lambda_{34} & +\Pi_1 \Pi_3 \Lambda_{14} \Lambda_{23} \Lambda_{24} & -\Pi_1 \Pi_4 \Lambda_{14} \Lambda_{23}^2 \\ -\Pi_1 \Pi_2 \Lambda_{12} \Lambda_{34}^2 & +\Pi_1 \Pi_2 \Lambda_{14} \Lambda_{23} \Lambda_{34} & +\Pi_1 \Pi_2 \Lambda_{13} \Lambda_{24} \Lambda_{34} & -\Pi_2^2 \Lambda_{13} \Lambda_{14} \Lambda_{34} \\ +\Pi_2 \Pi_4 \Lambda_{12} \Lambda_{13} \Lambda_{34} & +\Pi_2 \Pi_3 \Lambda_{13} \Lambda_{14} \Lambda_{24} & -\Pi_2 \Pi_4 \Lambda_{13}^2 \Lambda_{24} & -\Pi_2^2 \Lambda_{13} \Lambda_{14} \Lambda_{34} \\ +\Pi_2 \Pi_3 \Lambda_{12} \Lambda_{14} \Lambda_{34} & -\Pi_2 \Pi_3 \Lambda_{14}^2 \Lambda_{23} & +\Pi_2 \Pi_4 \Lambda_{13} \Lambda_{14} \Lambda_{23} & +\Pi_2 \Pi_3 \Lambda_{12} \Lambda_{14} \Lambda_{34} \\ -\Pi_3 \Pi_4 \Lambda_{12}^2 \Lambda_{34} & -\Pi_3^2 \Lambda_{12} \Lambda_{13} \Lambda_{24} & +\Pi_3 \Pi_4 \Lambda_{12} \Lambda_{14} \Lambda_{24} & +\Pi_2 \Pi_3 \Lambda_{13} \Lambda_{14} \Lambda_{24} \\ -\Pi_2 \Pi_3 \Lambda_{14}^2 \Lambda_{23} & -\Pi_3^2 \Lambda_{12} \Lambda_{14}^2 & +\Pi_3 \Pi_4 \Lambda_{12} \Lambda_{13} \Lambda_{14} & +\Pi_1 \Pi_4 \Lambda_{12} \Lambda_{23} \Lambda_{34} \\ +\Pi_1 \Pi_4 \Lambda_{13} \Lambda_{23} \Lambda_{24} & -\Pi_1 \Pi_4 \Lambda_{14} \Lambda_{23}^2 & +\Pi_2 \Pi_4 \Lambda_{12} \Lambda_{13} \Lambda_{34} & -\Pi_3 \Pi_4 \Lambda_{12}^2 \Lambda_{34} \\ +\Pi_3 \Pi_4 \Lambda_{12} \Lambda_{14} \Lambda_{23} & -\Pi_4^2 \Lambda_{12} \Lambda_{13} \Lambda_{23} & -\Pi_2 \Pi_4 \Lambda_{13}^2 \Lambda_{24} & +\Pi_2 \Pi_4 \Lambda_{13} \Lambda_{14} \Lambda_{23} \\ +\Pi_3 \Pi_4 \Lambda_{12} \Lambda_{13} \Lambda_{24} & -\Pi_4^2 \Lambda_{12} \Lambda_{13} \Lambda_{23} \end{array} \right\} + \frac{\lambda_1}{|J|} \left\{ \begin{array}{llll} +B_1 \Pi_2^2 \Lambda_{34}^2 & -B_1 \Pi_2 \Pi_3 \Lambda_{24} \Lambda_{34} & & \\ -B_1 \Pi_2 \Pi_4 \Lambda_{23} \Lambda_{34} & -B_2 \Pi_1 \Pi_2 \Lambda_{34}^2 & +B_2 \Pi_2 \Pi_3 \Lambda_{14} \Lambda_{34} & +B_2 \Pi_2 \Pi_4 \Lambda_{13} \Lambda_{34} \\ +B_3 \Pi_1 \Pi_2 \Lambda_{24} \Lambda_{34} & -B_3 \Pi_2^2 \Lambda_{14} \Lambda_{34} & -B_3 \Pi_2 \Pi_4 \Lambda_{13} \Lambda_{24} & +B_3 \Pi_2 \Pi_4 \Lambda_{14} \Lambda_{23} \\ +B_4 \Pi_1 \Pi_2 \Lambda_{23} \Lambda_{34} & -B_4 \Pi_2^2 \Lambda_{13} \Lambda_{34} & +B_4 \Pi_2 \Pi_3 \Lambda_{13} \Lambda_{24} & -B_4 \Pi_2 \Pi_3 \Lambda_{14} \Lambda_{23} \\ -B_1 \Pi_2 \Pi_3 \Lambda_{24} \Lambda_{34} & +B_1 \Pi_3^2 \Lambda_{24}^2 & -B_1 \Pi_3 \Pi_4 \Lambda_{23} \Lambda_{24} & -B_2 \Pi_1 \Pi_3 \Lambda_{24} \Lambda_{34} \\ -B_2 \Pi_3^2 \Lambda_{14} \Lambda_{24} & -B_2 \Pi_3 \Pi_4 \Lambda_{12} \Lambda_{34} & +B_2 \Pi_3 \Pi_4 \Lambda_{14} \Lambda_{23} & -B_3 \Pi_1 \Pi_3 \Lambda_{24}^2 \\ +B_3 \Pi_2 \Pi_3 \Lambda_{14} \Lambda_{24} & +B_3 \Pi_3 \Pi_4 \Lambda_{12} \Lambda_{24} & +B_4 \Pi_1 \Pi_3 \Lambda_{23} \Lambda_{24} & +B_4 \Pi_2 \Pi_3 \Lambda_{12} \Lambda_{34} \\ -B_4 \Pi_2 \Pi_3 \Lambda_{14} \Lambda_{23} & -B_4 \Pi_3^2 \Lambda_{12} \Lambda_{24} & -B_1 \Pi_2 \Pi_4 \Lambda_{23} \Lambda_{34} & -B_1 \Pi_3 \Pi_4 \Lambda_{23} \Lambda_{24} \\ +B_1 \Pi_4^2 \Lambda_{23}^2 & +B_2 \Pi_1 \Pi_4 \Lambda_{23} \Lambda_{34} & -B_2 \Pi_3 \Pi_4 \Lambda_{12} \Lambda_{34} & +B_2 \Pi_3 \Pi_4 \Lambda_{13} \Lambda_{24} \end{array} \right\}
 \end{aligned}$$



$$\begin{aligned}
 & -B_2\Pi_4^2\Lambda_{13}\Lambda_{23} + B_3\Pi_1\Pi_4\Lambda_{23}\Lambda_{24} + B_3\Pi_2\Pi_4\Lambda_{12}\Lambda_{34} - B_3\Pi_2\Pi_4\Lambda_{13}\Lambda_{24} \\
 & -B_3\Pi_4^2\Lambda_{12}\Lambda_{23} - B_4\Pi_1\Pi_4\Lambda_{23}^2 + B_4\Pi_2\Pi_4\Lambda_{13}\Lambda_{23} + B_4\Pi_3\Pi_4\Lambda_{12}\Lambda_{23} \} \\
 & = \frac{m_1}{|J|} \{ -2\Pi_1^2\Lambda_{23}\Lambda_{24}\Lambda_{34} + \Pi_1\Pi_3\Lambda_{14}\Lambda_{23}\Lambda_{24} + \Pi_1\Pi_3\Lambda_{12}\Lambda_{24}\Lambda_{34} - \Pi_1\Pi_3\Lambda_{13}\Lambda_{24}^2 \\
 & + 2\Pi_1\Pi_4\Lambda_{13}\Lambda_{23}\Lambda_{24} + \Pi_1\Pi_4\Lambda_{12}\Lambda_{23}\Lambda_{34} - 2\Pi_1\Pi_4\Lambda_{14}\Lambda_{23}^2 + \Pi_1\Pi_2\Lambda_{13}\Lambda_{34}^2 \\
 & + 2\Pi_1\Pi_2\Lambda_{14}\Lambda_{23}\Lambda_{34} - 2\Pi_1\Pi_2\Lambda_{12}\Lambda_{34}^2 + \Pi_1\Pi_2\Lambda_{13}\Lambda_{24}\Lambda_{34} - 2\Pi_2^2\Lambda_{13}\Lambda_{14}\Lambda_{34} \\
 & - 2\Pi_2\Pi_4\Lambda_{13}^2\Lambda_{24} + 2\Pi_2\Pi_4\Lambda_{12}\Lambda_{13}\Lambda_{34} + 2\Pi_2\Pi_4\Lambda_{13}\Lambda_{14}\Lambda_{23} + 2\Pi_2\Pi_3\Lambda_{13}\Lambda_{14}\Lambda_{24} \\
 & + 2\Pi_2\Pi_3\Lambda_{12}\Lambda_{14}\Lambda_{34} - 2\Pi_2\Pi_3\Lambda_{14}^2\Lambda_{23} - 2\Pi_3\Pi_4\Lambda_{12}^2\Lambda_{34} - \Pi_3^2\Lambda_{12}\Lambda_{13}\Lambda_{24} \\
 & + \Pi_3\Pi_4\Lambda_{12}\Lambda_{14}\Lambda_{24} - \Pi_3^2\Lambda_{12}\Lambda_{14}^2 + 2\Pi_3\Pi_4\Lambda_{12}\Lambda_{13}\Lambda_{14} + \Pi_3\Pi_4\Lambda_{12}\Lambda_{14}\Lambda_{23} \\
 & - 2\Pi_4^2\Lambda_{12}\Lambda_{13}\Lambda_{23} \} + \frac{\lambda_1}{|J|} \{ + B_1\Pi_2^2\Lambda_{34}^2 - 2B_1\Pi_2\Pi_3\Lambda_{24}\Lambda_{34} - 2B_1\Pi_3\Pi_4\Lambda_{23}\Lambda_{24} \\
 & - 2B_1\Pi_2\Pi_4\Lambda_{23}\Lambda_{34} - B_2\Pi_1\Pi_2\Lambda_{34}^2 + B_2\Pi_2\Pi_3\Lambda_{14}\Lambda_{34} + B_2\Pi_2\Pi_4\Lambda_{13}\Lambda_{34} \\
 & + B_3\Pi_1\Pi_2\Lambda_{24}\Lambda_{34} - B_3\Pi_2^2\Lambda_{14}\Lambda_{34} - 2B_3\Pi_2\Pi_4\Lambda_{13}\Lambda_{24} + B_3\Pi_2\Pi_4\Lambda_{12}\Lambda_{34} \\
 & + B_3\Pi_2\Pi_4\Lambda_{14}\Lambda_{23} + B_4\Pi_1\Pi_2\Lambda_{23}\Lambda_{34} - B_4\Pi_2^2\Lambda_{13}\Lambda_{34} + B_4\Pi_2\Pi_3\Lambda_{13}\Lambda_{24} \\
 & - 2B_4\Pi_2\Pi_3\Lambda_{14}\Lambda_{23} + B_1\Pi_3^2\Lambda_{24}^2 - B_2\Pi_1\Pi_3\Lambda_{24}\Lambda_{34} - B_2\Pi_3^2\Lambda_{14}\Lambda_{24} \\
 & - 2B_2\Pi_3\Pi_4\Lambda_{12}\Lambda_{34} + B_2\Pi_3\Pi_4\Lambda_{14}\Lambda_{23} - B_3\Pi_1\Pi_3\Lambda_{24}^2 + B_3\Pi_2\Pi_3\Lambda_{14}\Lambda_{24} \\
 & + B_3\Pi_3\Pi_4\Lambda_{12}\Lambda_{24} + B_4\Pi_1\Pi_3\Lambda_{23}\Lambda_{24} + B_4\Pi_2\Pi_3\Lambda_{12}\Lambda_{34} - B_4\Pi_3^2\Lambda_{12}\Lambda_{24} \\
 & + B_1\Pi_4^2\Lambda_{23}^2 + B_2\Pi_1\Pi_4\Lambda_{23}\Lambda_{34} + B_2\Pi_3\Pi_4\Lambda_{13}\Lambda_{24} - B_2\Pi_4^2\Lambda_{13}\Lambda_{23} \\
 & + B_3\Pi_1\Pi_4\Lambda_{23}\Lambda_{24} - B_3\Pi_4^2\Lambda_{12}\Lambda_{23} - B_4\Pi_1\Pi_4\Lambda_{23}^2 + B_4\Pi_2\Pi_4\Lambda_{13}\Lambda_{23} \\
 & + B_4\Pi_3\Pi_4\Lambda_{12}\Lambda_{23} \} \\
 & = \frac{m_1}{|J|} \{ -2\pi_1^2 m_1^3 m_2 m_3 m_4 + \pi_1 \pi_3 m_1^2 m_2 m_3^2 m_4 + \pi_1 \pi_3 m_1^2 m_2 m_3^2 m_4 - \pi_1 \pi_3 m_1^2 m_2 m_3^2 m_4 \\
 & + \pi_1 \pi_4 m_1^2 m_2 m_3 m_4^2 + \pi_1 \pi_4 m_1^2 m_2 m_3 m_4^2 - 2\pi_1 \pi_4 m_1^2 m_2 m_3 m_4^2 + \pi_1 \pi_2 m_1^2 m_2^3 m_4 \\
 & + 2\pi_1 \pi_2 m_1^2 m_2^2 m_3 m_4 - 2\pi_1 \pi_2 m_1^2 m_2^2 m_3 m_4 + \pi_1 \pi_2 m_1^2 m_2^2 m_3 m_4 - 2\pi_2^2 m_1 m_2^3 m_3 m_4 \\
 & - 2\pi_2 \pi_4 m_1 m_2^2 m_3 m_4^2 + 2\pi_2 \pi_4 m_1 m_2^2 m_3 m_4^2 + 2\pi_2 \pi_4 m_1 m_2^2 m_3 m_4^2 + 2\pi_2 \pi_3 m_1 m_2^2 m_3 m_4 \\
 & \}
 \end{aligned}$$

$$\begin{aligned}
 & + 2\pi_2\pi_3m_1m_2^2m_3^2m_4 - 2\pi_2\pi_3m_1m_2^2m_3^2m_4 - \pi_3^2m_1m_2m_3^2m_4^2 + \pi_3\pi_4m_1m_3^3m_4 \\
 & - \pi_3^2m_2^2m_3^3m_4 + 2\pi_3\pi_4m_2^2m_3^2m_4^2 + \pi_3\pi_4m_2^2m_3^2m_4^2 - \pi_4^2m_1m_2m_3m_4^3 \} \\
 & + \frac{\lambda_1}{|J|} \{ p_1\pi_2^2m_1^2m_2^2 - 2p_1\pi_2\pi_3m_1^2m_2m_3 - 2p_1\pi_3\pi_4m_1^2m_3m_4 - 2p_1\pi_2\pi_4m_1^2m_2m_4 \\
 & - p_1\pi_1\pi_2m_1^2m_2^2 + p_2\pi_2\pi_3m_1m_2^2m_3 + p_2\pi_2\pi_4m_1m_2^2m_4 + p_3\pi_1\pi_2m_1^2m_2m_3 \\
 & - p_3\pi_2^2m_1m_2^2m_3 - 2p_3\pi_2\pi_4m_1m_2m_3m_4 + p_3\pi_2\pi_4m_1m_2m_3m_4 + p_3\pi_2\pi_4m_1m_2m_3m_4 \\
 & + p_4\pi_2\pi_3m_1m_2m_3m_4 - p_4\pi_2\pi_3m_1m_2m_3m_4 + p_1\pi_3^2m_1^2m_3^2 - p_2\pi_1\pi_3m_1^2m_2m_3 \\
 & - p_2\pi_3^2m_1m_2m_3^2 - 2p_2\pi_3\pi_4m_1m_2m_3m_4 + p_2\pi_3\pi_4m_1m_2m_3m_4 - p_3\pi_1\pi_3m_1^2m_3^2 \\
 & + p_3\pi_3\pi_4m_1m_3^2m_4 + p_4\pi_1\pi_3m_1^2m_3m_4 + p_4\pi_2\pi_3m_1m_2m_3m_4 - p_4\pi_3^2m_1m_3^2m_4 \\
 & + p_1\pi_4^2m_1^2m_4^2 + p_2\pi_1\pi_4m_1^2m_2m_4 + p_2\pi_3\pi_4m_1m_2m_3m_4 - p_2\pi_4^2m_1m_2m_4^2 \\
 & + p_3\pi_1\pi_4m_1^2m_3m_4 - p_3\pi_4^2m_1m_3m_4^2 - p_4\pi_1\pi_4m_1^2m_4^2 + p_4\pi_2\pi_4m_1m_2m_4^2 \\
 & + p_4\pi_3\pi_4m_1m_3m_4^2 \}. \tag{18}
 \end{aligned}$$

Using $\pi_3 = \pi_1$ and $\pi_4 = \pi_2$; and $p_3 = p_1$ and $p_4 = p_2$, and also $m_1 = m_2 = m_3 = m_4 = 1$ in (18) we get,

$$\frac{\partial \lambda_1}{\partial p_1} = \frac{1}{|J|} (-3\pi_1^2 + 8\pi_1\pi_2 - \pi_2^2) + \frac{\lambda_1}{|J|} (-2p_1\pi_2^2 + 4p_2\pi_1\pi_2 - 2p_1\pi_1\pi_2 - 2p_2\pi_1^2) . \tag{19}$$

Using $m_1 = m_2 = m_3 = m_4 = 1$ in (9) we get,

$$\lambda_1 = \frac{\pi_2 - \pi_1}{\pi_2 p_1 - \pi_1 p_2} \tag{20}$$

where $\pi_2 p_1 \neq \pi_1 p_2$.

Now using $|J| = |H| = -2p_1 p_2 \pi_1 \pi_2$ from (8) and value of λ_1 from (20) in (19) we get,

$$\begin{aligned} \frac{\partial \lambda_1}{\partial p_1} &= \frac{1}{2p_1 p_2 \pi_1 \pi_2} (3\pi_1^2 - 8\pi_1 \pi_2 + \pi_2^2) \\ &+ \frac{\pi_2 - \pi_1}{2p_1 p_2 \pi_1 \pi_2 (\pi_2 p_1 - \pi_1 p_2)} (2p_1 \pi_2^2 - 4p_2 \pi_1 \pi_2 + 2p_1 \pi_1 \pi_2 + 2p_2 \pi_1^2) \\ \frac{\partial \lambda_1}{\partial p_1} &= \frac{3p_1 \pi_2^3 - 5p_2 \pi_1 \pi_2^2 + p_1 \pi_1^2 \pi_2 + 14p_2 \pi_1^2 \pi_2 - 8p_1 \pi_1 \pi_2^2 - 5p_2 \pi_1^3}{2p_1 p_2 \pi_1 \pi_2 (\pi_2 p_1 - \pi_1 p_2)} \end{aligned} \quad (21)$$

where $\pi_2 p_1 \neq \pi_1 p_2$.

Now $\pi_1 = \pi_2 = \pi$ in (21) we get,

$$\frac{\partial \lambda_1}{\partial p_1} = -\frac{1}{2p_1 p_2} < 0 \quad (22)$$

where $2p_1 p_2 > 0$. The relation (22) shows that if the price p_1 of the goods m_1 surges, marginal utility decreases. Therefore, if the price of per unit of the goods m_1 surges \$1.00, the level of purchase of the goods will drop exactly λ_1 units. In this situation, we have realized that the goods m_1 has several substitutes [Mohajan & Mohajan, 2022c].

Now we consult about the behavior of Lagrange multiplier λ_2 when the price p_1 of goods m_1 upsurges. Taking T_{21} from (16) we have [Islam et al., 2010],

$$\begin{aligned} \frac{\partial \lambda_2}{\partial p_1} &= \frac{m_1}{|J|} [C_{12}] + \frac{\lambda_1}{|J|} [C_{32}] \\ &= \frac{m_1}{|J|} \text{Cofactor of } C_{12} + \frac{\lambda_1}{|J|} \text{Cofactor of } C_{32} \end{aligned}$$



$$\begin{aligned}
 &= -\frac{m_1}{|J|} \begin{vmatrix} 0 & -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ -B_1 & \Lambda_{11} & \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ -B_2 & \Lambda_{21} & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ -B_3 & \Lambda_{31} & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ -B_4 & \Lambda_{41} & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \\
 &-\frac{\lambda_1}{|J|} \begin{vmatrix} 0 & -B_1 & -B_2 & -B_3 & -B_4 \\ 0 & -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ -B_2 & \Lambda_{21} & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ -B_3 & \Lambda_{31} & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ -B_4 & \Lambda_{41} & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \\
 &= -\frac{m_1}{|J|} \left\{ \Pi_1 \begin{vmatrix} -B_1 & \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ -B_2 & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ -B_3 & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ -B_4 & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \right. \\
 &\quad \left. + \Pi_3 \begin{vmatrix} -B_1 & \Lambda_{11} & \Lambda_{12} & \Lambda_{14} \\ -B_2 & \Lambda_{21} & \Lambda_{22} & \Lambda_{24} \\ -B_3 & \Lambda_{31} & \Lambda_{32} & \Lambda_{34} \\ -B_4 & \Lambda_{41} & \Lambda_{42} & \Lambda_{44} \end{vmatrix} \right. \\
 &\quad \left. - \Pi_2 \begin{vmatrix} -B_1 & \Lambda_{11} & \Lambda_{13} & \Lambda_{14} \\ -B_2 & \Lambda_{21} & \Lambda_{23} & \Lambda_{24} \\ -B_3 & \Lambda_{31} & \Lambda_{33} & \Lambda_{34} \\ -B_4 & \Lambda_{41} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \right. \\
 &\quad \left. - \Pi_4 \begin{vmatrix} -B_1 & \Lambda_{11} & \Lambda_{12} & \Lambda_{13} \\ -B_2 & \Lambda_{21} & \Lambda_{22} & \Lambda_{23} \\ -B_3 & \Lambda_{31} & \Lambda_{32} & \Lambda_{33} \\ -B_4 & \Lambda_{41} & \Lambda_{42} & \Lambda_{43} \end{vmatrix} \right\}
 \end{aligned}$$



$$\begin{aligned}
 & -\frac{\lambda_1}{|J|} \left\{ -B_2 \begin{vmatrix} -B_1 & -B_2 & -B_3 & -B_4 \\ -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ \Lambda_{31} & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ \Lambda_{41} & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \right. \\
 & \quad \left. + B_3 \begin{vmatrix} -B_1 & -B_2 & -B_3 & -B_4 \\ -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ \Lambda_{21} & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{41} & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \right. \\
 & \quad \left. - B_4 \begin{vmatrix} -B_1 & -B_2 & -B_3 & -B_4 \\ -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ \Lambda_{21} & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{31} & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \end{vmatrix} \right\} \\
 & = -\frac{m_1}{|J|} \left[\Pi_1 \left\{ -B_1 \begin{vmatrix} \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} - \Lambda_{12} \begin{vmatrix} -B_2 & \Lambda_{23} & \Lambda_{24} \\ -B_3 & \Lambda_{33} & \Lambda_{34} \\ -B_4 & \Lambda_{43} & \Lambda_{44} \end{vmatrix} + \Lambda_{13} \begin{vmatrix} -B_2 & \Lambda_{22} & \Lambda_{24} \\ -B_3 & \Lambda_{32} & \Lambda_{34} \\ -B_4 & \Lambda_{42} & \Lambda_{44} \end{vmatrix} \right. \right. \\
 & \quad - \Lambda_{14} \begin{vmatrix} -B_2 & \Lambda_{22} & \Lambda_{23} \\ -B_3 & \Lambda_{32} & \Lambda_{33} \\ -B_4 & \Lambda_{42} & \Lambda_{43} \end{vmatrix} \left. \right\} - \Pi_2 \left\{ -B_1 \begin{vmatrix} \Lambda_{21} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{31} & \Lambda_{33} & \Lambda_{34} \\ \Lambda_{41} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} + \Lambda_{13} \begin{vmatrix} -B_2 & \Lambda_{21} & \Lambda_{24} \\ -B_3 & \Lambda_{31} & \Lambda_{34} \\ -B_4 & \Lambda_{41} & \Lambda_{44} \end{vmatrix} \right. \\
 & \quad - \Lambda_{14} \begin{vmatrix} -B_2 & \Lambda_{21} & \Lambda_{23} \\ -B_3 & \Lambda_{31} & \Lambda_{33} \\ -B_4 & \Lambda_{41} & \Lambda_{43} \end{vmatrix} \left. \right\} + \Pi_3 \left\{ -B_1 \begin{vmatrix} \Lambda_{21} & \Lambda_{22} & \Lambda_{24} \\ \Lambda_{31} & \Lambda_{32} & \Lambda_{34} \\ \Lambda_{41} & \Lambda_{42} & \Lambda_{44} \end{vmatrix} + \Lambda_{12} \begin{vmatrix} -B_2 & \Lambda_{21} & \Lambda_{24} \\ -B_3 & \Lambda_{31} & \Lambda_{34} \\ -B_4 & \Lambda_{41} & \Lambda_{44} \end{vmatrix} \right. \\
 & \quad - \Lambda_{14} \begin{vmatrix} -B_2 & \Lambda_{21} & \Lambda_{22} \\ -B_3 & \Lambda_{31} & \Lambda_{32} \\ -B_4 & \Lambda_{41} & \Lambda_{42} \end{vmatrix} \left. \right\} - \Pi_4 \left\{ -B_1 \begin{vmatrix} \Lambda_{21} & \Lambda_{22} & \Lambda_{23} \\ \Lambda_{31} & \Lambda_{32} & \Lambda_{33} \\ \Lambda_{41} & \Lambda_{42} & \Lambda_{43} \end{vmatrix} + \Lambda_{12} \begin{vmatrix} -B_2 & \Lambda_{21} & \Lambda_{23} \\ -B_3 & \Lambda_{31} & \Lambda_{33} \\ -B_4 & \Lambda_{41} & \Lambda_{43} \end{vmatrix} \right. \\
 & \quad \left. \left. + \Lambda_{13} \begin{vmatrix} -B_2 & \Lambda_{21} & \Lambda_{24} \\ -B_3 & \Lambda_{31} & \Lambda_{34} \\ -B_4 & \Lambda_{41} & \Lambda_{44} \end{vmatrix} \right\} \right]
 \end{aligned}$$



$$\begin{aligned}
 & -\Lambda_{13} \left\{ \begin{array}{c} -B_2 \quad \Lambda_{21} \quad \Lambda_{22} \\ -B_3 \quad \Lambda_{31} \quad \Lambda_{32} \\ -B_4 \quad \Lambda_{41} \quad \Lambda_{42} \end{array} \right\} - \frac{\lambda_4}{|J|} \left[-B_2 \left\{ \begin{array}{c} -\Pi_2 \quad -\Pi_3 \quad -\Pi_4 \\ \Lambda_{32} \quad \Lambda_{33} \quad \Lambda_{34} \\ \Lambda_{42} \quad \Lambda_{43} \quad \Lambda_{44} \end{array} \right\} + B_2 \left\{ \begin{array}{c} -\Pi_1 \quad -\Pi_3 \quad -\Pi_4 \\ \Lambda_{31} \quad \Lambda_{33} \quad \Lambda_{34} \\ \Lambda_{41} \quad \Lambda_{43} \quad \Lambda_{44} \end{array} \right\} \right. \\
 & - B_3 \left\{ \begin{array}{c} -\Pi_1 \quad -\Pi_2 \quad -\Pi_4 \\ \Lambda_{31} \quad \Lambda_{32} \quad \Lambda_{34} \\ \Lambda_{41} \quad \Lambda_{42} \quad \Lambda_{44} \end{array} \right\} \\
 & + B_4 \left\{ \begin{array}{c} -\Pi_1 \quad -\Pi_2 \quad -\Pi_3 \\ \Lambda_{31} \quad \Lambda_{32} \quad \Lambda_{33} \\ \Lambda_{41} \quad \Lambda_{42} \quad \Lambda_{43} \end{array} \right\} + B_3 \left\{ \begin{array}{c} -\Pi_2 \quad -\Pi_3 \quad -\Pi_4 \\ \Lambda_{22} \quad \Lambda_{23} \quad \Lambda_{24} \\ \Lambda_{42} \quad \Lambda_{43} \quad \Lambda_{44} \end{array} \right\} + B_2 \left\{ \begin{array}{c} -\Pi_1 \quad -\Pi_3 \quad -\Pi_4 \\ \Lambda_{21} \quad \Lambda_{23} \quad \Lambda_{24} \\ \Lambda_{41} \quad \Lambda_{43} \quad \Lambda_{44} \end{array} \right\} \\
 & - B_3 \left\{ \begin{array}{c} -\Pi_1 \quad -\Pi_2 \quad -\Pi_4 \\ \Lambda_{21} \quad \Lambda_{22} \quad \Lambda_{24} \\ \Lambda_{41} \quad \Lambda_{42} \quad \Lambda_{44} \end{array} \right\} + B_4 \left\{ \begin{array}{c} -\Pi_1 \quad -\Pi_2 \quad -\Pi_3 \\ \Lambda_{21} \quad \Lambda_{22} \quad \Lambda_{23} \\ \Lambda_{41} \quad \Lambda_{42} \quad \Lambda_{43} \end{array} \right\} - B_4 \left\{ \begin{array}{c} -\Pi_2 \quad -\Pi_3 \quad -\Pi_4 \\ \Lambda_{22} \quad \Lambda_{23} \quad \Lambda_{24} \\ \Lambda_{32} \quad \Lambda_{33} \quad \Lambda_{34} \end{array} \right\} \\
 & + B_2 \left\{ \begin{array}{c} -\Pi_1 \quad -\Pi_3 \quad -\Pi_4 \\ \Lambda_{21} \quad \Lambda_{23} \quad \Lambda_{24} \\ \Lambda_{31} \quad \Lambda_{33} \quad \Lambda_{34} \end{array} \right\} - B_3 \left\{ \begin{array}{c} -\Pi_1 \quad -\Pi_2 \quad -\Pi_4 \\ \Lambda_{21} \quad \Lambda_{22} \quad \Lambda_{24} \\ \Lambda_{31} \quad \Lambda_{32} \quad \Lambda_{34} \end{array} \right\} + B_4 \left\{ \begin{array}{c} -\Pi_1 \quad -\Pi_2 \quad -\Pi_3 \\ \Lambda_{21} \quad \Lambda_{22} \quad \Lambda_{23} \\ \Lambda_{31} \quad \Lambda_{32} \quad \Lambda_{33} \end{array} \right\} \left. \right\} \\
 & = -\frac{m_1}{|J|} \left\{ -B_1 \Pi_1 \Lambda_{23} \Lambda_{24} \Lambda_{34} - B_1 \Pi_1 \Lambda_{23} \Lambda_{24} \Lambda_{34} - B_2 \Pi_1 \Lambda_{12} \Lambda_{34}^2 + B_4 \Pi_1 \Lambda_{12} \Lambda_{23} \Lambda_{34} \right. \\
 & + B_3 \Pi_1 \Lambda_{12} \Lambda_{24} \Lambda_{34} + B_2 \Pi_1 \Lambda_{13} \Lambda_{24} \Lambda_{34} - B_3 \Pi_1 \Lambda_{13} \Lambda_{24}^2 + B_4 \Pi_1 \Lambda_{13} \Lambda_{23} \Lambda_{24} \\
 & - B_2 \Pi_1 \Lambda_{14} \Lambda_{23} \Lambda_{34} + B_3 \Pi_1 \Lambda_{14} \Lambda_{23} \Lambda_{24} - B_4 \Pi_1 \Lambda_{14} \Lambda_{23}^2 - B_1 \Pi_2 \Lambda_{12} \Lambda_{34}^2 \\
 & - B_1 \Pi_2 \Lambda_{14} \Lambda_{23} \Lambda_{34} - B_1 \Pi_2 \Lambda_{13} \Lambda_{24} \Lambda_{34} - B_2 \Pi_2 \Lambda_{13} \Lambda_{14} \Lambda_{34} + B_4 \Pi_2 \Lambda_{12} \Lambda_{13} \Lambda_{34} \\
 & - B_4 \Pi_2 \Lambda_{13} \Lambda_{24}^2 + B_4 \Pi_2 \Lambda_{13} \Lambda_{14} \Lambda_{24} - B_2 \Pi_2 \Lambda_{13} \Lambda_{14} \Lambda_{34} + B_3 \Pi_2 \Lambda_{12} \Lambda_{14} \Lambda_{34} \\
 & - B_3 \Pi_2 \Lambda_{14}^2 \Lambda_{23} + B_4 \Pi_2 \Lambda_{13} \Lambda_{14} \Lambda_{23} + B_1 \Pi_3 \Lambda_{12} \Lambda_{24} \Lambda_{34} - B_1 \Pi_3 \Lambda_{13} \Lambda_{24}^2 \\
 & + B_1 \Pi_3 \Lambda_{14} \Lambda_{23} \Lambda_{24} + B_2 \Pi_3 \Lambda_{12} \Lambda_{14} \Lambda_{34} - B_4 \Pi_3 \Lambda_{12}^2 \Lambda_{34} - B_3 \Pi_3 \Lambda_{12} \Lambda_{14} \Lambda_{24} \\
 & \left. + B_4 \Pi_3 \Lambda_{12} \Lambda_{13} \Lambda_{24} + B_2 \Pi_3 \Lambda_{13} \Lambda_{14} \Lambda_{24} - B_2 \Pi_3 \Lambda_{14}^2 \Lambda_{23} - B_3 \Pi_3 \Lambda_{12} \Lambda_{14} \Lambda_{24} \right\}
 \end{aligned}$$



$$\begin{aligned}
 & + B_4 \Pi_3 \Lambda_{12} \Lambda_{14} \Lambda_{23} + B_1 \Pi_4 \Lambda_{12} \Lambda_{23} \Lambda_{34} + B_1 \Pi_4 \Lambda_{13} \Lambda_{23} \Lambda_{24} - B_1 \Pi_4 \Lambda_{14} \Lambda_{23}^2 \\
 & + B_2 \Pi_4 \Lambda_{12} \Lambda_{13} \Lambda_{34} - B_3 \Pi_4 \Lambda_{12}^2 \Lambda_{34} + B_3 \Pi_4 \Lambda_{12} \Lambda_{14} \Lambda_{23} - B_4 \Pi_4 \Lambda_{12} \Lambda_{13} \Lambda_{23} \\
 & - B_2 \Pi_4 \Lambda_{13}^2 \Lambda_{24} + B_2 \Pi_4 \Lambda_{13} \Lambda_{14} \Lambda_{23} + B_3 \Pi_4 \Lambda_{12} \Lambda_{13} \Lambda_{24} - B_4 \Pi_4 \Lambda_{12} \Lambda_{13} \Lambda_{23} \} \\
 & - \frac{\lambda_1}{|J|} \{ B_1 B_2 \Pi_2 \Lambda_{34}^2 - B_1 B_2 \Pi_3 \Lambda_{24} \Lambda_{34} - B_1 B_2 \Pi_4 \Lambda_{23} \Lambda_{34} - B_2^2 \Pi_1 \Lambda_{34}^2 + B_2^2 \Pi_3 \Lambda_{14} \Lambda_{34} \\
 & - B_2^2 \Pi_4 \Lambda_{13} \Lambda_{34} + B_2 B_3 \Pi_1 \Lambda_{24} \Lambda_{34} - B_2 B_3 \Pi_2 \Lambda_{14} \Lambda_{24} - B_2 B_3 \Pi_4 \Lambda_{13} \Lambda_{24} \\
 & + B_2 B_3 \Pi_4 \Lambda_{14} \Lambda_{23} + B_2 B_4 \Pi_1 \Lambda_{23} \Lambda_{34} - B_2 B_4 \Pi_2 \Lambda_{13} \Lambda_{34} + B_2 B_4 \Pi_3 \Lambda_{13} \Lambda_{24} \\
 & - B_2 B_4 \Pi_3 \Lambda_{14} \Lambda_{23} - B_1 B_3 \Pi_2 \Lambda_{24} \Lambda_{34} + B_1 B_3 \Pi_3 \Lambda_{24}^2 - B_1 B_3 \Pi_4 \Lambda_{23} \Lambda_{24} \\
 & + B_2 B \Pi_1 \Lambda_{24} \Lambda_{34} - B_2 B_3 \Pi_2 \Lambda_{14} \Lambda_{24} - B_2 B_3 \Pi_4 \Lambda_{12} \Lambda_{34} + B_2 B_3 \Pi_4 \Lambda_{14} \Lambda_{23} \\
 & - B_3^2 \Pi_1 \Lambda_{24}^2 + B_3^2 \Pi_2 \Lambda_{14} \Lambda_{24} + B_3^2 \Pi_4 \Lambda_{12} \Lambda_{24} + B_3 B_4 \Pi_1 \Lambda_{23} \Lambda_{24} + B_3 B_4 \Pi_2 \Lambda_{12} \Lambda_{34} \\
 & - B_3 B_4 \Pi_2 \Lambda_{14} \Lambda_{23} - B_3 B_4 \Pi_3 \Lambda_{12} \Lambda_{24} - B_1 B_4 \Pi_2 \Lambda_{23} \Lambda_{34} - B_1 B_4 \Pi_3 \Lambda_{23} \Lambda_{24} \\
 & + B_1 B_4 \Pi_4 \Lambda_{23}^2 + B_2 B_4 \Pi_1 \Lambda_{23} \Lambda_{34} - B_2 B_4 \Pi_3 \Lambda_{12} \Lambda_{34} + B_2 B_4 \Pi_3 \Lambda_{13} \Lambda_{24} \\
 & - B_2 B_4 \Pi_4 \Lambda_{13} \Lambda_{23} + B_3 B_4 \Pi_1 \Lambda_{23} \Lambda_{24} + B_3 B_4 \Pi_2 \Lambda_{12} \Lambda_{34} - B_3 B_4 \Pi_2 \Lambda_{13} \Lambda_{24} \\
 & - B_3 B_4 \Pi_4 \Lambda_{12} \Lambda_{23} - B_4^2 \Pi_1 \Lambda_{23}^2 + B_4^2 \Pi_2 \Lambda_{13} \Lambda_{23} + B_4^2 \Pi_3 \Lambda_{12} \Lambda_{23} \} \\
 & \frac{\partial \lambda_2}{\partial p_1} = - \frac{m_1}{|J|} \{ - 2 p_1 \pi_1 m_1^3 m_2 m_3 m_4 - p_2 \pi_1 m_1^2 m_2^2 m_3 m_4 + p_4 \pi_1 m_1^2 m_2 m_3 m_4^2 \\
 & + p_3 \pi_1 m_1^2 m_2 m_3^2 m_4 + p_2 \pi_1 m_1^2 m_2^2 m_3 m_4 - p_3 \pi_1 m_1^2 m_2 m_3^2 m_4 + p_4 \pi_1 m_1^2 m_2 m_3 m_4^2 \\
 & - p_2 \pi_1 m_1^2 m_2^2 m_3 m_4 - p_3 \pi_1 m_1^2 m_2 m_3^2 m_4 - p_4 \pi_1 m_1^2 m_2 m_3 m_4^2 - p_1 \pi_2 m_1^2 m_2^2 m_3 m_4 \\
 & - p_1 \pi_2 m_1^2 m_2^2 m_3 m_4 - p_1 \pi_2 m_1^2 m_2^2 m_3 m_4 - p_2 \pi_2 m_1 m_2^3 m_3 m_4 + p_4 \pi_2 m_1 m_2^2 m_3 m_4^2 \\
 & - p_4 \pi_2 m_1 m_2^2 m_3 m_4^2 + p_4 \pi_2 m_1 m_2^2 m_3 m_4^2 - p_2 \pi_2 m_1 m_2^3 m_3 m_4 + p_3 \pi_2 m_1 m_2^2 m_3 m_4^2 \\
 & - p_3 \pi_2 m_1 m_2^2 m_3^2 m_4 + p_4 \pi_2 m_1 m_2^2 m_3 m_4^2 + p_1 \pi_3 m_1^2 m_2 m_3^2 m_4 - p_1 \pi_3 m_1^2 m_2 m_3^2 m_4 \\
 & + p_1 \pi_3 m_1^2 m_2 m_3^2 m_4 - p_2 \pi_3 m_1 m_2^2 m_3^2 m_4 - p_4 \pi_3 m_1 m_2 m_3^2 m_4 - p_3 \pi_3 m_1 m_2 m_3^3 m_4 \\
 & + p_4 \pi_3 m_1 m_2 m_3^2 m_4^2 + p_2 \pi_3 m_1 m_2^2 m_3^2 m_4 - p_2 \pi_3 m_1 m_2^2 m_3^2 m_4 - p_3 \pi_3 m_1 m_2 m_3^3 m_4 \\
 & + p_4 \pi_3 m_1 m_2 m_3^2 m_4^2 + p_1 \pi_4 m_1^2 m_2 m_3 m_4^2 + p_1 \pi_4 m_1^2 m_2 m_3 m_4^2 - p_1 \pi_4 m_1^2 m_2 m_3 m_4^2 \\
 & + p_2 \pi_4 m_1 m_2^2 m_3 m_4^2 - p_3 \pi_4 m_1 m_2 m_3^2 m_4^2 + p_3 \pi_4 m_1 m_2 m_3^2 m_4^2 - p_4 \pi_4 m_1 m_2 m_3 m_4^3 \}
 \end{aligned}$$

$$\begin{aligned}
 & - p_4 \pi_2 m_1 m_2^2 m_3 m_4^2 - p_2 \pi_4 m_1 m_2^2 m_3 m_4^2 + p_2 \pi_4 m_1 m_2^2 m_3 m_4^2 + p_3 \pi_4 m_1 m_2 m_3^2 m_4^2 \\
 & - p_4 \pi_4 m_1 m_2 m_3 m_4^2 \} - \frac{\lambda_1}{|J|} \{ p_1 p_2 \pi_2 m_1^2 m_2^2 - p_1 p_2 \pi_3 m_1^2 m_2 m_3 - p_1 p_2 \pi_4 m_1^2 m_2 m_4 \\
 & - p_2^2 \pi_1 m_1^2 m_2^2 + p_2^2 \pi_3 m_1 m_2^2 m_3 - p_2^2 \pi_4 m_1 m_2^2 m_4 + p_2 p_3 \pi_1 m_1^2 m_2 m_3 \\
 & - p_2 p_3 \pi_2 m_1 m_2 m_3^2 - p_2 p_3 \pi_4 m_1 m_2 m_3 m_4 + p_2 p_3 \pi_4 m_1 m_2 m_3 m_4 + p_2 p_4 \pi_1 m_1^2 m_2 m_4 \\
 & - p_2 p_4 \pi_2 m_1 m_2^2 m_4 + p_2 p_4 \pi_3 m_1 m_2 m_3 m_4 - p_2 p_4 \pi_3 m_1 m_2 m_3 m_4 - p_2 p_3 \pi_2 m_1^2 m_2 m_3 \\
 & - p_1 p_3 \pi_3 m_1^2 m_3^2 - p_1 p_3 \pi_4 m_1^2 m_3 m_4 + p_2 p_3 \pi_1 m_1^2 m_2 m_3 - p_2 p_3 \pi_2 m_1 m_2 m_3^2 \\
 & - p_2 p_3 \pi_4 m_1 m_2 m_3 m_4 + p_2 p_3 \pi_4 m_1 m_2 m_3 m_4 - p_3^2 \pi_1 m_1^2 m_3^2 + p_3^2 \pi_2 m_1 m_2 m_3^2 \\
 & + p_3 p_4 \pi_1 m_1^2 m_3 m_4 + p_3 p_4 \pi_2 m_1 m_2 m_3 m_4 - p_3 p_4 \pi_2 m_1 m_2 m_3 m_4 - p_3 p_4 \pi_3 m_1 m_3^2 m_4 \\
 & - p_1 p_4 \pi_2 m_1^2 m_2 m_4 - p_1 p_4 \pi_3 m_1^2 m_3 m_4 + p_1 p_4 \pi_4 m_1^2 m_4^2 + p_2 p_4 \pi_1 m_1^2 m_2 m_4 \\
 & - p_2 p_4 \pi_3 m_1 m_2 m_3 m_4 + p_2 p_4 \pi_3 m_1 m_2 m_3 m_4 - p_2 p_4 \pi_4 m_1 m_2 m_4^2 + p_3 p_4 \pi_1 m_1^2 m_3 m_4 \\
 & + p_2 p_4 \pi_3 m_1 m_2 m_3 m_4 + p_3 p_4 \pi_2 m_1 m_2 m_3 m_4 - p_3 p_4 \pi_2 m_1 m_2 m_3 m_4 - p_3 p_4 \pi_4 m_1 m_3 m_4^2 \\
 & - p_4^2 \pi_1 m_1^2 m_4^2 + p_4^2 \pi_2 m_1 m_2 m_4^2 \\
 & + p_4^2 \pi_3 m_1 m_3 m_4^2 \}. \tag{23}
 \end{aligned}$$

Using $\pi_3 = \pi_1$ and $\pi_4 = \pi_2$, $p_3 = p_1$ and $p_4 = p_2$, and also $m_3 = m_1$ and $m_4 = m_2$ in (23) we get,

$$\begin{aligned}
 \frac{\partial \lambda_2}{\partial p_1} &= - \frac{m_1}{|J|} \{ -4 p_1 \pi_1 m_1^4 m_2^2 - p_1 \pi_2 m_1^3 m_2^3 - 2 p_2 \pi_2 m_1^2 m_2^4 + p_2 \pi_2 m_1^4 m_2^2 \\
 & - p_2 \pi_2 m_1^3 m_2^3 \} - \frac{\lambda_1}{|J|} \{ -2 p_1 p_2 \pi_2 m_1^2 m_2^2 - 2 p_2^2 \pi_2 m_1 m_2^3 + 3 p_2^2 \pi_1 m_1^2 m_2^2 \\
 & - p_1 p_2 \pi_2 m_1^3 m_2 - 3 p_1^2 \pi_1 m_1^4 + p_1^2 \pi_2 m_1^3 m_2 \}. \tag{24}
 \end{aligned}$$

Using $m_1 = m_2 = m_3 = m_4 = 1$ in (9) we get,

$$\lambda_1 = \frac{\pi_2 - \pi_1}{\pi_2 p_1 - \pi_1 p_2} \tag{25}$$

where $\pi_2 p_1 \neq \pi_1 p_2$.

Now using $|J| = |H| = -2p_1p_2\pi_1\pi_2$ from (8), $m_1 = m_2 = 1$ and value of λ_1 from (25) in (24) we get,

$$\frac{\partial \lambda_2}{\partial p_1} = -\frac{2p_2\pi_2 + p_1\pi_2 + 4p_1\pi_1}{2p_1p_2\pi_1\pi_2} + \frac{(\pi_2 - \pi_1)(3p_2^2\pi_1 - 3p_1p_2\pi_2 - 2p_2^2\pi_2 - 3p_1^2\pi_1 + p_1^2\pi_2)}{2p_1p_2\pi_1\pi_2(\pi_2p_1 - \pi_1p_2)}$$

$$\frac{\partial \lambda_2}{\partial p_1} = \frac{2p_1^2\pi_2^2 - 3p_2^2\pi_1^2 - 2p_2^2\pi_2^2 - 7p_1^2\pi_1\pi_2 + 4p_1p_2\pi_1^2 + 7p_2^2\pi_1\pi_2 - 4p_1p_2\pi_2^2 + 3p_1^2\pi_1^2 + 3p_1p_2\pi_1\pi_2}{2p_1p_2\pi_1\pi_2(\pi_2p_1 - \pi_1p_2)} \quad (26)$$

Now using $\pi_1 = \pi_2 = \pi$ in (26) we get,

$$\frac{\partial \lambda_2}{\partial p_1} = -\frac{(p_1 - 2p_2)(2p_1 + p_2)}{2p_1p_2\pi(p_1 - p_2)} \quad (27)$$

where $2p_1p_2\pi > 0$.

Now if $p_1 > 2p_2$ in (27) we observe that,

$$\frac{\partial \lambda_2}{\partial p_1} < 0. \quad (28)$$

The relation (28) we have seen that if the price p_1 of the good m_1 goes up, marginal utility goes down. Therefore, if the price of per unit of product m_1 raises \$1.00, the level of buying will decline exactly λ_2 units. Therefore, product m_1 has numerous substitutes; and customers move to substitutes when price of good m_1 goes up [Islam et al., 2010].

Now if $p_2 < p_1 < 2p_2$ in (27) we observe that,

$$\frac{\partial \lambda_2}{\partial p_1} > 0. \quad (29)$$

The inequality (29) shows that if the price p_1 of the goods m_1 surges, marginal utility also surges. Therefore, if the price of per unit of goods m_1 raises \$1.00, the level of buying will raise exactly λ_2 units. Therefore, goods m_1 is a best quality

product, and it has no substitutes [Mohajan & Mohajan, 2023b]. The firm may try for more production of the commodity m_1 to obtain maximum profit, if $p_2 < p_1 < 2p_2$, where p_2 is the price of the commodity m_2 .

We examine the properties of λ_1 when unit price p_4 of commodity m_4 upsurges. We take T_{14} from (17) we can write [Islam et al., 2011; Mohajan & Mohajan, 2022a],

$$\begin{aligned} \frac{\partial \lambda_1}{\partial p_4} &= \frac{m_4}{|J|} [C_{11}] + \frac{\lambda_1}{|J|} [C_{61}] \\ &= \frac{m_4}{|J|} \text{Cofactor of } C_{11} + \frac{\lambda_1}{|J|} \text{Cofactor of } C_{61} \\ &= \frac{m_4}{|J|} \begin{vmatrix} 0 & -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ -\Pi_1 & \Lambda_{11} & \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ -\Pi_2 & \Lambda_{21} & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ -\Pi_3 & \Lambda_{31} & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ -\Pi_4 & \Lambda_{41} & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \\ &\quad - \frac{\lambda_1}{|J|} \begin{vmatrix} 0 & -B_1 & -B_2 & -B_3 & -B_4 \\ 0 & -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ -\Pi_1 & \Lambda_{11} & \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ -\Pi_2 & \Lambda_{21} & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ -\Pi_3 & \Lambda_{31} & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \end{vmatrix} \end{aligned}$$



$$\begin{aligned}
 &= \frac{m_4}{|J|} \left\{ \begin{array}{c} \left| \begin{array}{cccc} -\Pi_1 & \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ -\Pi_2 & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ -\Pi_3 & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ -\Pi_4 & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{array} \right| \\ -\Pi_2 \left| \begin{array}{cccc} -\Pi_1 & \Lambda_{11} & \Lambda_{13} & \Lambda_{14} \\ -\Pi_2 & \Lambda_{21} & \Lambda_{23} & \Lambda_{24} \\ -\Pi_3 & \Lambda_{31} & \Lambda_{33} & \Lambda_{34} \\ -\Pi_4 & \Lambda_{41} & \Lambda_{43} & \Lambda_{44} \end{array} \right| \\ + \Pi_3 \left\{ \begin{array}{c} \left| \begin{array}{cccc} -\Pi_1 & \Lambda_{11} & \Lambda_{12} & \Lambda_{14} \\ -\Pi_2 & \Lambda_{21} & \Lambda_{22} & \Lambda_{24} \\ -\Pi_3 & \Lambda_{31} & \Lambda_{32} & \Lambda_{34} \\ -\Pi_4 & \Lambda_{41} & \Lambda_{42} & \Lambda_{44} \end{array} \right| \\ -\Pi_4 \left| \begin{array}{cccc} -\Pi_1 & \Lambda_{11} & \Lambda_{12} & \Lambda_{13} \\ -\Pi_2 & \Lambda_{21} & \Lambda_{22} & \Lambda_{23} \\ -\Pi_3 & \Lambda_{31} & \Lambda_{32} & \Lambda_{33} \\ -\Pi_4 & \Lambda_{41} & \Lambda_{42} & \Lambda_{43} \end{array} \right| \end{array} \right\} \\ - \frac{\lambda_1}{|J|} \left\{ \begin{array}{c} \left| \begin{array}{cccc} -B_1 & -B_2 & -B_3 & -B_4 \\ -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ \Lambda_{21} & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{31} & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \end{array} \right| \\ + \Pi_2 \left| \begin{array}{cccc} -B_1 & -B_2 & -B_3 & -B_4 \\ -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ \Lambda_{11} & \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ \Lambda_{31} & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \end{array} \right| \\ - \Pi_3 \left\{ \begin{array}{c} \left| \begin{array}{cccc} -B_1 & -B_2 & -B_3 & -B_4 \\ -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ \Lambda_{11} & \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ \Lambda_{21} & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \end{array} \right| \end{array} \right\} \\ = \frac{m_4}{|J|} \left[\Pi_1 \left\{ \begin{array}{c} \left| \begin{array}{ccc} \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{array} \right| \\ -\Pi_1 \left| \begin{array}{ccc} \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{array} \right| \\ -\Lambda_{12} \left| \begin{array}{ccc} -\Pi_2 & \Lambda_{23} & \Lambda_{24} \\ -\Pi_3 & \Lambda_{33} & \Lambda_{34} \\ -\Pi_4 & \Lambda_{43} & \Lambda_{44} \end{array} \right| \\ + \Lambda_{13} \left| \begin{array}{ccc} -\Pi_2 & \Lambda_{22} & \Lambda_{24} \\ -\Pi_3 & \Lambda_{32} & \Lambda_{34} \\ -\Pi_4 & \Lambda_{42} & \Lambda_{44} \end{array} \right| \end{array} \right\} \\ - \Lambda_{14} \left\{ \begin{array}{c} \left| \begin{array}{ccc} -\Pi_2 & \Lambda_{22} & \Lambda_{23} \\ -\Pi_3 & \Lambda_{32} & \Lambda_{33} \\ -\Pi_4 & \Lambda_{42} & \Lambda_{43} \end{array} \right| \end{array} \right\} \end{array} \right]
 \end{aligned}$$



$$\begin{aligned}
 & -\Pi_2 \left\{ -\Pi_1 \begin{vmatrix} \Lambda_{21} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{31} & \Lambda_{33} & \Lambda_{34} \\ \Lambda_{41} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} + \Lambda_{13} \begin{vmatrix} -\Pi_2 & \Lambda_{21} & \Lambda_{24} \\ -\Pi_3 & \Lambda_{31} & \Lambda_{34} \\ -\Pi_4 & \Lambda_{41} & \Lambda_{44} \end{vmatrix} - \Lambda_{14} \begin{vmatrix} -\Pi_2 & \Lambda_{21} & \Lambda_{23} \\ -\Pi_3 & \Lambda_{31} & \Lambda_{33} \\ -\Pi_4 & \Lambda_{41} & \Lambda_{43} \end{vmatrix} \right\} \\
 & + \Pi_3 \left\{ -\Pi_1 \begin{vmatrix} \Lambda_{21} & \Lambda_{22} & \Lambda_{24} \\ \Lambda_{31} & \Lambda_{32} & \Lambda_{34} \\ \Lambda_{41} & \Lambda_{42} & \Lambda_{44} \end{vmatrix} + \Lambda_{12} \begin{vmatrix} -\Pi_2 & \Lambda_{21} & \Lambda_{24} \\ -\Pi_3 & \Lambda_{31} & \Lambda_{34} \\ -\Pi_4 & \Lambda_{41} & \Lambda_{44} \end{vmatrix} - \Lambda_{14} \begin{vmatrix} -\Pi_2 & \Lambda_{21} & \Lambda_{22} \\ -\Pi_3 & \Lambda_{31} & \Lambda_{32} \\ -\Pi_4 & \Lambda_{41} & \Lambda_{42} \end{vmatrix} \right\} \\
 & - \Pi_4 \left\{ -\Pi_1 \begin{vmatrix} \Lambda_{21} & \Lambda_{22} & \Lambda_{23} \\ \Lambda_{31} & \Lambda_{32} & \Lambda_{33} \\ \Lambda_{41} & \Lambda_{42} & \Lambda_{43} \end{vmatrix} + \Lambda_{12} \begin{vmatrix} -\Pi_2 & \Lambda_{21} & \Lambda_{23} \\ -\Pi_3 & \Lambda_{31} & \Lambda_{33} \\ -\Pi_4 & \Lambda_{41} & \Lambda_{43} \end{vmatrix} - \Lambda_{13} \begin{vmatrix} -\Pi_2 & \Lambda_{21} & \Lambda_{22} \\ -\Pi_3 & \Lambda_{31} & \Lambda_{32} \\ -\Pi_4 & \Lambda_{41} & \Lambda_{42} \end{vmatrix} \right\} \\
 & - \frac{\lambda_1}{|J|} \left[-\Pi_1 \left\{ -B_1 \begin{vmatrix} -\Pi_2 & -\Pi_3 & -\Pi_4 \\ \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \end{vmatrix} + B_2 \begin{vmatrix} -\Pi_1 & -\Pi_3 & -\Pi_4 \\ \Lambda_{21} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{31} & \Lambda_{33} & \Lambda_{34} \end{vmatrix} - B_3 \begin{vmatrix} -\Pi_1 & -\Pi_2 & -\Pi_4 \\ \Lambda_{21} & \Lambda_{22} & \Lambda_{24} \\ \Lambda_{31} & \Lambda_{32} & \Lambda_{34} \end{vmatrix} \right. \right. \\
 & + B_4 \begin{vmatrix} -\Pi_1 & -\Pi_2 & -\Pi_3 \\ \Lambda_{21} & \Lambda_{22} & \Lambda_{23} \\ \Lambda_{31} & \Lambda_{32} & \Lambda_{33} \end{vmatrix} \left. \right\} + \Pi_2 \left\{ -B_1 \begin{vmatrix} -\Pi_2 & -\Pi_3 & -\Pi_4 \\ \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \end{vmatrix} + B_2 \begin{vmatrix} -\Pi_1 & -\Pi_3 & -\Pi_4 \\ \Lambda_{11} & \Lambda_{13} & \Lambda_{14} \\ \Lambda_{31} & \Lambda_{33} & \Lambda_{34} \end{vmatrix} \right. \\
 & - B_3 \begin{vmatrix} -\Pi_1 & -\Pi_2 & -\Pi_4 \\ \Lambda_{11} & \Lambda_{12} & \Lambda_{14} \\ \Lambda_{31} & \Lambda_{32} & \Lambda_{34} \end{vmatrix} + B_4 \begin{vmatrix} -\Pi_1 & -\Pi_2 & -\Pi_3 \\ \Lambda_{11} & \Lambda_{12} & \Lambda_{13} \\ \Lambda_{31} & \Lambda_{32} & \Lambda_{33} \end{vmatrix} \left. \right\} - \Pi_3 \left\{ -B_1 \begin{vmatrix} -\Pi_2 & -\Pi_3 & -\Pi_4 \\ \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \end{vmatrix} \right. \\
 & + B_2 \begin{vmatrix} -\Pi_1 & -\Pi_3 & -\Pi_4 \\ \Lambda_{11} & \Lambda_{13} & \Lambda_{14} \\ \Lambda_{21} & \Lambda_{23} & \Lambda_{24} \end{vmatrix} - B_3 \begin{vmatrix} -\Pi_1 & -\Pi_2 & -\Pi_4 \\ \Lambda_{11} & \Lambda_{12} & \Lambda_{14} \\ \Lambda_{21} & \Lambda_{22} & \Lambda_{24} \end{vmatrix} + B_4 \begin{vmatrix} -\Pi_1 & -\Pi_2 & -\Pi_3 \\ \Lambda_{11} & \Lambda_{12} & \Lambda_{13} \end{vmatrix} \left. \right\} \right]
 \end{aligned}$$



$$\begin{aligned}
 &= \frac{m_4}{|J|} \left\{ -\Pi_1^2 \Lambda_{23} \Lambda_{24} \Lambda_{34} \quad -\Pi_1^2 \Lambda_{23} \Lambda_{24} \Lambda_{34} \quad -\Pi_1 \Pi_2 \Lambda_{12} \Lambda_{34}^2 \quad -\Pi_1 \Pi_4 \Lambda_{12} \Lambda_{23} \Lambda_{34} \right. \\
 &+ \Pi_1 \Pi_3 \Lambda_{12} \Lambda_{24} \Lambda_{34} \quad + \Pi_1 \Pi_4 \Lambda_{12} \Lambda_{23} \Lambda_{34} \quad + \Pi_1 \Pi_2 \Lambda_{13} \Lambda_{34}^2 \quad - \Pi_1 \Pi_3 \Lambda_{13} \Lambda_{24}^2 \\
 &+ \Pi_1 \Pi_4 \Lambda_{13} \Lambda_{23} \Lambda_{24} \quad + \Pi_1 \Pi_2 \Lambda_{14} \Lambda_{23} \Lambda_{34} \quad + \Pi_1 \Pi_3 \Lambda_{14} \Lambda_{23} \Lambda_{24} \quad - \Pi_1 \Pi_4 \Lambda_{14} \Lambda_{23}^2 \\
 &- \Pi_1 \Pi_2 \Lambda_{12} \Lambda_{34}^2 \quad + \Pi_1 \Pi_2 \Lambda_{14} \Lambda_{23} \Lambda_{34} \quad + \Pi_1 \Pi_2 \Lambda_{13} \Lambda_{24} \Lambda_{34} \quad - \Pi_2^2 \Lambda_{13} \Lambda_{14} \Lambda_{34} \\
 &+ \Pi_2 \Pi_4 \Lambda_{12} \Lambda_{13} \Lambda_{34} \quad + \Pi_2 \Pi_3 \Lambda_{13} \Lambda_{14} \Lambda_{24} \quad - \Pi_2 \Pi_4 \Lambda_{13}^2 \Lambda_{24} \quad - \Pi_2^2 \Lambda_{13} \Lambda_{14} \Lambda_{34} \\
 &+ \Pi_2 \Pi_3 \Lambda_{12} \Lambda_{14} \Lambda_{34} \quad - \Pi_2 \Pi_3 \Lambda_{14}^2 \Lambda_{23} \quad + \Pi_2 \Pi_4 \Lambda_{13} \Lambda_{14} \Lambda_{23} \quad + \Pi_2 \Pi_3 \Lambda_{12} \Lambda_{14} \Lambda_{34} \\
 &- \Pi_3 \Pi_4 \Lambda_{12}^2 \Lambda_{34} \quad - \Pi_3^2 \Lambda_{12} \Lambda_{13} \Lambda_{24} \quad + \Pi_3 \Pi_4 \Lambda_{12} \Lambda_{14} \Lambda_{24} \quad + \Pi_2 \Pi_3 \Lambda_{13} \Lambda_{14} \Lambda_{24} \\
 &- \Pi_2 \Pi_3 \Lambda_{14}^2 \Lambda_{23} \quad - \Pi_3^2 \Lambda_{12} \Lambda_{14}^2 \quad + \Pi_3 \Pi_4 \Lambda_{12} \Lambda_{13} \Lambda_{14} \quad + \Pi_1 \Pi_4 \Lambda_{12} \Lambda_{23} \Lambda_{34} \\
 &+ \Pi_1 \Pi_4 \Lambda_{13} \Lambda_{23} \Lambda_{24} \quad - \Pi_1 \Pi_4 \Lambda_{14} \Lambda_{23}^2 \quad + \Pi_2 \Pi_4 \Lambda_{12} \Lambda_{13} \Lambda_{34} \quad - \Pi_3 \Pi_4 \Lambda_{12}^2 \Lambda_{34} \\
 &+ \Pi_3 \Pi_4 \Lambda_{12} \Lambda_{14} \Lambda_{23} \quad - \Pi_4^2 \Lambda_{12} \Lambda_{13} \Lambda_{23} \quad - \Pi_2 \Pi_4 \Lambda_{13}^2 \Lambda_{24} \quad + \Pi_2 \Pi_4 \Lambda_{13} \Lambda_{14} \Lambda_{23} \\
 &+ \Pi_3 \Pi_4 \Lambda_{12} \Lambda_{13} \Lambda_{24} \quad - \Pi_4^2 \Lambda_{12} \Lambda_{13} \Lambda_{23} \left. \right\} - \frac{\lambda_1}{|J|} \left\{ B_1 \Pi_1 \Pi_2 \Lambda_{23} \Lambda_{34} \quad - B_1 \Pi_1 \Pi_3 \Lambda_{23} \Lambda_{24} \right. \\
 &+ B_1 \Pi_1 \Pi_4 \Lambda_{23}^2 \quad + B_2 \Pi_1^2 \Lambda_{23} \Lambda_{34} \quad - B_2 \Pi_1 \Pi_3 \Lambda_{12} \Lambda_{34} \quad + B_2 \Pi_1 \Pi_3 \Lambda_{13} \Lambda_{24} \\
 &- B_2 \Pi_1 \Pi_4 \Lambda_{13} \Lambda_{23} \quad + B_3 \Pi_1^2 \Lambda_{23} \Lambda_{24} \quad + B_3 \Pi_1 \Pi_2 \Lambda_{12} \Lambda_{34} \quad - B_3 \Pi_1 \Pi_2 \Lambda_{13} \Lambda_{24} \\
 &- B_3 \Pi_1 \Pi_4 \Lambda_{12} \Lambda_{23} \quad - B_4 \Pi_1^2 \Lambda_{23}^2 \quad + B_4 \Pi_1 \Pi_2 \Lambda_{13} \Lambda_{23} \quad + B_4 \Pi_1 \Pi_3 \Lambda_{12} \Lambda_{23} \quad + B_1 \Pi_2^2 \Lambda_{13} \Lambda_{34} \\
 &- B_1 \Pi_2 \Pi_3 \Lambda_{12} \Lambda_{34} \quad + B_1 \Pi_2 \Pi_3 \Lambda_{14} \Lambda_{23} \quad - B_1 \Pi_2 \Pi_4 \Lambda_{13} \Lambda_{23} \quad - B_2 \Pi_1 \Pi_2 \Lambda_{13} \Lambda_{34} \\
 &- B_2 \Pi_2 \Pi_3 \Lambda_{13} \Lambda_{14} \quad + B_2 \Pi_2 \Pi_4 \Lambda_{13}^2 \quad + B_3 \Pi_1 \Pi_2 \Lambda_{12} \Lambda_{34} \quad - B_3 \Pi_1 \Pi_2 \Lambda_{14} \Lambda_{23} \\
 &+ B_3 \Pi_2^2 \Lambda_{13} \Lambda_{14} \quad - B_3 \Pi_2 \Pi_4 \Lambda_{12} \Lambda_{13} \quad + B_4 \Pi_1 \Pi_2 \Lambda_{13} \Lambda_{23} \quad - B_4 \Pi_2^2 \Lambda_{13}^2 \quad + B_4 \Pi_2 \Pi_3 \Lambda_{12} \Lambda_{13} \\
 &- B_1 \Pi_2 \Pi_3 \Lambda_{13} \Lambda_{24} \quad + B_1 \Pi_2 \Pi_3 \Lambda_{14} \Lambda_{23} \quad + B_1 \Pi_3^2 \Lambda_{12} \Lambda_{24} \quad - B_1 \Pi_3 \Pi_4 \Lambda_{12} \Lambda_{23} \\
 &+ B_2 \Pi_1 \Pi_3 \Lambda_{13} \Lambda_{24} \quad - B_2 \Pi_1 \Pi_3 \Lambda_{14} \Lambda_{23} \quad + B_2 \Pi_3^2 \Lambda_{12} \Lambda_{14} \quad - B_2 \Pi_3 \Pi_4 \Lambda_{12} \Lambda_{13} \\
 &- B_3 \Pi_1 \Pi_2 \Lambda_{12} \Lambda_{24} \quad - B_3 \Pi_2 \Pi_3 \Lambda_{12} \Lambda_{14} \quad + B_3 \Pi_3 \Pi_4 \Lambda_{12}^2 \quad + B_4 \Pi_1 \Pi_3 \Lambda_{12} \Lambda_{23} \\
 &+ B_4 \Pi_2 \Pi_3 \Lambda_{12} \Lambda_{13} \quad - B_4 \Pi_3^2 \Lambda_{12}^2
 \end{aligned}$$



$$\begin{aligned}
&= \frac{m_1}{|J|} \left\{ -2\Pi_1^2 \Lambda_{23} \Lambda_{24} \Lambda_{34} + \Pi_1 \Pi_3 \Lambda_{14} \Lambda_{23} \Lambda_{24} + \Pi_1 \Pi_3 \Lambda_{12} \Lambda_{24} \Lambda_{34} - \Pi_1 \Pi_3 \Lambda_{13} \Lambda_{24}^2 \right. \\
&+ 2\Pi_1 \Pi_4 \Lambda_{13} \Lambda_{23} \Lambda_{24} + \Pi_1 \Pi_4 \Lambda_{12} \Lambda_{23} \Lambda_{34} - 2\Pi_1 \Pi_4 \Lambda_{14} \Lambda_{23}^2 + \Pi_1 \Pi_2 \Lambda_{13} \Lambda_{34}^2 \\
&+ 2\Pi_1 \Pi_2 \Lambda_{14} \Lambda_{23} \Lambda_{34} - 2\Pi_1 \Pi_2 \Lambda_{12} \Lambda_{34}^2 + \Pi_1 \Pi_2 \Lambda_{13} \Lambda_{24} \Lambda_{34} - 2\Pi_2^2 \Lambda_{13} \Lambda_{14} \Lambda_{34} \\
&- 2\Pi_2 \Pi_4 \Lambda_{13}^2 \Lambda_{24} + 2\Pi_2 \Pi_4 \Lambda_{12} \Lambda_{13} \Lambda_{34} + 2\Pi_2 \Pi_4 \Lambda_{13} \Lambda_{14} \Lambda_{23} + 2\Pi_2 \Pi_3 \Lambda_{13} \Lambda_{14} \Lambda_{24} \\
&+ 2\Pi_2 \Pi_3 \Lambda_{12} \Lambda_{14} \Lambda_{34} - 2\Pi_2 \Pi_3 \Lambda_{14}^2 \Lambda_{23} - 2\Pi_3 \Pi_4 \Lambda_{12}^2 \Lambda_{34} - \Pi_3^2 \Lambda_{12} \Lambda_{13} \Lambda_{24} \\
&+ \Pi_3 \Pi_4 \Lambda_{12} \Lambda_{14} \Lambda_{24} - \Pi_3^2 \Lambda_{12} \Lambda_{14}^2 + 2\Pi_3 \Pi_4 \Lambda_{12} \Lambda_{13} \Lambda_{14} + \Pi_3 \Pi_4 \Lambda_{12} \Lambda_{14} \Lambda_{23} \\
&\left. - 2\Pi_4^2 \Lambda_{12} \Lambda_{13} \Lambda_{23} \right\} - \frac{\lambda_1}{|J|} \left\{ B_1 \Pi_1 \Pi_2 \Lambda_{23} \Lambda_{34} - B_1 \Pi_1 \Pi_3 \Lambda_{23} \Lambda_{24} + B_1 \Pi_1 \Pi_4 \Lambda_{23}^2 \right. \\
&+ B_2 \Pi_1^2 \Lambda_{23} \Lambda_{34} - B_2 \Pi_1 \Pi_3 \Lambda_{12} \Lambda_{34} + 2B_2 \Pi_1 \Pi_3 \Lambda_{13} \Lambda_{24} - B_2 \Pi_1 \Pi_3 \Lambda_{14} \Lambda_{23} \\
&- B_2 \Pi_1 \Pi_4 \Lambda_{13} \Lambda_{23} + B_3 \Pi_1^2 \Lambda_{23} \Lambda_{24} + B_3 \Pi_1 \Pi_2 \Lambda_{12} \Lambda_{34} - B_3 \Pi_1 \Pi_2 \Lambda_{13} \Lambda_{24} \\
&- B_3 \Pi_1 \Pi_2 \Lambda_{14} \Lambda_{23} - B_3 \Pi_1 \Pi_2 \Lambda_{12} \Lambda_{24} - B_3 \Pi_1 \Pi_4 \Lambda_{12} \Lambda_{23} - B_4 \Pi_1^2 \Lambda_{23}^2 \\
&+ 2B_4 \Pi_1 \Pi_2 \Lambda_{13} \Lambda_{23} + 2B_4 \Pi_1 \Pi_3 \Lambda_{12} \Lambda_{23} + B_1 \Pi_2^2 \Lambda_{13} \Lambda_{34} - B_1 \Pi_2 \Pi_3 \Lambda_{12} \Lambda_{34} \\
&+ 2B_1 \Pi_2 \Pi_3 \Lambda_{14} \Lambda_{23} - B_1 \Pi_2 \Pi_3 \Lambda_{13} \Lambda_{24} - B_1 \Pi_2 \Pi_4 \Lambda_{13} \Lambda_{23} - B_2 \Pi_1 \Pi_2 \Lambda_{13} \Lambda_{34} \\
&- B_2 \Pi_2 \Pi_3 \Lambda_{13} \Lambda_{14} + B_2 \Pi_2 \Pi_4 \Lambda_{13}^2 + B_3 \Pi_1 \Pi_2 \Lambda_{12} \Lambda_{34} + B_3 \Pi_2^2 \Lambda_{13} \Lambda_{14} \\
&- B_3 \Pi_2 \Pi_4 \Lambda_{12} \Lambda_{13} - B_4 \Pi_2^2 \Lambda_{13}^2 + 2B_4 \Pi_2 \Pi_3 \Lambda_{12} \Lambda_{13} + B_1 \Pi_3^2 \Lambda_{12} \Lambda_{24} \\
&- B_1 \Pi_3 \Pi_4 \Lambda_{12} \Lambda_{23} + B_2 \Pi_3^2 \Lambda_{12} \Lambda_{14} - B_2 \Pi_3 \Pi_4 \Lambda_{12} \Lambda_{13} - B_3 \Pi_2 \Pi_3 \Lambda_{12} \Lambda_{14} \\
&\left. + B_3 \Pi_3 \Pi_4 \Lambda_{12}^2 - B_4 \Pi_3^2 \Lambda_{12}^2 \right\} \\
&= \frac{m_1}{|J|} \left\{ -2\pi_1^2 m_1^3 m_2 m_3 m_4 + \pi_1 \pi_3 m_1^2 m_2 m_3^2 m_4 + \pi_1 \pi_3 m_1^2 m_2 m_3^2 m_4 - \pi_1 \pi_3 m_1^2 m_2 m_3^2 m_4 \right. \\
&+ \pi_1 \pi_4 m_1^2 m_2 m_3 m_4^2 + \pi_1 \pi_4 m_1^2 m_2 m_3 m_4^2 - 2\pi_1 \pi_4 m_1^2 m_2 m_3 m_4^2 + \pi_1 \pi_2 m_1^2 m_2^3 m_4 \\
&+ 2\pi_1 \pi_2 m_1^2 m_2^2 m_3 m_4 - 2\pi_1 \pi_2 m_1^2 m_2^2 m_3 m_4 + \pi_1 \pi_2 m_1^2 m_2^2 m_3 m_4 - 2\pi_2^2 m_1 m_2^3 m_3 m_4 \\
&- 2\pi_2 \pi_4 m_1 m_2^2 m_3 m_4^2 + 2\pi_2 \pi_4 m_1 m_2^2 m_3 m_4^2 + 2\pi_2 \pi_4 m_1 m_2^2 m_3 m_4^2 + 2\pi_2 \pi_3 m_1 m_2^2 m_3^2 m_4 \\
&+ 2\pi_2 \pi_3 m_1 m_2^2 m_3^2 m_4 - 2\pi_2 \pi_3 m_1 m_2^2 m_3^2 m_4 - \pi_3^2 m_1 m_2 m_3^2 m_4^2 + \pi_3 \pi_4 m_1 m_2 m_3^3 m_4 \\
&\left. - \pi_3^2 m_2^2 m_3^3 m_4 + 2\pi_3 \pi_4 m_2^2 m_3^2 m_4^2 + \pi_3 \pi_4 m_2^2 m_3^2 m_4^2 - \pi_4^2 m_1 m_2 m_3 m_4^3 \right\}
\end{aligned}$$



$$\begin{aligned}
 & - \frac{\lambda_1}{|J|} \left\{ p_1 \pi_1 \pi_2 m_1^2 m_2 m_4 - p_1 \pi_1 \pi_3 m_1^2 m_3 m_4 + p_1 \pi_1 \pi_4 m_1^2 m_4^2 + p_2 \pi_1^2 m_1^2 m_2 m_4 \right. \\
 & - p_2 \pi_1 \pi_3 m_1 m_2 m_3 m_4 + 2 p_2 \pi_1 \pi_3 m_1 m_2 m_3 m_4 - p_2 \pi_1 \pi_3 m_1 m_2 m_3 m_4 \\
 & - p_2 \pi_1 \pi_4 m_1 m_2 m_4^2 + p_3 \pi_1^2 m_1^2 m_3 m_4 + p_3 \pi_1 \pi_2 m_1 m_2 m_3 m_4 - p_3 \pi_1 \pi_2 m_1 m_2 m_3 m_4 \\
 & - p_3 \pi_1 \pi_2 m_1 m_2 m_3 m_4 - p_3 \pi_1 \pi_2 m_1 m_3^2 m_4 - p_3 \pi_1 \pi_4 m_1 m_3 m_4^2 - p_4 \pi_1^2 m_1^2 m_4^2 \\
 & + 2 p_4 \pi_1 \pi_2 m_1 m_2 m_4^2 + 2 p_4 \pi_1 \pi_3 m_1 m_3 m_4^2 + p_1 \pi_2^2 m_1 m_2^2 m_4 - p_1 \pi_2 \pi_3 m_1 m_2 m_3 m_4 \\
 & + 2 p_1 \pi_2 \pi_3 m_1 m_2 m_3 m_4 - p_1 \pi_2 \pi_3 m_1 m_2 m_3 m_4 - p_1 \pi_2 \pi_4 m_1 m_2 m_4^2 - p_2 \pi_1 \pi_2 m_1 m_2^2 m_4 \\
 & - p_2 \pi_2 \pi_3 m_2^2 m_3 m_4 + p_2 \pi_2 \pi_4 m_2^2 m_4^2 + p_3 \pi_1 \pi_2 m_1 m_2 m_3 m_4 + p_3 \pi_2^2 m_2^2 m_3 m_4 \\
 & - p_3 \pi_2 \pi_4 m_2 m_3 m_4^2 + p_1 \pi_3^2 m_1 m_3^2 m_4 + 2 p_4 \pi_2 \pi_3 m_2 m_3 m_4^2 + p_1 \pi_3^2 m_1 m_3^2 m_4 \\
 & - p_1 \pi_3 \pi_4 m_1 m_3 m_4^2 + p_2 \pi_3^2 m_2 m_3^2 m_4 - p_2 \pi_3 \pi_4 m_2 m_3 m_4^2 - p_3 \pi_2 \pi_3 m_2 m_3^2 m_4 \\
 & \left. + p_3 \pi_3 \pi_4 m_3^2 m_4^2 - p_4 \pi_3^2 m_3^2 m_4^2 \right\} \\
 & \frac{\partial \lambda_1}{\partial p_4} = \frac{m_1}{|J|} \left\{ -2 \pi_1^2 m_1^3 m_2 m_3 m_4 + \pi_1 \pi_3 m_1^2 m_2 m_3^2 m_4 + 2 \pi_2 \pi_4 m_1 m_2^2 m_3 m_4^2 \right. \\
 & + 2 \pi_2 \pi_3 m_1 m_2^2 m_3^2 m_4 - \pi_3^2 m_1 m_2 m_3^2 m_4^2 + \pi_3 \pi_4 m_1 m_2 m_3^3 m_4 - \pi_3^2 m_2^2 m_3^3 m_4 \\
 & \left. + 3 \pi_3 \pi_4 m_2^2 m_3^2 m_4^2 - \pi_4^2 m_1 m_2 m_3 m_4^3 \right\} - \frac{\lambda_1}{|J|} \left\{ p_1 \pi_1 \pi_2 m_1^2 m_2 m_4 - p_1 \pi_1 \pi_3 m_1^2 m_3 m_4 \right. \\
 & + p_1 \pi_1 \pi_4 m_1^2 m_4^2 + p_2 \pi_1^2 m_1^2 m_2 m_4 - p_2 \pi_1 \pi_4 m_1 m_2 m_4^2 + p_3 \pi_1^2 m_1^2 m_3 m_4 \\
 & - p_3 \pi_1 \pi_2 m_1 m_3^2 m_4 - p_3 \pi_1 \pi_4 m_1 m_3 m_4^2 - p_4 \pi_1^2 m_1^2 m_4^2 + 2 p_4 \pi_1 \pi_2 m_1 m_2 m_4^2 \\
 & + 2 p_4 \pi_1 \pi_3 m_1 m_3 m_4^2 + p_1 \pi_2^2 m_1 m_2^2 m_4 - p_1 \pi_2 \pi_4 m_1 m_2 m_4^2 - p_2 \pi_1 \pi_2 m_1 m_2^2 m_4 \\
 & - p_2 \pi_2 \pi_3 m_2^2 m_3 m_4 + p_2 \pi_2 \pi_4 m_2^2 m_4^2 + p_3 \pi_2^2 m_2^2 m_3 m_4 - p_3 \pi_2 \pi_4 m_2 m_3 m_4^2 \\
 & + 2 p_1 \pi_3^2 m_1 m_3^2 m_4 + 2 p_4 \pi_2 \pi_3 m_2 m_3 m_4^2 - p_1 \pi_3 \pi_4 m_1 m_3 m_4^2 + p_2 \pi_3^2 m_2 m_3^2 m_4 \\
 & - p_2 \pi_3 \pi_4 m_2 m_3 m_4^2 - p_3 \pi_2 \pi_3 m_2 m_3^2 m_4 + p_3 \pi_3 \pi_4 m_3^2 m_4^2 \\
 & \left. - p_4 \pi_3^2 m_3^2 m_4^2 \right\}. \tag{30}
 \end{aligned}$$

Using $\pi_3 = \pi_1$ and $\pi_4 = \pi_2$; and $p_3 = p_1$ and $p_4 = p_2$, and also $m_1 = m_2 = m_3 = m_4 = 1$ in (30) we get,

$$\frac{\partial \lambda_1}{\partial p_4} = \frac{1}{|J|} (-3\pi_1^2 + 6\pi_1\pi_2 + \pi_2^2) - \frac{\lambda_1}{|J|} (2p_2\pi_1^2 - p_1\pi_1\pi_2 + p_2\pi_2^2 + 2p_1\pi_1^2). \quad (31)$$

Now using $|J| = |H| = -2p_1p_2\pi_1\pi_2$ from (8), and λ_1 from (9) in (31) we get,

$$\begin{aligned} \frac{\partial \lambda_1}{\partial p_4} &= \frac{3\pi_1^2 - 6\pi_1\pi_2 - \pi_2^2}{2p_1p_2\pi_1\pi_2} \\ &+ \frac{(\pi_2 - \pi_1)(2p_2\pi_1^2 - p_1\pi_1\pi_2 + p_2\pi_2^2 + 2p_1\pi_1^2)}{2p_1p_2\pi_1\pi_2(\pi_2p_1 - \pi_1p_2)} \\ \frac{\partial \lambda_1}{\partial p_4} &= \frac{4p_1\pi_1^2\pi_2 - 6p_1\pi_1\pi_2^2 + 8p_2\pi_1^2\pi_2 - p_1\pi_2^3 - 5p_2\pi_1^2\pi_2 + p_2\pi_2^3 - 2p_1\pi_1^3}{2p_1p_2\pi_1\pi_2(\pi_2p_1 - \pi_1p_2)}, \quad (32) \end{aligned}$$

where $\pi_2p_1 \neq \pi_1p_2$ and $p_1p_2\pi_1\pi_2 > 0$.

Let, $\pi_1 = \pi_2 = \pi$ in (32), and then we get,

$$\frac{\partial \lambda_1}{\partial p_4} = -\frac{5p_1 - 4p_2}{2p_1p_2(p_1 - p_2)}, \quad (33)$$

where $p_1 \neq p_2$.

If $p_1 > p_2$ we have from (33),

$$\frac{\partial \lambda_1}{\partial p_4} < 0. \quad (34)$$

The inequality (34) specifies that if the price p_4 of the product m_4 upsurges, the level of marginal utility will decline. Therefore, if the price of per unit of product m_4 surges \$1.00, the level of purchase will decline exactly λ_1 units. Therefore, product m_4 has some substitutes, such as commodities m_1, m_2, m_3 ; and buyers move to substitutes when price of product m_4 raises [Islam et al., 2010, Mohajan, 2021a].

If $p_1 < p_2$, but $5p_1 > 4p_2$; then we have from (33),

$$\frac{\partial \lambda_1}{\partial p_4} > 0. \tag{35}$$

The inequality (35) shows that if the price p_4 of goods m_4 upsurges, the marginal utility also upsurges. Hence, if the price of per unit of product m_4 increases \$1.00, the level of buying will growth exactly λ_1 units. Therefore, product m_4 is a good of best quality, and it has no substitutes [Mohajan & Mohajan, 2023b]. In this case, commodities m_1 , m_2 , and m_3 seem inferior goods. The organization should try to produce more of good m_4 , and should decrease the production rate of commodities m_1 , m_2 , and m_3 for the sustainability of the organization.

From (33) we have realized that,

$$\frac{\partial \lambda_1}{\partial p_4} \neq 0. \tag{36}$$

Therefore, $5p_1 \neq 4p_2$, and also $p_1 \neq p_2$, i.e., commodities m_1 and m_2 are completely different.

We discuss the properties of λ_2 when unit price p_3 of commodity m_3 rises. Considering T_{23} from (17) we find [Islam et al., 2011; Mohajan et al., 2013],

$$\begin{aligned} \frac{\partial \lambda_2}{\partial p_3} &= \frac{m_3}{|J|} [C_{12}] + \frac{\lambda_1}{|J|} [C_{52}] \\ &= \frac{m_3}{|J|} \text{Cofactor of } C_{12} + \frac{\lambda_1}{|J|} \text{Cofactor of } C_{52} \end{aligned}$$



$$\begin{aligned}
 &= -\frac{m_3}{|J|} \begin{vmatrix} 0 & -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ -B_1 & \Lambda_{11} & \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ -B_2 & \Lambda_{21} & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ -B_3 & \Lambda_{31} & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ -B_4 & \Lambda_{41} & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \\
 &-\frac{\lambda_1}{|J|} \begin{vmatrix} 0 & -B_1 & -B_2 & -B_3 & -B_4 \\ 0 & -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ -B_1 & \Lambda_{11} & \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ -B_2 & \Lambda_{21} & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ -B_4 & \Lambda_{41} & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \\
 &= -\frac{m_3}{|J|} \left\{ \Pi_1 \begin{vmatrix} -B_1 & \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ -B_2 & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ -B_3 & \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ -B_4 & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \right. \\
 &\quad \left. -\Pi_2 \begin{vmatrix} -B_1 & \Lambda_{11} & \Lambda_{13} & \Lambda_{14} \\ -B_2 & \Lambda_{21} & \Lambda_{23} & \Lambda_{24} \\ -B_3 & \Lambda_{31} & \Lambda_{33} & \Lambda_{34} \\ -B_4 & \Lambda_{41} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \right. \\
 &\quad \left. +\Pi_3 \begin{vmatrix} -B_1 & \Lambda_{11} & \Lambda_{12} & \Lambda_{14} \\ -B_2 & \Lambda_{21} & \Lambda_{22} & \Lambda_{24} \\ -B_3 & \Lambda_{31} & \Lambda_{32} & \Lambda_{34} \\ -B_4 & \Lambda_{41} & \Lambda_{42} & \Lambda_{44} \end{vmatrix} \right. \\
 &\quad \left. -\Pi_4 \begin{vmatrix} -B_1 & \Lambda_{11} & \Lambda_{12} & \Lambda_{13} \\ -B_2 & \Lambda_{21} & \Lambda_{22} & \Lambda_{23} \\ -B_3 & \Lambda_{31} & \Lambda_{32} & \Lambda_{33} \\ -B_4 & \Lambda_{41} & \Lambda_{42} & \Lambda_{43} \end{vmatrix} \right\}
 \end{aligned}$$



$$\begin{aligned}
 & -\frac{\lambda_1}{|J|} \left\{ -B_1 \begin{vmatrix} -B_1 & -B_2 & -B_3 & -B_4 \\ -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ \Lambda_{21} & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{41} & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} + B_2 \begin{vmatrix} -B_1 & -B_2 & -B_3 & -B_4 \\ -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ \Lambda_{11} & \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ \Lambda_{41} & \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \right. \\
 & \left. - B_4 \begin{vmatrix} -B_1 & -B_2 & -B_3 & -B_4 \\ -\Pi_1 & -\Pi_2 & -\Pi_3 & -\Pi_4 \\ \Lambda_{11} & \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ \Lambda_{21} & \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \end{vmatrix} \right\} \\
 & = -\frac{m_3}{|J|} \left[\Pi_1 \left\{ -B_1 \begin{vmatrix} \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{32} & \Lambda_{33} & \Lambda_{34} \\ \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} - \Lambda_{12} \begin{vmatrix} -B_2 & \Lambda_{23} & \Lambda_{24} \\ -B_3 & \Lambda_{33} & \Lambda_{34} \\ -B_4 & \Lambda_{43} & \Lambda_{44} \end{vmatrix} + \Lambda_{13} \begin{vmatrix} -B_2 & \Lambda_{22} & \Lambda_{24} \\ -B_3 & \Lambda_{32} & \Lambda_{34} \\ -B_4 & \Lambda_{42} & \Lambda_{44} \end{vmatrix} \right. \right. \\
 & \left. - \Lambda_{14} \begin{vmatrix} -B_2 & \Lambda_{22} & \Lambda_{23} \\ -B_3 & \Lambda_{32} & \Lambda_{33} \\ -B_4 & \Lambda_{42} & \Lambda_{43} \end{vmatrix} \right\} - \Pi_2 \left\{ -B_1 \begin{vmatrix} \Lambda_{21} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{31} & \Lambda_{33} & \Lambda_{34} \\ \Lambda_{41} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} + \Lambda_{13} \begin{vmatrix} -B_2 & \Lambda_{21} & \Lambda_{24} \\ -B_3 & \Lambda_{31} & \Lambda_{34} \\ -B_4 & \Lambda_{41} & \Lambda_{44} \end{vmatrix} \right. \\
 & \left. - \Lambda_{14} \begin{vmatrix} -B_2 & \Lambda_{21} & \Lambda_{23} \\ -B_3 & \Lambda_{31} & \Lambda_{33} \\ -B_4 & \Lambda_{41} & \Lambda_{43} \end{vmatrix} \right\} + \Pi_3 \left\{ -B_1 \begin{vmatrix} \Lambda_{21} & \Lambda_{22} & \Lambda_{24} \\ \Lambda_{31} & \Lambda_{32} & \Lambda_{34} \\ \Lambda_{41} & \Lambda_{42} & \Lambda_{44} \end{vmatrix} + \Lambda_{12} \begin{vmatrix} -B_2 & \Lambda_{21} & \Lambda_{24} \\ -B_3 & \Lambda_{31} & \Lambda_{34} \\ -B_4 & \Lambda_{41} & \Lambda_{44} \end{vmatrix} \right. \\
 & \left. - \Lambda_{14} \begin{vmatrix} -B_2 & \Lambda_{21} & \Lambda_{22} \\ -B_3 & \Lambda_{31} & \Lambda_{32} \\ -B_4 & \Lambda_{41} & \Lambda_{42} \end{vmatrix} \right\} - \Pi_4 \left\{ -B_1 \begin{vmatrix} \Lambda_{21} & \Lambda_{22} & \Lambda_{23} \\ \Lambda_{31} & \Lambda_{32} & \Lambda_{33} \\ \Lambda_{41} & \Lambda_{42} & \Lambda_{43} \end{vmatrix} + \Lambda_{12} \begin{vmatrix} -B_2 & \Lambda_{21} & \Lambda_{23} \\ -B_3 & \Lambda_{31} & \Lambda_{33} \\ -B_4 & \Lambda_{41} & \Lambda_{43} \end{vmatrix} \right. \\
 & \left. - \Lambda_{13} \begin{vmatrix} -B_2 & \Lambda_{21} & \Lambda_{22} \\ -B_3 & \Lambda_{31} & \Lambda_{32} \\ -B_4 & \Lambda_{41} & \Lambda_{42} \end{vmatrix} \right\} - \frac{\lambda_1}{|J|} \left[-B_1 \begin{vmatrix} -\Pi_2 & -\Pi_3 & -\Pi_4 \\ \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} + B_2 \begin{vmatrix} -\Pi_1 & -\Pi_3 & -\Pi_4 \\ \Lambda_{21} & \Lambda_{23} & \Lambda_{24} \\ \Lambda_{41} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \right]
 \end{aligned}$$



$$\begin{aligned}
 & -B_3 \begin{vmatrix} -\Pi_1 & -\Pi_2 & -\Pi_4 \\ \Lambda_{21} & \Lambda_{22} & \Lambda_{24} \\ \Lambda_{41} & \Lambda_{42} & \Lambda_{44} \end{vmatrix} + B_4 \begin{vmatrix} -\Pi_1 & -\Pi_2 & -\Pi_3 \\ \Lambda_{21} & \Lambda_{22} & \Lambda_{23} \\ \Lambda_{41} & \Lambda_{42} & \Lambda_{43} \end{vmatrix} \left. \vphantom{\begin{vmatrix} -\Pi_1 & -\Pi_2 & -\Pi_4 \\ \Lambda_{21} & \Lambda_{22} & \Lambda_{24} \\ \Lambda_{41} & \Lambda_{42} & \Lambda_{44} \end{vmatrix}} \right\} + B_2 \left\{ -B_1 \begin{vmatrix} -\Pi_2 & -\Pi_3 & -\Pi_4 \\ \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ \Lambda_{42} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} \right. \\
 & + B_2 \begin{vmatrix} -\Pi_1 & -\Pi_3 & -\Pi_4 \\ \Lambda_{11} & \Lambda_{13} & \Lambda_{14} \\ \Lambda_{41} & \Lambda_{43} & \Lambda_{44} \end{vmatrix} - B_3 \begin{vmatrix} -\Pi_1 & -\Pi_2 & -\Pi_4 \\ \Lambda_{11} & \Lambda_{12} & \Lambda_{14} \\ \Lambda_{41} & \Lambda_{42} & \Lambda_{44} \end{vmatrix} + B_4 \begin{vmatrix} -\Pi_1 & -\Pi_2 & -\Pi_3 \\ \Lambda_{11} & \Lambda_{12} & \Lambda_{13} \\ \Lambda_{41} & \Lambda_{42} & \Lambda_{43} \end{vmatrix} \left. \vphantom{\begin{vmatrix} -\Pi_1 & -\Pi_2 & -\Pi_4 \\ \Lambda_{11} & \Lambda_{13} & \Lambda_{14} \\ \Lambda_{41} & \Lambda_{43} & \Lambda_{44} \end{vmatrix}} \right\} \\
 & - B_4 \left\{ -B_1 \begin{vmatrix} -\Pi_2 & -\Pi_3 & -\Pi_4 \\ \Lambda_{12} & \Lambda_{13} & \Lambda_{14} \\ \Lambda_{22} & \Lambda_{23} & \Lambda_{24} \end{vmatrix} + B_2 \begin{vmatrix} -\Pi_1 & -\Pi_3 & -\Pi_4 \\ \Lambda_{11} & \Lambda_{13} & \Lambda_{14} \\ \Lambda_{21} & \Lambda_{23} & \Lambda_{24} \end{vmatrix} - B_3 \begin{vmatrix} -\Pi_1 & -\Pi_2 & -\Pi_4 \\ \Lambda_{11} & \Lambda_{12} & \Lambda_{14} \\ \Lambda_{21} & \Lambda_{22} & \Lambda_{24} \end{vmatrix} \right. \\
 & \left. + B_4 \begin{vmatrix} -\Pi_1 & -\Pi_2 & -\Pi_3 \\ \Lambda_{11} & \Lambda_{12} & \Lambda_{13} \\ \Lambda_{21} & \Lambda_{22} & \Lambda_{23} \end{vmatrix} \right\} \\
 & = -\frac{m_3}{|J|} \left\{ -B_1 \Pi_1 \Lambda_{23} \Lambda_{24} \Lambda_{34} - B_1 \Pi_1 \Lambda_{23} \Lambda_{24} \Lambda_{34} - B_2 \Pi_1 \Lambda_{12} \Lambda_{34}^2 + B_4 \Pi_1 \Lambda_{12} \Lambda_{23} \Lambda_{34} \right. \\
 & + B_3 \Pi_1 \Lambda_{12} \Lambda_{24} \Lambda_{34} + B_2 \Pi_1 \Lambda_{13} \Lambda_{24} \Lambda_{34} - B_3 \Pi_1 \Lambda_{13} \Lambda_{24}^2 + B_4 \Pi_1 \Lambda_{13} \Lambda_{23} \Lambda_{24} \\
 & - B_2 \Pi_1 \Lambda_{14} \Lambda_{23} \Lambda_{34} + B_3 \Pi_1 \Lambda_{14} \Lambda_{23} \Lambda_{24} - B_4 \Pi_1 \Lambda_{14} \Lambda_{23}^2 - B_1 \Pi_2 \Lambda_{12} \Lambda_{34}^2 \\
 & - B_1 \Pi_2 \Lambda_{14} \Lambda_{23} \Lambda_{34} - B_1 \Pi_2 \Lambda_{13} \Lambda_{24} \Lambda_{34} - B_2 \Pi_2 \Lambda_{13} \Lambda_{14} \Lambda_{34} + B_4 \Pi_2 \Lambda_{12} \Lambda_{13} \Lambda_{34} \\
 & - B_4 \Pi_2 \Lambda_{13}^2 \Lambda_{24} + B_4 \Pi_2 \Lambda_{13} \Lambda_{14} \Lambda_{24} - B_2 \Pi_2 \Lambda_{13} \Lambda_{14} \Lambda_{34} + B_3 \Pi_2 \Lambda_{12} \Lambda_{14} \Lambda_{34} \\
 & - B_3 \Pi_2 \Lambda_{14}^2 \Lambda_{23} + B_4 \Pi_2 \Lambda_{13} \Lambda_{14} \Lambda_{23} + B_1 \Pi_3 \Lambda_{12} \Lambda_{24} \Lambda_{34} - B_1 \Pi_3 \Lambda_{13} \Lambda_{24}^2 \\
 & + B_1 \Pi_3 \Lambda_{14} \Lambda_{23} \Lambda_{24} + B_2 \Pi_3 \Lambda_{12} \Lambda_{14} \Lambda_{34} - B_4 \Pi_3 \Lambda_{12}^2 \Lambda_{34} - B_3 \Pi_3 \Lambda_{12} \Lambda_{14} \Lambda_{24} \\
 & + B_4 \Pi_3 \Lambda_{12} \Lambda_{13} \Lambda_{24} + B_2 \Pi_3 \Lambda_{13} \Lambda_{14} \Lambda_{24} - B_2 \Pi_3 \Lambda_{14}^2 \Lambda_{23} - B_3 \Pi_3 \Lambda_{12} \Lambda_{14} \Lambda_{24} \\
 & + B_4 \Pi_3 \Lambda_{12} \Lambda_{14} \Lambda_{23} + B_1 \Pi_4 \Lambda_{12} \Lambda_{23} \Lambda_{34} + B_1 \Pi_4 \Lambda_{13} \Lambda_{23} \Lambda_{24} - B_1 \Pi_4 \Lambda_{14} \Lambda_{23}^2 \\
 & + B_2 \Pi_4 \Lambda_{12} \Lambda_{13} \Lambda_{34} - B_3 \Pi_4 \Lambda_{12}^2 \Lambda_{34} + B_3 \Pi_4 \Lambda_{12} \Lambda_{14} \Lambda_{23} - B_4 \Pi_4 \Lambda_{12} \Lambda_{13} \Lambda_{23} \\
 & \left. - B_2 \Pi_4 \Lambda_{13}^2 \Lambda_{24} + B_2 \Pi_4 \Lambda_{13} \Lambda_{14} \Lambda_{23} + B_3 \Pi_4 \Lambda_{12} \Lambda_{13} \Lambda_{24} - B_4 \Pi_4 \Lambda_{12} \Lambda_{13} \Lambda_{23} \right\}
 \end{aligned}$$



$$\begin{aligned}
 & -\frac{\lambda_1}{|J|} \left\{ B_1^2 \Pi_2 \Lambda_{24} \Lambda_{34} - B_1^2 \Pi_3 \Lambda_{24}^2 + B_1^2 \Pi_4 \Lambda_{23} \Lambda_{24} - B_1 B_2 \Pi_1 \Lambda_{24} \Lambda_{34} + B_1 B_2 \Pi_3 \Lambda_{14} \Lambda_{24} \right. \\
 & + B_1 B_2 \Pi_4 \Lambda_{12} \Lambda_{34} - B_1 B_2 \Pi_4 \Lambda_{14} \Lambda_{23} + B_1 B_3 \Pi_1 \Lambda_{24}^2 - B_1 B_3 \Pi_2 \Lambda_{14} \Lambda_{24} \\
 & + B_1 B_3 \Pi_4 \Lambda_{12} \Lambda_{24} - B_1 B_4 \Pi_1 \Lambda_{23} \Lambda_{24} - B_1 B_4 \Pi_2 \Lambda_{12} \Lambda_{34} + B_1 B_4 \Pi_2 \Lambda_{14} \Lambda_{23} \\
 & + B_1 B_4 \Pi_3 \Lambda_{12} \Lambda_{24} - B_1 B_2 \Pi_2 \Lambda_{14} \Lambda_{34} + B_1 B_3 \Pi_3 \Lambda_{14} \Lambda_{24} + B_1 B_2 \Pi_4 \Lambda_{12} \Lambda_{34} \\
 & - B_1 B_2 \Pi_4 \Lambda_{13} \Lambda_{24} + B_2^2 \Pi_1 \Lambda_{14} \Lambda_{34} - B_2^2 \Pi_3 \Lambda_{14}^2 + B_2^2 \Pi_4 \Lambda_{13} \Lambda_{14} - B_2 B_3 \Pi_1 \Lambda_{14} \Lambda_{24} \\
 & + B_2 B_3 \Pi_2 \Lambda_{14}^2 - B_2 B_3 \Pi_4 \Lambda_{12} \Lambda_{14} - B_2 B_4 \Pi_1 \Lambda_{12} \Lambda_{34} + B_2 B_4 \Pi_1 \Lambda_{13} \Lambda_{24} \\
 & - B_2 B_4 \Pi_2 \Lambda_{13} \Lambda_{14} + B_2 B_4 \Pi_3 \Lambda_{12} \Lambda_{14} - B_1 B_4 \Pi_2 \Lambda_{13} \Lambda_{24} + B_1 B_4 \Pi_2 \Lambda_{14} \Lambda_{23} \\
 & + B_1 B_4 \Pi_3 \Lambda_{12} \Lambda_{24} - B_1 B_4 \Pi_4 \Lambda_{12} \Lambda_{23} + B_2 B_4 \Pi_1 \Lambda_{13} \Lambda_{24} - B_2 B_4 \Pi_1 \Lambda_{14} \Lambda_{23} \\
 & + B_2 B_4 \Pi_3 \Lambda_{12} \Lambda_{14} - B_2 B_4 \Pi_4 \Lambda_{12} \Lambda_{13} - B_3 B_4 \Pi_1 \Lambda_{12} \Lambda_{24} - B_3 B_4 \Pi_2 \Lambda_{12} \Lambda_{14} \\
 & \left. + B_3 B_4 \Pi_4 \Lambda_{12}^2 - B_4^2 \Pi_1 \Lambda_{12} \Lambda_{23} - B_4^2 \Pi_2 \Lambda_{12} \Lambda_{13} + B_4^2 \Pi_2 \Lambda_{12}^2 \right\} \\
 & \frac{\partial \lambda_2}{\partial p_3} = -\frac{m_3}{|J|} \left\{ -2 p_1 \pi_1 m_1^3 m_2 m_3 m_4 - p_2 \pi_1 m_1^2 m_2^2 m_3 m_4 + p_4 \pi_1 m_1^2 m_2 m_3 m_4^2 \right. \\
 & + p_3 \pi_1 m_1^2 m_2 m_3^2 m_4 + p_2 \pi_1 m_1^2 m_2^2 m_3 m_4 - p_3 \pi_1 m_1^2 m_2 m_3^2 m_4 + p_4 \pi_1 m_1^2 m_2 m_3 m_4^2 \\
 & - p_2 \pi_1 m_1^2 m_2^2 m_3 m_4 - p_3 \pi_1 m_1^2 m_2 m_3^2 m_4 - p_4 \pi_1 m_1^2 m_2 m_3 m_4^2 - p_1 \pi_2 m_1^2 m_2^2 m_3 m_4 \\
 & - p_1 \pi_2 m_1^2 m_2^2 m_3 m_4 - p_1 \pi_2 m_1^2 m_2^2 m_3 m_4 - p_2 \pi_2 m_1 m_2^3 m_3 m_4 + p_4 \pi_2 m_1 m_2^2 m_3 m_4^2 \\
 & - p_4 \pi_2 m_1 m_2^2 m_3 m_4^2 + p_4 \pi_2 m_1 m_2^2 m_3^2 m_4 - p_2 \pi_2 m_1 m_2^3 m_3 m_4 + p_3 \pi_2 m_1 m_2^2 m_3^2 m_4 \\
 & - p_3 \pi_2 m_1 m_2^2 m_3^2 m_4 + p_4 \pi_2 m_1 m_2^2 m_3 m_4^2 + p_1 \pi_3 m_1^2 m_2 m_3^2 m_4 - p_1 \pi_3 m_1^2 m_2 m_3^2 m_4 \\
 & + p_1 \pi_3 m_1^2 m_2 m_3^2 m_4 - p_2 \pi_3 m_1 m_2^2 m_3^2 m_4 - p_4 \pi_3 m_1 m_2 m_3^2 m_4^2 - p_3 \pi_3 m_1 m_2 m_3^3 m_4 \\
 & + p_4 \pi_3 m_1 m_2 m_3^2 m_4^2 + p_2 \pi_3 m_1 m_2^2 m_3^2 m_4 - p_2 \pi_3 m_1 m_2^2 m_3^2 m_4 - p_3 \pi_3 m_1 m_2 m_3^3 m_4 \\
 & + p_4 \pi_3 m_1 m_2 m_3^2 m_4^2 + p_1 \pi_4 m_1^2 m_2 m_3 m_4^2 - p_1 \pi_4 m_1^2 m_2 m_3 m_4^2 \\
 & + p_2 \pi_4 m_1 m_2^2 m_3 m_4^2 - p_3 \pi_4 m_1 m_2 m_3^2 m_4^2 + p_3 \pi_4 m_1 m_2 m_3^2 m_4^2 - p_4 \pi_4 m_1 m_2 m_3 m_4^3 \\
 & - p_4 \pi_2 m_1 m_2^2 m_3 m_4^2 - p_2 \pi_4 m_1 m_2^2 m_3 m_4^2 + p_2 \pi_4 m_1 m_2^2 m_3 m_4^2 + p_3 \pi_4 m_1 m_2 m_3^2 m_4^2 \\
 & \left. - p_4 \pi_4 m_1 m_2 m_3 m_4^3 \right\} - \frac{\lambda_1}{|J|} \left\{ p_1^2 \pi_2 m_1^2 m_2 m_3 - p_1^2 \pi_3 m_1^2 m_3^2 + p_1^2 \pi_4 m_1^2 m_3 m_4 \right\}
 \end{aligned}$$

$$\begin{aligned}
 & - p_1 p_2 \pi_1 m_1^2 m_2 m_3 + p_1 p_2 \pi_3 m_1 m_2 m_3^2 + p_1 p_2 \pi_4 m_1 m_2 m_3 m_4 - p_1 p_2 \pi_4 m_1 m_2 m_3 m_4 \\
 & + p_1 p_3 \pi_1 m_1^2 m_3^2 - p_1 p_3 \pi_2 m_1 m_2 m_3^2 + p_1 p_3 \pi_4 m_1 m_3^2 m_4 - p_1 p_4 \pi_1 m_1^2 m_3 m_4 \\
 & - p_1 p_4 \pi_2 m_1 m_2 m_3 m_4 + p_1 p_4 \pi_2 m_1 m_2 m_3 m_4 + p_1 p_4 \pi_3 m_1 m_3^2 m_4 - p_1 p_2 \pi_2 m_1 m_2^2 m_3 \\
 & + p_1 p_3 \pi_3 m_1 m_2 m_3^2 + p_1 p_2 \pi_4 m_1 m_2 m_3 m_4 - p_1 p_2 \pi_4 m_1 m_2 m_3 m_4 + p_2^2 \pi_1 m_1 m_2^2 m_3 \\
 & - p_2^2 \pi_3 m_2^2 m_3^2 + p_2^2 \pi_4 m_2^2 m_3 m_4 + p_2 p_3 \pi_2 m_2^2 m_3^2 - p_2 p_3 \pi_4 m_2 m_3^2 m_4 \\
 & - p_2 p_4 \pi_1 m_1 m_2 m_3 m_4 + p_2 p_4 \pi_1 m_1 m_2 m_3 m_4 - p_2 p_4 \pi_2 m_2^2 m_3 m_4 + p_2 p_4 \pi_3 m_2 m_3^2 m_4 \\
 & - p_1 p_4 \pi_2 m_1 m_2 m_3 m_4 + p_1 p_4 \pi_2 m_1 m_2 m_3 m_4 + p_1 p_4 \pi_3 m_1 m_3^2 m_4 - p_1 p_4 \pi_4 m_1 m_3 m_4^2 \\
 & + p_2 p_4 \pi_1 m_1 m_2 m_3 m_4 - p_2 p_4 \pi_1 m_1 m_2 m_3 m_4 + p_2 p_4 \pi_3 m_2 m_3^2 m_4 - p_2 p_4 \pi_4 m_2 m_3 m_4^2 \\
 & - p_3 p_4 \pi_1 m_1 m_3^2 m_4 - p_3 p_4 \pi_2 m_2 m_3^2 m_4 + p_3 p_4 \pi_4 m_2 m_3^2 m_4^2 - p_4^2 \pi_1 m_1 m_3 m_4^2 \\
 & - p_4^2 \pi_2 m_2 m_3 m_4^2 \\
 & + p_4^2 \pi_2 m_3^2 m_4^2 \}. \tag{37}
 \end{aligned}$$

Using $\pi_3 = \pi_1$ and $\pi_4 = \pi_2$; and $p_3 = p_1$ and $p_4 = p_2$; and also $m_3 = m_1$ and $m_4 = m_2$ in (37) we get,

$$\begin{aligned}
 \frac{\partial \lambda_2}{\partial p_3} &= - \frac{m_1}{|J|} \{ -4 p_1 \pi_1 m_1^4 m_2^2 - p_1 \pi_2 m_1^3 m_2^3 + p_2 \pi_2 m_1^3 m_2^3 - 3 p_2 \pi_2 m_1^2 m_2^4 \} \\
 & - \frac{\lambda_1}{|J|} \{ 2 p_1^2 \pi_2 m_1^3 m_2 + p_1 p_2 \pi_1 m_1^3 m_2 + p_1^2 \pi_1 m_1^3 m_2 - 2 p_1 p_2 \pi_2 m_1^2 m_2^2 - p_1 p_2 \pi_1 m_1 m_2^3 \\
 & - p_2^2 \pi_2 m_1 m_2^3 \\
 & + p_2^2 \pi_2 m_1^2 m_2^2 \}. \tag{38}
 \end{aligned}$$

From (20) using value of λ_1 , and also using $|J| = |H| = -2 p_1 p_2 \pi_1 \pi_2$ from (8), and considering $m_1 = m_2 = m_3 = m_4 = 1$ in (38) we get,

$$\begin{aligned}
 \frac{\partial \lambda_2}{\partial p_3} &= \frac{5 p_1 \pi_1 + 2 p_2 \pi_2}{2 p_1 p_2 \pi_1 \pi_2} + \frac{(\pi_2 - \pi_1)(2 p_1^2 \pi_2 - 2 p_1 p_2 \pi_2 + p_1^2 \pi_1)}{2 p_1 p_2 \pi_1 \pi_2 (\pi_2 p_1 - \pi_1 p_2)} \\
 \frac{\partial \lambda_2}{\partial p_3} &= \frac{4 p_1^2 \pi_1 \pi_2 + 2 p_1 p_2 \pi_1 \pi_2 + 2 p_1^2 \pi_2^2 - p_1^2 \pi_1^2 - 5 p_1 p_2 \pi_1^2 - 2 p_2^2 \pi_1 \pi_2}{2 p_1 p_2 \pi_1 \pi_2 (\pi_2 p_1 - \pi_1 p_2)} \tag{39}
 \end{aligned}$$

where $\pi_2 p_1 \neq \pi_1 p_2$ and $2 p_1 p_2 \pi_1 \pi_2 > 0$.

Let us consider $\pi_1 = \pi_2 = \pi$ in (39) then we obtain,

$$\frac{\partial \lambda_2}{\partial p_3} = \frac{5 p_1 + 2 p_2}{2 p_1 p_2 \pi} > 0. \quad (40)$$

The inequality (40) informs that if the price p_3 of the goods m_3 upsurges, marginal utility also raises. Therefore, if the price of per unit of product m_3 surges \$1.00, the level of buying will upsurge exactly λ_2 units and the organization should surge the production of product m_3 to achieve maximum profit [Mohajan, 2022].

6. Conclusions

In this paper we studies economic predictions among Lagrange multipliers and unit commodity prices for utility maximization. In the article we used a pair of constraints. We have understood that the Lagrange multipliers method is a very useful and powerful both for the consumers and producers. In the article we have worked with 16 variables and consequently, we were flexible in some cases. In the sensitivity analysis we have tried with various commodity prices and have tried our best to provide accurate prediction. We believe that future researchers can contribute more efforts in this field to enrich the mathematical economic research area.

References

- [1] Baxley, J. V., & Moorhouse, J. C. (1984). Lagrange Multiplier Problems in Economics. *The American Mathematical Monthly*, 91(7), 404-412. <https://doi.org/10.1080/00029890.1984.11971446>
- [2] Bentham, J. (1780). *An Introduction to the Principles of Morals and Legislation*. CreateSpace Independent Publishing Platform.
- [3] Cobb, C. W., & Douglass, P. H. (1928). A Theory of Production. *American Economics Review*, 18(1), 139-165. <https://www.aeaweb.org/aer/top20/18.1.139-165.pdf>
- [4] Ferdous, J., & Mohajan, H. K. (2022). Maximum Profit Ensured for Industry Sustainability. *Annals of Spiru Haret University. Economic Series*, 22(3), 317-337. <https://doi.org/10.26458/22315>
- [5] Fishburn, P. C. (1970). *Utility Theory for Decision Making*. Huntington, NY: Robert E. Krieger. <https://doi.org/10.1017/CBO9780511611308.002>

- [6] Gauthier, D. (1975). Reason and Maximization. *Canadian Journal of Philosophy*, 4(3), 411-433. <https://doi.org/10.1080/00455091.1975.10716949>
- [7] Islam, J. N., Mohajan, H. K., & Moolio, P. (2009a). Preference of Social Choice in Mathematical Economics. *Indus Journal of Management & Social Sciences*, 3(1), 17-38.
- [8] Islam, J. N., Mohajan, H. K., & Moolio, P. (2009b). Political Economy and Social Welfare with Voting Procedure. *KASBIT Business Journal*, 2(1), 42-66.
- [9] Islam, J. N., Mohajan, H. K., & Moolio, P. (2010). Utility Maximization Subject to Multiple Constraints. *Indus Journal of Management & Social Sciences*, 4(1), 15-29.
- [10] Islam, J. N., Mohajan, H. K., & Moolio, P. (2011). Output Maximization Subject to a Nonlinear Constraint. *KASBIT Business Journal*, 4(1), 116-128.
- [11] Kirsh, Y. (2017). Utility and Happiness in a Prosperous Society. Working Paper Series, No. 37-2017, *Institute for Policy Analysis*, The Open University of Israel. : <https://ssrn.com/abstract=2947650>
- [12] Kothari, C. R. (2008). *Research Methodology: Methods and Techniques* (2nd Ed.). New Delhi: New Age International (P) Ltd.
- [13] Legesse, B. (2014). *Research Methods in Agribusiness and Value Chains*. School of Agricultural Economics and Agribusiness, Haramaya University.
- [14] Mohajan, D., & Mohajan, H. K. (2022a). Profit Maximization Strategy in an Industry: A Sustainable Procedure. *Law and Economy*, 1(3), 17-43. <https://doi:10.56397/LE.2022.10.02>
- [15] Mohajan, D., & Mohajan, H. K. (2022b). Utility Maximization Analysis of an Emerging Firm: A Bordered Hessian Approach. *Annals of Spiru Haret University. Economic Series*, 22(4), 292-308. <https://doi.org/10.26458/22415>
- [16] Mohajan, D. & Mohajan, H. K. (2022c). Sensitivity Analysis among Commodities and Coupons during Utility Maximization. *Frontiers in Management Science*, 1(3), 13-28. <https://doi:10.56397/FMS.2022.12.02>
- [17] Mohajan, D., & Mohajan, H. K. (2022d). Importance of Total Coupon in Utility Maximization: A Sensitivity Analysis. *Law and Economy*, 1(5), 65-67. <https://doi:10.56397/LE.2022.12.08>
- [18] Mohajan, D., & Mohajan, H. K. (2023a). Sensitivity Analysis among Commodities and Prices: Utility Maximization Perceptions. *Law and Economy*, 2(2), 1-16. <https://doi:10.56397/LE.2023.02.01>
- [19] Mohajan, D., & Mohajan, H. K. (2023b). Utility Maximization Analysis of an Organization: A Mathematical Economic Procedure. *Law and Economy*, 2(1), 1-15. <https://doi:10.56397/LE.2023.01.01>
- [20] Mohajan, D., & Mohajan, H. K. (2023c). Sensitivity Analysis for Profit Maximization with Respect to Per Unit Cost of Subsidiary Raw Materials. *Frontiers in Management Science*, 2(2), 13-27. <https://doi:10.56397/FMS.2023.04.02>

- [21] Mohajan, D., & Mohajan, H. K. (2023d). Sensitivity Analysis between Commodity and Budget: Utility Maximization Case. *Law and Economy*, 2(3), 10-21. <https://doi.10.56397/LE.2023.03.03>
- [22] Mohajan, D., & Mohajan, H. K. (2023e). Sensitivity Analysis between Lagrange Multipliers and Consumer Coupon: Utility Maximization Perspective. *Frontiers in Management Science*, 2(1), 14-25. <https://doi:10.56397/FMS.2023.02.03>
- [23] Mohajan, D., & Mohajan, H. K. (2023f). Various Problems Arise in Industrial Economics if Wage Rate Increases: A Study for Nonlinear Budget Constraint. *Law and Economy*, 2(6), 1-19.
- [24] Mohajan, D., & Mohajan, H. K. (2023g). Economic Aspects of Profit Maximization if Cost of Principal Raw Material Increases. *Frontiers in Management Science*, 2(3), 28-42.
- [25] Mohajan, D., & Mohajan, H. K. (2023h). Mathematical Model for Nonlinear Budget Constraint: Economic Activities on Increased Budget. *Studies in Social Science & Humanities*, 2(5), 20-40.
- [26] Mohajan, D., & Mohajan, H. K. (2023i). A Study on Nonlinear Budget Constraint of a Local Industrial Firm of Bangladesh: A Profit Maximization Investigation. *Law and Economy*, 2(5), 27-33.
- [27] Mohajan, D., & Mohajan, H. K. (2023j). Sensitivity Analysis of Inputs of an Organization: A Profit Maximization Exploration. *Law and Economy*, 2(4), 32-48.
- [28] Mohajan, D., & Mohajan, H. K. (2023k). Economic Situations of Lagrange Multiplier When Costs of Various Inputs Increase for Nonlinear Budget Constraint. *Studies in Social Science & Humanities*, 2(4), 40-64.
- [29] Mohajan, D., & Mohajan, H. K. (2023l). Sensitivity Analysis between Lagrange Multipliers and Consumer Budget: Utility Maximization Case. *Annals of Spiru Haret University. Economic Series*, 23(1), 167-185.
- [30] Mohajan, D., & Mohajan, H. K. (2023m). Sensitivity Analysis for Utility Maximization: A Study on Lagrange Multipliers and Commodity Coupons. *Journal of Economic Development, Environment, and People*, 12(1), 25-40.
- [31] Mohajan, D., & Mohajan, H. K. (2023n). Economic Investigation of Lagrange Multiplier if Cost of Inputs and Budget Size of a Firm Increase: A Profit Maximization Endeavor. *Annals of Spiru Haret University. Economic Series*, 23(2), 340-364.
- [32] Mohajan, D., & Mohajan, H. K. (2023o). Effects of Various Inputs for Increased Interest Rate of Capital: A Nonlinear Budget Constraint Consideration. *Frontiers in Management Science*, 2(4), 15-33.
- [33] Mohajan, H. K. (2012a). Aspects of Green Marketing: A Prospect for Bangladesh. *International Journal of Economics and Research*, 3(3), 1-11.
- [34] Mohajan, H. K. (2012b). Valuing Health Impacts of the Workers in Bangladesh Due to Air Pollution. *International Journal of Economics and Research*, 3(1), 123-132.

- [35] Mohajan, H. K. (2012c). The Lease Financing in Bangladesh: A Satisfied Progress in Business and Industrialization. *International Journal of Finance and Policy Analysis*, 4(1), 9-24.
- [36] Mohajan, H. K. (2013a). Economic Development of Bangladesh. *Journal of Business Management and Administration*, 1(4), 41-48.
- [37] Mohajan, H. K. (2013b). Ethiopia: A Socio-economic Study. *Journal of Business Management and Administration*, 1(5), 59-74.
- [38] Mohajan, H. K. (2013c). *Net National Product and Sustainability*. Lambert Academic Publishing, Germany.
- [39] Mohajan, H. K. (2014). *An Introduction to Business*. Open Science Book Publishing, The USA.
- [40] Mohajan, H. K. (2017a). Optimization Models in Mathematical Economics. *Journal of Scientific Achievements*, 2(5), 30-42.
- [41] Mohajan, H. K. (2017b). Two Criteria for Good Measurements in Research: Validity and Reliability. *Annals of Spiru Haret University. Economic Series*, 17(3), 58-82. <https://doi.org/10.26458/1746>
- [42] Mohajan, H. K. (2018a). *Aspects of Mathematical Economics, Social Choice and Game Theory*. PhD Dissertation. University of Chittagong, Chittagong, Bangladesh.
- [43] Mohajan, H. K. (2018b). Qualitative Research Methodology in Social Sciences and Related Subjects. *Journal of Economic Development, Environment and People*, 7(1), 23-48. <https://doi.org/10.26458/jedep.v7i1.571>
- [44] Mohajan, H. K. (2020). Quantitative Research: A Successful Investigation in Natural and Social Sciences. *Journal of Economic Development, Environment and People*, 9(4), 52-79. <http://dx.doi.org/10.26458/jedep.v9i4.679>
- [45] Mohajan, H. K. (2021a). Utility Maximization of Bangladeshi Consumers within Their Budget: A Mathematical Procedure. *Journal of Economic Development, Environment and People*, 10(3), 60-85. <http://dx.doi.org/10.26458/jedep.v10i3.704>
- [46] Mohajan, H. K. (2021b). Product Maximization Techniques of a Factory of Bangladesh: A Sustainable Procedure. *American Journal of Economics, Finance and Management*, 5(2), 23-44.
- [47] Mohajan, H. K. (2021c). Estimation of Cost Minimization of Garments Sector by Cobb-Dougllass Production Function: Bangladesh Perspective. *Annals of Spiru Haret University. Economic Series*, 21(2), 267-299. <https://doi.org/10.26458/21212>
- [48] Mohajan, H. K. (2021d). Circular Economy in China: Towards the Progress. *International Journal of Economics and Business Administration*, 7(3), 89-96.
- [49] Mohajan, H. K. (2021e). Germany is Ahead to Implement Sustainable Circular Economy. *Journal of Economic Development, Environment and People*, 10(2), 46-64.

- [50] Mohajan, H. K. (2021f). Cradle to Cradle is a Sustainable Economic Policy for the Better Future. *Annals of Spiru Haret University Economic Series*, 21(4), 569-582.
- [51] Mohajan, H. K. (2022). Cost Minimization Analysis of a Running Firm with Economic Policy. *Annals of Spiru Haret University. Economic Series*, 22(3), 171-181. <https://doi.org/10.26458/22318>
- [52] Mohajan, H. K., & Datta, R. (2012). *Capital Budgeting for Foreign Direct Investment: Bangladesh Overview*. Lambert Academic Publishing, Germany.
- [53] Mohajan, H. K., Islam, J. N., & Moolio, P. (2013). *Optimization and Social Welfare in Economics*. Lambert Academic Publishing, Germany.
- [54] Moolio, P., Islam, J. N., & Mohajan, H. K. (2009). Output Maximization of an Agency. *Indus Journal of Management and Social Sciences*, 3(1), 39-51.
- [55] Pandey, P., & Pandey, M. M. (2015). *Research Methodology: Tools and Techniques*. Bridge Center, Romania, European Union.
- [56] Pandi, S. N, Torsen, E., Martins, D., & Modibbo, U. M. (2022). Application of the Techniques of Determinants to the Utility Maximization for a 4-Period Age-specific Inter-temporal Budget Constraints: Determinants to the Utility Maximization. *Journal of Computational and Cognitive Engineering*. <https://doi.org/10.47852/bonviewJCCE2202353>
- [57] Polit, D. F., & Hungler, B. P. (2013). *Essentials of Nursing Research: Methods, Appraisal, and Utilization* (8th Ed.). Philadelphia: Wolters Kluwer/Lippincott Williams and Wilkins. <https://doi.10.7748/nr.13.4.91.s11>
- [58] Read, D. (2004). Utility Theory from Jeremy Bentham to Daniel Kahneman. *Working Paper No. LSEOR 04-64*, London School of Economics and Political Science. <http://eprints.lse.ac.uk/id/eprint/22750>
- [59] Roy, L., Molla, R., & Mohajan, H. K. (2021). Cost Minimization is Essential for the Sustainable Development of an Industry: A Mathematical Economic Model Approach. *Annals of Spiru Haret University. Economic Series*, 21(1), 37-69. <https://doi.org/10.26458/2112>
- [60] Samuelson, P. A. (1947). *Foundations of Economic Analysis*. Harvard University Press, Cambridge, MA.
- [61] Zheng, K., & Liu, Y. (2022). Application of Mathematical Models in Economic Variable Input and Output Models under the Scientific Visualization. *Computational Intelligence and Neuroscience*. Article ID 6269358. <https://doi.org/10.1155/2022/6269358>

ANALYSIS OF ECOWAS QUEST FOR REGIME SURVIVAL VERSUS REPUBLIC OF NIGER: ECONOMIC AND POLITICAL IMPLICATIONS

Etim O. FRANK¹, Wilfred I. UKPERE²

¹*Dept of Political Science & Public Administration, University of Uyo, Akwa Ibom State*

Nigeria, Tel: +2348033805713

Email: okonfetim@uniuyo.edu.ng

²*Department of Industrial Psychology and People Management, School of Management, College of Business Economics, University of Johannesburg, Auckland Park Kingsway Campus, Corner Kingsway & University Road, PO Box 524, Auckland Park, 2006, South Africa, Tel: +27115592069 Email: wiukpere@uj.ac.za*

How to cite: Frank, E.O & Ukpere W.I. (2024). "Analysis of ECOWAS Quest for Regime Survival Versus Republic of Niger: Economic and Political implications". *Annals of Spiru Haret University. Economic Series*, 24(1), 419-444, doi: <https://doi.org/10.26458/24123>

Abstract

The study explores ECOWAS quest for regime survival in the aftermath of the collapse of the democratic government in the Republic of Niger, being the fifth country in the row in West Africa within three (3) years. It sought to unveil the latent reasons behind ECOWAS stand, interrogate whether it was acting as a proxy and identify the linkages between the destruction of Nord-Stream Gas Pipeline phase 1 and 2, the renewed interest in Trans-Sahara Gas Pipeline (TSGP) and ECOWAS pursuit of regime survival. The analysis approached the study through an exploratory and diagnostic method, which explored historical and time-series events in the analysis. The procedure revealed that wherever democratic regimes failed to add value to the lives of citizens through democratic accountability, the people will embark on protest actions out of relative deprivation that confront them. Military coup d'etat is

an extreme form of protest at the level of supplantment as witnessed in Niger. It further disclosed that ECOWAS quest for regime survival is unconnected with TSGP project meant to convey gas from Nigeria through Niger Republic via Algeria to western Europe through Italy. The declaration by the coupists that Niger will not honour its own part of the contract any longer would result in extreme dependence of Western Europe on Russia for gas. The logical alternative is to get ECOWAS to embark on regime restoration in order to honour the pipeline contract and possibly free Europe from the stranglehold of Russia. The analysis concluded that Russian -Ukraine kind of war looms in Niger, which is capable of engulfing Nigeria and the sub-region.

Keywords: *Trans-Sahara Gas Pipeline, Nord-Stream, Supplantment, Regime-Survival, Proxy-War*

JEL Classification: F51; F52 & F54

1. Introduction

The 1990s could be described as the years of democratization in Africa, because many African countries transited from military regimes, monarchies, and all forms of governance systems operated in the continent, embarked on elections to obtain semblance of democratic system. Elections are the most known indicator of democracy (Frank, 2018 p.83).

Whether these elections brought about good government base on the desires of the governed and meet the expectations of the citizens it is never evaluated. It is important to state that the final outcome of any government civil or military or any hybrid form of government is often the continuous improvement in the welfare of its citizens (Frank, 2018). Where that is not the case, the citizens reserve the options of waiting for the next elections to throw out the politicians. However, because they are aware that with rigging, their votes may not count, public protests become an option. When the demonstration of the relatively deprive in the streets are not causing a rethink by the public officials, then the extreme protest come in the form of supplanting them by the combine forces of the society. The supplantment of sitting Government in Coup d'etat is therefore, an indication of failure of the democratic regimes to meet the expectations of the citizens. It is an indication that democratic regimes must have failed in the continuous generation 'Pareto Optimality' or improvement in the welfare of the citizens of the nation (Frank, 2018).

It is instructive to note the other dimensions of the problem, which may be restricted to the situation to Francophone Sahelian West Africa, may, as well, affect the stability of Anglophone West African States adversely. This is because in recent time, Chad, Guinea, Mali, Burkina-Faso and now Republic of Niger have all come under military rule, which is the focus of this critical analysis. Democratic practices rest on imbibing democratic values, which include among others allowing everyone to be part of the system (rights and freedoms for everyone), equality (everyone is the same basis), equity (fairness), rule of law (everyone is the same before the law). Hence, the ultimate outcome of democracy is for every citizen to have the opportunity to live well (Sodaro 2008). Whether the civilian regimes in West Africa guaranteed these values is a matter for concern. When democracy collapses, as it is doing in West Africa, it is only reasonable to assume that the citizens are not getting the economic benefit of being members of the nation, which is supposed to be the dividend of democracy. When democratic values are absent in democracies, public protests become the order of the day. One variant of such protest is coup d'état, especially when the politicians commit civilian coup through rigging of elections and using the state apparatus to protect themselves. This perhaps provide the explanation for the events in West Africa, which put democracy on the reverse gear, with military rule on the rise in the region.

Consequent upon the failure of the Government of Mali to meet the expectations of the citizens, led the head of the military to sack the head of state and assume executive power from his earlier Vice-Presidential position. He fused the power in himself and the military council in the Malian government on the 24th of May 2021. Mali then had a form of 'dyarchy' which was a mixture of military and civilian in the government. The Malian military had watched the political class perpetrated irregularities in parliamentary elections, kidnapping of political opposition leader, Cisse Souleman Cisse. As a result of these developments, Malians have been on the streets protesting and demanding good governance, which led to the house arrest of President Bah N'daw. It had named a civilian prime minister, Choguel Kokalla Maiga into its government and the Constitutional court had since legitimized the government with its pronouncement.

On the 25th of May 2020 former president Goodluck Jonathan successfully mediated between Assimi Goita ousted President Bah N'daw and Prime Minister Moctar Ouane who submitted their letters of resignation from detention and calm was restored to Mali. The opposition leader was named prime minister while the

military leader assumed the position of the Head of State and Government. The Contagious effects of the event sipped into Burkina Faso on 30th September 2022.

Guinea came under a democratically elected government, which concluded its constitutional two terms but went ahead to organize a referendum to extend his tenure to a third term in what George Weah the Liberian president termed '*constitutional coup*'. On September 6, 2022, Guinea came under a military rule suspending democratic governance. The Republic of Niger on her own had its current coup d'état on July 26, 2023, President Mohammed Bouzam was held in the presidential palace incommunicado.

On the account of bush-fire effect of coup d'état in the Sahel, Chad changed its ruler in April 2021, Guinea, soon followed on September 2021, while Sudan took her turn in October 2021, Burkina-Faso, in January 2022 and now Republic of Niger, in July 26, 2023 supplanted president Mohammed Bazoum through house arrested These countries are contiguous, hence the fear that the military fever would keep spreading like wildfire. Military rule now stretches from the extreme West coast to the Red Sea dividing the African continent into Maghreb north and the South. What could be responsible for the rapid recession of democratic experience in West Africa?

1.1 Statement of Research Problem

The main issue explored in this work relate to the fact that the hitherto democratic Francophone states in west Africa are now relapsing into military rule. This constitute problem for other West African nations because there is the concept and principles of 'contagious or osmotic pressure of coup otherwise known as 'bush-fire effect'. This principle operates in such a way that the event in one state gets replicated in another, after all, they are the same military, probably trained in the same institutions and could have been course mates. The courage of the coupists in one state could encouraged coup in another. This seem to be the fear in Nigeria, which has dictated her steps within the ECOWAS against the Republic of Niger. It is just proper to halt the contagious effect in not only the Sahel but in the entire continent merely to ensure 'regime survival' irrespective of good governance and accountability.

However, the more relevant questions to interrogate are: where was ECOWAS when Mali, Chad, Burkina Faso and Guinea fell to the power of the bullets? What is the interest in Niger, which did not exist in other states to trigger Nigeria's interest. Equally important to ask is whether ECOWAS is aware of obnoxious

colonial agreements (the repayment of colonial debt for colonizing Niger, automatic confiscation of national financial reserves of former French colonies, which must be held in ‘Banque de France’; the fact that the colonial agreement these Sahelian francophone countries signed, gave the right to exploit, buy all minerals found in their territories before they could offer to anyone else (*the right of first refusal of any raw material or natural resources found in Niger*); the exclusive right to provide military equipment and train military officers of the colonies and the obligations to ally with France in the event of war or global crisis, even if it is against a sister African state and the right of France to intervene in any Francophone state to protect its interests, which have bounded Francophone states to France since independence (Quoa, 2023). Are these clauses not offensive enough for ECOWAS and even African Union to have worked hard to address the challenges in order to free Francophone African states from neo-colonialism?

Akin to the above is the fact that democracy delivers welfare as democratic outputs, which include economic welfare of individuals, groups and society as a whole. Welfare and the economy have long been a top priority of practically every government in the world. Hence, the government is to stimulate economic growth, widen economic opportunities, alleviate poverty and provide generous welfare benefits ranging from educational assistance and unemployment relief to medical care and social security. Economic well-being is thus a widely recognized component of democracy (Sodaro, 2008 p.184), when the states in the region cannot provide these outcomes, obviously the people will protest as they did in Mali and Kenya and the military could intervene as a form of protest. This could be because the politicians usually rig election processes to perpetrate themselves in power. The military institutions often do feel compelled to intervene to save the state from degenerating into something else. When the military intervenes, it does so, at either the levels of supplantment, displacement, pressure and influence, respectively. The situation in the republic of Niger is at the level of supplantment.

It is very instructive to note that before Republic of Niger’s unconstitutional change of Government on July 26, 2023, Mali, Sierra Leone, Gambia, Chad, Burkina-Faso, Guinea had all changed their governance systems in similar manner (Quoa, 2023). How did ECOWAS resolved the conflicts there and why did they change the strategies when it came to the Republic of Niger?

In 1978, ECOWAS adopted the protocol of non-aggression, which bound its members to the peaceful resolution of dispute and called on them to refrain from supporting subversion or aggression on their territories (*ECOWAS, 2010.*) This

provision vitiates the act of military intervention and the act of switching off electricity from Niger when there is a subsisting covenant. In December 1999, ECOWAS adopted the protocol related to the mechanism for conflict prevention, management, resolution, peace keeping and security (ECOWAS Protocol 1999). This provision relates to conflict between one state and another within the region and not when it is intra-conflict within each state of the community. The international protocol of Non-interference in the domestic affairs of every sovereign state prevails as a protocol in all international and regional organizations. Against the backdrop of the above, military intervention could not have been contemplated in that provision.

It would be recalled that Nigeria obtained a World Bank loan around 1961 to build the Kainji dam and by 1963 entered into a covenant with the Republic Niger to supply it electricity in-lieu of building its own dam upstream, which would have cut off the water flow into Kainji. Denying the Republic of Niger electricity is a violation of the principles of *pacta sunt servanda* (*agreement must be respected*). Even the 2001 supplementary protocol of ECOWAS which relate to the growth and practices of democracy abhors intervention in another territory (OECD, 2023). These are the dynamics of the problem which ECOWAS has threatened the Republic of Niger, which is the subject of this study and analysis. It is clear that ECOWAS have no locus-standi to invade Republic of Niger, militarily. It should do what it did when others became military regimes. Nigeria erred in switching electricity off against Niger in the face of subsisting agreement. The fear of Bushfire or Osmotic effect seem to be the latent reason for Nigeria action through ECOWAS.

1.2 Research Questions

The study was guided by the following research questions:

- (i) What factors could have motivated Nigeria through ECOWAS to take the stand it took towards the Republic of Niger when this not the first coup?
- (ii) In what ways could the current stand of ECOWAS likely to lead to its break-up?
- (iii) Could venturing into Niger internal affair turn out to become Nigeria's unending war as experience by USA in Vietnam and Somalia.?
- (iv) What are the relations of the Trans-Saharan Gas Pipeline Project from Nigeria to Europe and ECOWAS quest for regime survival in the Republic of Niger?

- (v) Could Nigeria through ECOWAS be playing a script for a proxy war?
- (vi) What could be the economic implications of possible conflict for countries in the West African region?

1.3 Aims and Objectives

The broad and specific purposes of this study were.

- (i) To establish factors that could have motivated Nigeria's stand through ECOWAS on the Niger coup d'état.
- (ii) To establish the ways in which the current stands of Nigeria/ECOWAS in the Republic of Niger could likely lead to ECOWAS break-up.
- (iii) To establish whether venturing into Niger internal affair could turn out to become Nigeria's unending war as experienced by USA in Vietnam and Somalia.
- (iv) To gain a better understanding of the association of ECOWAS stand and the Trans-Saharan Gas Pipeline Project which was intended to convey gas to Europe through the Republic of Niger.
- (v) To clearly understand whether Nigeria through ECOWAS could be playing a script for a proxy war.
- (vi) To establish the economic implications of possible conflict for countries in the West African region.
- (vii) Finally, to recommend robust diplomatic steps necessary to resolve the impasse.

1.4 Significance of the Study

First it would reveal to the academic communities the theoretical linkages of Nigeria's actions and the manifestation of the theory of 'bushfire or Osmotic or Contagious effect of military coup d'état as the cardinal reason for Nigeria's actions. Secondly, it would illustrate to scholars that ECOWAS does not have in its protocols a clause which mandates it to intervene in another member state militarily except authorize by the United Nations based on the advice of the Security council. It would further highlight how the intervention could result in the break-up of ECOWAS through powerful economic and political alliances. Such alliances would prolong the war. For the diplomatic communities, it would illustrate how Nigeria's actions would violate both international and municipal laws without authorization, thereby opening ways for anarchy in the region. Thirdly the case analyses approach would revealed in-depth fact about the situations in the past and reveal whether Nigeria and ECOWAS have either

followed best practices or not in the case of Republic of Niger. Fourthly, it would demonstrate how the actions of ECOWAS to intervene may be likening to a proxy war.

1.5 Scope of the Study

The Republic of Niger is a landlocked state lying across the Sahel Savanna with seemingly low Human Development Indices arising from failed leadership (HDI) (UNDP, 2020). It is indebted to the international creditor institutions like any other African state. Its agriculture is mostly subsistence in nature and is carried out around the river Niger basin, but the nation possesses large array of solid minerals. Though the quantity of the solid minerals has not been measured but estimate placed some of its at global level.

The Republic of Niger ranked second in Africa after Namibia in the production of Uranium-235, which is mined at the central Niger minefield, Air-Massif, Arlit, Imour ravin and Dasa fields respectively. It is among the largest global producer of Uranium, mostly utilize in nuclear defence system for ‘bomb fission making, nuclear generation of electricity (nuclear reactors) and nuclear medicinal, including X-ray machines in bio-medical units of health institutions. According to the European Nuclear Society (2003), 1 kilogram (Kg) of coal can generate 8-Kilowatt hour (Kwh) of heat, 1 kilogram of mineral oil generates 12-Kilowatt hour of heat and 1 Kilogram of Uranium bring forth 24,000,000 Kilowatt of heat (electricity).

This is how important, economically and strategically Uranium is in the energy generation industry. This is mostly consumed by France, hence its military presence in and around the mines where Uranium is being extracted. The other buyers of Nigerien Uranium are the USA and China. The Uranium-235 is an opportunity cost to the Republic Niger in terms of electricity generation. It is instructive to note that Niger relies on Nigeria for its supply of electricity, while France relies for about 17 percent of its electricity supply on uranium from the Republic of Niger for its nuclear reactors.

It was also discovered that the last market price of Uranium was about \$100,000 per kilogram. This translated to the fact that Republic of Niger on this product alone has no reason to be classified as part of the least developed nations in Africa nor in the Sahel (Morgenthau, 1973; Maktoum, 2015). The other natural resources found in commercial estimated quantities in Niger include crude oil, which was found in the Agadez and produces about 20,000 barrels daily, refined by *Soraz* (*Chinese*) refining company in Zinder region. Out of this, 5000 bpd refined barrels are consumed in the domestic economy (Savannah Energy, 2023).

The other natural wealth of the Republic of Niger includes gold, coal, Iron, phosphate, salt, copper, silver, tin, zinc and marble. The coal reserves have been estimated at a very high tonnage. Other solid minerals found in Niger include gold and Gypsum. A dynamic leader could harness all of these to take the nation away from a poor nation to a moderately rich one when value are added to these ranges of natural resources, like Singapore and Malaysia have done. Politically, the republic of Niger have had a total of five (5) coups since independence. In 1999 Ibrahim Manasarra was overthrown by Majour Dauda Wanke. Nigeria's former president Olusegun Obasanjo through 'track2' or 'back door diplomacy negotiated with Wanke for on early transition to democracy because it is often very difficult to reverse a successful coup d'etat. Through Nigeria foreign affairs minister, Sule Lamido, in a shuttle diplomacy, Wanke transited to president Mamadou Tanja in 2020, who later wanted to remain in office beyond his term. The republic of Niger is a home to a large Nigerian Internally Displaced Persons (IDPs) who can be used as human shield in any war situation. They are in a region of 5000 (IDPs) in the Republic of Niger. The paper also explores the economic implications of the possible conflict for both Nigeria, Niger and other ECOWAS countries.

2. Theoretical foundation

2.1 The Warrior Tradition in Africa

In every state in pre-colonial Africa, the military have been part and parcel of the processes of state formation. The degree of affinity between the military and the state differs from state to state (Mazrui, 1977). In Africa there existed a norm known as the 'warrior tradition' wherein the role of the soldier, the king and statesmen were all fused into one person. The warrior tradition was the route to securing the power of the state. The ruler was first of all a soldier who led in inter-tribal warfare (Uzoigwe, 1977). This cultural norm made the concept of a professional soldier in Africa a novel concept and practices. This stand in contradiction to Huntington's professional postulation in African states. Samuel P. Huntington it would be recalled had postulated that a highly trained and professional soldier who is imbued with the norms, values and ethics of professional western soldier, would often acknowledge the supremacy of civilian government, which is legitimate within the confines of the state (Frank, 2018 p.107). This has proven to be difficult in Africa as shown in the Republic of Niger and other Francophone states, which become the subject of this analysis. This and

many others accounted for the situation in the Sahel region. The associated factors are discussed below.

2.2 Causes of Military Coup

It is pertinent to therefore categorize the causes of military intervention into four major groups. These are (a) *ecological or societal factors* which include the civil authority's inability to manage the economy (corruption, inflation, poor management of the state, insecurity, too much strike in all sectors, extreme nepotism in government, etc.) hence resulting in street protests, demanding better economic management to provide better economic welfare for the citizens. Desires of leaders to perpetuate their rule in office, which the Liberian President George Opong Weah termed 'institutional coup', (Guoa, 2023) such as the suppression of the rights of opposition leaders and suppression of public opinion with arbitrary arrest and rigging of elections; (b) *Intra-military or socio-political factors*, where there are specialist military corps, which are treated differentially, it breeds jealousy and eventual coup. For example, in Guinea, GPS versus Presidential Guard, in Niger, presidential guard, National guard and intelligence corps, where one unit may be favoured against the other. In Niger Republic there exists the Presidential Guard and the Counter-Terrorism unit respectively. The counter-terrorism unit enjoy almost all the military aid which came into Niger, while the presidential guard remained unaffected, when it should have equally shared in the largess (Guoa, 2023). Secondly, the commander of the presidential guard had been in that commanding post for twelve (12) years. The president was planning to change him as he did with the Chief of Army staff. The commander perhaps got a grapevine information of the plan not only to change but also to retire him, couple with the bickering of inadequate funding unlike the case of the 'Counterterrorism' unit, prompted them to topple the government. These factors often do not relate to the entire society but personality clashes, which consequence affect the entire society; (c) Extra-Societal factor refers to military interventions instigated from outside the continent especially during the cold war (Frank, 2018). It has been established that most coup d'état in Africa in the 70s fall into this category. Where a government in African state was considered ideological, such as that of Late Thomas Sankara of Burkina Faso regime. The Western Government, which trained and equip Burkina Faso's military had to use the rank and file of the military to instigate counter coup to install a government which would be ideologically friendly to them and their interests; (d) Miscellaneous factors are flimsy reasons

such as those offered by Late Idi Amin Dada of Uganda for interventions, wherein he stressed that the politicians were the only one with free money to enjoy themselves (Frank, 2018 p.108). All the reasons for military intervention could be compacted into these four broad categories. The event in the Republic of Niger finds expression herein. These factors acting in combination with others cause coup d'état anywhere as they did in the Republic of Niger.

When regional bodies meant to enhance economic development go for 'regime survival for their colleagues, the people will revolt, and military coup may be the outcome to maintain the cooperate survival of the State. African rulers must be made to understand that civil protests are democratic rights. Coup d'état could be the beginning of 'Revolutions' against unjust colonial agreements as revealed by Dr. Arikana Guoa the former permanent representative to African Union Mission in Washington DC in her recent interview on 'Arise News TV'.

2.3 Cases of ECOWAS Intervention

This section focuses on case-reviews of the collapse of or threat to democracy in the sub-region in order distil on the antecedents of ECOWAS in dealing with cases of military interventions. This was meant to identify best practices in accordance with its protocols in the instances of Guinea-Bissau 1999, Cote d'Ivoire 2003, Gambia 2017 and Guinea 2021.

i) The Gambia 2017: Christof Hartman (2017) provided narratives on how ECOWAS treaty was reviewed in 1993, particularly its conflict prevention protocol in 1999 and the principles of democracy and Good Governance and narrated how Yaya Jammeh loss election and accepted the outcome won by Adama Barrow, which he later rejected. ECOWAS reported Jammeh's intransigence to the United Nations, which approves all steps proposed by the regional body, short of approving the provisions of Chapter 7 of the UN Charter. The Chapter deals with authorizing the use of force to militarily intervene in another sovereign state through the Security Council. Gambia is almost surrounded by Senegal in strategic location. Their earlier attempts to collapse into 'Sene-gambia' had failed owing to colonial experiences. Jammeh intransigence led to Adama Barrow being sworn in at the Gambian embassy in Dakar. Robust diplomacy rather than the threat of military intervention caused Yaya Jammeh to vacate the office. The lessons include reporting to the UNO, African Union and deploying robust diplomacy short of the use of arms through Chapter 7 of the UN Charter, meaning only UN through the Security Council can authorize invasion of another state.

ii) Cote d’ivoire 2003: Thomas Fessy (2010) narrated how, President Lurent Gbagbo had ruled 2000-2011 after the military leader Robert Guei through elections. He conducted an election believed to have been won by Alassane Quattara, yet Gbagbo refused to accept the outcome of the election just like Jammeh. Almost a civil war ensued between their supporters. In the standoff, which emerged the French soldiers stationed in the country intervene and clear the way for Allasane Quattara to assume office and Laurent Gbagbo was arrested. Allasane Quattara was seen as ‘*mona ami*’ ‘*our friend*’ who would do the bidding of the French to keep to the terms of all the colonial agreements, which bounded the Francophone states to France in a ‘Neo-colonial arrangement.

The 2016 Constitution of Cote D’Ivoire provided for two terms of five (5) years each. Allasane Quattara had completed two terms and had gone ahead to alter the grundnorm to allow him a third (3th) term. It is instructive to note that ECOWAS has not seen his extension of tenor in office as running against the provisions of A/SP.1/12/01 on Democratic Good Governance Supplementary protocol. It silences translated to ECOWAS being interested in ‘*Regime Survival*’ and not concern with ‘*functus officio*’ or ‘procedural irregularity’ of West African rulers which is a breach of democratic protocols. Consequent upon this act, many political opponents boycotted the last election, which gave him the third term in office. The electoral coup was carried out against Pascal N’Guessan and Henri Bedie, who are the main opposition candidates respectively. ECOWAS was silence perhaps because Allasane Quattara was installed by the French military. ECOWAS stood by in the face of France involvement in this instance. This amounted to tolerating a third term which violated the constitution and above all, it accepted French military assisted government in Guinea.

iii) Mali 2020: Kabir Yusuf (2022) presented how President Ibrahim Boubacar Keita (IBK) led the Malian government and got public protests from the state failure to deliver democratic dividends, insurgency in the north and controversy in military promotions were the immediate cause of public protest against President Keita. The president was accused of not respecting democratic values of free speech and intolerant of political oppositions who were locked up in most times. The gap in military investments without governance was just equipping the military to act independently. Mali coup in 2012, was excused on government ineffectiveness and corruption. The coup in 2020 was after months of public protests led by June 5 Movement (M5-RFP), which was caused by rigged legislative elections and kidnapping of opposition leader Souleman Cisse. The

Constitutional court overruled election result in 31 constituencies, which had to be conducted again at a higher cost. The president's response to the protest was high handedness and many people were killed. Mali had been a known for public protest since 1991 when they used it to end 23 years of one-party rule for multi -party democracy. The soldiers joined the protesters when they were sent to quell the riots. 1991-2012 Mali was an example of democracy in the Sahel, this was short lived, indicating revolutionary prodrome. Election postponement by IBK in 2013 and many other dates failure led to several coups. ECOWAS as its customary focused on 'regime survival' against failed governance (Cole, 2020). The junta set date for election is 2024, which lessened the sanctions and ECOWAS accepted the military regime in Mali. Malians currently see ECOWAS as weaning club of Presidents who take a harsh line against military coupists but overlook their own faults in governance.

ECOWAS pressured Laurent Gbagbo to honour election results, which indicated Allasane Quattara won. ECOWAS also cooperated with the French military intervention to install Quattara in violation of the constitution beyond the two term provisions. ECOWAS deliberately refused to understand that failure of governance lead to military takeover in extreme cases. Whenever the military announced dates for return to civil rule, sanctions were relaxed.

iv) Guinea 2021: Alpha Conde was removed by Colonel Doumbouya of the Special Forces Group who fought the Presidential Guard to arrest the president 4-5th September 2021. He had raised taxes in an attempt to balance the budget. He slashed the military and police budget but increased the allocation to the national assembly and the presidency. He was accused of attempting to prolong his stay in office through constitutional violation by the opposition. They were jailed unjustly. Corruption, poverty unemployment, lack of free and fair elections, insecurity and poor service delivery was the outcome of governance (BBC News, 2023).

What is visible in all the above cases are poor governance output, personal ambition of the coup leaders, and the obsessions of the presidents to violate the constitutions and lower the standard of living of the citizens. When the citizens protest, military coup, which is a form of protest, surfaces.

2.4 Theory underpinning the study: Diplomatic leadership

Every theory in the social sciences performs four basic functions, namely, to explain the phenomenon, how one variable connects to the other, and to firm up a position of scholastic argument as well as draw connections to other issues and

ultimately grant the capacity for predictive wisdom about a study. In order to explicate the phenomenon of this study the theory of diplomatic leadership was adopted wherein it combined the substance of traditional diplomacy with the elements of leadership functions as the theory with the capacity to explain and avoid cataclysmic war, which is a manifestation of ego-trip, which is alien to diplomacy.

2.4.1 Diplomacy

Hans Morgenthau (1973) in his classic 'Politics Among Nations-The Struggle for Power and Peace' averred that the tasks of diplomacy are fourfold:

(i) diplomacy must determine its objectives in the light of the power actually and potentially available for the pursuit of the objectives. On this, we interrogated ECOWAS and Nigeria, if they have assessed their stock of arsenal in their attempt to go to war with the Republic of Niger. Do they mind that though the population is relatively small, other nations could join them to increase their arsenal to fight ECOWAS states until they are weary? Russia versus Ukraine is very instructive in this regard. The war may become Nigeria's Vietnam via international assistance to Niger through a proxy warfare.

(ii) Diplomacy must assess the objectives of other nation and the power actually and potentially available to it in the pursuit of its objectives. ECOWAS/Nigeria must have conducted its calculus and arrive at the point that it can defeat Republic of Niger in a matter of days, pursuant to the reinstatement of democracy in Niger. Russia (a world power) versus Ukraine is instructive. Niger could have the Wagner, Russia and others behind it. Niger could pull out of the Multinational Joint Task Force against Boko Haram and Nigeria could become destabilize in a region with the attendant diversion of resources and attention to the ECOWAS war against the republic of Niger. It may not be a quick win. The other members of ECOWAS would not foot the bill, Nigeria's economy is not healthy to cover all the expenses of the war. Increasing internal hardship, may generate internal uprising against the government during the war.

(iii) To what extent are the objectives of Republic of Niger and the objectives of ECOWAS/Nigeria compatible with each other. Both sides should be able to identify the common denominator on the matter. The desire for peace and development run through both Niger, Nigeria and in ECOWAS States, but the fear of contagious effect of coup in Nigeria seem the most prominent. The incompatible elements should be thrashed out with compatible ones generating cooperation on a common ground.

(vii) Diplomacy must employ the means suited in the pursuit of its objectives-It is certainly not threat, which is the path chosen by ECOWAS/Nigeria but tact to get the other side to see your point and engage for amicable settlement of the issue at stake.

All these are to be conducted through the use of negotiation, consultation, back-channel or ‘*track2*’ when the front channel seems murky, summits and conferences where bilateral and multilateral covenants and protocols are sign would certainly be the arena for peace-making.

2.4.2 Leadership:

The application of above fundamentals of diplomacy required leadership. According to Maktoum (2015 p.69) it is all about being capable of making successful decisions. Conversely, behind every failed decision lies a government that failed its people. He went further to posit that a leader should have a vision, the ability to see what others cannot see about where he is taking the people to, anticipate the future, predict the challenges it will bring and prepare the people to face them. A leader must acquire new skills and explore their hidden potential, so they can discharge their duties as best as they can. He must be a good student of history. In this respect the Nigeria leader should have known that the former Nigerien President Diori Hamani when he was the president of ‘*Organisation Commune Africaine et Malgache*’ (OCAM), and France influenced all Francophone African countries to recognise Biafra during the Nigeria civil war. Niger broke out of Ivorian and French pro-Biafran stance in support of the Federal Government of Nigeria (Nwokedi, 1992, cited in Ate and Akinterinwa, 2021). Then he must have the ability to lead from the front and to take initiative for others to follow. Given the economic situation, Nigeria may not be ready go to war now or in the nearest future with the Republic of Niger.

A leader, Maktoum (2015) went on to illustrate, must take blame for wrong decisions and credit success to his team, he must engage in dialogue (diplomacy) and try to gain knowledge from other acquaintances. Nigeria dealt with coup situation before in Mali strictly through diplomacy. The current leadership should have gained tactics from the previous Nigerian leaders. Why did the current leaders not learn from the past leaders how they dealt with similar problem in the past. Failure of leadership promotes coup, in extreme instance and street protest from civil populace. The more satisfied the people, the more focused they would be on building up national wealth (2015). It is clear from the above that leadership deploy diplomacy and diplomacy make a good leader through deep consideration,

consultation, research before reaching the right decision. If a leader fails to turn his vision into a decision and that decision into reality, then he is a failure (Maktoum, 2015). This is the theoretical underpinning upon which the entire analyses rested.

3. Research Method

The events in the Republic of Niger and ECOWAS were still evolving, hence, the most appropriate approach of study was the exploratory and diagnostic system. It is often applied to research questions that have not previously been studied in detail, while the diagnostic analysis component, review the time-series component of coup d'état in Francophone West African States. The diagnostic method would examine when the coup d'état phenomenon started, what ECOWAS did in the previous cases, and why they are now treating the current case of the Republic of Niger differently. The combination of the exploratory and diagnostic method evaluates the 'bushfire or contagious effect or the osmotic pressure' of coup d'état against the set of actions, which ECOWAS indulged in against Republic of Niger to find explanation. It assessed the strength of association between the event in Republic of Niger and likelihood of impact in Nigeria, hence the concerned for regime survival in Niger.

Though qualitative, could be primary in nature because it generates issues and data for further study through its approach of case study analyses (Ndiyo, 2005). Exploratory or grounded theory or interpretive and diagnostic research were flexible an open-ended in nature in their applications to the cases studied. They were the most appropriate means of data gathering from the case analyzed. They were applicable because we had general idea of the situation in the Republic of Niger and are conversant with previous coup d'état in the region. We then generated research questions to guide the study out of this knowledge base.

Firstly, the identification of the problem of the study. In this context, we inquired if ECOWAS has provision in its charter which allow for invasion of other's territory with the force of arms to reinstate an ousted president. Secondly, the study was curious to establish how ECOWAS had brought Article 53 of the UNO Charter which states that ...no enforcement action shall be taken under regional arrangements or by regional agencies without the authorization of the Security Council, (UN Charter 1945). Thirdly, we sought to know what happen to the principles of sovereignty and non-interference in the internal affairs of member state. The fourth step was the identification of sources of data. It was secondary, from published works on the Republic of Niger as posted in the internet, books,

encyclopaedia and materials on the military capability of the Niger Armed Forces and Air Force etc. This allowed for extensive latitude to generate data to respond to the research questions. The fifth step was to seek an understanding of the relationship of Trans-Saharan Gas Pipeline Project (TSGPP) from Nigeria through the Republic of Niger to Europe and the quest for regime survival by ECOWAS in Niger.

The sixth step was the subjection of the data obtained from the secondary sources to content analyses, interpretation of the result and the triangulation of all the qualitative data to address the problem with scope for further studies.

4. Analysis

4.1 Assessment of Research Questions 1

We had earlier wanted to know the factors motivating Nigeria's actions through the ECOWAS towards the Republic of Niger. It was found that Nigeria and most ECOWAS members felt threatened by the rate in which erstwhile democratic governments were collapsing in the region with the most recent being Republic of Niger.

One of the causal factors for coup d'état is extra-societal component, which includes 'cross-sectional contagious or Osmotic spill-over effects of coups because of their proximity or sharing of common boundary (such as Niger and Nigeria). It also refers to a situation in which the course mate at Sandhurst or from other military academy would stage a coup in one country and their mates in another would follow suit, after all they were course mates. Earlier in the same West Africa we once had this scenario, Osmotic effect of coup d'état. Togo experienced coup in 1963, Dahomey (Benin Republic) 1966, Ghana and Nigeria 1966 (Frank 2018). This is what is referred to as bushfire or contagious effect of coup d'état. This could explain Nigeria and ECOWAS fears especially those who are unaware of the final output of democracy, which is to generate 'Pareto Optimality' through accountability. Any regime that cannot render this, will face protest of any form and in extreme case coup d'état. Nigeria's involvement is majorly the fear of contagious effect of coup d'état.

4.2 Appraisal of Research Question 2

It is just instructive to note that ECOWAS consists of Francophone and Anglophone states. It should also be noted that the Francophone states were initially reluctant to be part of the Union but had to be persuaded. It should be further noted that all the Francophone states have colonial agreement with France,

which would never allow for the actualization of the essence of ECOWAS. It is important to note that France had earlier masterminded the formation of Communiqué Economique de l' Afrique de l' Ouest (CEAO) as a counter force to Economic Community of West African States (ECOWAS). The spirit of cleavages still persists in France and may play out during the intervention. All the states where Coup d'état had occurred are Francophone states, which had shown solidarity with the Republic of Niger. The probability of these states pulling out of ECOWAS is very high because they are mostly military government against the democratic ones. Since ECOWAS want to restore Mohammed Bazoum, all others may well presume that the democratic leaders they supplanted may well be restored too. They may on this assumption decide to withdraw their membership of ECOWAS to form another economic group.

The militarization of the state is seen as a movement away from continue alliance with underdevelopment by the civilian authorities with erstwhile colonial masters. Attack on anyone would breed alliance, as the faith of one in the hand of ECOWAS would mean what is likely to be their faith too. They may invite the 'Wagner Private Military Company in Russia controlled by late Yevgeny Prigozhin to help, as well as Russia or China. It is important to note that both America and France have one thousand strong military men in Niger. We may end up having African Continental War out of all these. If military rule is the problem, what is the like of President Faure Gnassingbe of Togo doing there? Let it be known that President George Opong Weah would not go with them because as he stated: 'ECOWAS tolerate civilian coup through election rigging'. Against these backdrops, ECOWAS is on the brink of 'break-up' into Francophone and Anglophone Groups. Mauritania had earlier left the group. The dreams of the founding fathers for an economic union would be buried.

4.3 Assessment Research Question 3

International organizations are created to sustain global harmony and security. It then facilitates creation of regional organizations such as ECOWAS not only to guarantee economic prosperity but also to enhance regional peace and security. Both international organizations and regional groups consists of sovereign states guided by the principles of non-interference in the domestic affairs of member states. Consequently, Coup d'état in Niger as in any other state is an internal affair of the Republic of Niger. Chapter 7, Articles 39, 41 and 42 of the United Nations Charter provided that 'the security Council shall determine the existence of any

threat to the peace, breach of the peace, or act of aggression and shall make recommendations, or decide what measures shall be taken in accordance with Articles 41 and 42, to maintain or restore international peace and security' (UNO, 1945). How has the events in the Republic of Niger violated these provisions? If in the affirmative, it is the UNO that shall authorize the use of force not ECOWAS, then ECOWAS need to first report the matter to the UN.

ECOWAS has not reported the matter to the UN, nor did the Republic of Niger attack any member state of ECOWAS. It has not constituted a security threat to any of its members. If that was the case, they could have activated the '*Caroline Conditions*', and responded with commensurate force and thereafter report to the UN. On the basis of this provision, the action of ECOWAS violates the provisions of both its protocol, and that of the UNO and may have acted ultra-vires. Article 41 further provided that the Security Council may decide what measures not involving the use of armed force are to be employed, while 42 stated that if the actions prescribed in articles 41 is considered inadequate or have proved inadequate, it would decide on the next line of action including sea, air blockade, etc. None of these steps have been taken by ECOWAS in all that they have done. Hence, ECOWAS could have violated the international protocols in seeking intervention in the Republic of Niger without authorization. According to the former Nigeria Chief of Defence staff, General Lucky Irabor in a speech during his pulling out from the army following his retirement, stated that Nigeria spent 8 billion US dollar to bring peace to Liberia without any economic benefit (Akunnah, AIT Kaakaki 2023). We lost soldiers, two journalists and many other assets in Liberia and Nigerians were attacked. Nigeria currently has many refugees in the Republic of Niger who could be used as human shields should Nigeria lead ECOWAS to war in that country. Besides, Niger is 1,650 kilometres from Nigeria border which would automatically become the theatre of the war. Hence, such would have serious implications for Nigeria economy.

4.4 Assessment of Research Question 4: Nord-Stream Gas Pipeline/Trans-Saharan Gas Pipeline and ECOWAS

In the course of international political economy, Russia entered into an agreement to supply Europe with gas. A network of offshore natural gas pipeline running under the Baltic Sea to Germany were laid in phases (Nord-Stream) 1 and 2. On September 26, 2022, the pipelines exploded in what is suspected to be the greatest sabotage in the Baltic Sea near the Danish Island of Bornhorn. Consequent

upon this, all the sanctions against Russia over invasion of Ukraine exempted gas export to Europe. Europe had to revive Trans-Saharan Gas Pipeline (TSGP), which was meant to transfer gas from Nigeria (Warri in Niger Delta) through the Republic of Niger via Algeria to Europe. The success of this project would free Europe dependency on Russian gas. However, the Nigerien coup plotters have severed all relations with France, including existing agreements. This has affected the TSGP with heavy implications for Western Europe, which desire for alternative source of cheap gas away from Russia (Rachel, 2022). This explains Russian preparedness to assist the Republic of Niger to maintain its sovereignty against ECOWAS threats. This would hurt Europe. ECOWAS itself is under pressure to pursue regime survival that would honour the existing international agreements, which would keep the TSGP project alive with the support of European states. The situation could result into war like Russian/Ukraine kind of situation.

4.5 Appraisal of Research Question 5: Proxy War

In this section of the discourse, we were concerned with interrogating whether Nigeria through the ECOWAS position on the Republic of Niger is externally determined. The concern arose pursuant to the following fact: (i) The USA has a 1000 strong military at its African drone base in Niamey. (ii) France also has about 1000 strong military presence located in Agadez at the time of the Coup detat on July 26, 2023. As part of the colonial agreement with Francophone former colonies, it reserves the the right to deploy troops and intervene militarily in the country to defend its interest (Quoa, 2023). Why was this not carried out since they are interested in regime survival and not in good governance? (iii) Why have the USA refused to call the event coup d'etat? However, the US ambassador has resume there amidst the crisis. Why have they not moved in to reinstate President Mohammed Bazoum? (iv) Could it have been a co-incident as alleged, that Nigeria President had chosen Paris as his location for medical tourism and France has extensive economic interest in the Republic of Niger. Thus, France wants normalcy restored in Niger through Nigerian President acting through ECOWAS.

Evaluation of research question 6: Economic implications

It would be recalled that in 1986 at the Economic Commission for Africa (EAC) meeting, an agreement was signed between Nigeria and the Republic of Niger. This granted Nigeria an opportunity to supply to Niger seventeen (17) manufactured products and purchase five (5) items only from Niger. In another bilateral trade agreement Nigeria was to supply 30,000 kilowatts of electricity from Kainji dam,

in turn Niger was to avoid building a dam at Kandadji to allow free flow of water to Kainji dam (Nwokedi, 1992; Otto & Ukpere, 2013; Otto, et al., 2021). It crucial to state herein that the Republic of Niger supply the bulk of cattle, sheep and goats, legumes, cotton, tin-ore and phosphate to Nigeria. Nigerians will be more affected by Ecowas sanctions more than the Nigeriens who had though costly alternative routes to obtained what Nigeria refused to sale to them.

Lastly, the sanction could lead to a relative deprivation on Nigeriens, which rather than push them to protest against the military rulers who precipitated the situation, may turn them into solidarity campaigners. This affirmed the position of Frank and Ukpere, (2024), that there is no direct correlation between relative deprivation and anomic political protest.

4.5.1 The concept of Proxy War

Proxy war refers to conflict in which contestants use third parties as opponents to fight while they support indirectly by supplying arms and other logistic to serve in the final analysis their economic and political interests and not that of the fighters. It could be a contest between two sovereign states without direct warfare. They could be non-state actors acting on the instigation of other countries. The conditions precedent to proxy war includes (i) there must have been long time collaboration between belligerents and the sponsoring states. (ii) It is a tool of foreign policy and involves planting intrigues between the parties, while the sponsors gain from the wars. (iii) Nations resort to proxy warfare to avoid reprimand especially when there exist peace treaties, alliances and trade covenant. The consequences of proxy wars are borne by proxy nations including casualties and economic damages (Hughes, 2014). It is against the above framework that we now assess the events relating to the Republic of Niger, Nigeria and ECOWAS reactions thus.

a) **Iran versus France:** Iran the manufacturer and supplier of day and night drones being use by Russia against Ukraine is likely to support Republic of Niger to confront France. while France is in support of all the moves of ECOWAS/Nigeria against republic of Niger. The rationale for this relates to Mr Chalten Hebde-the cartoonist from France whose cartoon insulted the religious sensibility of Iran. Iran would want to pay France back through the hard way by granting even unsolicited aid to Niger to disgrace France. Where would ECOWAS and Nigeria obtain drone and drone aerial interceptor from? These are the main instrument of warfare in the Information Communication and Technology (ICT)

age. ECOWAS may just be the platform for Iran to engage France through proxism.

b) **The chairmanship of ECOWAS goes in alphabetical order.** President Buhari was the chairman July 2018 -June 2019, he handed over to President Mahamadou Issoufou June 2019 -June 2020. We then suspect that it could not just return to Nigeria, since the chairmanship is in alphabetical order. It must have been returned to Nigeria to serve the purpose of certain interests. The Nigerian president currently visits France for medical tourism.

c) The USA though not having an ambassador in the republic of Niger, in the course of this study, Kathleen FitzGibbon resumed as an ambassador in Niamey, has a drone base there to serve the continent. The United States have tactically refused to describe the event in Niger as a coup d'état because it would hinder her from granting further aids to Niger. America would rather go with the ECOWAS in its approach to reinstate President Mohammed Bouzam. This is the basis of France/America reliant and full support of the ECOWAS position to invade and reinstate the ousted president. It should however be known to ECOWAS that out of about 200 coup d'état in the African continent since 1960, it is only Leon Mba who was re-instated 1964 and in 2003 President Fradique Menezes of Principe and Sao Tome by Olusegun Obasanjo. The chances of doing what ECOWAS threatened is very low, actualizing the threat may not reverse the coup d'état.

d) The French and the American troops are supposed to help in combating Islamist terrorists in the country, yet there is very little progress that have been made in that direction given their sophistry in terrorist warfare and experiences in 'operation desert storm'. It would appear that this is an 'alibi' to secure a staging base in the Sahel. The junta in Niamey had placed ban in their airspace but according to the spokesperson of the junta, Colonel Amadou Abdramane, the French Air-force violated their airspace and breached the ban by flying in and out of Niger Airspace. The aggregation of all these events, point in the direction of a potential proxy war as conceptualized by Gerait Hughes (2014) referred to earlier in this analysis.

5. Conclusion and remedial measures

The evaluation of this study revealed that there are antecedents that could have been relied upon by the current chairman of ECOWAS to mainstream diplomacy and leadership rather than ego, which has led to unnecessary tension and actions likely to strain the relationship between Nigeria and the Republic of Niger with

other member states. Secondly, we conclude that the outcome of every democracy is development as value addition to the lives of the citizens. Where that is not the case, the people may likely revolt through the military, and it is futile to try reinstatement. The antecedent is that out of over 200 coup d'état in Africa, only two were reinstated in Sao Tome and Principe in 2003 and Gabriel Leon Mba of Gabon ENS-European Nuclear Society 1964. Given this low statistics ECOWAS should have followed its earlier line of actions in Mali and in other places. Just not to begin negotiation with a threat.

Diplomacy-leadership is what is required in dealing with sovereign states rather than ego or impulse. ECOWAS should know that municipal and international law are at play in their actions, hence, council of advisers on foreign affairs should and must guide the operation of the community in this and any other similar situation. The regional body is likely to step into proxy war should they attempt any military action in Niger republic, and all of them will create a Vietnam-like war in West Africa and engage in combat that may not end easily. The pursuit of peaceful resolution to conflict by setting a timeline and program for a return to democratic rule, while asking the ousted leader to resign peacefully is the only option.

a) Sanctions does not restore ousted regimes but rather ECOWAS should recognize the regime and work with them for a timetable to restore democratic government through elections. This was the case in Mali since a government is already formed in Republic of Niger. It should be known to ECOWAS that out of about 200 coup d'état in Africa, only Gabriel Leon Mba and Ferdihan of Principe and Sao Tome were reinstated in 1964 and 2003 respectively.

b) Diplomacy and leadership must remain the tool of engagement rather than a show of power. Russia and Ukraine should be the mirror for west African leaders. ECOWAS leaders must not be deceived that a combine force of ECOWAS states would defeat the Republic of Niger in a matter of days. Niger may well be the Vietnam and Laos for ECOWAS. They may not know those on the line to assist Niger.

e) Good government is the antidote to coup anywhere and the rest of the continent. Coup d'état cannot be halted by command of west African leaders. Good governance and accountability, which generate 'pareto optimality' or value addition to the lives of the citizens of the various countries is the antidote to coup in the region and the continent.

f) ECOWAS or the African Union may have '*Democratic Charter*' to which all states and their political elites would subscribe to the defined indicators of

democratic state. This is to ensure that people keep to the democratic values that would be evolved. Punishment would also be agreed upon, to deal with ambitious leaders who often amend the Constitution to accommodate their selfish ambitions. This would stand against the current strategy of ECOWAS, which is focused on Regime Survival irrespective of whether the regime is unaccountable, and its citizens in poverty in the midst of plenty. ECOWAS should come together to agree on what constitute democracy and sway members to abide by it. The violators of any of the indicators of African democracy should be punish for an enduring democracy rather than regime survival pursuit at all times.

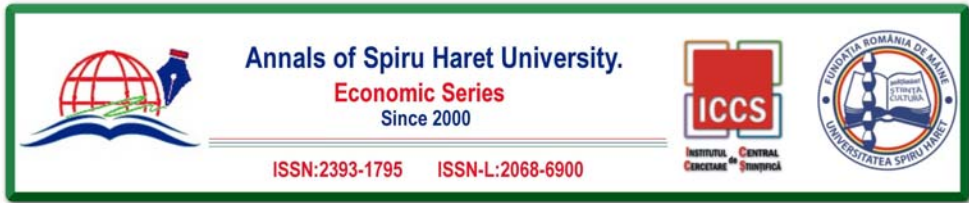
g) ECOWAS should create a structure for peer-review mechanism on Good Governance and be honest enough to serve as a democratic barometer to gauge the progress being made in governance to entrench democracy, if they want coup d'état to stop, else coup d'état would remain with us as the Warrior tradition in African politics indicates. Alternatively, West African political elites should attend a minimum of six months course before assuming office to teach them the rudiments of governance.

Finally, the end result of all forms of governance is continuous improvement in the lives of the people. When there is value addition to the general society, everyone would be better-off and military coup d'état as a protest movement would recede to the barracks. ECOWAS should shift its attention from Regime survival to good governance, otherwise Coup d'état would remain in West Africa and spread to other African nations as the Warrior Tradition in Africa indicates.

References

- [1] Akunnah, C, (6TH August 13, 2023) AIT Kaakaki News Analyst in the morning show News Analysis revealed Irabo information.
- [2] Ate, B. and Akinterinwa, B. (2021). Nigeria and her Neighbors. Lagos: Safari Books
- [3] BBC News. 2023. Niger Country Profile. [Online] Available: <https://www.bbc.com/news/world-africa-13943662> [11 November 2023].
- [4] Cole, E. 2020). Five things to know about Mali's coup - Programme Officer-Governance, Justice & Security - USIP-Washington DC.
- [5] ECOWAS 2010. Revised Treaty. [Online] available: <https://ecowas.int/wp-content/uploads/2022/08/Revised-treaty-1.pdf> [9 August 2023].
- [6] European Nuclear Society (ENS). (2023). Coal equivalent [Online] Available: <https://www.euronuclear.org/glossary/coal-equivalent/> [10 August 2023].
- [7] Frank, E. O. (2018). Political Soldiering-The Theory of Military in Politics and Governance. Uyo: Robert minder Publishers.

- [8] Frank, E.O. & Ukpere, W.I.(2024) A Deconstruction of Frustration – Agreeesion Theory of Political Violence in Nigeria. *Annals of Spiru Haret University. Economic Series* 23(2). 117-139
- [9] Hartman, C. (2017). *ECOWAS and Restoration of Democracy in Gambia*. Sage Journals Africa Spectrum, 2 (1) April, 2017 accessed 18 August 2023.
- [10] Hughes, G. (2014). *My Enemy's Enemy: Proxy Warfare in International Politics* Brighton: Sussex Academy Press.
- [11] Maktoum, M.R.I. (2015). *My Vision-Challenges in the Race for Excellence*. Dubai: Motivate Publishers.
- [12] Mazrui, A.A. (1977). *The Warrior Tradition in Africa*. In Uzoigwe, G.N. ed. (1977). *The Warrior and the State in Precolonial Africa*. Leiden: E.J Brill
- [13] Morgenthau, H. J. (1973). *Politics Among Nations- The Struggle for Power and Peace*. 5th Edition. N.Y: Knopf Publishers.
- [14] Nidyo, N.A. (2005) *Fundamentals of Research in Behavioral Sciences and Humanities*. Calabar: Excel Publishers.
- [15] Nwokedi, E. (1992), *Nigeria and Niger: The Mechanisms of Compatibility and Consensus in Nigeria and Its Immediate Neighbour: Constraints and Prospects of Sub-Regional Security in the 1990s* (Ed) Bassey E. Ate & Bola A. Akinterinwa, (2021) Lagos: Safari Publishers.
- [16] OECD 2023. *The ECOWAS Supplementary Protocol on Defense and Security Forces*. [Online] Available: <https://www.oecd.org/swac/publications/38961785> [11 August 2023].
- [17] Otto, Godly & Okpe, Abuo & Ukpere, Wilfred, 2021. "Rice Production, Consumption And Economic Development In Nigeria," *Annals of Spiru Haret University, Economic Series, Universitatea Spiru Haret*, vol. 21(2): 181-217.
- [18] Otto, Godly & Ukpere, Wilfred, 2013. "Exports And Economic Growth In Nigeria," *Annals of Spiru Haret University, Economic Series, Universitatea Spiru Haret*, vol. 4(3), pages 37-49.
- [19] Quoa, A. C. (2023). *Resolving Niger Coup Crisis*. Arise News, 17, August 2023.
- [20] Rachel, M. (14 October 2022). *Sweden Shuns Formal Joint Investigation of Nord Stream Leak, National Security*. U.S News. Reuters Retrieved 16 October 2022.
- [21] Sodaro, M.J., Collinwood, D.W., Dickson, B.J., Klesner, J.L., & Sisk, T.D (2008). *Comparative Politics- A Global Introduction*. Boston: USA.
- [22] Thomas Fessy (2010, Dec 24) *ECOWAS bloc threatens Ivory Coast's Gbagbo with force*. BBC News bbc.com -Guinea
- [23] UNDP 2020. *Human Development Report*. NY: UNDP
- [24] *UNO Charter cited in Politics Among Nations - The Struggle for Power and Peace 5th Edition - Hans J. Morgenthau (1973)*. USA: Knopf Publishers
- [25] Uzoigwe, G.N. (1977). *The Warrior and the State in Precolonial Africa* in A. A. Mazrui -*The Warrior Tradition in Modern Africa - Leiden: E.J Brill*.



Issue 1/2024

- [26] Savannah Energy. (n.d.) Country Overview. [Online] Available: <https://www.savannah-energy.com/operations/niger/country-overview-2/> [13 July 2023].
- [27] Yusuf, K. (2023). ECOWAS Imposes Sanctions on Coup Plotters in Guinea, Mali. [Online] Available: <https://www.premiumtimesng.com/news/headlines/494180-ecowas-imposes-sanctions-on-coup-plotters-in-guinea-mali.html?tztc=1> [19 January 2024].

A CRITICAL ANALYSIS OF COLLECTIVE BARGAINING EXTENSION MECHANISMS IN THE PUBLIC SECTOR IN BOTSWANA

Keratilwe BODILENYANE¹, Calvin MABASO², Wilfred I. UKPERE³
^{1,2,3}*Department of Industrial Psychology and People Management, School of Management, College of Business Economics, University of Johannesburg, Auckland Park Kingsway Campus, Corner Kingsway & University Road, PO Box 524, Auckland Park, 2006, South Africa, Tel: +27115592722, Email: ratibodiks@gmail.com, calvinm@uj.ac.za, wiukpere@uj.ac.za*

How to cite: Bodilenyane, K., Mabaso, C., & Ukpere W.I. (2024). “A critical Analysis of Collective Bargaining Extension Mechanisms in the Public Sector in Botswana”. *Annals of Spiru Haret University. Economic Series*, 24(1), 445-466, doi: <https://doi.org/10.26458/24124>

Abstract

The widespread emphasis on democratic governance makes it relevant for social partners to view collective bargaining as a significant means for joint work regulation. Collective bargaining promotes workers' voice and creates symbiotic relations between employers and trade unions. The study focused on the aspect of collective bargaining extension mechanisms. The study encompasses group of workers covered and those excluded from collective agreements (not necessarily unionised workers), parties involved, extension of collective agreements, workers with the right and without the rights bargaining. The study was qualitative in nature, with a sample size of 15 participants from the public service. Participants were selected using purposive sampling method. The findings of the current study revealed that when a decision is made, government, as the employer, takes a holistic approach and extends the benefits to all government employees, including those who are unionised and non-unionised, as well as management and disciplined forces. It has become apparent that though extension mechanisms

are not documented nor provided for in the law, there is a default erga omnes effect of collective bargaining agreements in the public sector.

Keywords: Extension Mechanism, Collective Bargaining Coverage, Erga omnes, Public service

JEL Classification: J5; J45 & J58

1. Introduction

The widespread emphasis on democratic governance makes it relevant for social partners to view collective bargaining as a significant means for joint work regulation. Collective bargaining promotes workers' voice and creates symbiotic relations between employers and trade unions. It promotes employee participation and addresses irregularities that exist in the workplace. A well-functioning collective bargaining system provides an atmosphere in which workers can influence decision making. Non-involvement of employees in decision making create tensions and leads to reduced productivity (Marylove et. al., 2023). The current study emphasised the centrality of placing workers at the heart of industrial relations through their representatives. Markey and Hill, in Gollan and Patmore (2002), claim that a firm is not merely an organisation that generates a profit, but is also a player in a social context with social accountabilities. Despite resistance towards collective bargaining, there is indeed unanimity in most countries that collective bargaining is an ideal means for joint decision making (Fashoyin, 1998: Ukokhe & Florah 2022: Gavin, 2022). Collective bargaining is quite a broad topic. To this end, the study focused on the controversial aspect of collective bargaining extension mechanisms, which has been the source of confusion and conflict between the employer and trade unions in Botswana. The study encompasses group of workers covered and those excluded from collective agreements (not necessarily unionised workers), parties involved, extension of collective agreements, workers with the right and without the rights bargaining.

1.1 Background of the Study

Collective bargaining in Botswana has been marred with conflict and tensions. The tendency of employers and/or governments to act alone when deciding on important collective bargaining matters may stem from the Botswana's political delusion that leaders are born with innate authority (Mwatcha, 2015). The old

English common law idea that the state, as sovereign, cannot do wrong gave rise to the sovereignty doctrine, which established conventional theoretical limitations on public sector collective bargaining. Fashoyin (1998, p. 37) concurs, claiming that “the type of collective bargaining that takes place in the region, including South Africa, is characterized by adversarialism, ostensibly because collective bargaining has remained doggedly focussed on the narrow distributive employment issues in the workplace”. This stems from the history, customs, and tactics of significant players—capitalists and the ruling class (Doellgast & Benassi, 2014). The political leadership implanted blind nationalism in the thoughts of the Batswana through the Tswana culture, and great efforts were made to reduce the populace to passive observers (Mwacha, 2015). A corporatism approach has been used to silence trade unions. “The political elite called on the trade unions to join the government in the quest for national development and dictated that the interests of the trade union movement to advance the interests of their members, should align with national interests” (Mogalakwe, 1994, p. 22). The ruling class has pushed trade unions to move away from what it called "an imported trade union philosophy with its folk history and perceptions built up over years of strife in Europe" and instead to play a role that fits the needs of the nation (Mogalakwe, 1994). Due to unitarism, there has been a climate of silence in Botswana, and collective bargaining is seen as an erosion of democracy. The government or, more accurately, the former President, Ian Khama, avoided social dialogue because he refused to meet with the leadership of BOFEPUSU to discuss work-related issues, severely straining the already tense relationship between trade unions and the government (Motshwarakgole, 2014). President Khama and his cabinet colleagues, who comprise the small-scale, bourgeois state class, have repeatedly emphasised the necessity of "wage restraint," "industrial peace," and "political stability" as prerequisites for achieving "national development" (Mogalakwe, 1994). However, under the new government, workers and trade unions had hoped for improved relations. President Masisi of the Republic of Botswana pledged friendly relations with trade unions upon taking office. The Office of the President, acting on behalf of the Employer, extended an invitation to all public service trade unions to convene on August 17, 2018, with the aim of forming a reference committee that would initiate the process of revitalizing the Council by creating and registering a new PSBC Constitution (Office of the President, 2018). The parties to the negotiations are still facing difficulties as the process continues. In summary, the

government and/or employer lacks empathy and is not prepared to negotiate with trade unions.

1.2 Statement of the Problem

It has become apparent that the government as the employer is not ready to cooperate with trade unions (Motshegwa & Tshukudu, 2012). The government, as the biggest employer, does not appear to embrace the fact that governance is multi-organisational. This is demonstrated by the fact that while there have been impressive improvements about industrial relations, the aspect of collective bargaining is still lagging. In 2016 trade unions and an employer in Botswana were entangled in issues of collective bargaining extensions, on whether the government was correct in awarding salary increments to non-unionised workers and workers belonging to trade unions that were not part of the PSBC while negotiations were in progress. This is because when negotiations are concluded the same agreements are extended to non-unionised workers.

1.2.1 Research questions

Given the stated research problem, the following are the study's research questions:

- What is the extent of collective bargaining coverage in Botswana?
- What strategies can be established to make collective bargaining workable in Botswana?

1.2.2 Research objectives

The following are the study's objectives:

- To establish the extent of collective bargaining coverage in Botswana,
- To recommend strategies that can make collective bargaining attractive in Botswana.

2. Theoretical Foundations

2.1 Unitary Approach

The theoretical framework for the current study was primarily based on the unitary approach. This approaches "help us to make sense of the diverse, complex and dynamic nature of employment relations" (Salamon, 2000, p. 3). The unitary approach is oblivious of conflict, as it is viewed as unnecessary and inexcusable. The unitary approach does not believe in third party intervention such as trade unions, work councils, and workers committees, as these are perceived to be

intruders. Methods of worker participation, involvement, and engagement are best seen as antagonistic and intruding upon prerogative matters for the employer (Salamon, 2000). The government and managers create policies, assign tasks, give orders, and demand and even threaten to get work done. Using a unitary approach, the employer is distinct from the workers, and the relationship is based on workers obeying orders without questioning because the organisation is assumed to be ‘one happy family’ (Salamon, 2000). The relationship is based on issues of loyalty, obedience, and respect for management’s decisions (Tustin & Goldenbuys, 2000; Mpabanga, et al., 2023). It stresses the need to recognise and respect hierarchy in an organisation; the demarcation is always clear: make decisions and follow. The unitary approach was more common during the 18th and 19th industrial revolution periods; however, its effects are still prevalent in 21st century organisations. Group initiatives such as collective bargaining are suppressed, and trade unions and workers do not have much choice but to follow the employer's dictates.

2.2 Collective Bargaining

As stated in the ILO’s Convention No. 154, “collective bargaining involves negotiations that take place between an employer, a group of employers or one or more employer organisations, on the one hand, and between one or more worker organisations, on the other, to (a) determine working conditions and terms of employment; (b) regulate relations between employers and workers; and/or (c) regulate relations between employers or their organisations and a worker organisation or worker organisations”. “It is concerned with bipartite relations (between two independent parties) between one or more employers or one or more employer organisations and one or more worker organisations” (ILO, 2015a, p. 2). However, collective bargaining can also be engaged in a tripartite relationship when the government acts as a regulator in the public sector. The OECD (1994, p. 170) supports that “economy-wide, bargaining is a bipartite or tripartite form of negotiation (or concertation) between union confederations, central employer associations and government agencies”. Its objective is to set lower-level employment terms negotiations, frequently with consideration for macro-economic objectives (OECD, 1994). Therefore, collective bargaining is a process that involves negotiation, formal and informal discussions, information sharing, debate, and trade-offs (ILO, 2015a).

2.3 Extension of collective agreements

An extension mechanism is one of the determinants of collective bargaining coverage. An extension of collective agreements is about implementing the agreements for every worker in the comparable industry and economic environment (Visser et. al., 2017; Hayter and Visser, 2021). In other words, provisions in collective agreements are generally compulsory for employers and workers who are not party to the bargaining unit. In this manner the negotiated employment conditions are applied outside of the bargaining unit (ILO Flagship Report, 2022). In, “many industrial relations systems provide for the erga omnes (“towards everyone”) applicability of collective agreements and/or for the extension of collective agreements to non-parties” (ILO Flagship Report, 2022, p. 59). Information on extension rules is important, because usually issues of coverage and extension are highly contested and used arbitrarily. It is fundamental to be clear about “whether extension mechanisms are in place and are used, and if so, under what conditions (to whom it applies, criteria for representativeness, etc.)” (Visser et al., 2017, p. 18). Workers who are not union members are, in fact, covered by the terms and conditions of union contracts through extension and enlargement provisions both within and outside the bargaining unit," according to some national law (Hayter and Visser, 2021) through unadjusted coverage mechanisms. The guidelines for extension mechanisms are provided by the ILO under Recommendation No. 91 (1951), stating that responsible authorities should consider extending collective agreements to relevant segments of workers, where appropriate.

According to the OECD (1994), there are two ways of extension mechanisms. “The first makes a collective agreement, which is generally binding within its domain (i.e., a particular economic sector and/or region) and covers both employers and employees who are not affiliated with the bargaining parties” (OECD, 1994, p. 178). This is usually carried out by the portfolio minister. The other one may be labelled as an enlargement. “This is designed to make collective agreements binding on employers and employees in certain geographical or sectorial areas outside of the agreement’s domain if they are economically similar to those covered by the collective agreement, and if there are no parties capable of conducting collective bargaining” (OECD, 1994, 178). For instance, the LRA permits the extension of collective labour agreements in South Africa, Section 23(1)(d), providing that “a collective agreement binds employees who are not

members of a trade union or trade union party to the agreement, provided that three conditions are met, namely employees are identified in the agreement, the agreement expressly binds the employees, and the trade union or trade unions concluding the agreement enjoy a majority share of the membership amongst those employed in the respective workplace”. This demonstrates that there are situations where collective labour agreements are applied to workers through the ‘towards all’ aspect.

For some countries the extension mechanisms are provided in the legal framework. Recommendation 91, clause 5(2), establishes requirements for the extension of collective agreements. Declaring collective agreements binding and inclusive of other industries can be a notable way to encourage collective bargaining (ILO, 2015a). Extensions legitimise and expand the scope of collective bargaining. Similarly, Godfrey (2018, p. 17) argues that “the extension mechanism is used to ensure that bargaining councils’ agreements have a wide scope that will cover as many unorganized and vulnerable workers as possible”. It ensures that even vulnerable workers are protected and covered through existing extension mechanisms. According to the OECD (1994, p. 170), “the threat of undercutting by “outsiders” who are not members of the bargaining parties, and, therefore, not bound by the agreement, may be avoided by means of institutionalised extension procedures”. Therefore, extension mechanisms are meant ‘to level the playing field’ in a given industry (Godfrey, 2018). “It establishes a floor and ensures that employers that bargain collectively are not placed at a disadvantage *vis-à-vis* those that are not bound by terms of the agreement” (ILO, 2015a, p. 70). Extension mechanisms generally promote full development of collective bargaining, enabling even non-unionised sectors to appreciate the benefits of collective bargaining through extension dispensation.

The extension of collective labour agreements is usually marred by conflict, dishonesty, subjectivity, and abuse by public authorities. Regulations can be developed by the government through extension provisions in cases where direct prescription is neither feasible nor desired. Public interest considerations may be one of the criteria used to determine whether to extend collective agreements (ILO, 2015a), while it is usually government’s prerogative to decide on extension mechanisms. For example, in Denmark, France, the Netherlands and Germany, the state extends collective agreements pertaining to welfare problems like pensions and training on the basis of the *erga omnes* (towards all or towards everyone) principle. (Trampusch, 2007). For Collective Agreements Recommendation No. 91

(1951), clause 5(a), most member states use their Minister of Labour as the competent authority. Botswana and South Africa are good examples of countries that do this, which is in conflict with the 5(c) clause, because the competent authority is already given authority to act, and he or she may decide not to give others a chance to make their submissions (Irwin, 2016). Hence, Collective Agreements Recommendation No. 91 (1951) is vague on what extensions may or may not be appropriate, which is why a competent authority should decide (Irwin, 2016).

The Task Team in South Africa recognised the collective bargaining issue that gave rise to the draught Bill that came before the latest LRA. The two main issues with the previous industrial council system are representativity and the Minister's choice to extend collective agreements. In South Africa the LRA's Section 32 “allows the extension of collective bargaining agreements to non-parties within the registered scope of the bargaining council”. The new LRA declares that the responsible minister cannot expand the negotiated agreements unless they are content that, following the extension, the majority of covered employees belong to party trade unions and that the majority of those workers belong to the party employer organisations (Godfrey, 2018). It allows for negotiated agreements to be extended to other parties, thereby enabling "compulsory centralization" (Alby et al., 2005). Agreements may only be extended to other parties if the trade unions that are signing on represent the bulk of all workers in the place of employment (Budlender, 2009). However, “a bargaining council agreement cannot be extended by the Minister unless he/she is satisfied that provision is made in the agreement for an independent body to hear appeals against the refusal by the council of a non-party’s application for exemption, or the withdrawal of an exemption by the council” (Godfrey, 2018, p. 11). This happens when the bargaining councils have a majority of the industry's workforce and in cases where the threshold is not met, the Minister of Labour may exercise his or her discretion (Irwin, 2016). Godfrey et al. (2018, p. 17) confirm this, stating: “however, the council does not meet the representativity requirements, the Act gives the Minister the discretion to nevertheless extend the agreement to non-parties”. It is advisable that the Minister extends the bargaining agreements, particularly in cases where doing so could jeopardize public sector bargaining (Irwin, 2016). Where cordial relations exist, the minister understands that failure of extension of some collective agreements may polarize the institution involved in collective bargaining or employment relations, in general. However, the problem lies in Section 32(5), which declares that the

collective agreement reached at the business or enterprise level may be extended by the minister, even when they did not meet a threshold. Such exceptions empower the minister to arbitrarily use their powers to go against majoritarian principles. Irwin (2016, p. 3) argues that “Section 32(5) permits the ‘collective interests of the majority of an industry to be overridden by the will of (the) minority, because sectoral level bargaining is a mere policy choice of the legislature, the Ministerial discretion in the sector is not an adequate safeguard and constitutes unwarranted interferences and less restrictive means exist for extensions in the form of Section 32(2)”. Irwin (2016) mentions further that the minister’s extension decisions to impose terms and conditions on all employers and employees within an industry, where there is no majority support for those terms and conditions, raise questions about the roles of democracy and voluntarism in the system of collective bargaining. This provision is contrary to the aspect of collective bargaining; rather, it emancipates unilateral decisions by the minister to extend decisions made by a handful of employees for the majority. It is important to note that there are trade unions that tend to align themselves with the ruling party and/or government; hence, such provisions allow allies to work together to silence the rest of the trade unions. It kills the aspect of collective negotiations because it is not representative of the social partners, but merely one player, namely the Minister of Labour, and his/her allies, who are capitalists.

Although most countries have established extension mechanisms, there are a few instances where labour laws allow for extension practices but, which are seldom used, while others do not have extension procedures. In countries like Germany, there are few chances to apply collectively bargained wages to non-directly covered industries and workers (Artus, 2016). Japan's labour laws also include provisions for extending collective agreements, though these are rarely used. Both Norway and Sweden lack extension mechanisms and have highly centralised bargaining systems. (Artus, 2016). The “United States, Canada (except for Quebec), the United Kingdom, Japan, Norway and Sweden” (OECD, 1994, p. 178) are among countries without extension procedures. The first three nations have shown that single-employer bargaining and extension procedures are incompatible, and in the UK the demise of extension procedures coincided with the decline of multi-employer bargaining (OECD, 1994). Moreover, Norway and Sweden show that both highly centralised and decentralised bargaining systems can lack extension mechanisms (OECD, 1994).

Numerous collective agreements are in place in OECD member-countries like Austria, Belgium, France, and Portugal, and are frequently extended (*referred to as enlargement*) (OECD, 1994: Hayter and Visser, 2021). According to Godfrey (2018, p. 15), “of the approximately 9,5 million employees covered by the LRA and BCEA, approximately 25% are covered by bargaining council agreements (including those included by extension agreements)”. Godfrey (2018, p. 15) further states that: “Towards the end of 2014, the 44 registered bargaining councils (including the public service councils) covered 18.6 per cent of all employees in the labour market, and that extended agreements covered 3.2 per cent of all employees”. It is also important to note that the coverage and extensions may be understated or overstated, depending on whether it has an adjusted or unadjusted coverage rate, and/or whether it is in the private or public domain. Due to the role exercised by the relevant authorities in extending collective bargaining agreements, the coverage rate tends to be greater in the public sphere compared to the private sphere (Irwin, 2016). According to the OECD (1994, p. 181), “it should be noted that the higher coverage in the public sector tends to be accompanied by substantive restrictions concerning bargaining rights, including the right to strike”. This is basically cooptation because in this case the workers must forgo something (restrictions on the right to strike) to get something (improved coverage rate).

2.4 Extension Mechanisms as it Applies in Botswana

The relationship between the social parties, the government, which is the employer, and the workforce and worker organisations has been strained since the historic 2011 industrial action (Zvobgo, 2019). Due to a history of unilateral decision making, government used different tactics to resist collective bargaining. Unilateral salary adjustment was noted during the first bargaining council meeting in 2014 for the 2014/15 financial year salary negotiations, when then-president, Lieutenant-General Ian Khama, made a unilateral announcement during a kgotla meeting. The announcement was made when the bargaining council meeting was in progress, and the announcement by the President was just one way of nullifying the bargaining council (Mosikare, 2014). The government decided to award the salary increment to certain cadres in the public service, with the proposition that they are excluded from bargaining outcomes. Awarding salary increments to non-unionised workers raised bargaining extension mechanism concerns about whether unionised and non-unionised employees form part of the bargaining unit and are party to the Public Service Bargaining Council (PSBC). Consultation should occur before

decisions are made. Both parties should believe in consultation and collective bargaining involvement as a sincere method of furthering the goals of their constituents rather than merely as a means of consolidating power. Management and the government, as the employer, must believe and must be perceived as having faith in their participating staff. Marxists contend that in nations with capitalism, 'it is the state that maintains wage labour as an object of exploitation, reproduces general conditions of production, including labour power, and maintains legal relations' (Mogalakwe, 1994, p. 44). Befort (1985) also notes that in a small number of jurisdictions without comprehensive bargaining legislation, unilateral action is significantly more widespread.

3. Methodology

A phenomenon like collective bargaining is best understood through individuals' emotions, attitudes, feelings, perceptions, viewpoints, and their experiences of the phenomenon of interest. The study adopted a subjective view, which perceives reality as being socially constructed, referred to as interpretivism and/or constructionism (Eriksson & Kovalainen, 2015). Ontological assumptions in qualitative research are based on opinions, understanding and experiences that may differ from one individual to another (Eriksson & Kovalainen, 2015). This is contrary to quantitative research, where the ontological assumption is that an external world exists separate from the knower (Kovalainen & Eriksson, 2008). To understand the phenomenon, the researcher relied on participants' intimate and tacit knowledge (intuition). The study was qualitative in nature and utilised a phenomenological research strategy to comprehend the challenges and prospects of collective bargaining in Botswana. The research was conducted in Botswana's public sector, using a sample size of fifteen (15) participants that was purposively selected. Research participants were interviewed face to face. Numerous methods exist for analysing qualitative data, including document analysis, content and thematic analysis, and grounded analysis. Given a thin line between content and thematic analysis approaches, the study used both content and thematic analysis approaches to report on how various discourses that are active within humanity have an impact on events, realities, experiences, interactions, and understandings (Braun & Clarke, 2006). This followed a methodical model for thematic analysis by Braun and Clarke (2006). ATLAS/ti was used for data management. According to Eriksson & Kovalainen (2015) ATLAS/ti is especially designed to organise and

analyse a large amount of qualitative data. Research ethics were certainly adhered to.

4. Findings of the Study

As noted earlier, extension mechanism is one way of determining the extent of collective bargaining coverage. Therefore, participants were asked if there are any collective bargaining extension mechanisms in place. Due to the lack of a legal framework on extension mechanisms, participants expressed mixed views about extension mechanisms. However, all 15 participants remarked that although not provided for in the statutes, extension mechanisms do occur by default. Below are their responses.

Participant 1 stated:

“Due to a unitary public service, the employer cannot treat employees differently in the sense that we have generic salaries. For example, if let’s say A salary scale is paid this much, it will be across the board. If you have negotiations with multiple trade unions and you end up agreeing on something, the most favourable of all negotiations will have to be applied across the board”.

Participant 7 shared a similar view and provided an example of past experiences with default extension mechanisms:

“The government recently awarded a five percent salary increment across the board, non-unionised workers benefited as well”.

In terms of the above, Participant 4 asserted:

“E and F salary scales do not unionise. In 2019 negotiations were concluded to say E salary scale will be given 4 percent, D and C salary scale will be given 6 percent, then B salary scale and downwards will get 10 percent, demonstrating that, indeed, extension mechanisms do exist”.

However, Participant 5 clarified how the 2019 salary adjustment for the E and F salary scales were decided. However, she agreed that extension mechanisms are indeed common and even cited examples, as shown below:

“The four percent salary increment for the E and F scale wasn’t concluded at the meeting for the DPSM and co-operating trade unions. It’s not even in that CLA. Executive increment was done separately. However, even if you are not affiliated to any trade union when a decision is made, government takes a holistic approach, and extends the benefits to all government employees, especially for those who are part of the bargaining unit”.

It was also evident that collective agreements for public officers are usually extended to the disciplined forces. Participant 5 provided examples of instances that could be referred to as extension mechanisms, saying:

“Collective agreements for public officers are usually extended to disciplined forces. They do not have a collective bargaining forum, so they ride on the bargaining forum for public officers. They are not part of the bargaining unit, but they benefit from the collective labour agreements of public officers. The expectation is that they have their own act and conditions of service. However, they still benefit from the collective agreements of the public service. For example, extensions of the X-factor allowance for the BDF, which came from the DPSM. It was 20 percent of the basic salary for ranks of private to lieutenant. This was a DPSM directive”.

Similarly, Participant 1 affirmed:

“Even scarce skills, the disciplined forces use the one for the DPSM”.

Participant 4 gave another instance of extension mechanisms happening by default, stating:

“The 2014 overtime allowance adjustment for the Botswana Police Force, BDF, and Prison Services, it came from DPSM. It was increased from 15 percent to 20 percent of the basic salary for the ranks of constable to Senior Superintendent (D2). This was not done by the Permanent Secretary to the President, but by the DPSM Director”.

Non-unionised workers such as the disciplined forces and management do not have a bargaining unit, and rely on the fate of the public service bargaining council. The collective labour agreements from the public service bargaining council are ultimately extended to them. Hence, Participant 4 submitted:

“Workers in managerial positions can actually have a bargaining unit within the PSBC, which can negotiate for them. But they didn’t do that, and in the end, they are given on the basis of what the trade unions would have negotiated. For example, if government and the trade unions agree on five percent, then that five percent is given to all as long as you are a government employee”.

Participant 7 shared similar view, and stated:

“Because we do not have a managerial/employers trade union, what happens is that after negotiations, the DPSM, after agreeing with the trade unions, they extend the collective labour agreement to managerial staff and non-unionised workers”.

Participant 6 postulated:

“What is agreed with unionised workers will still be applied to non-unionised workers”.

Participant 14 shared a similar view and remarked:

“Our system is an unusual one. Before we had a bargaining council, whenever there was increment, it was applied across”.

Participant 9 said:

“Extensions apply by default. If the employer makes the offer, they say across the board. Even those not participating, we extend to them because they are part of the public service. Collective agreements are extendable because most of the time they not providing anything less than the existing”.

Participant 9 further gave an example of an encounter they once had in terms of extension mechanisms:

“We once had a situation where manual workers and the employer agreed on minimum pay for the A salary scale to be P2500.00. The BOPEU and other trade unions were affected because they have members who are on the A salary scale. But just because our members are part of government employees and they are on A salary scale, the agreement will automatically

apply to our members, regardless of whether we were part of the negotiations or not”.

It is evident that collective agreements are extended without consultation. They happen by default. What has been agreed upon affects all, whether part of the negotiations or not.

In this respect, Participant 5 submitted:

“Once the bargaining platform has agreed on issues, they are binding to all workers within that scope. The employer will say your bargaining unit is scale D1 and below. So our agreements will be binding on everyone, whether you belong to a union, which is part of the council, or whether your unions were not part of the council or you are non-unionised”.

Though not documented, extension mechanisms do apply by default. Participant 13 asserted:

“Extension mechanisms are not documented anywhere, but they exist. Collective agreements are usually extended to disciplined forces, senior management as well as parastatals. But nobody says that’s what will happen”.

The findings demonstrate that the extensions reach fully-owned state enterprises. However, this does not stop the government employer from acting on non-unionised workers. Participant 12 stated:

“Every collective labour agreement is to be binding upon the parties who have entered into the agreement but in terms of issues registered at national bargaining council like salary increments, the agreement would be extended to all government workers and even to 100 percent government-owned parastatals. Decisions taken are applied across the board. But employers can act towards non-unionised workers at any time, for example, the employer can award them a salary increment at anytime”.

Participant 13 also shared his experiences about the extension of collective agreements. He averred:

“We noticed that the negotiations for parastatals and executive management is more of rubberstamping what public service has done. For example, what

would have been negotiated will ordinarily affect senior managers, e.g., the permanent secretary, directors etc. What happens in the public service is that the salaries for CEOs in PEs are tied to the salary scales of the permanent secretary. So, in other words they cannot earn more than the permanent secretaries”.

Participants seemed to hold a general view that owing to a unitary public service, the employer cannot treat employees in the public service differently. The pay system should be generic. Hence, when a decision is made, government, as the employer, takes a holistic approach and extends the benefits to all government employees, including those who are unionised and non-unionised, as well as management and disciplined forces. There is unitarism, in the sense that, the relationship is based on issues of loyalty, obedience, and respect for management’s decisions (Tustin & Goldenbuys, 2000). It stresses the need to recognise and respect hierarchy in an organisation; the demarcation is always clear: make decisions and follow. It has become apparent that though extension mechanisms are not documented nor provided for in the law, they do exist. Certain segments among public service employees like non-unionised workers, management and the disciplined forces are not part of the bargaining council, but are covered by it owing to default extension mechanisms.

5. Discussion of Findings

The current study established that there are no legal extension mechanisms for collective bargaining in Botswana. However, the findings revealed that, though not regulated by legislation, collective bargaining in Botswana has automatic erga omnes (“towards everyone”). These findings are consistent with ILO Flagship Report (2022), which states that in some countries, erga omnes applicability is regulated by legislation, but for a good number of countries, their collective agreements automatically have erga omnes effect. Botswana has a unitary public service, hence public service employees including disciplined forces tend to be treated and affected in the same manner. This is the employer ideology, where the employer reigns and has the right to manage; little to nothing is discussed or negotiated with trade unions. The unitary approach is an employer ideology: a strategy used to justify employer rule by attempting to win over the allegiance and commitment of other social classes (Cullinane & Dundon, 2014; Salamon, 2000; Racabi, 2022). This was reiterated by Participant 10 that:

“The argument is that the same economic environment, which other government employees are subjected to, is the same environment disciplined forces are in. e.g if the government employees say we align this increment to inflation, the same inflation affect other government workers like those in parastatals and disciplined forces, so why not increase for all of them”.

The findings further indicate that workers in managerial positions are another set of workers who enjoy the erga omnes effect of collective labour agreements. These workers do not have trade unions, and what happens is that after negotiations, DPSM will extend agreement to managerial staff and non-unionised workers. This was observed by Participant 1 that:

“For non-unionised employees its supposed to be one-on-one basis with the employer, but it is not happening because they enjoy and ride on collective labour agreements of unionised workers”.

The findings revealed that what has been agreed by the bargaining council or cooperating trade unions gets extended to non-unionised workers. This was highlighted by Participant 3 that:

“Those who are outside the bargaining council cannot negotiate with the employer over some conditions or matters that are discussed at the negotiation table, but will ultimately be extended to them”.

As noted early, the disciplined forces do not unionise, hence do not have a bargaining platform. The above was confirmed by Participant 13, who observed that:

“But what we have seen is that when the public sector unions negotiate with the government whatever has been agreed is also applied to disciplined forces”.

The PSA does not cover the disciplined forces, therefore nothing stops the employer to award them a salary increment, or to alter their conditions of service. However, the findings of the current study revealed that, the government as the employer has been extending whatever is agreed and awarded uniosed workers to non-unionised public service workers and the disciplined forces. Above was confirmed by Participant 5, who observed that:

“Collective agreements for public officers are usually extended to disciplined forces. They do not have a collective bargaining forum, so they ride on the bargaining forum for public officers. They are not part of the bargaining unit, but they benefit from collective labour agreements of public officers.

The expectation is that they have their own Act and conditions of service. However they still benefit from collective agreements of the public service. For example, extensions of the X-factor allowance for BDF, came from DPSM. It was 20 percent of basic salary for rank of private to Lieutenant. This was a DPSM directives”.

Another example of extension mechanisms was mentioned by Participant 4, with regards to the 2014 overtime allowance adjustment for the disciplined forces that:

“The 2014 overtime allowance adjustment for the Botswana Police Force, BDF, and Prison Services, came from DPSM. It was increased from 15 percent to 20 percent of basic salary for the ranks of constable to Senior Superintendent (D2). This was not done by the Permanent Secretary to the President, but the DPSM Director”.

It is, therefore, clear that there are administrative extensions through directives, hence erga omnes effect. The result are in tandem with OECD (1994, p. 167) report that “workers who are not union members are in fact, through extension and enlargement provisions both within and outside the bargaining unit, covered by the terms and conditions of union contracts” through unadjusted coverage mechanism.

Extension mechanisms are generally good for full development of collective bargaining. The current study's findings enjoy considerable support from International Labour Office, (2015a) & ILO Flagship Report (2022). Godfrey (2018) argued that the extension of collective agreements expand the advantages of a collective bargaining agreement to other segments of workers who are with or without bargaining rights, like in the case of Botswana, this will be parastatals wholly owned by state, workers in managerial positions and the disciplined forces. Extensions to disciplined forces and parastatals can be labelled as an enlargement. “This is designed to make collective agreements binding on employers and employees in certain geographical or sectorial areas outside of the agreement’s domain if they are economically similar to those covered by the collective agreement, and if there are no parties capable of conducting collective bargaining” (OECD, 1994, 178). Findings of the current study corroborates with research report by Hayter and Visser (2021) that if the areas in question are economically comparable to those covered by the collective agreement, these arrangements are designed to make collective agreements binding on employers and employees in

certain geographical or sectorial areas outside the agreement's domain. With a unitary public service, extension of collective bargaining is relevant because all government employees are subjected to similar economic conditions, standard of living and inflation.

Though coverage and extension mechanisms are good for full development of collective bargaining, the current study's findings revealed that, they can also lead to free-riding. This was noted by Hayter & Visser, et al. (2017) that the problem with the extension mechanism is that they reduce the incentive to join trade unions, leaving trade unions with problems of free riders. Collective agreements are extended to all public officers with bargaining rights. This include non-unionised workers, management and even parastatals to some extent. Where extension mechanisms exists, there is a need for clear provision for shop agency (Hayter & Visser et al., 2017). As it is, non-unionised workers are benefiting from collective labour agreements at the expense of unionised workers. Given that collective agreements in Botswana have automatic erga omnes effect, the concluding statement should tell whether to extend or not the bargaining council's decision to other public officers and at what expense. It should not just be the prerogative of the employer alone, to extend negotiated contract. Otherwise that will promote unitarims in decision making. In a unitary approach, organisational leaders and managers make policies, assign tasks, give orders, demand, and even threaten to finish work. The organisational leader is clearly distinct from the workers, while the workers are required to obey orders without any explanations from the leader. The organization is portrayed as having 'one source of authority and one focus of loyalty' (Fox, 1966). Extension of collective agreements without involvement of other concerned parties amounts to unitarism.

5.1 Limitations of the Study

Main limitation is that qualitative research is subjective. The data is based on participants knowledge, experiences, opinions, and perceptions. As such, the data is subjective in nature, and vary from one context to another. I made efforts to overcome this challenge by a relativist ontological belief, which is to appreciate multiple realities. With subjective human sense-making, there is no correct or incorrect way of knowledge generation.

6. Recommendation

Given that the collective agreements have erga omnes effect, the concluding statement should tell whether to extend or not to extend bargaining council decisions to other public sector officers. Legislation should have clear provisions for collective bargaining coverage and extension mechanisms. This will help avoid situations where extension mechanisms are used arbitrarily. With clear provisions, both parties will be aware of workers included by collective agreements and the group of employees to whom collective labour agreements can be extended.

7. Conclusion

The current study has established that there are no legal extension mechanisms for collective bargaining in Botswana. However, the findings revealed that, though not regulated by legislation, collective bargaining in Botswana has automatic erga omnes (“towards everyone”). Therefore, some agreements are extended to workers outside the bargaining unit and even outside the public service to include public sector workers such as the disciplined forces. The implication for erga omnes effect of collective labour agreements is that many workers will be included. This is good for the full development of collective bargaining.

References

- [1] Abbott, K. (2006). A review of employment relations theories and their application. *Problems and Perspectives in Management*, 4(1), 187–199.
- [2] Alby, P., Azam, J.-P., & Rospabé, S. (2005). Labor Institutions, Labor-Management Relations, and Social Dialogue in Africa.
- [3] Befort, S. F. (1985). Public Sector Bargaining: Fiscal Crisis and Unilateral Change. https://scholarship.law.umn.edu/faculty_articlesathttps://scholarship.law.umn.edu/faculty_articles/31.
- [4] Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2). <https://doi.org/10.1191/1478088706qp063oa>.
- [5] Budlender, D. (2009). Industrial relations and collective bargaining: Trends and developments in South Africa. In ILO working paper (No. 2).
- [6] Artus, I., Behrens, M., Keller, B., Matiske, W., Nienhüser, W., Rehder, B., and Wirth, C. (eds). (2016). *Developments in German industrial relations*. Newcastle: Cambridge Scholars Publishing.
- [7] Cox, E. (1995). *The 1995 Boyer lectures: A truly civil society*. Melbourne: Australian Broadcasting Corporation, September.

- [8] Doellgast, V., & Benassi, C. (2014). Collective bargaining. In Handbook of Research on Employee Voice (Issue August 2017, pp. 227–246). Edward Elgar Publishing Limited. <https://doi.org/10.4337/9780857939272.00023>.
- [9] Eriksson, P., & Kovalainen, A. (2015). Qualitative methods in business research: A practical guide to social research. SAGE Publications. [https://books.google.com/books?hl=en&lr=&id=Yv-ICwAAQBAJ&oi=fnd&pg=PP1&dq=Eriksson,+P.+and+Kovalainen,+A.+\(2016\).+Qualitative+Methods+in+Business+Research.+London&ots=MMwoLz3E4S&sig=b11d2uZ_25_Gev1EcB5qinnPN_0](https://books.google.com/books?hl=en&lr=&id=Yv-ICwAAQBAJ&oi=fnd&pg=PP1&dq=Eriksson,+P.+and+Kovalainen,+A.+(2016).+Qualitative+Methods+in+Business+Research.+London&ots=MMwoLz3E4S&sig=b11d2uZ_25_Gev1EcB5qinnPN_0).
- [10] Fashoyin Tayo. (1998). Industrial Relations in Southern Africa: The Challenge of Change (No. 6).
- [11] Gavin, M. (2022). Unions and collective bargaining in Australia in 2021. *Journal of Industrial Relations* 64 (3), pp. 362-379.
- [12] Godfrey, S. (2018). Multi-employer collective bargaining in South Africa. <https://ideas.repec.org/p/ilo/ilowps/994991393402676.html>.
- [13] Gollan, P. J., & Patmore, G. (2002). The challenge of employee democracy. In *Partnership at work: the challenge of employee democracy* (pp. 15–36). Pluto Press. <http://eprints.lse.ac.uk/5055/>.
- [14] Hayter, S. & Visser, J. (2021). Making collective bargaining more inclusive: The role of extension. *International Labour Review*, 160 (2), pp 169-335.
- [15] International Labour Office. (2015a). *Collective Bargaining: A policy guide*. International Training Centre of the ILO.
- [16] International Labour Office. (2015b). Factsheet No. 3.: Subjects for Collective Bargaining.
- [17] International Labour Office. (2015c). Factsheet No. 4.: The application of collective agreements.
- [18] Irwin, J. D. (2016). *Extension of Bargaining Council Agreements: International Norms and the Situation in South Africa*. University of Pretoria.
- [19] Marlove, O., Betrice, M., L., & Nimakoh A., J. (2023). Workers participation in decision making: A necessary tool for effective management: A case study on Kumasi Metropolitan Assembly (KMA). A research project submitted to the School of Business Christian Service University College; In a partial fulfilment for the requirements of the award of the Bachelor of Business Administration (Human Resource Management).
- [20] Mogalakwe, M. (1994). *State-Labour Relations in Botswana 1966-1990 Industrial Relations in an Emergent “Liberal” Capitalist Democracy*. University of Warwick.
- [21] Motshegwa, B., & Tshukudu, T. T. (2012). Deep rooted conflicts and Industrial Relations interface in Botswana. *Journal of Public Administration and Governance*, 2(3), 118. <https://doi.org/10.5296/jpag.v2i3.2349>.

- [22] Motshwarakgole, J. (2014). Two years to vision 2016 yet too far: A quick guide to disturbing developments in the governance of Botswana.
- [23] Mpabanga, Z. L., Ukpere W.I. and Knight X. (2023) “Globalisation and Current Employment Situation in South Africa: An Exploratory Enquiry”. *Annals of Spiru Haret University. Economic Series*, 23(4), 403-416.
- [24] Mwatcha, M. P. (2015). Botswana’s Labour Relations Systems: Lessons from 2011 Public Service Strike. University of Witwatersrand.
- [25] Organization for Economic Cooperation and Development (OECD). (1994). *Collective Bargaining: Levels and Coverage*. In *OECD Employment Outlook* (p. 168). <https://www.oecd.org/els/emp/2409993.pdf>.
- [26] Racabi, G. (2022). Abolish the Employer Prerogative, Unleash Wok Law. *Berkeley Journal of Employment and Labour Law*, 43(1), 79-138.
- [27] Salamon, M. (2000). *Industrial Relations: Theory and Practice*. - Google Search (3rd ed.). Pearson Education.
- [28] Trebilcock, A. (2011). Labour Relations and Human Resources Management. In *Encyclopaedia of occupational health and safety*.
- [29] Trampusch, C. (2007). Industrial Relations as a Source of Solidarity in Times of Welfare State Retrenchment. *Journal of Social Policy*, 36(2), 197–215. <https://doi.org/10.1017/S0047279406000560>.
- [30] Tustin, C., & Goldenbuys, D. (2000). *Labour relations : the psychology of conflict and negotiation*. 250.
- [31] Ukokhe, E.S., Florah, O.M. (2022). Effect of Collective Bargaining on Industrial Disputes Management. *ESI Preprints*. <https://doi.org/10.19044/esipreprint.7.2022.p585>
- [32] Visser, J., Hayter, S., & Gammarano, R. (2017). *Labour Relations and Collective Bargaining: Trends in Collective Bargaining Coverage: Stability, Erosion or Decline?* (ISSN 2227-9334 (web); ISSUE BRIEF No. 1, Issue 1).
- [33] Zvobgo, T. J. (2019). *Collective bargaining and collective agreements in Africa Comparative reflections on SADC* (No. 11).

artificial-intelligence
 accountability
 resources
 virtual-reality
 blockchain
 millenials
 economy
 involvement
 forecast
 leadership
 social-media
 skills
 research
 ethics
 ability
 opportunity
 conception
 strategic-trends
 cyber-marketing
 corporate-social-responsibility
 creative-insights
 data-analytics

environmental-economics
 creative-solutions
 augmented-reality
 Virtual-Reality
 academic
 evolution
 cluster
 advocacy
 social-media
 development
 open-essence
 eco-development
 2-generation

artificial-intelligence
 cybnetics
 eco-bio-economy
 shaping-the-future
 social-care
 e-learning
 Halo IoT
 life-cycle
 policy
 ideas
 innovation
 global
 education
 growth
 gamification
 strategic-trends
 cyber-marketing
 corporate-social-responsibility
 creative-insights
 data-analytics

bio-technology
 discrimination
 baby-boomers
 prosperity
 complexity
 partnership
 Think-Thank
 social-policy
 recycling
 commercial-law
 creativity
 entrepreneurship
 decision-making
 environment-protection
 international-economic-relations

trade
 incentives
 cloud
 knowledge
 economic-policy
 sustainability
 competition
 business
 resource-security
 corporate-social-responsibility
 creative-insights
 data-analytics

artificial-intelligence
 cybnetics
 eco-bio-economy
 shaping-the-future
 social-care
 e-learning
 Halo IoT
 life-cycle
 policy
 ideas
 innovation
 global
 education
 growth
 gamification
 strategic-trends
 cyber-marketing
 corporate-social-responsibility
 creative-insights
 data-analytics

ISSN: 2393-1795
ISSN-L: 2068-6900

