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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.

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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.

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FOREWORD

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The world economy is currently in one of the most difficult years of the last three decades, as the shocks of the energy crisis triggered by the war in Ukraine continue to be felt, wrote one of the economic analysts from Bloomberg Economics, at the beginning of December 2022.

Economist Scott Johnson from Bloomberg Economics predicts economic growth of only 2.4% of the world economy for 2023, down from the forecast that indicated an increase of the world economy by 3.2%. The forecast shows the weakest possible economic growth, excluding the crisis years of 1993, 2009 and 2020.

According to forecasts of Bloomberg Economics, the US could end the year with a recession, while China's economy will grow by 5%, boosted by the relaxation of anti-Covid policies and the help that the state is preparing to offer to the real estate sector in crisis.

Johson is of the opinion that a difference will also be seen in terms of monetary policy, after a year in which the banks "rushed to migrate to a restrictive territory".

In the USA, with wage increases holding up inflation, the Fed - Federal Bank of USA - is heading for a 5% interest rate and will remain there until the first quarter of 2024. In the Eurozone, a faster fall in inflation will - could translate into a slightly lower reference interest rate and the possibility of some reductions at the end of 2023.

In China, where the government is caught between the desire to support the recovery and concern about the weakness of the currency, limited interest rate cuts are expected.

According to the article issued by the Organization for Cooperation and Economic Development (OECD), entitled *OECD warns that Europe will be the most affected by the slowdown of the world economy*, published on the 13th of December 2022 by CECCAR BUSINESS MAGAZINE, the world economy should avoid entering recession in 2023. But the worst energy crisis since 1970 will

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trigger a significant slowdown, and Europe will be the most affected which added that the fight against inflation should be the main priority, reports Reuters, taken over by Agerpres. According to the OECD, the growth rate of the world economy would slow down from 3.1% in 2022, a slightly better advance than the organization forecast in September 2022, to 2.2% in 2023, to accelerate to 2, 7% in 2024.

"We are not forecasting a recession, but we certainly expect a period of prolonged weakness," OECD Secretary-General Mathias Cormann told a news conference where the OECD's latest forecasts were presented.

The Paris-based organization, OECD, said the global economic slowdown will hit economies unevenly, with Europe the hardest hit as the war in Ukraine takes its toll on economic activity and has led to a spike in energy prices.

According to the latest OECD forecasts, the euro area economy will grow by 3.3% in 2022, to slow to 0.5% in 2023, and then recover to a 1.4% advance in 2024 The new forecasts are slightly better than those of September 2022, when the OECD was betting on a growth of 3.1% in the euro area in 2022 and a slowdown to 0.3% in 2023.

Even in Europe the forecasts are different, with Germany, a country whose industry is heavily dependent on energy imports from Russia, the OECD expecting a contraction of 0.3% next year. In contrast, France, which is much less dependent on Russian oil and gas, is expected to grow by 0.6% next year.

The USA economy is expected to hold up better, with economic growth forecast to slow from 1.8% this year to 0.5% in 2023 before picking up 1% in 2024. The OECD previously expected the world's largest economy to register an advance of 1.5% this year, and estimates for 2023 were left unchanged.

China, which is not a member of the OECD, is one of the few major economies in the world that is expected to register an acceleration in economic growth in 2023, after a wave of quarantines in 2022. For the Asian giant China, the OECD is counting on growth of 3.3% in 2022 and an advance of 4.6% in 2023, compared to previous estimates that forecast an increase of 3.2% in 2022 and an advance of 4.7% in 2023.

As monetary policy tightening begins to take effect and energy price pressures ease, inflation in OECD countries is expected to ease from more than 9% in 2022 to 5.1% in 2024.

"On monetary policy, further tightening of monetary policy is needed in most advanced and many emerging economies to firmly anchor inflationary expectations," added Mathias Cormann, OECD Secretary General.

Established in 1961, the OECD plays an advisory role to the governments of highly developed countries on economic, social and governance policy. The 38 OECD member states together hold approximately 60% of the world economy, 70% of world trade and 20% of the world's population.

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 economy. Whether or not they succeeded in responding to the challenges, we leave it to you to determine.

In the first paper published in present issue, entitled "***Example of Methodology for Measuring Human Resources Motivation as a Factor for Preventing Corrupt Behavior Among Employees of The Ministry of Internal Affairs***", the author **Irena TODOROVA** presents the objective need to maintain a high level of motivation and effectiveness of training to achieve high-quality professional performance of official duties among the employees of the Ministry of Internal Affairs. The activity of the state administration should correspond to the high public expectations for professional competence, legality, integrity, correctness, and responsibility. Therefore, the measurement of the motivation factor is a natural necessity, determining the managerial impact of the management team for the formation of specific behavior among employees, aimed at achieving a quality professional achievement in the performance of official duties and preventing corrupt behavior.

The authors **Calvin MABASO, Cikizwa MABUDE and Jeremy MITONGA-MONGA,** in their paper named "***Exploring the Role of Employee Participation on Labour Unrest in a South African Mining Organisation***" are telling us that South Africa is faced with the challenge of frequent, lengthy, and violent strikes, especially in the mining sector. It is argued that the challenge of labour disorders can be addressed through meaningful employee participation in decision-making. The main objective of this research was to explore whether poor employee participation in decision-making contributes to labour disorders in the South African mining sector. To be precise, mineworkers frequently engage in violent strikes that negatively impact mining organisations, their employees, the economy, and mining communities. A qualitative research approach was employed using semi-structured interviews to collect data from employees who occupy low levels in a mining organisation. The findings show that poor employee participation in decision-making in the South African mining sector contributes to labour disorders. A positive relationship between poor employee participation and labour disorders is established; therefore, the mining management should implement corrective measures to ensure meaningful employee participation in decision-making that significantly reduces strike action. The research highlighted the issue of poor employee participation in decision-making and the impact on labour disorders.

The paper entitled *"The Nexus Between Organizational Downsizing and Employees' Continuance Commitment within the Transport and Logistic Industry in Zimbabwe",* written by authors **Tinashe R MUSHONGA & Wilfred Isioma UKPERE** aims to establish the link between organizational downsizing and employees' continuance commitment in the transport and logistics industry in Zimbabwe. There has been an ongoing economic downturn in many Sub-Saharan African countries over the years, which has directly impacted on industrial growth. Faced with harsh economic realities, many organisations in Zimbabwe have resorted to frantic organisational downsizing to stay afloat. Despite the wide use of organisational downsizing across industries, its effects on employee continuous commitment remains equivocal. To successfully achieve the research objectives, this paper used an Explanatory Sequential Mixed Method, and collected data in a sequential manner starting with surveys and then following up with interviews. The study's results demonstrated that frantic organisational downsizing in Zimbabwean transport and logistic organisations was exacerbated by the economic crisis faced by almost every sector of the economy. Interestingly, the results of the study suggested a positive effect of downsizing on employees' continuance commitment with the downsized organisation. However, some negative psychological effects of frenzied organisational downsizing process were rampantly reported.

The purpose of the paper entitled "*Intellectual Capital Efficiency as the Determinant of Sustaining Profitability in The Covid-19 Pandemic Conditions: Does the Age of The Enterprise Matter in the Hotel Industry?, written by the authors* **Jasmina OGNJANOVIĆ, Bojan KRSTIĆ, Tamara RAĐENOVIĆ & Milica JOVANOVIĆ VUJATOVIĆ**, affiliated to different universities and research institutes from Serbia, is to provide the answer to the question - Can the efficiency of intellectual capital (ICE) be a factor in maintaining the profitability of young and mature hotel enterprises in the crisis caused by the Covid-19 pandemic? The key goal of the paper is to point out the importance of intangible (intellectual) resources for improving business performance, and above all, profitability. To respond to the goals of the research, an analysis of the contribution of human capital efficiency (HCE) and structural capital efficiency (SCE) to the profitability of young and mature hotels in the year before the crisis and the year of crisis in the

Republic of Serbia (RS), as an emerging country will be given. The study's findings suggest that the ICE components have a partial impact on the profitability of young hotels in the year before the crisis. In the year of crisis, the ICE components partially affect the realization of sustainable and profitable business among mature hotels.

In their paper entitled "*Impact of Covid-19 on the Labour Market in Kenya*.", the authors **Kennedy OLUNG'O & Wilfred Isioma UKPERE** are talking about the fact that the outbreak of the corona virus affected peoples' way of life hugely across the globe. The resulting effects shocked even the most advanced companies. The effect of the virus has not only affected the health and well-being of people, but also their economic well-being. Globally, various governments introduced mitigating measures including lockdowns, restrictions on movements, curfews, social distancing, mask wearing and, finally, vaccination programs. This study aimed to establish how COVID-19 affected the labor market in Kenya; how the pandemic affected workers differently; what new skills were required for workers to cope with the pandemic; and training programs that were initiated for workers during and after the pandemic. The study gathered information from a group of key stakeholders, totaling 20, both from the public and private sectors.

The autor **Ahmed Owolabi OLAJUWON**, in his paper entitled "*Youth Unemployment Syndrome in Nigeria: A Case for Review and Policy Implication"*is talking about the fact that Nigeria's youth unemployment rate is at 54.4% in the last quarter of 2020 (National Bureau of Statistics, 2020) which thus gives us an obvious reality of the danger of ever-increasing youth unemployment flooding the landscape of Nigeria, while several governmental initiatives in time past have not been able to help in curbing youth unemployment challenges in Nigeria, this study adopt the systematic review analysis in assessing the capacity of apprenticeship and informal sector capacity in reducing youth unemployment in Nigeria. This study calls for apprenticeship modernization and informal sector support in reducing youth unemployment in Nigeria as both apprenticeship and informal sector were proven to be significant measures in reducing youth unemployment in Nigeria.

Calvin MABASO, in his research paper named "*Productivity Enhancement Through Total Rewards: An Exploration Practices In The Financial Services Sector*" is telling us that the Financial Service Sector is facing significant challenges in employee productivity. In order to enhance productivity amongst employees, total rewards could assist the financial service sector in enhancing productivity. The current study aimed to explore the role of total rewards in productivity enhancement in the financial service sector. The importance of this study is to aid financial service sector organisations in implementing and developing the appropriate rewards systems to fit the need of current employees to ensure perceived productivity. A qualitative approach using thematic analysis employed for the study. The current study's findings have indicated that total rewards significantly impact employee productivity and that financial and non-financial rewards effectively improve employee productivity. The findings have also indicated that the structure of reward systems and reward systems overall impact productivity. This study provided critical practical guidelines that financial service sector organisations could use to develop and implement a total rewards strategy valued by employees, which enhances productivity.

Elena GURGU, Gabriela UNGUREANU, Eugen GHIORGHITA, Diana-Virginia CRACIUNAS & Ioana-Andreea GURGU, in their paper entitled*"Strategies for Achieving an Agile-Performing and Practical-Transformational Change Leadership Model at the Company Level*" are talking about the fact that change is a common thread that runs through all businesses, regardless of size, industry and age. The business world is changing rapidly, and organizations must change just as quickly. Organizations that engage in change thrive, while those that do not end up struggling for survival. Change leadership plays a key role in any successful business, representing an important part of leading a high-performing team as well as a successful business. Regardless of whether a company's team is working on a project, a software update, or an ongoing optimization idea, change leadership is extremely important. As the business grows, so does the team. With more employees and more tasks, any business needs a plan to manage change and stay on track for performance. Given the fact that resistance to change can play a major role in determining how a company operates, it is necessary for those who deal with change leadership to find strategies and solutions to avoid mass resistance when a change occurs. In this paper authors addressed precisely the strategies, solutions and planning of a permanent leadership of change at the company level, so that a business becomes successful. They went through the steps that were taken by a company to get the agile-performing and practical- transformational change leadership model, which comes with strategies, principles and modern business tools and solutions.

Adenike Titilayo EGUNJOBI, in the paper entitled "*Poverty, Inequality, Economic Wellbeing and the African Economy: Panel Data Analysis (2000 –*

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2020)" is talking about the fact that high GDP per capita and growth rate seems not to spur greater reduction in poverty and inequality in most African countries. Thus, this study examined the possible cause of this unparalleled situation and also established the nature of the relationship between the much better measure of economic well-being (GDP or HDI) using panel data analysis on cross section data collected for 15 countries in Sub Saharan Africa (SSA). Conducting Hausman test, it was discovered that the Fixed Effect Method rather than Random effect Method was more efficient in interpreting the behavior of GDP per capita and HDI. The results showed that HDI is a better measure and determinant of wellbeing than GDP per capital. Furthermore, the variables of the model were all statistically significant and correctly signed. The study recommended that governments should embark on programs that directly impact the quality of life of the people.

Samuel C UGOH, Celestine OKWUDILIABASILI & Wilfred Isioma UKPERE wrote a very interesting paper entitled *"Governance Responsiveness: An Assessment of Income Tax Regulation and Compliance in Nigeria"*, talking about the fact that funding government expenditure can be achieved through imposition of compulsory tax or levy on individuals and businesses to raise revenue for the different functions of the State. Invariably, taxation is the forced contribution of money by an individual, exacted pursuant to legislative authority for support of the government and public welfare. This paper examined the extent to which voluntary compliance and obedience to the discharge of civic obligations such as income tax payment is influenced by governance responsiveness. The study adopted extensive review of literature on governance in Nigeria to interrogate the public compliance to income tax regulations against the background of the historic culture of tax avoidance and evasion. The paper adopted the Social Contract framework to analyze and understand the phenomenon of both dependent and independent approaches. This paper revealed a significant level of noncompliance to public laws in Nigeria's Fourth Republic due to government unresponsiveness to societal needs and aspirations. Accordingly, the adoption and institutionalization of good governance practices was recommended as a sure way to win public trust and voluntary participation in civic obligations.

The study "*Effect of Tactical Asset Allocation on Risk and Return in The Nigerian Stock Market*" written by **Abraham Oketooyin GBADEBO &Yusuf Olatunji OYEDEKO** examines effect of tactical asset allocation on risk and return in the Nigerian stock market. The study covers the period of 2005 to 2020. Purposive sampling was employed. 90 regularly traded firms were considered as a filter on the sample size. The monthly stock prices, market index, risk-free rate ownership shareholdings, market capitalization, book value of equity, earnings before interest and taxes, total assets and tactical asset allocation were the data used in this study. The study gathered data from the CBN statistical bulletin, Nigeria of Exchange Website and Standard and Poor (S&P). The Fama-MacBeth two-step regression method was employed. The study found that tactical asset allocation shows that it insignificantly improves return and significantly reduces risk under the whole sample sub-period except for the sub-periods in the Nigerian stock market. Thus, tactical asset allocation is a short-term investment strategy that could be used in making optimal decisions in terms of maximizing return and minimizing risk in the Nigerian stock market. The study recommended that tactical asset allocation is a short-term market timing strategy which can be used in Nigerian stock market to maximize return and minimize risk against buy and hold strategy which is passive and long-term in nature.

The study of the authors **Olufemi Samuel ADEGBOYO, Dominic Olorunleke OLUGBAMIYE & Olakunle ADEPOJU** entitled "*Do Migrant Remittances Drive Private Investment? Empirical Evidence from Nigeria*" conducts investigation into how migrant remittance drive private investment in Nigeria spanning from 1980 to 2021. The study adopts flexible accelerator theory as its theoretical framework. The study employs Augmented Dickey-Fuller (ADF) unit root test to test for stationarity of each variable, and the result reveals that there is mixed among the variables. Sequel to the mixed level of stationarity of the variables the study employs ARDL estimation technique to investigate the impact of migrant remittance on private investment. The study found that in the short run migrant remittance and interest rate drive private investment while exchange rate, gross domestic product growth rate, inflation rate and financial deepening crowd-out investment in Nigeria. Whereas in the long run, all the variables drive investment aside financial deepening. Consequently, that policy makers and government should formulate policies for free flow of remittance into the economy without any difficulties, also the study recommends that adequate monetary policy should be formulated to ensure that the financial sector serves its function of enhancing private investment in Nigeria.

The study of **Oluwaleke Ebenezer AKINDIPE, Abdulrasheed Olajide LAWAL & Debbie Oluwajenyo AKHIMIE**, named "*Sustainable Banking Practices on Social and Environmental Risk Management in Access Bank of Nigeria",* aims to show how effective risk management can be implemented in the

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Nigerian banking industry, as well as how various risks associated with Nigerian banks' performance can be mitigated by following the sustainable banking principle, which encourages effective risk management in Nigerian banks. A survey research design was used in this study. The population of the study is 19,982 members of staff that are in all the Access Bank branches across Nigeria. The officers that are needed for this research are management staff, risk officers, sustainability officers and accountants. The estimated number of risk officers and sustainability officers in all the Access bank branches across Nigeria are 1650 and 1805 respectively. The total relevant officers for this research are 257 in number which are selected from five major branches and the Headquarters of access bank in the whole of Nigeria. The sample size was 157. Data collected was analysed using statistical package for social science students (SPSS) while Chi-square was used to test the hypotheses formulated. The two hypotheses which were tested in the research work showed a clear indication of positive contribution of sustainability principles adoption on risk management, profitability, and bank reputation in Access Bank Plc. The two hypotheses tested showed chi-square test values of 11.949 and 15.834 with a p. Value of 0.018 and 0.0003 which shows that the tests are statistically significant at 5% significance level. It was concluded that the banks' goodwill had increased tremendously because of their sustainability, which boosted their external image and attracted more customers through word-of-mouth advertising, which is very effective in Nigeria. The government should therefore encourage banks to adopt sustainable banking as an important component of their critical strategy for long-term goals and sustainability that improve people's lives, according to the recommendation.

The main objective of the authors **Akingbade U. AIMOLA** and **Nicholas M. ODHIAMBO's** paper entitled *"Testing the Validity of the Fiscal Theory of the Price Level (Ftpl): A Review of International Literature"* is to review literature on the Fiscal Theory of the Price Level **(**FTPL) and its validity in price level determination for both developed and developing economies. FTPL may be understood on the categorisation of the fiscal regime into two types, namely, the Ricardian and non-Ricardian regimes. Empirical evidence for the validity of FTPL on price level determination depends on dominant characteristics of the policy regime. The Ricardian regime does not hold for FTPL, while the non-Ricardian regime holds for FTPL. Based on surveyed empirical studies, time series and panel analysis were used through various estimation methods in the validation of FTPL. Most of the findings from the studies reviewed in this paper validated the FTPL.

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This means that inflationary episodes tend to be influenced by fiscal dominant regimes. The study concludes that the conduct of fiscal policy influences price dynamics. Hence, fiscal variables should be considered by the central bank in its monetary policy rule.

The authors **Devajit MOHAJAN & Haradhan Kumar MOHAJAN**, in their paper entitled *"Utility Maximization Analysis of an Emerging Firm: A Bordered Hessian Approach"* are telling us that the method of Lagrange multipliers is used to investigate the utility function; subject to two constraints: budget constraint, and coupon constraint, and to verify that the utility is maximized. An economic model of an emerging firm has been developed here by considering four commodity variables. In the study, the determinant of the 6×6 bordered Hessian matrix is operated to verify the utility maximization. Two LaGrange multipliers are used here, as devices of optimization procedures, during the mathematical calculation. In this article, an attempt has been taken to achieve optimal results by the application of scientific methods of optimization.

In the paper named *"Innovation as the Key to Improvement in Healthcare and Education",* the authors **Dalia DREIHER & Milana ISRAELI** reviewed the principles of incorporation innovation into government-led, public systems such as the Israeli healthcare system and the Israeli education system. The authors suggested some recommendations regarding the benefits of introducing innovation, the "dos and don'ts" of incorporating innovation, and some metrics that can be used to monitor the progress of this process, with focus on digital technology, artificial intelligence, and big data as common themes in both fields.

The study *"Health Security Issues and Challenges in Nigeria"* by **Etim O. FRANK & Wilfred Isioma UKPERE** examined the concept of health security and its applicability in Nigeria and upheld its desirability because safety is man's most prized want, including health security. However, the culture of Nigeria's ruling class, which relies on overseas medical tourism, made them unaware of this phenomenon. The study applied the descriptive design, using the case study as an investigation tool, since health security is embedded in human security. The case study procedure revealed that Nigeria spent merely two thousand Naira per capita per population. This was reflected in the country's low budgetary allocation each year, which is also the lowest in the African continent. This accounted for why the Nigeria Medical Association (NMA) embarked on strike action often as means to demonstrate inadequacies in the sector and to make the ruling elite understand the symbiosis between human and health security to prompt them to allocate resources adequately to both areas. This approach revealed that to have health security, infrastructure must be provided adequately at three levels, namely primary, secondary, and tertiary health centers, respectively. These levels must support each other, and the services should be accessible, available, and affordable. Health security must form part of the agenda for public policy in the health sector because it is unknown to public policy drivers and the National Planning Commission that design developmental plans for Nigeria. In the absence of a functional national health insurance scheme, affordable health security is an alternative. This is one of the major ways in which the life-expectancy of Nigerians, who live in a country surrounded by brutish living conditions, can improve. Amongst others, this study proposed that the ruling elite should obtain their healthcare needs within the country, whilst all employers who have 25-30 employees, should establish a health insurance scheme for their employees.

Jelena STANKOVIĆ, in the paper named *"The Role of the Consumer's Personality in Creating the Brand's Personality"*. is telling us that in modern business conditions, people are constantly engaged in building their identity, so the symbolic characteristics of products are often the primary reasons for their purchase. Brand personality is generally understood as a characteristic of a brand. Accordingly, just like people, all brands have a certain degree of personality. In some cases they are very emotional and lively, in other cases they are underestimated or barely noticeable. Since the brand personality is an intangible category, marketing experts strive to understand the needs of consumers and how the brand personality affects their preferences and loyalty. Starting from the existing theoretical views, the aim of the author is to investigate the relationship between the personality of the consumer and the personality of the brand in the mobile phone market in the Republic of Serbia. The intention is to look at the relationship between personality characteristics and individual dimensions of the brand personality based on the obtained empirical data, based on which the connection between these variables will be identified, and then guidelines for further business in the mobile phone market.

Nicola WAKELIN-THERON and **Wilfred Isioma UKPERE,** in their paper entitled "*Sustainable transportation in the taxi industry in Johannesburg: The opportunities, challenges, and solutions towards achieving sustainable transport*" are talking about the fact that the taxi industry provides mobility and employment. Sustainable transportation must be served by innovative practices, namely new mobility types, appropriate infrastructure, and intelligent systems to manage livable environments. This study aims to determine the current practices and sustainable alternatives for taxi role players and the Department of Transport. The objectives were to determine probable future changes as well as ascertain whether there is a gap between the future of transportation and the vision of stakeholders. A qualitative research approach using semi-structured individual interviews was adopted. Participants for the study were selected purposively in Johannesburg and included people working in industry as well as experts in the field. The findings highlighted a significant gap between the understanding of the South African National Taxi Council, Department of Transport, taxi owners, taxi marshals, and taxi drivers regarding the way forward towards embracing sustainable practices. The researchers conclude that sustainable innovations are imperative for transportation development, economic growth, as well as reaching the United Nations sustainable development goals. This study provides a good understanding of the backgrounds unique to the taxi industry in Johannesburg, sustainable mobility practices, as well as gaps in the industry.

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EXAMPLE OF METHODOLOGY FOR MEASURING HUMAN RESOURCES MOTIVATION AS A FACTOR FOR PREVENTING CORRUPT BEHAVIOR AMONG EMPLOYEES OF THE MINISTRY OF INTERNAL AFFAIRS

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Abstract

The report presents the objective need to maintain a high level of motivation and effectiveness of training to achieve high-quality professional performance of official duties among the employees of the Ministry of Internal Affairs. The activity of the state administration should correspond to the high public expectations for professional competence, legality, integrity, correctness, and responsibility. Therefore, the measurement of the motivation factor is a natural necessity, determining the managerial impact of the management team for the formation of specific behavior among employees, aimed at achieving a quality professional achievement in the performance of official duties and preventing corrupt behavior.

Keywords: *measurement, motivation, management, public sector, Ministry of Internal Affairs, corruption*

JEL Classification: *O15*

Introduction

National security is a condition in which subjects, society and the state possess the ability to effectively oppose various threats. The public sector in any country is largely related to its security system, insofar as its main mission is to ensure the protection of the rights and freedoms of citizens and the normal functioning of the state and state bodies. The specificity and variety of activities carried out by the state administration determine a complex organizational structure, which implies the engagement of employees with professional competence in many different areas. At the same time, higher requirements are set for civil servants regarding their professional competence, skills for working in a tense and dynamic environment, and discipline. That is why inobservance of certain values: legality, preservation and protection of human life, respect for the dignity and rights of citizens, honesty, correctness, competence and responsibility. Following these value orientations in behavior is an important prerequisite for preventing corrupt behavior among civil servants in the public sector and in the Ministry of Internal Affairs, in particular.

Literature Review

A large volume of literature sources was studied in order to form a methodology for work. The literary review includes literary sources in Bulgarian, Russian and English, by Bulgarian and foreign authors, normative documents, and publicly available resources on the Internet, which have attitude to the problems of motivation, training and corruption behavior as a negative social phenomenon. Among them are authors whose scientific works are fundamental in clarifying motivational processes, training, and human resource management, as well as publications, made in the last 5 -10 years.

For example, the problems associated with studying the essence of motivation as a process of managerial impact, are described by the following authors: Abraham Maslow, Burrus Skinner, Alexey Leontiev, Lawrence and Noria, Frederick Herzberg, Maria Andreeva, Elitsa Petrova, Elena Gurgu, Marin Paunov, Trifon Trifonov, Petar Nikolov, Yosif Iliev, Zakharin Markov, Kamen Kamenov, Anatoly Asenov, etc.

Information about the conceptual apparatus in the field of countering corruption and corrupt behavior, as well as the prescribed standards in the activity of the administration are contained in the normative documents: Penal Code, Code of

Administrative Procedure, Law for Counteraction of corruption and confiscation of illegally acquired property, Ethical code of conduct for civil servants in the Ministry of Internal Affairs, Code of behavior of employees in the state administration.

Corruption is a negative social phenomenon.

Corruption is a negative social phenomenon with its own specific characteristics and forms of manifestation. The legal definition of the concept of corruption is contained in Art. 3, para. 1 of the Law on Combating Corruption and Confiscation of Illegally Acquired Property, published in the State Newspaper No. 7 of January 19, 2018, last amended and supplemented by State Newspaper No. 12 of February 12, 2021: "Corruption under the meaning of this law is present when, as a result of the high public office held, the person abuses power, violates or does not fulfill official duties with the aim of directly or indirectly obtaining an unobservable material or immaterial benefit for himself or for other persons.". [4], [10]

Relative to the functioning of the Ministry of Internal Affairs, the phenomenon of corruption is marked by a particularly high degree of public sensitivity. Violations of official duties or criminal acts committed by civil servants in the Ministry of Internal Affairs, who by law should be an example of professionalism, correctness, and integrity, reduce public trust in the institutions, undermine the authority of the state administration as a whole and give rise to a feeling of anxiety and uncertainty in statehood at all. Therefore, an effective set of measures is needed to estimate the level of motivation of employees to prevent possible manifestations of corrupt behavior at all stages of development of the personnel process.

The most important factor for any organizational unit is human resources with its personal qualities and professional skills. The strategic perspective of the organization depends on its competence, willingness to learn and future potential for development. The motivation and behavior of the individual can be effectively changed in the way of supporting the desired reactions and ignoring the unwanted ones, and the conscious impact in the human resources management process favors their effective use and development. [1], [5], [6], [8]

The measurement of motivation as necessary managerial impact.

Motivating human resources is “a function of organizational culture. It is a specific managerial activity of influencing and finding a balance between individual goals and overall organizational goals. Motivation is an objective process, and motivating is a type of managerial influence". [15] The role of the manager is to create those conditions that provoke employees to participate actively in the work process and perform their official duties with a conscious desire. Therefore, motivational expression can be defined as "the desire to show a high level of effort towards the achievement of the organization's goals, conditioned by the efforts to satisfy some needs of the individual". [12] Therefore, the three key elements of motivation include effort, organizational goals, and needs.

The methodology for studying and researching the motivation for work and human activity in Bulgarian conditions is described in by Yosif Iliev, Dimitar Shopov, Margarita Atanasova, Elitsa Petrova and other Bulgarian authors. The current sample methodology was developed in accordance with the theoretical richness contained in motivational theories and considering from the Western European experience. [9], [11], [12], [14], [15], [16], [17], [18] Its main goals are to establish the real state of staff motivation and analyze the impact of individual motivational factors, identify measures to improve the motivation of human resources in the Ministry of Internal Affairs with a view to preventing corruption, and propose measures to improve the process of increasing professional qualification and training as a way of motivational impact in order to prevent potential acts of corruption.

Sample methodology for researching the motivation and level of professional training of employees in the Ministry of Internal Affairs

The current sample methodology for researching the motivation and level of professional training of employees in the Ministry of Internal Affairs aims to establish the level of motivation for training human resources as a main function for the prevention of corruption and is based on the following principles:

• recognition of the leading and decisive role of human resources for the successful functioning of the organization.

• recognition of motivational issues as key in human resources management.

• perception of increased staff motivation as a significant resource for improving the effectiveness of activities and work results of individual members of the organization.

The proposed option for empirical research on the motivation of employees in the Ministry of Internal Affairs and the need for training presents the diagnostic stage of research, in which a methodology is prepared for researching the motivation and level of professional training of employees. In view of the effective implementation of the research model, the manager's efforts must be directed, using various methods, means and forms, to the implementation and improvement of the organization's motivational strategy. The performance of these functions requires the manager to be convinced of the usefulness of the research, to be a role model, to work on his own motivation, to consider the individual characteristics of the individuals in the team, to stimulate the activity of the staff.

When conducting the diagnostic study, several research directions can be set:

Dimension 1. Establishing the level of motivation to work in the Ministry of Internal Affairs and satisfaction of expectations for professional realization. The dimension clarifies the employee's attitude towards the specific workplace. The questions deal with different aspects of fairness in labor activity and the use of different mechanisms to evaluate the contribution of personnel. It is intended to provide guidance on the reserves and opportunities to achieve better performance and better performance of employees and workers. Sample questions:

1. Why do you work at the Ministry of Internal Affairs?

The purpose of this question is to establish, in general, the level of motivation of employees - management and executive staff; the desire to serve in the interest of society; the presence of a personal interest in a work performance specifically in the field of security and public order protection.

2. How did you decide to apply for a job at the Ministry of Internal Affairs?

The wording of the question allows a lot of freedom for answers. With the question, an attempt is made to establish whether the profession is a personal choice of the employee, or he was guided to this choice by another person. The goal is not to find a correct answer, but an objective analysis of the effectiveness of human resource selection procedures.

3. What attracts you most about your current job?

Good employees are usually satisfied or completely satisfied with their work. They feel safe in the workplace, feel comfortable in their daily working life, and realize the positive aspects of their activity. Listing such positives implies ranking and analyzing which are those significant factors for employees that have the strongest motivational impact.

4. Were your expectations for professional realization justified?

This question aims to identify the fluctuations in the motivational profile of the employees. It appears to some extent controlling in relation to questions 1-3.

Disappointments in the workplace are a kind of early indication of potential negative manifestations in the activity. At the same time, the question provides the opportunity for percentage differentiation of positive and negative answers, comparison, and analysis.

5. Are you satisfied with the work?

The answer to the question should confirm the thesis that the motivation of human resources in the Ministry of Internal Affairs is of crucial importance for the quality of the offered service - protection of public order and the security of citizens, as well as for the prevention of corruption. Highly motivated employees are satisfied with their work. They carry the service with honor, have a desire for development and a professional appearance.

6. Do you wish to continue working in the Ministry of Internal Affairs?

Motivated employees who feel job satisfaction do not consider change. They are willing to develop and grow in this environment, to work towards the goals of the organizational unit. These employees are an asset, human capital in which the Ministry of Internal Affairs has invested, and which brings returns. The purpose of the question is to measure the percentage of these employees compared to the total number of respondents and, on this basis, to draw conclusions at the level of the ministry.

7. Do you consider the police profession/work in the Ministry of Internal Affairs prestigious?

Prestige is an additional but important element for motivation. A sense of social significance of the profession implies a sense of mission. This brings additional satisfaction to police officers - their work is necessary, useful, and meaningful to people. Such a feeling justifies the additional risk that every Ministry of Internal Affairs official takes to put the health and safety of citizens first, even before his own. The percentage comparison of the answers received, and the analysis of the data would give a general idea of the feeling of public evaluation of the police profession.

8. Do you think the assessment of your activity by the management team is fair?

Emphasis in the question is the sense of justice in the relationship between executive and management entities. When an individual is undervalued, it affects not only his motivation, but also his job performance. The feeling of being undervalued is a prerequisite for justice to be sought elsewhere, i.e., this is a kind of corruption factor.

9. What circumstances make you feel cheated in your expectations?

The question aims to specify problems and circumstances that are allowed in daily activity and that have a negative impact on motivation and the work process. Isolating and studying these problems would help identify specific measures and activities to overcome frustrations and improve employee motivation.

Dimension 2. Preparation of a motivational profile of the staff according to specific motivator factors. The dimension aims to reveal and give guidance on the level of staff motivation and the balance achieved between organizational goals and individual needs, while partially clarifying the organizational policy regarding staff training and development, freedom of action, personal initiatives. On this basis, question "What do you think can stimulate you to work better?" and question "What are the factors that would influence your professional behavior?" can be formed.

In the methodology proposed by Yosif Iliev for establishing a motivational profile of the staff, we find 45 motivator factors, [11] of which, bearing in mind the studied target group, we consider more important: equal and fair treatment of staff members; work corresponding to the job description and mobilizing professional knowledge, skills and abilities; interesting and challenging work; work with delegation of additional rights and powers; fair pay for labor - basic and additional; opportunity for career growth; working conditions; social environment - climate in the team; trust in management; belonging and commitment to the organization and others. For his part, Shopov offers 15 motivational factors, in the form of the following questionnaire, as follows: [17]

1. Leadership style
2. Labor discipline
3. Labor remuneration
4. Security at the workplace
5. Conditions and safety of work
6. Organization of working hours
7. Relations with the members of the team
8. Social benefits
9. Recognition of personal qualities and abilities
10. Opportunity to improve qualifications
11. Interest in work
12. Independence of work
13. Personal Liability
14. Opportunity for initiative and expression

15. Opportunity for growth and self-realization

Dimension 3. Tolerance for corruption schemes and other types of illegal actions. Knowledge and compliance with the regulatory framework, professional qualification, and motivational measures. The dimension aims to clarify a personal attitude to staff training as a predicate for preventing corruption.

1. Would you tolerate any type of corruption scheme or other type of illegal activity and why?

Toleration of a corrupt scheme or any wrongdoing is incompatible with service in the Ministry of Internal Affairs. Early detection of fluctuations in the composition and recognition of these negative signals should be an alarming sign for managers. This necessitates establishing and analyzing the reasons that led to dissatisfaction and disappointment in the specific individual with a view to taking targeted measures to overcome it.

2. Do you think that when you are not well prepared to deal with a given professional situation, it is better not to take a position on the case than to do wrong and then be punished?

The formulation of this question aims, on the one hand, to find and recognize gaps in the process of professional training and preparation, and on the other hand, to obtain information about the leadership style and the manager-executive relationship. Working under conditions of "fear of punishment" or trusting relationships, where the leader supports his subordinates and shares responsibility, are indications of the psychological climate in the collective.

3. Do you think that the poor knowledge of the legal basis with which you work leads to uncertainty in the performance of official duties?

Undoubtedly, poor knowledge of the legal framework with which one works, of job duties and official powers, leads to a lower quality in the performance of the activity. The training of the composition is a commitment of the managers, who must acquaint the employees both with the amendments to the normative acts, and to create a training organization for the correct application of the law. They should be able to motivate their team to continuously strive to develop through new knowledge and their unerring application in the activity.

4. If you or one of your colleagues commits a violation in the official activity, are sanctions applied?

The sanction in the form of disciplinary liability is a legitimate way to correct wrongful conduct committed in the performance of official duties. Disciplinary responsibility is a part of official legal relations, insofar as its main purpose, apart from sanctions, is also preventive, re-educational for the other members of the team. It would be paradoxical if committed violations of official discipline are ignored in a department that is called to protect the law and public order.

5. Do you think that the on-the-job training leads to an increase in your professional qualifications?

Training should be a conscious process, a need for the individual to better perform his official duties through the acquisition of professional knowledge and skills. It is part of competence. Measuring its quality is of critical importance given the dynamics of the police profession. Employees must be adequate to the changing reality, and this can be done through new knowledge - both theoretical and practical. Leaders and their attitude to training play an important role in this process.

6. Does your manager support you with training and explanations on the application of the legal framework?

In the security system the knowledge of the duties of the contractors by their manager is a basis for respect and authority. Senior staff need to be aware of the workload and tasks of their subordinates, organize their daily activities, be able to make decisions and lead them. Knowing the needs of the team and considering the need for training is an element of competent human resource management.

Creating an effective system of motivational factors is an extremely complex creative process that can be likened to the construction of a complex material and social system. The complex of motivational factors is formed based on the already considered basic motivational models, basic legal norms regulating labor relations in the country, and the included factors are undoubtedly the most significant for the enterprise from the point of view of the needs of the employees and the desired work behavior that meets the goals and interests of the organization.

The socio-demographic profile is established with questions regarding age, gender, education, job status, experience in the Ministry of Internal Affairs system.

When preparing the methodology for researching the motivation and level of professional training of the employees in the Ministry of Internal Affairs, the following motivator factors were considered, and ranked by their importance not only for the society, but also for the specific target group.

Pay is considered as one of the main motivational factors. To fulfill its motivating function in accordance with the desired behavior of the employer, the wage must provide a normal standard of living for workers and employees, reflect the efforts made by workers and employees in performing the work, to comply with traditional ratios in the level of the salary in the enterprise or organization, to reward additional efforts to achieve organizational goals. Its level and dynamics determine the possibility of satisfying not only the material (physiological) but also a significant part of the spiritual and social needs of the person.

At the same time, the salary of the police force is the price for which the service of security and protection of law and order is provided to society. It is the good in exchange for which the employees accept to work in conditions of risk to their life and health; to be always available to fulfill their public duty; to work in shifts, overtime, under stress and tension; to assume responsibility in the interest of public health and safety. At the same time, the attractive salary is a factor determining the attraction of quality and well-educated candidates for work in the ministry.

Social benefits are another key motivational factor. The employer should comply with his obligations to provide conditions for the sanitary and medical care of the workers in accordance with the sanitary norms and the requirements of occupational medicine. In terms of socio-domestic and cultural services, the following can be provided: organized meals, bases for long-term and short-term recreation, physical culture, sports and tourism, care for the families of workers and employees.

The normative regulation of different social benefits is an indication of the essential public position that the legislator assigns to the Ministry of Internal Affairs, a kind of assessment of the work of those serving there and of their self-denial and dedication to society.

Job security, specified as the absence of danger of losing it, is an important motivational factor. In this way, workplace security is a serious incentive for motivating employees to value their workplace, as well as for attracting proactive and educated job candidates.

Working conditions. Good working conditions are a factor related above all to the natural need of people in the labor process to preserve their health and ability to work, as well as to the need for job satisfaction. When working conditions correspond to normal conditions to the extent that they correspond to workers' demand for a healthy production environment, this favors the motivation for highly productive work.

Good and collegial relationships in the workplace. Good relations with colleagues in joint work and the possibility of working in a team can be considered as part of the socio-psychological climate. The normal socio-psychological climate,

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the absence of conflicts in the structural unit or interpersonal inconsistencies favor communication in an organization and motivate higher labor activity.

Opportunity for training and professional support from management. The provision of an opportunity for training and upgrading of qualifications by the employer is an important motivational factor.

The professional training of the employees in the Ministry of Internal Affairs aims to provide the necessary knowledge and skills to fulfill their legally regulated powers. For this purpose, it is necessary to make periodic analyzes of the training needs of the structures, as well as to adapt the subject of the conducted trainings to the current picture of the public environment.

Interesting and attractive work and compatibility of work with individual interests. Work itself can also be a good motivator. People are motivated when the work is interesting for them, they can actively participate in it, show initiative. The service in the Ministry of Internal Affairs places the employees in diverse and dynamic life situations, in which, under conditions of stress, a decision should be made, to react and to bear responsibility for the correctness or incorrectness of the decision made. The satisfaction of a job well done in dealing with a particular case is a powerful motivator for any individual.

Prestige and public importance of the profession. In addition to the material incentive expressed through the salary, the employee has a purely internal need to be evaluated and stimulated through recognition of his personal qualities, abilities, and work results. The management should create conditions for recognizing the achievements in work and the professional development of each employee by the managers and his colleagues and achieving self-confidence in their professional competence and self-affirmation of the individual.

Employees of the Ministry of Internal Affairs can be awarded honors and awards for achieving high results in their official activities. On the other hand, their work is constantly the focus of public and media interest. To a large extent, the public evaluation of the police profession is a product of the media image that the mass communication media creates. Therefore, it is extremely important that the activities of police officers are correctly reflected. It is the trust of the citizens that gives meaning to the work of each employee in the Ministry of Internal Affairs, the feeling of social necessity of his work, the feeling of usefulness and prestige.

Job matching skills and knowledge. Correspondence between education and the position held is an important motivational factor aimed at preventing the use of highly qualified labor for low-skilled work and vice versa. Ensuring a unified approach to the career development of all employees is an important motivational factor and a condition for increasing work efficiency.

Opportunities for growth and professional development. They can be realized if the content of work is continuously enriched in the organization. The development of employees implies the creation of conditions by the organization for their continuous training and self-education aimed at professional and personal self-improvement. Especially effective motives for employees are created when the development is related to career growth.

Ability to make independent decisions and take responsibility. The opportunities to assume independence in the work process, to take initiative and responsibility for the work done are factors that, although with different contents, are logically interconnected and enable the creation of trust between management and employees. The operational independence of the police force in the process of its daily activity is more effective, the more competent and confident the officer feels in his actions.

Participation in management, development of collective solutions, joint analysis and resolution of problems is a motivating factor, an expression of trust between governed and rulers. Involving employees in management and the subsequent delegation of authority is an essential element of a progressive organizational culture. Provoking and awakening the potential of employees for active actions leads to the development and realization of the personality in the chosen professional field. It is a matter of managerial skill to delegate authority, to combine power with the collective principle of work, to respect the individual in the team implementation of the activity.

Authority and competence of managers. A management style based on competence (and not on position in the hierarchy), on respecting everyone's opinion and recognizing their results, on attracting colleagues to management, leads to the creation of a good socio-psychological climate in the team.

In the specialized scientific literature, there are no exact criteria for reporting the level of motivation. This is explainable due to the complexity of ongoing phenomena and regularities in the individual characteristics of the personality. Its quantitative measurement is a difficult process, which is why in practice non-parametric methods are used to determine the level of staff motivation, questionnaires, surveys. The processing of the obtained data is carried out with the help of computer statistical programs for processing information from empirical statistical studies, which allow to perform factor analysis, hypothesis testing and others.

With the development of a motivational profile, existing problems in motivation can be diagnosed, which arise from employee dissatisfaction with individual motivational factors. Its application makes it possible to develop a real and reasoned program of consistent practical actions to improve staff motivation. The dynamic nature of the motivational processes results in the need for periodic updating of the motivational profile. The motivational program should also be regularly updated to improve motivation and increase the efficiency of human resources management.

Conclusion

Dynamic socio-economic changes, life in the conditions of crisis situations and the need for timely adaptation of public organizations to the changing environment, impose the need for a new attitude to motivation and its importance for the successful coping of the individual with the changing reality.

Motivation is an ongoing process. People are motivated by what they expect to happen because of some action or behavior on their part. Therefore, it is important to build a motivational system, according to the specifics of the specific organizational unit and constantly measure the motivation factor. This would allow the Ministry of Internal Affairs to continuously adapt and improve its motivational system as a type of management impact according to the changing socio-economic reality to prevent corrupt behavior.

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EXPLORING THE ROLE OF EMPLOYEE PARTICIPATION ON LABOUR UNREST IN A SOUTH AFRICAN MINING ORGANISATION

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Abstract
South Africa is faced with the challenge of frequent, lengthy, and violent strikes, especially in the mining sector. It is argued that the challenge of labour unrest can be addressed through meaningful employee participation in decision-making. The main objective of this research was to explore whether poor employee participation in decision-making contributes to labour unrest in the South African mining sector. To be precise, mineworkers frequently engage in violent strikes that negatively impact mining organisations, their employees, the economy, and mining communities. A qualitative research approach was employed using semi-structured interviews to collect data from employees who occupy low levels in a mining organisation. The findings show that poor employee participation in decision-making in the South African mining sector contributes to labour unrest. A positive relationship between poor employee participation and labour unrest is established; therefore, the mining management should implement corrective measures to ensure meaningful employee participation in decision-making that significantly reduces strike

action. The research highlighted the issue of poor employee participation in decision-making and the impact on labour unrest.

Keywords: *employee participation, labour unrest, harmonious employment relations, strike*

JEL Classification**:** *J28, J53*

Introduction

Labour Relations in South Africa remain challenged by the number and severity of occurring strikes, and there is no clear indication that the number of strikes is decreasing (Labour Annual Report, 2018). For many years South Africa has witnessed long and violent strikes in the mining industry that have resulted in property damage, injury, and death (Labour Annual Report, 2018; Makhubedu, Nwobodo-Anyadiegwu & Mbohwa, 2017). One of the significant labour unrest incidents that left the country in a state of shock was the Marikana massacre in August 2012 at a Platinum mine in Rustenburg (Samuel, 2016). It is the worst incident because of the shooting and killing of 34 mineworkers during the strike (Samuel, 2016). The frequent occurrence of labour unrest in the mining sector is a significant concern because the mining sector is a driving force in shaping the country's socio-political and cultural development (Horne, 2015; Mineral Resources, 2017). Mining organisations suffer significant financial losses during periods of labour unrest, which negatively impacts the economy, as the mining sector plays a crucial role in the economy of South Africa (Leon, 2012; Tenza, 2020).

Furthermore, violent strikes negatively impact employment, business confidence and investment opportunities, affecting any chances of economic growth (Tenza. 2020). The failure to reduce the number and intensity of strikes will severely affect 'people's lives as employment opportunities will be lost, and poverty will result (Tenza, 2020). Therefore, due to the labour unrest pandemic, the South African government has instructed social partners to develop ways to reduce the number of strikes (Labour Annual Report, 2018).

Problem statement

There is an existing research literature on employee participation and labour unrest, but there is a dearth of research to understand the issue of employee participation and labour unrest in the South African mining sector. Frequent, lengthy, and violent strikes are challenging in the South African Mining Sectors (Makhubedu *et al*., 2017). Furthermore, in SA, meaningful employee participation is still in the early stages (Venter & Levy 2014). Tchapchet (2013) posits that this is due to a lack of management, trade union and employee commitment. Therefore, in-depth analysis and understanding of whether poor employee participation in decision-making influences labour unrest remains an area for research. The problem statement is: To what extent does poor employee participation in decision-making influence labour unrest in the South African mining sector?

Research questions

The primary research question is:

How and to what extent does the lack of meaningful employee participation in decision-making influence labour unrest in the South African mining sector?

Research aim

The research aim is to explore whether poor employee participation in decision-making contributes to labour unrest in the South African mining sector.

Research objectives

Four research objectives have been identified, which are:

- To explore theories of rational choice, pluralistic, unitary, conflict, and human relations.
- To understand labour unrest and employee participation in decision-making.
- To explore the lived experiences of mining workers in order to identify how employee participation influences labour unrest.
- To recommend mechanisms to improve employee participation.

Literature review

Blaxter, Hughes and Tight (2006) explain that a literature review is a detailed evaluation of existing information and studies conducted to gain more insight into the field of interest. The existing literature will be presented and reviewed under the following topics: the Human Relations Theory, the conceptualisation of labour unrest and employee participation, the historical background and overview of labour unrest in the South African mining sector, the process of employee participation in decision-making and linking labour unrest and employee participation.

The Human Relations Theory

According to Cooley (2016), the Human Relations theory is divided into three elements. The first element takes into account the importance of an employee. It recognises employees' values and explains their responsiveness to their environment (Cooley, 2016). The second element acknowledges that employee relationships influence an organisation's effectiveness (Cooley, 2016). The third element emphasises the importance of participative management (Cooley, 2016). The Human Relations Theory moves away from the perception that employees only respond to financial incentives (Omodan *et al*., 2020). The theory explains that money is not a prime concern for employees in an organisation but rather their involvement in critical decision-making (Omodan *et al*., 2020). Previous studies have focused on monetary factors that contribute to labour unrest but have overlooked that sense of involvement can also contribute to labour unrest. (Kennedy, 2018) also noted that wage disputes are a major contributing factor to labour unrest in the South African mining sector, but it is not the only factor influencing labour unrest.

Conceptualising labour unrest and employee participation

According to Grogan (2014), labour unrest can be expressed in various forms, such as strikes, lockouts, picketing, protest action and boycott. However, for the purpose of this research, the focus will be on strikes since they have been identified as a significant problem. Section 213 of the Labour Relations Act 66 of 1995 (LRA) stipulates that a strike means "the partial or complete concerted refusal to work, or retardation or obstruction of work, by persons who are or have been employed by the same employer or different employers, for the purpose to remedy a grievance or resolving a dispute in respect of any matter of mutual interest between the employer and employee, and every reference to work in this definition includes overtime work, whether is it voluntary or compulsory". Strikes are deemed as an action undertaken by trade unions or employees as individuals to remedy their grievances and dissatisfactions (Taylor, 2017). Employee participation involves employees, either individuals or groups, providing their input on decisions that affect how the organisation operates (Venter & Levy, 2014). Employee involvement, empowerment,' workers' voice, and co-decision-making are all classified under the umbrella concept of employee participation (De Kok, 2021). According to Venter and Levy (2014), a harmonious working environment is established through employee participation.

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The historical background and overview of labour unrest in the South African mining sector

It is significant to have a historical perspective of the challenges facing the South African mining sector (Bhoola, 2011; Makhubedu *et al*., 2017). Notably, the underlying issue of labour unrest in the South African mining sector is not new, as it dates back to the early nineteenth century when black mineworkers engaged in strike action for higher wages and removed the colour bar act (Budeli, 2009). In 1912, the mine management decided to reduce minimum wages and exonerate themselves from providing contact miners with appropriate facilities (Moodie, 2013). According to Moodie (2013), many of mine workers could not come to terms with the decision. The unilateral decision made by management led to the 1913 strike that occurred in Kleinfontein (Moodie, 2013). This strike is known as the general strike because a violent crowd, including women and children, came out in numbers to support miners. Yu and Roos (2018) state that it is well-known that strike actions increased rapidly during the ’1980's. More specifically, statistics have revealed that the South African working environment is strike prone and strike actions have become more violent post-1994 (Madlala & Govender, 2018). Recognised mine industry trade unions led the latest strike at Sibanye Stillwater in 2022, that is, the Association of Mines Construction Union (AMCU) and the National Unions of Mineworkers (NUM) (Sotaddard, 2022). According to the Industrial Action Report (2019), there has been an increase in the number of unprotected strikes over the past years. The Industrial Action Report (2019) reports that in 2019, a total of 157 strikes occurred, where 65% of the strikes were unprotected, and 35% were protected. It is essential to consider that statistics covered in the Industrial Action Report have been brought to the Department of Employment and Labour; this implies that strikes that occur on a smaller scale are overlooked (Industrial Action Report, 2019). Bavu (2015) states that in 2012, numerous unprotected strikes were witnessed in the South African mining sector: the Marikana, The Anglo-Ashanti Gold, Anglo Platinum (Amplats) and Coal Mining strike.

The process of employee participation

Figure 1 shows what the process of employee participation entails and further elaborates that there is both mental and emotional involvement in employee participation (Iranwanto, 2015; Davis & Newstroom, 1997). Mitonga-Monga, Coetzee and Cilliers (2012) concur that employee participation is not a physical activity but a mental and emotional involvement process.

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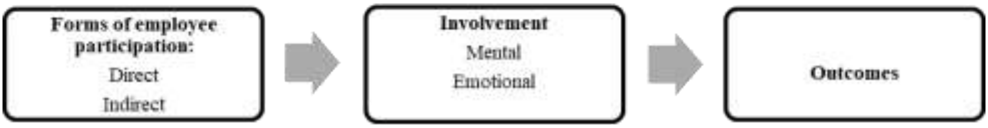
Figure 1: The employee participation process



Source: Finnemore (2018); Davis & Newstroom (1997); Iranwanto (2015)

Two primary forms of employee participation are direct and indirect (Shaed *et al*., 2018). According to Shaed *et al*. (2018); Keller and Werner (2012), direct employee participation occurs when employees have input in all decisions that are made. According to Lester (2014), direct participation does not exist in the South African mining sector. Indirect participation occurs through employee representatives, namely trade unions (Ekwoaba, Ufodiama, & Enyinnaya, 2019).

Indirect participation through registered and recognised trade unions in the South African mining sector

Shortfalls of trade unions have led to a decline in union membership in the South African mining sector over the past ten years (Makhubedu *et al*., 2017). According to the Trade Unions Subsector Skills Plan (2021), 47% of trade union membership in 1990 decreased to 28% in 2017. The shortfalls of the NUM and AMCU, in particular, since they have been identified as a trade union representing most of the mining sector employees. According to Dhliwayo (2012), NUM does not serve its purpose of furthering the interests of the employees, but rather it is an instrument used to acquire powerful positions in the government and Mining companies. Lester (2014) has further established that NUM is accused of selling out its constituents. Lester, 2014) has identified inconsistencies within the union. NUM successfully negotiated with Implats better-working conditions for rock drill operators that placed them above the industry level but failed to negotiate similar conditions for employees at Lonmin mine (Madlala & Govender, 2018). In 2012, more than 12000 employees from four Anglo Platinum (Amplats) were enraged by the conduct of NUM, which led to a violent movement in NUM offices to withdraw their membership. According to Patron (2013), 2012 will be the year with the highest number of illegal strikes. According to Botiveau (2018), AMCU led the movement as its objective was to gain momentum in its struggle against NUM as it is dominant in the South African mining sector. According to (Pitzer, 2018), the ongoing battle between the two essential trade unions negatively influences labour unrest as peace is disrupted. Harvey (2013) suggests that a harsh sanction of removing bargaining rights must be imposed on a trade that perpetuates illegal strikes.

Positive outcomes of employee participation

Employee commitment: Lomo (2017) proposes that management can implement employee participation as a strategy to increase organisational commitment. The continuous engagement of management with employees to discuss the state of the organisation and include them in the decision-making process increases the' employees' understanding and acceptance of decisions (Wilkinson & Dundon, 2010; Lomo, 2017). Furthermore, the' employees' sense of responsibility is increased towards outcomes of these decisions, and the organisation's fate is easily accepted when the management shows genuine concern regarding the employees' inputs and encourages them to participate and influence decisions (Lomo, 2017). Additionally, a sense of psychological ownership and attachment is formed towards the organisation (Lomo, 2017).

Employee involvement and organisational effectiveness: Amah & Ahiauzu (2013) suggest that employee involvement is a mechanism used to improve employee attitudes and organisational effectiveness. Organisational effectiveness refers to the approach an organisation undertakes to achieve the goals it has set for itself (Holbeche, 2016). It considers suggestions of what needs to be done for the organisation to achieve its desired results (Holbeche, 2016). According to Dede (2019), employee involvement is crucial for achieving organisational effectiveness and generating positive employee perceptions. Employee involvement refers to practices an organisation implements to give employees input and actively participate in decision-making (Holbeche, 2016). Employee involvement contributes significantly towards creating an ‘organisation's united vision, purpose, and values (Amah & Ahiauzu, 2013). When employees actively participate in decision-making, the organisation is more likely to avoid negative aspects such as lack of employee commitment, agitation, and misconception. As a result, employee productivity should increase (Dede, 2019). Poor employee participation stops an organisation from producing the results needed (Dede, 2019). Ineffective employee participation may lead to dissatisfaction, which in turn could result in labour unrest. Ferreira (2004) suggests that employee participation and democracy require employees to be included in decision-making processes impacting various aspects of their work lives and establishing self-management programmes.

Linking employee participation and labour unrest

Nel *et al.* (2016) have identified employment conditions such as lack of employee participation as a trigger to labour unrest. Employees sometimes have high hopes of being included in specific employment issues; when such expectations are not met, they resort to labour unrest (Sishi, 2016; Dhai *et al.*, 2011). In many organisations, top management tends to make unilateral decisions that become difficult to execute because they are not received well by low-level employees (Dede, 2019). As a result, employees will engage in negative actions such as losing interest in their jobs and strike action (Dede, 2019). Collective bargaining is a participation channel provided by the Labour Relations Act 66 of 1995 (Lester, 2014; Venter, 2014). According to Sishi (2016), a direct link between collective bargaining and labour unrest has been identified. It has been established that centralised collective bargaining in the South African mining sector (Lester, 2014). This form of collective bargaining has been heavily criticised for its rigid processes that result in poor representation of the interests of employees who occupy lower levels in the organisation (Bhorat & Oosthuizen, 2012; Venter & Levy, 2014). According to Madlala and Govender (2018), the collective engagement framework used in South Africa must be reviewed, especially in the mining sector.

Trade union officials represent mineworkers in collective bargaining; however, mineworkers have placed serious allegations against trade union officials, accusing them of working too close to management and engaging in caucus meetings (Lester, 2014; Makhubedu, *et al*., 2017). They further alleged that they are willing to compromise workers' interests and demands (Makhubedu *et al*., 2017). Deficits associated with the mine industry trade unions indicate poor employee participation in decision-making which may contribute to labour unrest. Additionally, Shop stewards representing mineworkers in decision-making do not report back directly to their constituents but to officials who occupy higher positions within the company (Lester, 2014). They prefer to execute their tasks on the surface, which results in poor communication and contact with underground workers (Lester, 2014). Makhubedu *et al*. (2017) further established that when employees are not directly included, reaching the common ground is difficult even when they are represented. Therefore, it is essential for management to engage with employees directly (Makhubedu *et al*., 2017).

Furthermore, Madlala and Govender (2018) also revealed that the Marikana tragedy exposed a crisis in employee representation as employees demanded to

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engage directly with management independently from the recognised trade unions. The LRA 66 of 1995 promotes employee participation through workplace forums. According to Pather (2008), workplace forums facilitate employee participation in decision-making in organisations to ensure that employees have an input in decisions taken by the management. Notably, there are no workplace forums in the South African mining sector (Lester, 2014). The absence of workplace forums in the South African mining sector is challenging (Lester, 2014). According to Lester (2014), establishing workplace forums would minimise issues such as labour unrest; therefore, it is submitted that workplace forums would address shortcomings of centralised collective bargaining.

Research Methodology

A qualitative research method approach was used to answer the research question necessary to achieve the objectives of this study. Qualitative research is an approach whereby individuals interpret and make sense of their experiences to understand their social reality (Mohajan, 2018). The current study adopted a hermeneutic phenomenology research strategy. Hermeneutic phenomenological social research concerns the participants' personal experiences and interpreting them (Ramsook, 2018). Hermeneutic phenomenology was used to explain mineworkers' daily experiences regarding whether they are permitted to engage in decision-making or are not permitted to participate. Both male and female mineworkers who occupy low-l analysis as a method applied in a study to enable the researcher to identify, analyse, organise, describe, and report the collected data. It is also known as a process of establishing patterns and themes within the data (Evans, 2018).

Findings

In this study, the quoted responses from the participants are not edited or amended as part of the ethical considerations.

Theme 1: Employee participation

The study participants' responses show that the employees clearly understand what employee participation in decision-making entails. Participants argued that commented that management must inform the employees about the affairs of the organisation so that they are aware of what is going on in the organisation, which will enable them to participate.

P4 and P6 commented in a similar vein stating that employee participation is whereby the management includes and consults with employees before making decisions that will impact their lives.

P4: *'My understanding is that before major decisions are made that affect the workers they should be informed*'.

P6: *'My understanding of the participation of employees in the decision-making in the workplace is that management particularly top management must consider the interests and the needs of the employees before making any decisions and they must involve them in whatever decision they are making'*.

P5 endorsed participative decision-making because the participant believes it holds positive outcomes for the organisation and its employees. The participant responded by saying that:

'This is the involvement when you have some things to decide on and employees also have their own views. I do believe that through their participants the company can make things easier'.

In this regard P2 noted that in the South African mining sector trade unions are responsible for representing employees in the decision-making processes therefore, they should constantly engage with constituents to find out what their inputs and opinions are pertaining for them to be presented to the management and integrated when decisions are made. P2 had this to say:

'I think first you got to start with the unions whereby the unions will go back to the employees and find out what are their problems and then they are also in a good platform to present those to the management'.

Summing up, it is evident from the participants' responses that they have a firm understanding of what the concept of employee participation in decision-making involves. It is important to know what employee participation entails to actively engage in the process when presented with the opportunity. They strongly wish to be actively involved in decision-making processes that will have an impact on their lives. In the following section, the theme of financial participation is discussed.

Theme 2: Financial participation

Five of the participants (50%) displayed a desire to participate more, especially in the decision-making process that will have an impact on the financial aspects of their lives. They want to be kept up to date pertaining to financial affairs and decisions of the organisation. Elaborating on being kept up to data with financial information and decisions P8 stated that:

'My understanding is that whatever management or the company itself must inform employees in terms of whatever they wanted to reach in terms of profit'.
They want to be involved in contractual agreements. Furthermore, lack of financial participation creates dissatisfaction in an organisation which contributes to labour unrest. Participants argued that participants invest in the organisation through their efforts and labour to ensure that there are high levels of production. However, when it comes to financial participation they do not benefit from the success of the organisation.
P10 narrated their frustration and experience by saying that:
'Looking at the profits that the mines are making and looking at the salaries that they are paying people. We know the value of minerals like gold and platinum and we know what is being produced per day, we know what is being produced in a month and we know the price of gold or the price of platinum or whatever mineral'.
From the collected data, it seems like when there are high levels of production and profits in an organisation, the study participants expect to benefit since they are part of the organisation and profit-sharing forms part of financial participation. Financial participation contributes significantly to the labour unrest. The employees have a mandate and responsibility to render their services to the employer because they are bonded by a contractual agreement. The employer must consider allowing employees to participate in financial participation and benefit from the profits and success of the organisation because it is evident that excluding employees from participating in decisions that will have a financial impact in their lives generates negative emotions that contribute to labour unrest. The theme of direct participation is the next generated theme.

Theme 3: Direct participation

Participants expressed their desire to have direct engagement with the employer because the current participation which are trade unions is deemed ineffective. The participants argued that they are in a better position to represent their interests and needs in decision-making processes therefore they should engage directly with the employer. Participants clearly stated that an element of direct employee participation in decision-making must be present.
P3 responded by saying that: *'There needs to be individual participation where you can also have input*'.

From the responses of the participants, participants argue that trade unions should be dissolved because they are failing to fulfil their duties and responsibilities, hence participants opt for direct participant. P7 and P10 had this to say:
P7: *'I think trade unions should just move so they don't have an impact on the employees they just want to benefit on their own'.*
Participants demand direct involvement with the employer, but in this study, direct participation is not endorsed or ideal because the organization cannot cater to all the individual needs and interests of employees. However, the current employee participation structure, trade unions in the South African mining sector, should be drastically improved. The theme of desire to participate but constrained is the next constructed theme.

Theme 4: Desire to participate but constrained

Even though efforts and attempts are made by employees to be included in decision-making, it seems like employees have the desire to participate in decision-making but are constrained by certain factors that constrain them. A factor that seemed to be a barrier is the lack of formal education, which is discussed in detail in chapter 2. This barrier discourages and contributes to the fact that some employees display a passive attitude when participating in decision-making. The field notes gathered during the semi-structured interviews also contributed to the development of the theme above. There were informal engagements with other mine employees in African languages; unfortunately, their responses could not be recorded as the study was conducted in English. Therefore, they choose to distance themselves from the employee participating in the decision-making process and have developed the mentality that decision-making rests with management. This is derived from the response below:
P1: *'It is always up to management to decide what is going to happen and when it is going to happen due to their expertise, they have a better understanding of the workplace'.*
Lack of formal education is a barrier therefore some employees choose not to be involved in the employee participation process and opt that all issues pertaining to employee participation in decision-making must be handled by trade unions. The above is derived from the following responses:
P1: *'Unions decide what is good for the employees'*
Employees who occupy low job positions like the idea of being consulted prior to decision-making but they are hindered by lack of formal education. Therefore, they

choose not to be involved in the employee participation process. They suggest that trade unions should decide on their behalf what is good for them without consulting them. In the view of the study, employees may find themselves in an unfavorable position because trade union officials may put their interests before those of the employees. The current state of employee participation is the next theme that was developed.

Theme 5: Trade union limitations

A total of nine participants (90%) indicated that there are gaps in the current participation structure which are trade unions. Participants argue that trade unions are not fulfilling their purpose of furthering the interests of employees to the extent that they tend to make decisions without consulting their constituents.

P1: commented and said that:

'Unions do make decisions without even consulting the members. We often find emails or correspondence where decisions have just been made and we just must go in with that without participating in the outcome of those decisions.

P5 noted that trade unions are limited in their knowledge capacity of representing employees. The participant responded by saying that:

'I am not that very satisfied with the trade unions because of they got their limitations. They are limited, they cannot go beyond, they are just limited'.

P10 noted that that trade unions have close relations with management which negatively impact the representation of the interest of employees.

'The trade unions they are supposed to be standing for the people, with the people but that is not happening because those people they sit with the management'.

Furthermore, it has been established that trade union officials have lost contact with underground employees, which means that their input and interests are overlooked. This is evident in the following response:

P3: *'They must go back to the plants, they must go to work again, and they must go listen to what the people on the floor are doing'*.

It has been determined that trade unions are not reliable because they lack transparency and consistency in terms of delivering what they have promised to the employees. P5 shared the following:

'Yes, they are not transparent let us just say that and they are not to be trusted because they change like chameleons'.

The study participants recommended ways in which these shortfalls can be addressed. The need for trade union officials to undergo training has been established to gain more knowledge and be better equipped to represent the interests of employees and be up to date with current affairs concerning the organization. Training will also assist in reminding both old and new trade union officials of their purpose that of sufficiently representing employees. Trade union officials need to be rotated with new members so that new ideas can come to the fourth. Furthermore, it was recommended that trade unions be rotated because when they occupy the same position for a long time, they become reluctant to execute their responsibilities. Additionally, they get influenced by the management because they have built too close a relationship with them. Study participants also noted the disadvantages of having more than one trade union. They shared that trade unions compete with one another, and internal conflicts exist. Therefore, they recommended that trade unions must be unified to represent employees sufficiently. The study participants believe that by implementing the above recommendations, trade unions will be improved, and they will be effective. The theme of the current state of employee participation is next and discussed.

Theme 6: Current state of employee participation

The study participants raised the issue of unilateral decision-making by management. They argued that management tends to make decisions that affect their work lives without consulting them. They further noted that management does seek their opinions prior to making decisions but they do not integrate them in final decisions. The participants argue that management has put in place documents that encourage 'employee' participation however it fails to execute what is written down on paper. The participants responded by saying that:

P7: *'Most of the time employees don't have decision-making, decisions are made for them by managers and then managers just come and tell you this is what's happening and then you have to follow by the rules and abide'*.

P3: *'Well documentation is there where they say it yes but when you do you will get a negative answer*'.

There was consensus among the participants that employees who occupy lower levels within the organization, especially underground workers, are completely excluded from participating in decision-making processes. P1 and P10 commented in a similar vein:

P1: *'With my experience in this company I have been with this company for 30 years and the lower-level employees do raise some concerns and problems and so forth but the actual participation in decision-making is very low'*.

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P10: *'The people on the ground which are the actual people that get their hands on. So, according to me they are the most important people in the company but when it comes to decision-making, they don't have much to say. Like for instance if we talk of production, there are people on the management who do their focus that today this is what we want to do and the people on the ground are not involved. So, when it comes to decision-making, the most important people which are people on the ground don't have much to say*'.

From the participants' responses, there is poor employee participation in decision-making in Sibanye Stillwater. The participants argue that there are documents put in place by management to encourage employee participation in decision-making, but what is written in the documents is not practiced. The lower-level employees feel entirely excluded from participation in decision-making.

Discussions

The study's primary aim was to explore whether poor employee participation in decision-making contributes to labor unrest in the South African mining sector. More specifically, this research aimed to investigate the perceptions and experiences of employees who occupy low levels positions within the organization to establish whether there is meaningful employee participation in decision-making. Mitonga-Monga et al. (2012) state that for employee participation to be deemed meaningful, employees who occupy low-levels within the organization must be included in all decision-making processes. Findings provided significant insight into how lack of meaningful employee participation in decision-making influences labor unrest in the South African mining sector. Six significant themes revealed the perceptions and experiences of the study participants regarding their participation in decision-making process that have an impact on their work lives. The study's findings indicated that barriers need to be addressed for employee participation to be perceived as meaningful. What is evident in this research is that participants as individuals who occupy low levels within the organization feel excluded from participation in decision-making. The participants confirmed that there are existing documents that are formulated by management in support of employee participation however what is written in these documents is not put into practice in terms of ensuring that there is meaningful employee participation. The results are aligned with previous studies that highlighted that employee participation channels created by the LRA are not efficiently integrated in terms of confirming employee participation in decision-making in the mining sector (Lester, 2014).

The South African mining sector acknowledges and utilizes trade unions as an employee participation structure (Lester, 2014). Due to trade unions' limitations, participants demand that direct employee participation be integrated as a participation structure. This is also supported by the study of Madlala and Govender (2018) where it is revealed that the Marikana tragedy exposed that there is a crisis in employee representation as employees demanded to engage directly with management independently from the recognized trade unions. Makhubedu *et al.* (2017) recommend that employees be presented with the opportunity to engage directly with the management. It must be considered that the mining industry employs many people; therefore, direct employee participation is not practical because individual engagements with management would be time-consuming. Furthermore, the study findings indicate that certain factors such as minimum levels of education among employees may hinder this form of participation. (Smit and Mji, 2012; Chilwane, 2019) confirm that their high illiteracy levels among mine workers are a barrier to effective participation in decision-making. Some of the study participants stated that trade unions are a significant participant structure. Therefore, it is essential to have effective trade unions to represent these employees effectively. An issue of major concern that was raised is that trade union officials have lost contact with underground employees. This raises the question of how they can efficiently represent these employees' interests in decision-making processes if there are no contact and interactions. The study of Lester (2014) confirms that trade unions have lost contact with employees, underground employees, specifically, as they prefer to occupy offices at the surface level.

From the study findings, when there is an increase in production levels, the study participants expect to participate in the generated profits. Their concerns align with Lord (1995), who proposed that employees should participate in generated profits as it facilitates accurate and cooperative relations between the employers and employees. However, it cannot be overlooked that it is a challenge for the employer to allow this form of participation as it has a responsibility to protect and ensure that shareholders of the organization receive acceptable and maximum returns (Madlala & Govender 2018). Dougall (2014) identified Employee Share ownership (ESOP) as a form of financial participation that most organizations adopt. Anglo-American has successfully implemented the ESOP in the mining industry (Bezuidenhout, Bischoff & Mashayamombe, 2020). Even though there are claims that the organization has successfully implemented the program, approximately 300 workers at Kumba's Sishen mine, an Anglo-American operation, embarked on a strike shortly after receiving large pay-outs (Bezuidenhout *et al*., 2020). The fact that employees embarked on a strike after benefiting greatly from (ESOP) remains questionable (Bezuidenhout *et al*., 2020). It is explained that there was a unilateral setting up of the ESOP by management where employees were excluded. Lord (1995) also explains that such financial participation schemes are questionable because they do not provide employee participation. Gishen, (1990) and Dough (2014) argue that in South Africa, most companies have excluded employees when designing and implementing profit-sharing schemes, which is the main reason for its failure. Dough (2014) further explains that financial participation schemes enforced on people without seeking their input have minimum chances of success. It is advisable that employers develop a fair pre-agreed formula to allow mutual benefit and division of financial gains where employees participate in its formulation (Lord, 1995).

To summarize, the findings indicate that the degree of employee participation in decision-making is poor, and employees are unhappy about their current level of participation. From the data gathered, employees wish to be more involved by increasing their level of participation. From the study's findings in the South African mining sector, the management and trade unions are significant players in employee participation; therefore, their shortfalls influence labor unrest. Participants have expressed dissatisfaction with the current participation structure, and they argue that the management makes unilateral decisions that are enforced on employees. Mining organizations' future and sustainability depend on these significant role players to develop and implement practical approaches to address the issue of poor employee participation in decision-making that will reduce labor unrest.

Limitations of the study

Strikes present a challenge nationwide. Nevertheless, this study will be limited to the South African mining sector. The scope of the research study will also be limited to employees on only one Gauteng goldmine due to financial constraints. Unfortunately, travelling to mining industries in other provinces would be too costly. The fact that this study cannot be generalized to all mining industries is a limitation. Another limitation is that participants may not be credible due to fear of being exposed because they are current employees. It is possible that they may omit or withhold information that is relevant to this study. A small convenience sampling was employed; therefore, the results cannot be generalized to other mining organizations in different provinces in South Africa, conducting the study in other organizations and provinces would enhance the validity and reliability of the study. Some employees were willing to participate in the study but were hindered as the study was carried out in English. Their responses were not recorded but were handwritten by the researcher as they responded in African languages, which may have affected the data quality.

Conclusion

In conclusion, the research highlighted the impact of poor employee participation in decision-making on labor unrest in the South African mining industry. The research findings should encourage the mine management to re-evaluate the current state of employee participation in decision-making and take corrective measures that will significantly reduce labor unrest.

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THE NEXUS BETWEEN ORGANIZATIONAL DOWNSIZING AND EMPLOYEES' CONTINUANCE COMMITMENT WITHIN THE TRANSPORT AND LOGISTIC INDUSTRY IN ZIMBABWE

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Abstract
This paper aims to establish the nexus between organizational downsizing and employees' continuance commitment in the transport and logistics industry in Zimbabwe. There has been an ongoing economic downturn in many Sub-Saharan African countries over the years, which has directly impacted on industrial growth. Faced with harsh economic realities, many organisations in Zimbabwe have resorted to frantic organisational downsizing to stay afloat. Despite the wide use of organisational downsizing across industries, its effects on employee continuous commitment remains equivocal. To successfully achieve the research objectives, this paper used an Explanatory Sequential Mixed Method, and collected data in a sequential manner starting with surveys and then following up with interviews. The study's results demonstrated that frantic organisational downsizing in Zimbabwean transport and logistic organisations was exacerbated by the economic crisis faced by almost every sector of the economy. Interestingly, the results of the study suggested a

p[EG1]ositive effect of downsizing on employees' continuance commitment with the downsized organisation. However, some negative psychological effects of frenzied organisational downsizing process were rampantly reported.

Keywords: *organisational downsizing, Continuance Commitment, Explanatory Sequential Mixed Method*

JEL Classification: *J62 & J81*

Introduction

Organisational downsizing has become a very popular topic recently and gained momentum. Downsizing has become one of the most favoured methods used by companies to bail out their businesses from total shut down and to stay competitive (Sikayena, 2017; Mushonga & Ukpere, 2022). Due to unfavourable political and economic climate in the Sub-Saharan region, industry commentators in Zimbabwe have called for radical organisational down trimming to save firms from total collapse (Mucheche, 2017). The Zimbabwean business community seems to have succumbed to the current rapid economic pressure and turbulent business environment. Zimbabwe as a nation is confronted by paucity of foreign direct investment, hyperinflation, liquidity crunch, unstable currency (the real-time gross settlement system, RTGS) and a rapid technological change among other issues. Faced with these harsh economic conditions coupled with a hostile political situation, frenzied organisational downsizing has increasingly become the most favoured strategy to save organisations such as transport and logistics organisations from total shutdown (Mushonga & Ukpere, 2022).

However, organisations had to deal with consequences of frenzied organisational downsizing strategies on employees' continence commitment. Organisational downsizing also influences organisation's wellbeing in several ways including its production, employee satisfaction, and employees' continuance commitment (Chen & Kao, 2012).

Organisational downsizing seems to have been boosted in Zimbabwe after the Supreme Court verdict in the case of Nyamande and Anor v Zuva Petroleum (Pvt) Ltd in 2015, which permitted firms to dismiss workers on three months' notice (Mucheche, 2017; Mushonga & Ukpere, 2022). Statistics shows that within forty days following the landmark ruling, approximately 25000 permanent employees were served dismissal notices on three months' notice, without exit packages

(2016). Given this opportunity to reengineer their workforce structures frenziedly, almost every organisation in Zimbabwe embarked on a fast-track downsizing process. Hence, employees were exposed to harsh realities and therefore dimensions of employee commitment, especially continuance commitment had to be questioned.

Research question

What is the nexus between organisational downsizing and employees' continuance commitment in the transport and logistics industry in Zimbabwe?

Research objective

The objective of the paper is to establish the nexus between organisational downsizing and employees' continuance commitment in the transport and logistics industry in Zimbabwe.

Literature Review

Organisational Downsizing from a historical context

The term organisational downsizing can be traced back to the 1980s, when organizations embarked on processes of restructuring, specifically by reducing their workforce (Johnstone, 2019). The 1980s was earmarked by massive reductions in workforces and plant closures, as illustrated in the automobile industry, with Ford, Chrysler, and General Motors attributed to poor performance and high costs of production, as well as an increase in global competition and a decline in market share (Johnstone, 2019). In Zimbabwe, organisational downsizing was more prevalent during the 1990s due to a government program known as the Economic Structural Adjustment Program (ESAP), which allowed organizations to reduce their workforce in response to acute global economic challenges (Kurebwa, 2013). Approximately 50000 workers lost their jobs in both the private and public sectors during this period (Mushonga & Ukpere, 2022). ESAP ushered in an era of organisation downsizing in Zimbabwe, hence the phenomenon can be traced back to the 1990s.

During the new millennium, the global economic recession of 2008 forced almost every organization in Zimbabwe to restructure its business in a bid to stay afloat (Mapira, 2014). With regards to Zimbabwe Matika *et al*. (2017) observed that the global recession forced organizations across all sectors in Zimbabwe to adopt to cost curtailment measures such as restructuring and reengineering.

Therefore, organisational downsizing became the most esteemed strategy by many organisations. In the same notion, inflation was on the rise with a shocking percentile of more than 1000% during 2008, rendering the local Zimbabwean dollar useless (Kurebwa, 2011). The hyperinflation period forced many organizations to downsize, while some multinationals, including Anglo-America, Metallone Gold and British America Tobacco, among others, closed their operations in Zimbabwe, leaving thousands of employees jobless (Kurebwa, 2011). The global economic recession was accompanied by a wave of political instability in Zimbabwe, following a disputed presidential election in 2008, when Robert Mugabe declared himself the winner and hence the country's president, which contributed to closure of more multinationals (Matika *et al*., 2017).

In less than five years after organizations in Zimbabwe embarked on downsizing spree owing to the great recession of 2008, another opportunity to trim excess employees without severance packages was presented as aforementioned by the Supreme Court landmark ruling in 2015 (Markings, 2016), which permitted employers to terminate contracts of employment based on the common law rule that parties in a contract of employment can terminate a contract for no fault. This development triggered a variety of frenzied organisational downsizing strategies in Zimbabwe (Kuwanza, 2017). Hence, the Supreme Court judgement left employees at the mercy of employers, while a floodgate of job losses became the order of the day (Makings, 2017). The judgement posed an interesting avenue for employers who seek to cut down their workforces by allowing termination of contracts of employment on notice. According to Makings (2015), the legal precedent that was set following the events of 17 July was an immediate reaction by companies to trim down their workforce, with a record of more than 60,000 job losses in one week. The freight service sector was also heavily affected.

Organisational Downsizing and Commitment Model

Building this study on extant literatures, this paper is theoretically guided by Alicia and Ludwig's (1999) model on downsizing and employee commitment. Their model gives an insightful understanding on the psychological effects of organisational downsizing at an individual level. The model focuses on forms of employee commitment, variations in job stressors, and perceptions of job security. Figure 1 below illustrates Alicia and Ludwig's (1999) model on downsizing and employee commitment.

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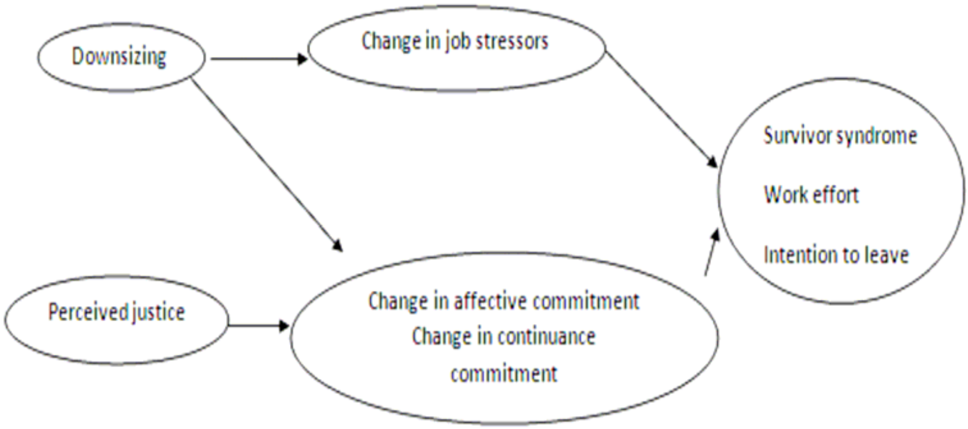

Source: Alicia and Ludwig (1999)

In the above model, commitment, as a variable, is linked to perceived justice, which correlates to work effort, survivor syndrome, and intention to leave. Alicia and Ludwig (1999) further states that organisational downsizing has undesirable effects on employee commitment, which will be shown through an employee's intentions to leave. Alicia and Ludwig's (1999) model centred on two dimensions of commitment, namely affective commitment, and continuance commitment. This study focused on examining the effects of downsizing on remaining employees' continuance commitment.

Continuance commitment

Continuance commitment is one of the most important dimensions of organizational commitment. It is defined by the cost and benefit analysis of an employee in losing personal investments such as pension insurance and other benefits invested in an organization (Allen and Meyer, 1997; Alicia and Ludwig, 1999). Continuance commitment can be seen as a cost-based commitment. According to Allen and Meyer (1997) employees of a downsizing organisation can opt to continue with a downsizing organization because they are afraid of losing part of their investment with the organization and this results in continuance commitment. In the same vein, Alicia, and Ludwig (1999) posit that continuance commitment usually exists among employees of a downsizing organisation because they *need to* continue working with relatively few or no options to leave.

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In their analysis, Alicia, and Ludwig (1999) opine that, survivors with less skills are usually the ones who exhibits continuance commitment since they fear to leave the downsized organisations knowing full well that they have slim chances of finding alternative employment elsewhere. Simply put, continuance commitment is directly influenced by the perceived costs of leaving an organisation after downsizing (Mushonga & Ukpere, 2022). According to Ugboro (2006) some of the examples of perceived cost involve loss of retirement investments, personal relationships with colleagues, and fear of loss of employment and income.

There is a general agreement among scholars that there is a correlation between organisational downsizing and commitment (Allen and Meyer, 1997; Alicia and Ludwig, 1999; Ugboro, 2006). However, of the three types of commitment, continuous commitment is regarded to have little significance in relation to staff turnover (Allen and Meyer, 1997). Similarly, research conducted by Kontoghioreghes and Frangou (2009) found a very high correlation between affective commitment and staff turnover intention and no correlation between continuance commitment and employees' intentions to leave. Hence, downsizing has effects on both individuals and an organization.

Rationale for Organisational Downsizing

As alluded to earlier, many organisations adopt organisational downsizing as a cost cutting strategy when they experience economic challenges. According to Cascio (2010), organizations reduce workforce mainly for reasons related to cost containment. Mapira (2014) contends that when organizations face difficult economic situations, coupled with an ever-changing business environment and stiff global competition, they tend to cut their workforce to enhance their competitive advantage.

In Zimbabwe, however, the case was different in 2015 when most organizations terminated their employees' contracts, conforming to the judicial precedent created by the aforementioned Supreme Court's judgement in Don Nyamande and Anr vs Zuva Petroleum (Pvt) Ltd case number SC 43/155. This judgement opened a floodgate of layoffs across all sectors in Zimbabwe (Matika *et al.*, 2017; Makings, 2016; Kuwanza, 2017). In support of the above reasons, McKinley, Zhao and Rust (2000) mentioned three key social factors that may lead to organisational downsizing, namely cloning, constraining, and learning.

McKinley, Zhao and Rust (2000) define *constraining* as an exertion of pressure on organizations to conform to institutional rules legitimised by management and policy makers. According to these authors, institutional rules can recommend or encourage organizations to reengineer to enhance efficiency and productivity. This is evident with the Zimbabwean scenario during 2015 when organizations cut their staff sizes, conforming to a precedent set by the country's Supreme Court Judgement of 17 July 2015 (Mucheche, 2017). Therefore, organizations simply lay off employees to conform to institutionalized rules (McKinley, Zhao & Rust, 2000).

McKinley, Zhao and Rust (2000) define *cloning* as an exertion of pressure on organizations to imitate, follow or copycat the activities of firms that are industry leaders as they usually set a yardstick on operational standards and prestige. For instance, companies like UNI Freight, SWIFT, Biddulphs, and BAK logistics are industry leaders in the transport and logistics industry in Zimbabwe. Interestingly, unlike constraining, whether the actual benefits of layoffs will be realized or not, it is of no value to organizations involved in cloning. Rather, what is important is that organisational downsizing took place (McKinley, Zhao & Rust 2000). Contrarily, Johnstone (2019) argues that many organizations justify downsizing based on the business environment of a particular era; for instance, recently 4IR has been cited as a reason for downsizing in many organizations.

According to McKinley, Zhao and Rust (2000), *learning experiences* involve academic development and continuous research outputs on a particular topic or discipline. Mapira (2014) claims that more discussions and teachings about organisational downsizing theories, approaches and the role of organisational downsizing has legitimized employee reduction activities and made the subject more acceptable and practiced than before.

Johnstone (2019) states that companies facing financial hardships are more likely to reengineer in a bid to stay afloat. However, findings by Cascio (2010) confirm that there is little or no relationship between organisational downsizing and overall organizational performance. Cameron's research (1994) also found that companies, which had never downsized employees were more likely to outperform those with a history of downsizing. Several researchers concur that recessions, technological changes, global competition, changes in market trends, and artificial intelligence, amongst others, should be held accountable for ongoing organisational downsizing trends (Cascio, 2010; Johnstone, 2019; Matika *et al*., 2017; Alicia and Ludwig, 1999; Akiyemi, 2018). Given the above explanation, it is evident that the more a subject is discussed, the more it becomes an acceptable practice. Hence, organisational downsizing is now rampant among organizations because there is

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more knowledge about the subject; for instance, strategies for downsizing (Cascio, 2010), rationale for downsizing (McKinley, Zhao & Rust, 2000), and reasons for organisational downsizing (Johnstone, 2019). Now that the rationale for organisational downsizing has been discussed, the research methodology used in this study is presented below.

Research Methodology

This study adopted a Mixed Method research design. To fully address the research problem, an explanatory sequential mixed method design was employed. Plano Clark and Ivankova (2016) defines an explanatory sequential mixed method design as an application of both quantitative and qualitative research methods in sequence. The research was conducted in two distinct and interactive phases, that is, the 1st phase comprised of quantitative methods of enquiry and analysis, followed by robust qualitative methods of enquiry and analysis in the 2nd phase.

In this regard, quantitative research was conducted first, with the analyses of results integrated or combined with the qualitative data. Results from the 1st phase informed questions posed in the 2nd phase, hence the qualitative inquiry followed up the quantitative data (Creswell, 2014). The first phase of this study utilized quantitative (close-ended) data collection and data was analysed by means of descriptive and inferential statistics using SPSS, followed by qualitative (open-ended) data collection and data was analysed using thematic and content analysis.

A sample size of 200 respondents was used for the quantitative phase, while the qualitative phase was comprised of 12 respondents that were purposively selected from the participants in phase 1. All the research participants were from the transport and logistics organisations in Harare, Zimbabwe. The researcher employed a mixed method sampling technique called nested sampling. Nested sampling is defined by DeCuir-Gunby and Schutz (2017) as a mixed method sampling technique that involves using a subset of the same participants who participated in the 1st phase (quantitative) to also participate in the 2nd phase (qualitative) of the same study. This technique allowed the researcher to further explore individual experiences of organisational downsizing. The researcher adhered to the University of Johannesburg's research ethics and procedures throughout the research process.

Data integration techniques were used to successfully combine both quantitative and qualitative results. To effectively demonstrate how data was integrated, the researcher adopted a *narrative approach* and a *joint display approach* to report the

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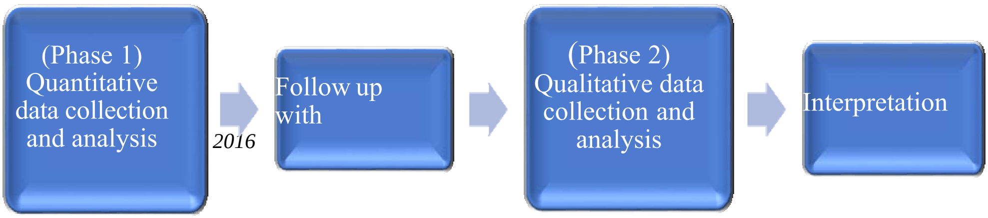
study's findings. A narrative approach involves using a narrative account of both quantitative and qualitative findings in the discussion section thematically, or separately in the same document (Creswell, 2014). Conversely, *joint displays* involve using visuals such as graphs, charts, or tables to discuss both quantitative and qualitative findings (DeCuir-Gunby & Schutz, 2017). The intent for explanatory sequential design was to integrate both qualitative and quantitative methods to elaborate and demystify results from both sets. Figure 2 below is an illustration of an explanatory sequential mixed method design.



To achieve the research aims and to gather reliable data from the respondents towards their perceptions on organisational downsizing and employees' continuance commitment, both quantitative and qualitative questions were posed. Inferential and descriptive statistics were used to analyse and present the quantitative data set. Subsequently, thematic and content analysis was used to analyse and present the qualitative data set. Below is a presentation of the data and its analysis.

Correlation Between Downsizing and Employees' Commitment Including Continuous Commitment

In their previous paper, Mushonga and Ukpere, (2022) have used Pearson's Moment Correlation analysis to establish the nexus between downsizing and employees' commitment, which includes continuous commitment as reflected in the table below.

***Table 1**: Correlation matrix for downsizing and employees' commitment (including continuance commitment)*

Correlations				
		Monetary causes of downsizing	Downsizing as a change agent	Employee commitment
Monetary causes of downsizing	Pearson correlation	1	-.074	.381**
	Sig. (2-tailed)		.361	.000
	N	156	156	156
Downsizing as a change agent	Pearson correlation	-.074	1	.007
	Sig. (2-tailed)	.361		.929
	N	156	156	156
Employees' Commitment (Including Continuance commitment).	Pearson correlation	.381**	.007	1
	Sig. (2-tailed)	.000	.929	
	N	156	156	156

***. Correlation is significant at the 0.01 level (2-tailed).*
Source: Mushonga and Ukpere (2022)

As Table 1 above reflected a positive nexus exists between monetary causes of downsizing and employees' commitment, continuance commitment (r = .381. p < 0.01). Therefore, the researchers' supposition that there exists a significant relationship between monetary causes of downsizing and employees' commitment, generally was supported (Mushonga and Ukpere, 2022). Contrarywise, there was no significant relationship found between downsizing as a change agent and employees' commitment, which include continuance commitment as the analysis suggests (r=.007. p>0.01).

Downsizing Effects on Continuance Commitment

This section sought to establish whether organisational downsizing has any significance effects on employee's continuance commitment. Table 2 below illustrates the perceptions of transport and logistics employees on continuance commitment following organisational downsizing exercise.

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Table 2: Downsizing Effects on Continuance Commitment

Continuance Commitment (CC) scale		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	SD	Rank
1	Since downsizing, staying at this organisation has become a matter of necessity and not my desire.	2.6%	12.8%	25.6%	50.6%	8.3%	3.49	.912	2
2	Even though I want to leave this organisation after downsizing, it is not easy to do so.	0.0%	9.6%	28.8%	44.2%	17.3%	3.69	.870	1
3	Following the downsizing event, I felt like I had a few options to consider leaving this organisation.	6.4%	16.0%	48.1%	26.9%	2.6%	3.03	.890	4
4	I have invested much effort in this organisation; I cannot consider working elsewhere even after downsizing.	1.9%	16.7%	19.2%	55.8%	6.4%	3.48	.912	3

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Continuance Commitment (CC) scale		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	SD	Rank
5	Following downsizing in this organisation, I believe that one of the negative consequences of leaving this organisation would be the scarcity of available alternatives.	4.5%	19.9%	55.1%	18.6%	1.9%	2.94	.801	5
	Overall mean & SD score						3.3269	.46006	

The overall mean score for continuance commitment was 3.326 (SD = 0.460). This indicates that there was a positive perception towards continuance commitment. The first item on the continuance commitment scale, item CC1, stated: '*Since downsizing, staying at this organisation is a matter of necessity and not my desire*'. In this respect, 50.6% of employees participated in the survey agreed, whilst 8.3% strongly agreed. However, 12.8% disagreed, whereas 2.6% strongly disagreed. A total of 58.9% of the participants agreed with the statement, while 38.8% disagreed, and 25.6% maintained a neutral position.

Item CC2 was the second item on the continuance commitment scale. For this statement, which read: '*Even though I want to leave this organisation after downsizing, it is not easy to do so*', 44.2% of the participants agreed, and 17.3% strongly agreed. Conversely, 9.6% disagreed. A total of 61.5%, which is most of the participants, agreed with the statement, whereas only 9.6% disagreed, and 28.8% remained neutral.

In terms of item CC3: '*After the downsizing event I felt like I had a few options to consider leaving this organisation'*, 26.9% agreed, and 2.6% strongly agreed with the statement. Nevertheless, 16% of participants disagreed, while 6.4%

strongly disagreed. In total, 29.5% of the participants agreed, while 22.4% disagreed, and 48.1% maintained a neutral position.

The fourth item on the continuance commitment scale, item CC4, stated: '*I have invested much effort in this organisation; I cannot consider working elsewhere even after downsizing* '. With regards to this statement, 55.8% agreed, and 6.4% strongly agreed, while 16.7% disagreed, and 1.9% strongly disagreed. A total of 62.2%, which forms most of the majority of the participants, agreed with the statement, whereas 18.6% disagreed.

The last item on the continuance commitment scale, CC5, read: '*Following downsizing in this organisation, I felt like one of the negative consequences of leaving this organisation would be a scarcity of available alternatives*'. In this respect, 18.6% of the participants agreed while 1.9% strongly agreed. However, 19.9% disagreed, while 4.9% strongly disagreed, while 55.1% remained neutral. Hence, 20.5% agreed with the statement, and 24.8% disagreed.

Qualitative Data Analysis

In the semi-structured interviews participants were requested to comment on their insights towards downsizing effects on employees' continuance commitment. The common opinion amongst participants was that organisational downsizing has not affected their continuance commitment.

To explore more on the dimensions of continuance commitment, participants were asked if they still had any inclination to continue working for their respective organisations following downsizing. Most of the participants stated that they were no longer attached to their organisations, however, had no choices but to continue working for the same organisation. Interestingly, respondents cited that they were only there to earn an income and to sustain their families. One participant ZorinOS lamented that she had lost affection for the organisation after downsizing. However, she has no choice but to hang in there.

In most cases, the type of commitment mentioned by participants can be ascribed to continuance commitment as indicated by the responses. Most of the participants revealed that they had no choice but to remain with their respective organisations after downsizing to earn a living. This is evident in the statement by Fedora (pseudonym) who indicated that she does not have an alternative but to continue working with her organisation after downsizing due to the tight labour market. In this regard, most of the participants expressed that they did not remain with their downsized organisations by choice. Rather, a popular opinion amongst the participants was that alternative employment opportunities were scarce, and it was not easy to change organisations owing to a tight labour market.

Almost every participant reported that after downsizing they suffered physical and psychological breakdowns owing to increased work pressure. Work-related stress and depression were reported to be rampant among employees. One Macintosh expressed that after layoffs employees had to work long hours and, in some instances, work on shifts, which interfered with their work-life balance, causing physical and psychological effects.

Discussion of Findings

The research paper integrated quantitative and qualitative findings of the study in a juxtapose. Meta-inferences of the combined findings were discussed in line with the study objectives. Interestingly both qualitative and quantitative strands corroborated on the findings, and an existence of continuance commitment was evident throughout the enquiry.

Table 2 above presented the results of the continuance commitment scale, which recorded an overall mean value of 3.326. The respondents' perceptions of continuous commitment indicate that 61.5% of the employees remained committed to organisations after downsizing because they had no other option than to stay, while about 58.9% of the participants indicated that it was a matter of necessity for them to remain committed to the downsized organisation. The results indicate that continuance commitment was prevalent, as most of the participants, namely 62.2%, reported that they remained devoted to downsized organisations since they had invested a lot in the organisations, hence leaving was not an option.

The quantitative strand of the results suggested that downsizing did not affect employees' continuance commitment with a greater margin. The overall quantitative results of this study indicate a positive effect of downsizing across the dimension of employees' continuance commitment. This is inconsistent with existing literature on organisational reengineering and downsizing. Several scholars suggest that downsizing affects employee commitment negatively (Allen and Meyer, 1997; Alicia and Ludwig, 1999; Ugboro, 2006; Gandolf, 2007; Matika *et al*., 2017).

However, an in-depth analysis through the qualitative strand suggested a positive effect of downsizing on employees' continuance commitment. To demystify these shocking results, qualitative interview follow-ups indicated that most employees from downsized organisations remained devoted to their organisations due to lack of alternative employment opportunities. Alicia and

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Ludwig (1999) postulates that downsizing in recessions ultimately contributes to a positive increase in continuance commitment. In support of the above, Mushonga and Ukpere (2022) puts forward that continuance commitment increases in a downsized organisation simply because survivors lack alternative employment. Hence, the fear financial loss makes them to continue with the organisation after surviving downsizing. Simply put, survivors had no choice but to remain with reengineered organisations because they were not employable in other organisations either due to absolute skills or job scarcity.

At this point it is important to reiterate that commitment is manifested in three forms, namely affective commitment, normative commitment, and continuous commitment (Allen and Meyer, 1997; Meyer and Allen, 1990; Meyer and Herscovitch, 2001). Therefore, as the results suggest, there is an undeniable evidence of continuance commitment in the transport and logistics organisations following a downsizing exercise. In essence, the results indicate that employees remained with their organisations physically to earn a living, though their minds could be elsewhere. This is consistent with Cangemi's (2000) assertion that when employees do not trust their organisations, they *'quit and stay'*. This implies that even though employees of transport and logistics organisations in Zimbabwe exhibited continuous commitment, they had divorced themselves from their organisations, but stayed for financial gains only and continued by doing the bare minimum.

Limitations of the Study

The results of this study are subject to limitations. The findings cannot be generalised without taking these limitations into consideration. Some of the limitations include inadequate responses, use of basic data analysis techniques, time constrains and researcher bias. The research scope was limited to a particular industry, that is, transport and logistics organisations in Harare, Zimbabwe. Therefore, when generalising the research findings these factors should be thought out and put into consideration. In addition, the research was conducted during Covid 19 era and there was limited access to organisations as well as other related restrictions like travel bans. Therefore, the number of participants were reduced, and relatively huge amount of time was lost during data collection. Notwithstanding the above-mentioned limitations, this research managed to demystify the hidden truths behind the existence of employees' continuance commitment in organisations that embarked on downsizing in Zimbabwe.

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Recommendations

The research findings suggests that apart from the existence of continuance commitment, surviving employees undergo untold psychological effects. It is therefore, recommended that downsized organisation considers using counselling support services to ameliorate the psychological effects of downsizing on employees. The study findings also suggested that survivors suffer from survivor's syndrome, which is mainly exhibited through absenteeism, late coming and anger related issues among other effect. Therefore, it is recommended that organisations should involve their employees in decision making with regards to downsizing and include employees in the process to avoid survivor's syndrome.

Conclusion

This study significantly concludes that despite the use of frenzied downsizing strategies by transport and logistics organisations in Zimbabwe, there is an overwhelming evidence of continuance commitment. The existence of continuance commitment in organisations in Zimbabwe was deduced to be mainly attributed to lack of alternative employment and fear of losing a living wage, hence survivors chose to stay and continue with downsized organisations. These findings are understood to be rampant in most struggling economies and failed states. As the results of this study suggests, many organisations in Zimbabwe embarked on downsizing activities as a reactive measure to address domestic economic pressures as opposed to technological adoption and global economic trends. Despite the main reasons behind organisational downsizing in transport and logistics organisations in Zimbabwe, this study has further established that survivors suffered untold mental breakdowns in silence since they feared to leave the organisations after downsizing. They chose to stay than to end up unemployed and lose their source of income. In a nutshell, the existence of continuance commitment depicted by the findings of this study tells a mystery on why employees would continue to work for downsized organisations although without any form of affectional attachment. It is, therefore, important to note that frenzied downsizing exercises subjected employees to psychological breakdowns and in extreme cases depression. Nevertheless, this study has used the advantages of mixed methods to demystify the reasons behind the existence of continuance commitment in organisations after downsizing. Therefore, there is no doubt that this study has contributed to the literature on the effects of downsizing on continuance commitment. Therefore, the current study can be relied upon by academics and policymakers as a point of reference in organisational downsizing discourse.

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INTELLECTUAL CAPITAL EFFICIENCY AS THE DETERMINANT OF SUSTAINING PROFITABILITY IN THE COVID-19 PANDEMIC CONDITIONS: DOES THE AGE OF THE ENTERPRISE MATTER IN THE HOTEL INDUSTRY?

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Abstract

The purpose of this paper is to provide the answer to the question - Can the efficiency of intellectual capital (ICE) be a factor in maintaining the profitability of young and mature hotel enterprises in the crisis caused by the Covid-19 pandemic? The key goal of the paper is to point out the importance *of*[EG1] *intangible (intellectual) resources for improving business performance, and above all, profitability. To respond to the goals of the research, an analysis of the contribution of human capital efficiency (HCE) and structural capital efficiency (SCE) to the profitability of young and mature hotels in the year before the crisis and the year of crisis in the Republic of Serbia (RS), as an emerging country will be given. The study's findings suggest that the ICE components have a partial impact on the profitability of young hotels in the year before the crisis. In the year of crisis, the ICE components partially affect the realization of sustainable and profitable business among mature hotels.*

Key words: *intellectual capital, efficiency, profitability, hotel, Covid-19 pandemic*

JEL Classification: *O34, L25*

Introduction

(1) In the era of knowledge economy, with the dominance of knowledge resources and the dynamic development of information technology and the service sector, intellectual capital (IC) is becoming the primary factor of enterprise development and competitiveness [Radjenovic & Krstić, 2017]. The hotel industry is often called the "human industry" [Baum & Nickson, 1998]. Human resources are the drivers of the growth and development of hotel enterprises and are important for the efficiency improvement of all business processes and activities. MacGregor Pelikanova *et al.* [2021] point out the relevant role of employees in hotel organizations in emerging economies and their (un)readiness to cope with challenges and provide better labor efficiency. Therefore, it is necessary to have a constant focus of management on productivity [Veselinović *et al.,* 2021] and continuous growth of HC efficiency, measured by a set of different indicators applicable in hotel enterprises. With that in mind, this paper covers the issue of the importance of intellectual resources for hotel companies in order to improve their profitability.

(2) The importance of studied matter is based on the following: 1) Intellectual resources are a key factor of competitiveness in the knowledge economy, 2) This is the first study comparing the effect of the coefficients of the efficient use of human and structural capital on the profitability of hotel operations in the years before and after the crisis caused by the Covid-19 pandemic, 3) The special focus of the study

is on the operating period of the analyzed hotels and on investigating whether the efficiency of HC and SC equally or differently contributes to mature and young hotels in the years before and after the crisis.

(3) Authors intend to answer to this matter through the following research questions:

1. To make a comparison of the contribution of IC efficiency, profitability of hotel enterprises in the year of crisis caused by the Covid-19 pandemic and the year before the crisis in an emerging economy, such as RS. Effective IC management is expected to contribute to a higher profitability of hotel enterprises and overcoming the crisis.

2. To investigate whether enterprise age can be a significant factor in which the efficiency of IC contributes to the profitability of hotel enterprises. Mature hotel enterprises are assumed to have a higher value of IC, so the efficient use of components of the total IC (HC and SC) is expected to contribute to a higher profitability of hotel enterprises in an emerging economy.

Empirical research, presented in this paper, was conducted in RS. The hotel sector in the RS has achieved a significant growth in terms of the number of hotels and the number of hotel nights from 2010 to 2019 [Eurostat, 2021].

(4) There are relevant studies in the literature that have addressed the role of the age of the enterprise in IC management and development [El-Bannany, 2012; Goebel, 2015; Forte *et al.*, 2017], but none provided an answer to the question of whether there is a difference in the contribution of IC profitability between mature and young hotel enterprises, which reflects the special contribution of this paper to the specialized literature in this field.

Literature Review

Intellectual capital and profitability

By wisely investing in intellectual resources, enterprises can achieve higher productivity and increase efficiency in the use of resources. Service-based industries, which include the hotel industry, rely on IC, especially in the form of knowledge and creativity of employees to maximize the value of the business [El-Bannany, 2012; Radjenović & Krstić, 2017].

Business performance is a concept used by academics and professional managers in all areas of business research, especially within strategic and operational performance management [Campos *et al.,* 2021]. The key to business performance is profitability. It is an aggregate business performance because it should measure the aggregate efficiency - efficiency in the use of all employed resources of an enterprise [Krstić & Sekulić, 2020]. Traditional accounting profitability measures, such as the return on assets (ROA) and the return on equity (ROE), show the success that an enterprise has achieved in carrying out its activities, describing the extent to which the enterprise can effectively (profitably) manage its assets and equity [Soewarno & Tjahjadi, 2020]. ROA and ROE indicators have their limitations as stated in Krstić [2014]. This author emphasizes that the denominator of ROA and ROE does not include the value of all intellectual resources because the value of these resources is not shown in the balance sheet, taking into account the requirements of International Accounting Standard 38. Also, the limitations of these ratios come from different accounting policies for estimating income and expenses that determine the amount of balanced earnings (profit) in the sense that it can be overestimated or underestimated [Krstić, 2014]. In the empirical research in this paper, the focus is on the profitability indicators of hotel enterprises.

Several research suggests a link between IC and business performance [Campos *et al.,* 2021; Torre *et al.,* 2021]. Also, the results of previous studies provide evidence of the relationship between IC and business performance of enterprises in emerging economies [Tiwari, 2021; Tran & Vo, 2021].

A number of researchers [Ghosh & Mondal, 2009] claim that enterprises with better IC performance are expected to have a higher profitability rate. The link between the intellectual capital efficiency (ICE) and profitability indicators has been pointed out by other authors in their research [Weqar *et al.*, 2020; Ramírez *et al.*, 2021; Tiwari, 2021; Maji & Hussain, 2021]. ICE positively contributes to ROA [Nimtrakoon, 2015]. D'Amato [2021] concludes that enterprises with higher IC value are more profitable compared to enterprises with lower IC value. He also found that enterprise profitability and risk mediate between IC and financial leverage. Bayraktaroglu *et al.* [2019] highlight that ICE has a moderating role in the relationship between efficiency of employed capital and profitability. Ghosh and Mondal [2009] believe that the performance of an enterprise's IC can explain profitability, but not productivity and market valuation in India. Bontis *et al.* [2015] conclude that, to some extent, the profitability of hotels is influenced by human and structural capital. Few studies [Firer & Williams, 2003; Chu *et al.*, 2011; Ognjanović, 2020] point out a significant negative relationship or no relationship between IC and enterprise profitability.

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The age of the enterprise as a determinant of intellectual capital development and growth

The age of the enterprise is defined "as the length of time it has been in existence" [Nigam *et al.*, 2021]. The analysis of the age of enterprises confirms the fact that enterprises develop the value of IC in a cumulative way over time [Forte *et al.*, 2017]. Diverse studies [Hsu & Wang, 2010; Reed *et al.*, 2006] revealed that the increase of IC value is influenced by the age of the enterprise. Age provides evidence indicating that an enterprise has been, is, and will be sustainable [Bukh *et al.*, 2005]. Some authors [El-Bannany, 2012; Nigam *et al.*, 2021] consider years to be a proxy for the success of an enterprise. Another explanation may be that mature enterprises achieve better performance than young ones because market experience helps them gain a competitive advantage through better staff recruitment, production, and marketing strategies [El-Bannany, 2012]. Thus, the younger the enterprise, the greater the chances of failure [Nigam *et al.*, 2021]. Other authors [Bukh *et al.*, 2005; White *et al.*, 2007] believe that enterprise age is often a risk factor in the sense that mature enterprises are less risky.

The results of previous studies indicate that enterprise age is a significant business factor. Maji and Laha [2021] conclude that age is a significant determinant of business efficiency in Indian manufacturing enterprises during the period from 1999 to 2014. D'Amato [2021] proves that enterprise age affects the profitability of Italian enterprises. The results of the study of Shahzad *et al.* [2021] show that mature enterprises perform better and do better than young enterprises.

The relationship between the age of enterprise and intellectual capital has been analyzed in literature. El-Bannany [2012] concludes that experience is the main reason why the IC performance of mature banks is better than the IC performance of young banks. Hosono *et al.* [2021] highlight that for young Japanese enterprises, the accumulation of intangible capital is a key driver of overall economic growth. Organizational capital explains a large part of the sales growth of young enterprises. Certain studies [Forte *et al.*, 2017] conclude that age negatively affects IC value.

Efficiency of Human and Structural capital as elements of Intellectual capital according to VAIC model

In general, the value of IC is difficult to measure [Soewarno & Tjahjadi, 2020]. The same is the case with the efficiency of IC segments. It is difficult to measure the efficiency of the total IC, having in mind the intangible nature of individual elements of IC, as well as the limitations of accounting standards - lack of accounting information in financial statements that would be used in quantitative models to calculate the aggregate indicator (which should express the efficiency of total intellectual capital) [Krstić & Bonić, 2016].

In the literature, the VAIC method has lately been widely used to measure the efficiency of human and structural capital as its key components. The VAIC model is based on measuring the efficiency of use of:

• Intellectual capital, consisting of two components:
  a) human capital (HC);
  b) structural capital (SC), and
• Other employed physical and financial capital (CE) in an enterprise.

The efficiency of the use of the total capital of the enterprise (intellectual - human and structural, physical, and financial) is marked as Value-Added Intellectual Coefficient (VAIC). Namely, it is considered that IC adds value to other engaged physical and financial resources.

Quantitatively, this coefficient represents the sum of two efficiency coefficients presented in the following relation: VAIC = ICE + CEE, where: ICE is an indicator of intellectual capital efficiency, while CEE is an indicator of the efficiency of other employed capital - physical and financial. The VAIC coefficient, therefore, allows the overall efficiency of enterprises to be quantified [Pulic, 2004].

Intellectual capital efficiency (ICE) is the sum of coefficients of the efficiency of human and structural capital [Pulic, 2004]: ICE = HCE + SCE. The analysis of the efficiency of the use of intellectual capital (human and structural) shows whether human intellectual resources and structural intellectual resources are managed in an efficient way.

In designing HC efficiency and SC efficiency indicators, Pulic [2004] uses the category of financial result called Value Added (VA) as the most appropriate indicator of business success, which is calculated as follows:

VA = Operating earnings + Employee costs + Depreciation + Amortization.

The efficiency of human capital, as an element of IC, is quantified using the indicator - HCE (Human Capital Efficiency), which represents the contribution of each unit of HC to the generation of value added [Tran & Vo, 2021]. Characteristic of the VAIC model is that all employee costs are included in the value of human capital (HC). The HCE indicator is calculated as follows [Pulic, 2004]: HCE = VA / HC, where HC indicates the total amount of salaries (wages) for all employees in the hotel, and VA denotes the value added.

The efficiency of structural capital, as an element of IC, is measured by a specific indicator - SCE (Structural Capital Efficiency). SCE is the contribution of SC in creating value added [Tran & Vo, 2021]. The value of structural capital (SC) is calculated as the difference between value added (VA) and human capital (HC), while the SCE indicator is calculated as follows [Pulic, 2004]: SCE = SC / VA.

Theoretical Background

The analysis of the relationship between ICE components and business performance, from the point of view of the hotel age, was conducted in the hotel industry in RS. The necessary data were collected from the financial reports of the hotels for 2019 and 2020. The hotel industry was chosen because: a) it is one of the largest and most dynamic industries in the world [Sardo *et al.*, 2018]; b) it is labor-intensive activity - it is necessary to determine what kind of support to human resources is provided by intellectual resources in the years of crisis; c) it is characterized by increased competition which requires decision-making based on sufficient performance information [Zigan & Zeglat, 2010].

In 2020, the year of the crisis caused by the Covid-19 pandemic, 421 accommodation facilities (hotels, garni hotels and motels) operated in the hotel industry in RS. Basic data on hotels are taken from the website of the Ministry of Trade, Tourism and Telecommunications of the Republic of Serbia. Data for calculating the value of ICE components and profitability indicators (ROA, ROE, RevPAR) are collected from the available financial statements of hotel enterprises. The sampling has been done considering the data availability, so a suitable sample was observed. Financial statements are available on the website of the Serbian Business Registers Agency (SBRA). The criterion for including a hotel in the sample is the registration of enterprises for hotel and other accommodation activities (5510, see RS Business Code).

The sample comprises hotel enterprises whose financial statements were available on the SBRA website. Data from the financial statements were collected for 164 hotels, which means that the sample makes up 38.95% of the total of 421 accommodation facilities which compose the accommodation sector in RS. Data for the remaining hotels were not collected and taken into account for the following reasons:

• Some hotels are registered under another name or as part of a larger company, which is not registered under activity code 5510- Hotels and similar accommodation.

• A few hotels are part of a national hotel chain. Consolidated financial report is presented for such hotels;
• Financial reports were not available for some hotels on the SBRA website;
• Hotels with a negative value added (VA) data from the VAIC methodology are excluded from the sample.

The criterion for defining young and mature hotels is based on the conclusion of Biggadika [1979] – young enterprises need 10 to 12 years to equate the ROI with the ROI of mature enterprises. Data from the Bureau of Labor Statistics shows that approximately 20% of new businesses failed during the first two years, 45% during the first five years, and 65% during the first 10 years. Only 25% of new businesses make it to 15 years or more [Deane, 2020]. It can be concluded that the first 10 years of business are risky for new, young hotels, based on which a cross-section of young hotels (operating for up to 10 years) and mature hotels (operating for 11 years or more) was made.

The structure of the sample was observed from four aspects: category, hotel size, hotel legal form and hotel type (see Table 1).

Table no. 1. Description of the sample structure

Criterion	Young hotels		Mature hotels		Total sample	
	Number of hotels	%	Number of hotels	%	Number of hotels	%
Category						
1-star	2	3	5	5	7	4
2-stars	8	12	19	20	27	17
3-stars	24	35	33	35	57	35
4-stars	33	47	33	35	66	40
5-stars	2	3	5	5	7	4
∑	**69**	**100**	**95**	**100**	**164**	**100**
Hotel size						
Micro	47	68	34	36	79	48
Small	15	22	45	47	60	37
Medium-sized	7	10	16	17	25	15
∑	**69**	**100**	**95**	**100**	**164**	**100**
Hotel legal form						
Entrepreneur	8	12	13	14	21	13
A limited liability company	61	88	74	78	135	82
Stock company	-	-	8	8	8	5

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Criterion	Young hotels		Mature hotels		Total sample	
	Number of hotels	%	Number of hotels	%	Number of hotels	%
∑	**69**	**100**	**95**	**100**	**164**	**100**
Hotel type						
Garni hotel	25	36	23	24	48	29
Hotel	43	62	70	73	113	69
Motel	1	2	2	3	3	2
∑	**69**	**100**	**95**	**100**	**164**	**100**

Source: Authors

The VAIC method represents the foundation of the analysis of the human capital efficiency coefficient (HCE) and the structural capital efficiency coefficient (SCE). In setting research goals and formulating hypotheses, one starts from the elements of the efficiency of intellectual capital segments. Dependent variables in empirical research are the indicators of profitability - ROA and ROE. The ROA indicator is the ratio of operating earnings and total assets, and the ROE indicator is the ratio between net earnings and total equity [Tran & Vo, 2021]. Another indicator was added to profitability indicators, typical for hotel business - Revenue Per Available Room (RevPAR). This indicator measures the ability of hotels to earn income when renting rooms, as the ratio of total business revenue and the number of available rooms [Ognjanović, 2020].

Companies that adequately manage investments in HC can increase and improve their performance [Torre *et al.*, 2021] as evidenced by research [Maditinos *et al.*, 2011; Chatterjee *et al.*, 2021]. Studies [Asare *et al.*, 2017; Weqar *et al.*, 2020] indicate that HCE is a key component of a company's profit. Numerous analyzes also confirm the impact of HCE on ROA [Sardo & Serrasqueiro, 2017; Bayraktaroglu *et al.*, 2019] and ROE [Bayraktaroglu *et al.*, 2019]. Several studies do not prove the influence of HCE on business performance [Firer & Williams, 2003; Ognjanović, 2020; Dalwai & Salehi, 2021].

Hormiga *et al.* [2011] analyzed the importance of intangible assets among start-ups and concluded that HC has a very important role in the early stages of enterprise development. The importance of human capital in the initial stages of enterprise development is also discussed by Couto *et al.* [2021], emphasizing the importance of communication and interaction of employees within the teams. The literature [Peña, 2002; Hormiga *et al.*, 2011; Couto *et al.*, 2021] clearly highlights the importance of HC for young enterprises, which imposes the need to explore the nature of the relationship between the HCE and the profitability of young hotels through the following hypotheses:

Hypothesis1: HCE has a positive impact on the profitability indicators of young hotels

Hypothesis1a: HCE has a positive impact on the profitability indicators of young hotels in the pre-crisis year

Hypothesis1b: HCE has a positive impact on the profitability indicators of young hotels in the year of the crisis

Cantrell *et al.* [2006] conclude that financial performance depends on the maturity of the human capital management process - enterprises with mature human capital management processes have better financial performance than those with young human capital management processes. In order to maintain a competitive advantage, mature enterprises can also strive to develop a value chain, forming networks (contacts) which increase the number of external relations and stimulate the development of human capital. Such activities may be the result of greater investment in human and relational capital [Couto *et al.*, 2021]. Goebel [2015] indicates that a company's focus on IC changes as the company matures, relying on "stocks" of knowledge, which is an important segment of overall IC. Based on the results of these studies it can be concluded that HC can positively contribute to the profitability of mature hotels. Hence, it is desirable to analyze the nature of the relationship between these two variables among mature hotels, as labor-intensive enterprises. Taking into account the above, the following hypotheses are defined:

Hypothesis2: HCE has a positive impact on the profitability indicators of mature hotels

Hypothesis2a: HCE has a positive impact on the profitability indicators of mature hotels in the pre-crisis year

Hypothesis2b: HCE has a positive impact on the profitability indicators of mature hotels in the year of the crisis

Several studies have indicated that higher levels of SC are associated with positive outcomes, such as productivity and efficiency gains [Ray *et al.*, 2012], enterprise value [Miles *et al.*, 2017] and business performance [Dalwai & Salehi, 2021]. SCE contributes to building high-quality services and enables the enterprise to build trust in relationships with customers and suppliers [Ramírez *et al.*, 2021]. SCE is positively associated with ROA [Dalwai & Salehi, 2021; Ramírez *et al.*, 2021] and ROE [Tran & Vo, 2021]. Other studies find that SCE negatively affects

ROA [Nimtrakoon, 2015]. This capital provides the enterprise with the flexibility to adapt to changes in the market, which is a determinant of business success [Peña, 2002]. The results of the studies [Chang & Hsieh, 2011; Couto *et al.*, 2021] indicate that enterprises in the early stage focus more on SC than on HC. Hence, based on these studies it is necessary to investigate whether investments in SC can contribute to the profitability of young hotels through the hypotheses:

Hypothesis3: SCE has a positive impact on the profitability indicators of young hotels

Hypothesis3a: SCE has a positive impact on the profitability indicators of young hotels in the pre-crisis year

Hypothesis3b: SCE has a positive impact on the profitability indicators of young hotels in the year of the crisis

It is assumed that mature enterprises have already developed SC, which is based on elaborated and connected processes, systems, databases with respect to the values of organizational culture. Accordingly, the following hypotheses are defined:

Hypothesis4: SCE has a positive impact on the profitability indicators of mature hotels

Hypothesis4a: SCE has a positive impact on the profitability indicators of mature hotels in the pre-crisis year

Hypothesis4b: SCE has a positive impact on the profitability indicators of mature hotels in the year of the crisis

Descriptive statistics results

Descriptive statistics are presented in Table 2 for all observed hotels, young and mature ones, in the pre-crisis year and the year of the crisis. In 2019, among young hotels, HCE is the dominant component of ICE (Mean = 2.09). The same conclusion can be drawn for mature hotels, as well (HCE Mean = 1.62). By observing the profitability indicators, the highest value is recorded for RevPAR among both young (Mean = 1840.47) and mature hotels (Mean = 1774.43) in 2019. The results of ROA and ROE are negative among young hotels in 2019.

By observing ICE components in 2020 (Table 2), the highest mean value is recorded for HCE for both young (Mean = 1.26) and mature hotels (Mean = 1.08). Among the profitability indicators, the highest value is recorded for the ROE of young hotels (Mean = 1164.74), while the highest mean value is documented for

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the RevPAR of mature hotels (Mean = 1123.61). The results of descriptive statistics point to the negative value of ROA and ROE among mature hotels.

Table no. 2. Mean and Standard deviation for year before and during Covid-19 crisis

Variable	2019				2020			
	Young hotels		Mature hotels		Young hotels		Mature hotels	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
HCE	2.09	3.35	1.62	1.39	1.26	1.79	1.08	0.91
SCE	0.16	0.64	0.28	0.97	0.095	1.79	-0.42	6.61
ROE	-1161.33	9782	35.62	175.97	1164.74	8430.67	-32.40	204.20
ROA	-0.0008	0.28	0.05	0.18	-0.30	1.37	-0.08	0.32
RevPAR	1840.47	2474	1774.43	2421.41	1056.52	1795.9	1123.61	2778.80

Source: Authors

Investigating the relationship between the observed variables involves testing the normality of the sample distribution. The sample consists of 164 hotel companies – 69 young and 95 mature hotels. The observed sub-samples have more than 50 hotels, and hence the Kolmogorov-Smirnov test is used for testing the normality of the distribution. The results of the Kolmogorov-Smirnov test do not prove the normality of the sample distribution, as the value of statistical significance for all observed variables is $p = 0.000$.

The results of correlation analysis

Correlation analysis results for young and mature hotels are presented in Table 3 and 4, respectively. Due to the fact that normality of the sample distribution is not confirmed, correlation is observed by the Spearman's correlation coefficient.

The results of the correlation analysis between the ICE components and the profitability indicators of young hotels in 2019 revealed the strongest relationship between SCE and ROE ($\rho = 0.555$; $p = 0.000$), whereas the weakest relationship was present between HCE and RevPAR ($\rho = 0.249$; $p = 0.026$). The results of the correlation analysis between the ICE components and the profitability indicators of young hotels in 2020 determined the strongest relationship between ROE and HCE ($\rho = 0.612$; $p = 0.000$), while the weakest relationship was identified between SCE and ROE ($\rho = 0.271$; $p = 0.025$).

Table no. 3. Correlation results for young hotels

Variables	2019					2020				
	HCE	SCE	ROA	ROE	RevPAR	HCE	SCE	ROA	ROE	RevPAR
HCE	1					1				
SCE	0.984**	1				0.470**	1			
ROA	0.456**	0.463**	1			0.554**	0.359**	1		
ROE	0.546**	0.555**	0.713**	1		0.612**	0.271*	0.789**	1	
RevPAR	0.249*	0.199	0.345**	0.180	1	0.159	-0.147	0.145	0.154	1
Correlation is significant at: *0.05 and **0.01 levels *n = 69*										

Source: Authors calculations

The results of the correlation analysis between the ICE components and the profitability indicators of mature hotels in the pre-crisis year point to the strongest relationship between HCE and ROA ($\rho = 0.433$; $p = 0.000$), whereas the weakest relationship was present between SCE and ROE ($\rho = 0.276$; $p = 0.007$). Regarding the year of the crisis, the strongest relation was identified between HCE and ROA ($\rho = 0.573$; $p = 0.000$), while the weakest relationship was determined between SCE and ROA ($\rho = 0.483$; $p = 0.000$).

Table no. 4. Correlation results for mature hotels

Variables	2019					2020				
	HCE	SCE	ROA	ROE	RevPAR	HCE	SCE	ROA	ROE	RevPAR
HCE	1					1				
SCE	0.876**	1				0.745**	1			
ROA	0.433**	0.333**	1			0.573**	0.483**	1		
ROE	0.372**	0.276**	0.743**	1		0.561**	0.503**	0.920**	1	
RevPAR	0.133	0.021	0.070	0.146	1	0.095	-0.079	0.118	0.125	1
Correlation is significant at: *0.05 and **0.01 levels *n = 95*										

Source: Authors calculations

Results of Multigroup analysis

The overall structural model was determined by model fit indices: χ^2, χ^2/df; GFI; NFI; CFI, IFI and RMSEA. Hooperet *et al.* [2008] defined the acceptable threshold levels of these indices, determining the model goodness of fit

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measurement. Chi-square (χ^2) evaluates the magnitude of discrepancy between the sample and fitted covariances matrices, where the values of $p \geq 0.05$ point to the good fit of the model. In order to reduce the impact of sample size, apart from χ^2, the relative chi-square (χ^2/df) is used with the acceptable threshold of ≤ 3 [Kline, 2005]. According to Hooper *et al.* [2008], the following threshold levels are defined indicating acceptable fit of the model: GFI > 0.90; NFI > 0.80/0.90; CFI > 0.90; RMSEA < 0.08; IFI > 0.90. The results show that the observed measurement model is an acceptable fit of the model (Table 5).

We can identify a statistically significant impact when the critical ratio (CR) value is higher than 1.96 and p-value is lower than 0.05 (with an error rate of 5 percent) [Solimun, 2009]. For a more comprehensive insight into the importance of ICE components for the profitability of hotels, the necessary coefficients are calculated for the pre-crisis (2019) and the crisis year (2020).

Table no. 5. Standardized parameter estimates for year before Covid-19 crisis

Path	Young hotels			Path	Mature hotels		
	C.R.	p	Support		C.R.	p	Support
H_{1a} HCE → ROA	-1.066	0.286	No	H_{2a} HCE → ROA	1.226	0.220	No
H_{1c} HCE → ROE	**1.900**	**0.051**	**Yes**	H_{2c} HCE → ROE	1.781	0.075	No
H_{1e} HCE → RevPAR	-0.630	0.529	No	H_{2e} HCE → RevPAR	1.394	0.163	No
H_{3a} SCE → ROA	**4.995**	**0.000**	**Yes**	H_{4a} SCE → ROA	**2.060**	**0.039**	**Yes**
H_{3c} SCE → ROE	**6.606**	**0.000**	**Yes**	H_{4c} SCE → ROE	0.543	0.587	No
H_{3e} SCE → RevPAR	0.975	0.330	No	H_{4e} SCE → RevPAR	0.370	0.711	No

Note: Model fit: χ^2 = 7.812; d.f. = 6; χ^2/d.f. = 1.302; p = 0.252; IFI = 0.978; NFI = 0.911; CFI = 0.969; RMSEA = 0.043
Young hotels: n = 69
Mature hotels: n = 95

Table 5 presents the results between ICE components and profitability indicators in 2019, pre-crisis year in the hotel business. It is evident that HCE and SCE of young hotels have a partially impact on some profitability indicators. Hypothesis1a is partially confirmed. Only HCE has a positive impact on the ROE of young hotels in the pre-crisis year (C.R. = 1.900; p = 0.051). Additionally, the

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following Hypothesis3a is also partially confirmed. SCE has a positive impact on the ROA (C.R. = 4.995; p = 0.000) and the ROE (C.R. = 6.606; p = 0.000) of young hotels in the pre-crisis year.

In the case of mature hotels, SCE has a positive impact on ROA in the pre-crisis year (C.R. = 2.060; p = 0.039), thus Hypothesis4a is partially confirmed. Hypothesis2a is not confirmed by the research results. Therefore, it can be concluded that, in the pre-crisis year, the efficient usage of intellectual capital has a significant role in creating the profitable business of young hotels compared to mature ones.

Table no. 6. Standardized parameter estimates for year during Covid-19 crisis

Path	Young hotels			Path	Mature hotels		
	C.R.	p	Support		C.R.	p	Support
H_{1b} HCE → ROA	0.296	0.767	No	H_{2b} HCE → ROA	**2.853**	**0.004**	**Yes**
H_{1d} HCE → ROE	0.217	0.828	No	H_{2d} HCE → ROE	1.647	0.099	No
H_{1f} HCE → RevPAR	0.645	0.519	No	H_{2f} HCE → RevPAR	**2.660**	**0.006**	**Yes**
H_{3b} SCE → ROA	**6.022**	**0.000**	**Yes**	H_{4b} SCE → ROA	**1.977**	**0.044**	**Yes**
H_{3d} SCE → ROE	0.223	0.823	No	H_{4d} SCE → ROE	0.237	0.813	No
H_{3f} SCE → RevPAR	-0.210	0.834	No	H_{4f} SCE → RevPAR	0.093	0.926	No

Note: Model fit: χ^2 = 11.655; d.f. = 6; χ^2/d.f. = 1.942; p = 0.070; IFI = 0.902; NFI = 0.836; CFI = 0.832; RMSEA = 0.076
Young hotels: n = 69
Mature hotels: n = 95

In Table 6, the results of the relationship between ICE components and profitability indicators in 2020, the crisis year in the hotel business, are presented. The results show that only SCE has a positive impact on the ROA of young hotels in the crisis year (C.R. = 6.022; p = 0.000), thus confirming hypothesis Hypothesis3b is partially confirmed. Hypothesis1b is not supported by the research results. Therefore, it can be concluded that, in the case of young hotels, ICE does not represent a significant factor which has successfully responded to the business crisis. Nonetheless, the conclusion of the positive impact can be drawn from the results for 2019, where observed ICE components (HCE and SCE) made a significant impact of the profitability indicators.

By observing mature hotels, the dominant impact of human capital in the crisis year, as well as the impact of structural capital, can be determined. The research results partially confirm Hypothesis2b, i.e., HCE has a positive impact on the ROA of mature hotels in the year of crisis (C.R. = 2.853; p = 0.004) and HCE has a positive impact on the RevPAR of mature hotels in the year of crisis (C.R. = 2.660; p = 0.008). Finally, the impact of SCE on the ROA of mature hotels is determined (C.R. = 1.977; p = 0.044), thus partially confirming Hypothesis4b. By comparing these results with the results obtained for the mature hotels in 2019, it can be concluded that ICE has a significant role in the year of the crisis, with special emphasis on the importance of the efficient usage of human capital. For mature hotels, ICE has a more significant role in achieving profitable and stable business performances of hotel enterprises in a crisis period.

Conclusions

(1) The results of the study do not fully support the contribution of ICE and its components to the profitability of young and mature hotels. Firstly, the explanation for such results can be found in the VA and profitability concepts which encompass two different and completely unrelated dimensions of enterprise performance [Firer & Williams, 2003]. Profitability is understood as a financial-accounting indicator that is directed towards the shareholders' returns. VA represents an overall increase in the potential and wealth of different stakeholders, not just shareholders [Firer & Williams, 2003]. Thus, the conceptual disparity between IC and profitability can be explained by the lack of a significant association between profitability and VAIC components [Bayraktaroglu *et al.*, 2019].

Secondly, the calculation of ROA and ROE indicators may affect the correlation between VAIC and financial indicators, given that net earnings are highly influenced by financial leverage rates [Maditinos *et al.*, 2011].

A third possible explanation for the obtained results stems from differences in reporting and interpretation of IC in developed and developing countries as a result of social, economic and political factors [Dharni & Jameel, 2021]. In addition to these interpretations of the obtained results, other factors of the general environment that indirectly affect the observed variables should be taken into account. Tan *et al.* [2007] consider that the impact of IC on future performance varies according to the type of industry. Most studies were conducted in the field of banking, financial services, pharmaceutical industry [Tiwari, 2021], i.e., extremely profitable industries. Besides, an imbalance among investors exists regarding their awareness of the importance of IC in value creation in companies operating in different geographical areas [Mehralian *et al.*, 2012]. These results are consistent with other research studies conducted in developing countries, which conclude that IC is not used enough in developing economies, hence it plays a minimal role in creating high financial performance [Firer & Williams, 2003; Dženopoljac *et al.*, 2017; Bayraktaroglu *et al.*, 2019]. It is assumed that developing countries still do not have sufficiently developed IC components at the national level, which may be one of the factors of such results.

Young hotels.

The results of the study are consistent with the conclusion of Hosono *et al.* [2021] that the sales growth rate and the growth rate of all business/production factors is higher in case of young companies. Before the crisis, SCE played a key role in the process of creating profitability (ROA, ROE) among young hotels. A similar conclusion can be drawn for the year of the crisis. Such results are in line with the results of Nassar [2018]; Hamdan [2018]; Chatterjee *et al.* [2021]. The results suggest that investors consider structural capital as a significant factor in investment decisions [Yu *et al.*, 2010], as companies with a high level of SCE are privileged for higher gains and steady revenue growth [Hamdan, 2018]. The study results are in line with the conclusion of Sumedre [2013] that in times of crisis the development of companies depends on structural capital because this capital makes a difference among companies in a turbulent business environment.

Mature hotels.

The results of the multigroup analysis indicate that mature hotels are less likely to fail than the young ones [Freeman *et al.*, 1983; Nigam *et al.*, 2021]. Such companies achieve better goals, meet deadlines, work more efficiently, and achieve cost savings [Vaz *et al.*, 2019]. The results show that, in a year of crisis, HCE plays an important role in achieving sustainable and profitable business among mature hotels. These results are in line with the conclusion of Nassar [2018] and Sumedrea [2013], according to which HCE has a key role in value creation after the 2008 financial crisis. Interestingly, HCE did not play a significant role in achieving hotel profitability in the year before the crisis, as evidenced by Nassar [2018]. These results indicate that investors continue to appreciate the role of human capital in value creation [Bayraktaroglu *et al.*, 2019] and use it as a significant tool for

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overcoming the business crisis. Interpretations of the results are consistent with the conclusion [El-Bannany, 2012] that employee experience plays a key role in mature companies.

(2) The results clearly show that the efficient use of intellectual assets is not the only factor that would support the realization of a profitable hotel business in the Covid-crisis period. Hence, the following recommendations could be offered to managers:

- Young hotels failed to make efficient use of intellectual resources during the crisis.
- Managers are encouraged to further train their employees for the crisis business conditions and work on developing human resource management tools, such as the employer's brand. This is supported by the results of a study of mature hotels where, in the years of crisis, profitability can increase with a more efficient use of human capital.
- Poorer performance indicators (ROA, ROE, RevPAR) in the year of crisis are a consequence of net losses and business losses produced by the hotel. It is recommended to the hotel management to look at fixed and variable costs, make a break-even analysis and manage the business so that, in times of crisis, it achieves the scope of activities that will enable a positive financial result and thus profitable business.

(3) The study has several limitations, which in fact points to directions for future research. The first limitation is related to the comprehensiveness of the sample. Empirical research was conducted only on hotels in the Republic of Serbia. A broader interpretation of the results would require expanding the sample with the several additional developing countries. Another limitation is related to a limited financial data set. Out of 421 possible hotels operating in Serbia, data were available for 173 hotels. For the rest of the hotels, financial reports were not available, or hotels were registered within some other companies, whose primary activity is not hotel services. By eliminating negative VA values, the sample was reduced to 164 hotels, representing 39% of the total number (421). The third limitation is related to the applied model of ICE calculation. The VAIC model is based on the calculation of variables on historical cost accounting and includes two components of ICE (HCE and SCE). This model does not include intellectual property and research and development (R&D) expenditure, which also affects hotel performance [Tran & Vo, 2021]. Notwithstanding these disadvantages, the model has certain advantages, which makes it very popular among researchers. The

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VAIC model is a quantitative measurement approach based on the calculation of the efficiency of the use of appropriate components, based on information presented in publicly available financial statements and, as such, allows the comparison of ICE values among different industries.

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IMPACT OF COVID-19 ON THE LABOUR MARKET IN KENYA

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Abstract
The outbreak of the corona virus affected peoples' way of life hugely across the globe. The resulting effects shocked even the most advanced companies. The effect of the virus has not only affected the health and well-being of people, but also their economic well-being. Globally, various governments introduced mitigating measures including lockdowns, restrictions on movements, curfews, social distancing, mask wearing and, finally, vaccination programs. This study aimed to establish how COVID-19 affected the labor market in Kenya; how the pandemic affected workers differently; what new skills were required for workers to cope with the pandemic; and training programs that were initiated for workers during and after the pandemic. The study gathered information from a group of key stakeholders, totaling 20, both from the public and private sectors.

Keywords: *Impact, Covid-19, Kenya, Labor Market, Lockdown, Pandemic.*

JEL Classification: *J01; J19*

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Introduction[EG1]

The first Covid-19 case was reported on the 12th of December 2019 in Wuhan, China, prompting countries to institute drastic measures such as lockdown and social distancing. These measures translated to a paradigm shift for job performance, because in some instances working hours were reduced from the normal eight hours per day to less, whilst others resorted to working from home to reduce the risks of contracting the decease (Gupta et al. 2020). Cross-border workers were affected in two ways, as the reality of travel restrictions implied that they could not travel back to their workplaces or they could not leave their workplaces to visit their families, resulting in working from home and, in extreme instances, job losses were reported (Yasenov, 2020). The reality of restricted movement affected many entities in Kenya that relied on movement for labor supply. Restrictions also reduced the demand for certain services and products, leading to reduced workforces, as some entities were forced to cease operations completely, in both cases employees lost their jobs as a result (Gupta et al. 2020).

Problem Statement

Many countries across the globe are still experiencing economic crises associated with the COVID-19 pandemic. Being a global pandemic, the effect on labour was expected. Redundancy in employment, reductions in incomes and increased poverty are eminent challenges that emerged. The results could have short, medium, and long-term effects that can be painful to the working class and businesses, at large. For instance, loss of earnings owing to job losses, loss of productivity, as well as on the job training and experience to build human capital in the nation.

Research questions

The main research question was:

- How has COVID-19 affected the labour market in Kenya?

The subsidiary research questions were:

- Which sectors were affected mostly during the Covid-19 pandemic?
- How has the pandemic affected workers differently?
- What new skills were needed for workers to cope with the pandemic?
- What different work approaches were adopted during the Covid-19 period?

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Research Objectives

The study's main objective was:

- To establish how COVID-19 affected the labour market in Kenya.

The subsidiary objectives were:

- To establish, which sectors were affected mostly during the Covid-19 pandemic.
- To find out how the pandemic affected workers differently.
- To establish the new skills that workers needed during the COVID-19 pandemic.
- To establish different approaches of working during the Covid-19 period.

Significance of the study

This study is significant for the Kenyan government because it highlights the impact of the pandemic on the economy, thereby informing policy direction for the government to rebuild the economy. The study will also be important for the country's Ministry of Health, as it provides guidance for mitigating measures to address the Covid-19 pandemic. In addition, the study is significant for labour suppliers, as it highlights areas that were highly affected and proffer solutions to bring operations back to normal, whilst establishing measures to reduce losses. The study is also important for workers and prospective workers, as it highlights required skills during the pandemic, giving workers an opportunity to pursue these skills that they can use in future. Finally, scholars should also benefit from the study, as it gives them an opportunity to expand upon unexplored areas of the study in relation to the Covid-19 pandemic.

Theoretical foundation

Impact of Covid-19 on labour market in Kenya

Jobs that were most affected by the pandemic included those in unskilled labour, that is, those with little or no qualifications, which in turn increased disparities in the labour market. Workers in this category were not able to work remotely, as they had to present themselves physically at the workplace to execute their tasks (Yasenov, 2020). These workers were affected the most by the Covid-19 pandemic. They included workers in the hospitality industry, food industry and construction industry. Equally, owing to the nature of their work, they could not observe social distancing in the execution of their duties, and were, therefore, affected the most (Pouliakas and Branka, 2020).

Because most employees worked from home, their productivity was at a low level at the start of the pandemic since many employees were learning how to work from home. In addition, those who were affected or infected during lockdown, could not cope with working from home owing to complications to manage Covid-19 from home (Jones, 2020). Unlike previous pandemics, where the effects were felt more on men than women, Covid-19 was different, as more women experienced job losses compared to men because of a higher concentration of women in the hospitality and food industries that were highly affected. Additionally, women were required to pay more attention to children and were thus forced to concentrate more on childcare than their work (Desson *et al.*, 2020). The higher rate of job losses for female employees compared to their male counterparts exposed the economic disparity between men and women, as men had the most reduced working time (Kristal *et al.*, 2020).

The pandemic has affected the health sector, as well as other economic sectors in Kenya. Most companies closed owing to the effects of Covid-19 and, by extension, affected employee livelihoods since they lost their jobs as a result (Yasenov, 2020). The pandemic has affected several industries and prompted them to change their ways of doing things, while others were severely affected because of the changes and were forced to shut down (Jones, 2020). Consequently, other sectors and industries progressed by capitalizing on certain unexploited opportunities (Nordling, 2020). In Kenya, Covid-19 affected both rural and urban populations equally. The introduction of the vaccination helped to reduce the pandemic's impact, particularly in urban areas, as many in the rural areas were sceptical and afraid of taking the vaccination because of their cultural beliefs (Wesonga & Kulohoma, 2020). This meant that the pandemic affected informal sector employees more than those who worked in the formal sector, as they were mainly concentrated in the urban areas.

Covid-19 has had a negative as well as positive impact on the Kenyan labor market. While some jobs were created during the pandemic, other jobs were lost at the same time. Several employees were affected when companies ceased their operations owing to reduced production because of the economic downturn. Conversely, employees who were technologically inclined worked from home, especially those in the service industry, thus maintaining or, in some cases, boosting employment labor (Shaw, 2020). The situation also forced many companies to downsize and utilize only employees who could work from home as a way of cutting their operational costs, largely in the form of remunerations (Irura

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& Bett, 2020). Kenya witnessed retrenchments both in the public and private sectors owing to the Covid-19 pandemic. The most affected companies were in the manufacturing sector, which relies more on non-technical workers to achieve their production targets. Most employees in this sector are manual laborers who cannot operate from home (Githinji, de Laurent & Said, 2020).

Workers from the affected companies experienced several challenges, including those in the public sector, as they could not secure other employment easily owing to the economy's poor performance (AMREF, 2020). Life in the capital cities, where the affected companies operate, became difficult for most of the downsized workers, as they were unable to afford basic needs to sustain their families. The workers have had no previous training in entrepreneurship and lacked capital to start small businesses that could provide basic needs for their families (Shaw, 2020). Those most affected were men who are the breadwinners of their families (Kenya National Bureau of Statistics, 2021). Most of the downsized male workers have families in the upcountry, who stay with their parents and who also depend on the earnings of their son for their daily upkeep (Anderson, Heesterbeek, Klinkenberg & Hollingsworth, 2020). In cases where both the husband and wife were employed, if the wife lost employment, the husband was left to shelter all responsibilities (Alon & Tertilt, 2020). Consequently, most of the Covid-19 affected male employees opted for informal business activities after losing their jobs to continue providing for their families, while most of the women became full-time housewives instead after experiencing downsizing at their companies, since they would not enjoy the same benefits that they received in the formal sector, and hence found it difficult to cope with life in the informal sector (Quaife, van Zandvoort & Gimma, 2020).

Effectsof Covid-19 on employment protection

In most African countries, specifically Kenya, the labor market is still in an infancy stage compared to developed countries, where employees have insurance, paid by employers to safeguard them in the case of job losses (Shaw, 2020). In Kenya's case, where several manufacturing companies shut down operations because of Covid-19, insurance policies could have assured employees of continued earnings through compensation while they search for other employment. This could have protected the families of the affected employees from their undue suffering.

Previously, the Export Processing Zones (EPZs) created several employments for Kenyans, especially women. Hence, the government must protect the operations of the Export Processing Zones to safeguard jobs in those sectors. Mechanisms such as tax incentives and regulated importation can help in this regard (Wesonga & Kulohoma, 2020). However, the Kenyan government seems to have failed to protect employees in this sector through progressive legislation. Instead, the government has established legislation that favors investors at the expense of employees (Irura & Bett, 2020). This sector was also heavily affected by the pandemic, as most of the employees who lost their jobs were from the Export Processing Zones. The effect of Covid-19 on employees in the Export Processing Zones could have been minimized if they were allowed to join trade unions to agitate for their welfare (Jones, 2020). While foreign investors were allowed to enjoy tax holidays and the government provided free land during the Covid-19 pandemic, the employees were sent packing owing to business downturn as a direct result of the restrictions on movement locally, as well as internationally, which affected manufacturing and sales, as most products were for exporting (Githinji, de Laurent & Said, 2020).

Covid-19 forced most organizations to change their initial objectives and targets because of changes that occurred in the market, both locally and internationally. The current situation prompted firms to decrease their operational costs by adopting modern technologies to increase their revenue streams to remain competitively afloat. The adoption of modern technology was meant to reduce employment costs through job cuts, as employment costs are one of the major operational costs of any organization. This resulted in the firm's reducing jobs, whilst engaging employees in atypical employment as opposed to decent job employment (WHO, 2020).

As mentioned earlier, Covid-19 contributed to an increased informal sector in Kenya. Many of the retrenched employees in the formal sectors found solace in the informal sectors to cater for their families (Yue, Clapham & Cook, 2020). In fact, urban centers witnessed mushrooming of informal employments, as most people converted their private companies to mobile shops that traded in all types of items, ranging from fruit, vegetables, and eggs at strategic positions in the urban centers. The informal employment was fueled by the fact that most formal supermarkets had scaled down their operations and the high demand for food products forced households to purchase from the new informal markets.

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Research methodology

The study adopted a qualitative research approach, guided by the research questions. The researcher targeted top management from the ministry of labour, labour market consultants, as well as employees from both the formal and informal sectors. The researcher conducted face-to-face interviews and the respondents were free to expound on specific guided questions. During the interviews, data collection was guided by the responses; where the researcher felt that the research questions had been adequately answered, the interview ended, especially when further interviews merely repeated similar previous answers to questions posed (Akkermans, Richardson & Kraimer, 2020). The study targeted participants for the interviews, totalling 20 key stakeholders. The collected data was mainly primary data, as the key stakeholders shared first-hand information from their lived experiences of the impact of Covid-19 on Kenyan labour markets.

Sampling

The study utilised purposive sampling, involving a total of 20 key stakeholders who were interviewed. These participants comprised three top managers from the Ministry of Labour, two labour market consultants, five employees from the Export Processing Zones in the Athi River, five employees from government ministries and from informal sector employees from Jogoo Road in Nairobi. The researcher assured the participants about confidentiality of the information that they share. The 20 sampled population participants were given unique coded names, for example respondent 1 to 20, to protect their identity.

Data analysis

The collected data was reviewed and compared to eliminate duplication and repetitions. In other words, data collection is presumed to be optimum when saturation level is reached (Guest, Bunce, & Johnson, 2006). The collected data from the interviews was grouped into contents for analysis purposes. The data was analysed systematically in terms of derived groupings from data, while the findings were then discussed to give meaningfulness to the data (Bogner, Litting & Menz, 2009). Furthermore, the data was discussed based on the research questions and research study's objectives.

Results and discussion

The Kenyan government took measures to reduce the spread of COVID-19 that resulted in job losses, both in the formal and informal sectors for casual workers

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and daily wage earners, where most of the employees are women (Ahmed, Abu & Saboor, 2020). The introduction of lockdowns and restrictions in movement from one town and areas to others resulted in job losses, mostly for workers who could not access their workplaces, thereby leading to losses of livelihoods.

Most workers earn little income and cannot save. Thus, a loss of income means a slip into poverty, as there is no other means to keep the family going. This simply means that this category of workers has been struggling to regain life as they knew it prior to the pandemic. In May 2020, the Kenya National Bureau of Statistics (KNBS) conducted a survey and established that the labour force participation rate had significantly decreased owing to the pandemic. World Bank statistics indicate that Kenya had 75% labour force participation rate in 2019, but the rate fell to 56.8% in April 2020 (Kenya National Bureau of Statistics, 2021). The report established that the number of workers, both informal and formal, had plunged to 65.3% for men and 48.8% for women. Unemployment experienced in both the informal and formal sectors contributed to the decline. Covid-19 interrupted income streams and cut supply and demand for goods and services, compelling companies to engage in numerous survival tactics to continue in business. Organizations have been forced to reduce their respective workforces, offer unpaid leave, or reduce working hours and only pay for the time worked.

Sectors mostly affected

Kenya has experienced serious economic drawbacks owing to the impact of Covid-19 since 13 March 2020, when the country's first case was discovered. The Kenyan government initiated several measures to mitigate the rapid spread of the virus. Among them was suspension of international flights, albeit cargo flights, effective 25th of March 2020. Travellers to Kenya were subjected to a mandatory quarantine of 14 days at their own cost and anybody who violated the mandatory quarantine was arrested at the end of the 14 days and charged in accordance with the country's Public Health Act. Effective from the 27th of March 2020, the government introduced a curfew from 19:00-05:00, and besides the disciplined forces, health workers and essential service providers, everybody else was expected to be adhere to the curfew and not be outdoors during the stipulated timeframe.

All eateries and entertainment facilities were closed, and restaurants were only allowed to offer takeaways. The government further imposed suspension on prayer houses, as well as learning institutions, including elementary schools and universities. Affected families who lost loved ones during the period were forced to arrange funerals that were limited to immediate family members only. Public sector transport operators were limited to admitting only half of their vehicle capacities. All the above measures severely affected the country's economy.

The government-imposed restrictions on movement in the following counties for 21 days, namely the Nairobi metropolitan (effective 06 April 2020), Mombasa, Kilifi and Kwale (effective 08 April 2020). Further restrictions were imposed in Nairobi's Eastleigh and Old Town in Mombasa, effective 06 May 2020, for 15 days. Eateries and marketplaces were closed in the affected areas, but were later opened on 01 May 2020, with the condition to obtain new certification issued by the Ministry of Health. These directives affected the Kenyan labour market severely (Alsulami, Bashir, Rizwan, Elnahas, Bawareth, Noorelahi, & Kamrani, 2019). In line with the above, respondent 2 remarked: "*The government-imposed restrictions on movement of people in order to protect their lives, even though the government was well aware that restrictions limited the employees from accessing the workplaces and thus leading to job losses, but that was the best decision to be undertaken at the moment"*

The above response was corroborated by respondent 6 who stated: "*I used to work in a manufacturing company in industrial area and unfortunately by the time the lock down was imposed, I had taken a one week off and travelled to see my family in Eldoret, I could not travel back to resume my duties and my plea to the management fell on deaf ears, by the time I came back after the lock down, I had been replaced and I was told to go home that I will be contacted, however, till date, no communication has been made and my dues has never been paid".*

Kenya has been counting on the manufacturing sector as a key pillar to spur its economic growth. The sector accounted for 7.7% of the GDP in 2019 before the outbreak of the Covid-19 pandemic. In 2020, the sector experienced mixed reactions, as some companies witnessed growth, as they had to manufacture foodstuffs to meet ever-growing demands (Ahmed, Abu & Saboor, 2020).

Likewise, the construction industry was affected by the pandemic, as casual workers who dominate this industry, lost their jobs owing to continuous lockdown measures and the introduction of curfews. In addition, there was a reduction in construction projects because of less funding brought about by the uncertainties of the Covid-19 pandemic (Kenya National Bureau of Statistics, 2021).

In line with the above, respondent 11 said: *"Before Covid-19 came, I was a supervisor at a construction site in Lavington, the contractor was putting up an apartment and we had both day and night shifts, due to restriction on curfews,*

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the night shift was discontinued and the number of day shift drastically reduced, we were told to stay at home that we would be contacted when the normalcy resumes. However, we were never recalled."

The stock market was also affected significantly by the pandemic. When the first virus case was reported in Kenya on 13 March 2020, the Nairobi Securities Exchange (NSE) activities were stopped when the NSE index share price dropped by more than 5%, with prominent companies like Safaricom and Kenya Commercial Bank experiencing a trading decline of 5.4% and 7.0%, respectively. Investors avoided trading at the Nairobi Securities Exchange owing to the market's instability (Badu, Thorn & Goonoo, 2020).

Impact on different categories of workers

The study revealed that workers in different categories have been affected differently by Covid-19 in Kenya.

Table 1: Effect of COVID-19 on different categories of workers

Employee category	**Score**	**Ranking**
Casual workers	1	Very Low
Artisans	2	Low
Diploma and certificate graduates	3	Moderate
Diploma and certificate graduates with special training	4	High
University graduates	5	Very High

Source: Researchers' fieldwork (2022).

The researcher selected key stakeholders from both the public and private sectors who deliberated on how the Covid-19 pandemic affected workers in different categories. The team agreed on scoring criteria to determine how the employees were affected. The categories that were able to cope with the pandemic were given the highest score of 5, while those affected seriously were given the lowest score of 1, thus the score ranged from 5 to 1.

Throughout the rankings, the results relating to the individual category of workers' capability to manage the uncertainties of the Covid-19 pandemic were

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scrutinized before agreeing on the respective scores that were awarded. The findings established that most casual workers were impacted the worst by the pandemic, scoring the lowest score of 1. They were followed by artisan workers who scored a 2, implying low coping levels to deal with the pandemic, and the third category was workers with diplomas and certificates who were ranked 3, depicting moderate coping levels to deal with the Covid-19 impact. The fourth category was diploma and certificate holders, but with additional specialized skills, who were awarded a score of 4, depicting high capabilities of coping with the impact of Covid-19, while the last category comprised university graduates who were given a score of 5, which implied high capability levels to cope with the impact of Covid-19.

To illustrate the above, respondent 15 declared: *"I work as clerical officer, during the pandemic the employer reduced the workforce and instructed employees to work from home only essential workers were allowed in the office. After one month we received a short code communication through the phone that the salary will be capped at half for the next three months, on the expiry of the three months, the salary was discontinued with further communication and only those who could execute their duties from home continued being paid the half salary"*.

It is clear from the findings that there were employment losses across different categories of workers who possessed different educational backgrounds, but those who were most affected were workers who had little, or no skills compared to those with an advanced educational background. The loss of employment resulted in reduced income, which contributed to poverty.

In this respect, respondent 2 mentioned: *"Advanced training improves intellectual capacities, which in turn increases labour market results, comprising efficiency and pay checks. This is because workers in this category can change with the changing mode of operations, as they can utilise technology to achieve results and not necessarily use physical efforts as applicable to workers with no or little education. In case of job losses, this category of workers can search and secure other jobs more easily"*. Throughout the pandemic, earnings for less educated workers were reduced owing to greater redundancy. This led to joblessness for workers with little or no skills, which impacted their incomes negatively.

New skills required for workers

The stakeholders were subjected to several identified skills and were required to score the skills individually, namely from 1 to 5, with 5 being the highest and 1

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being the lowest. The scores were then averaged to obtain a final score for each of the skills. Table 2 below shows the scores for each skill.

Table 2: New skills required for workers

SKILLS	SCORE	RANKING
Teamwork	2	Low
Technical skills	3	Moderate
Emotional intelligence	3	Moderate
Autonomous working	4	High
Creativity	4	High
Effective communication	4	High
Virtual skills	5	Very High
Thinking skills	5	Very High

Source: Researcher's fieldwork (2022).

The study revealed that during the Covid-19 pandemic, the most required skills were virtual and thinking skills, which scored 5, respectively, depicting a very high ranking. These were followed by autonomous working, creativity, and effective communication, which scored 4, respectively, implying a high ranking. Emotional intelligence and technical skills scored 3, respectively, which was a moderate ranking, while teamwork scored 2, which was low.

In line with the above, respondent 18 observed: *"At our workplace the people who were lucky are the ICT, Communication and Finance departments as they were able to work from home and send reports, the other employees in marketing and packaging we could not work from home, and we were dismissed from work"*.

The above sentiments were corroborated by respondent 3 who stated: *"In Kenya and the world at large, the employees who applied technology at work were advantaged as they could work from home and still meet the targets, further those who were more creative could innovate a different thinking perspective to achieve the employers' objectives. The employers realised that the same amount of work* *could be achieved by a smaller number of people working from home and this gave the high-tech employees an upper hand".*

The findings show that during the Covid-19 period, workers were forced to work remotely and not physically at their workplaces, thus they required virtual skills to be able to work and communicate with the other workers. In other words, they needed to have high thinking skills. Since workers were working from home, they needed to develop individual working abilities as opposed to teamwork.

Delivery methodology

The stakeholders were required to score different methodologies of working during the pandemic period.

The following scale was used in this regard: 1- Low preference; 2- Medium preference; 3- High preference; and 4- Very High preference. The findings are presented in the table below.

Table 3: Delivery methodology

DELIVERY METHODOLOGY	SCORE	RANKING
Normal programme	1	Low Preference
Flexible patterns	2	Medium Preference
Mixed (Working from home/remote working and flexible patterns)	3	High Preference
Working from home/remote working	4	Very High Preference

Source: Researcher (2022)

The above findings illustrate that working from home or engaging in remote working had a very high preference amongst companies, followed by mixed (working from home/remote working and flexible patterns), which had a high preference. Flexible schedules had a medium preference and the least considered was the normal programme, which had a low preference.

Respondent 19 affirmed: *"During the Covid-19 period, my supervisor assigned me duties to work from home and report to him through the email, since I used to have a desktop computer, they bought me a laptop and gave me weekly airtime to buy bundles, at first I was hesitant but after a month, I was extremely comfortable* *as I could achieve what I used to deliver in 8 hours within 3 hours, I could also work at my convenient, mostly at late night and early morning, giving me enough time to engage in other activities at home".*

Many companies that adopted working from home (telecommuting/teleworking/ remote work) experienced some challenges; amongst these was that workers had no skills to work from home and were forced to be oriented or simply embrace it. Secondly, companies had to incur extra costs to enable staff to work from home, including purchasing equipment such as laptops, internet connectivity and communication infrastructure.

Limitations of the study and future research

The study established how COVID-19 affected the Kenyan labour market, but concentrated only in Nairobi, the capital city of Kenya. There is a need to establish how the economies of other regions in the country were affected. The study sampled 20 key stakeholders whose views might be limited. The sample should be expanded to obtain the views of more stakeholders regarding the effects of Covid-19 on Kenya's labour market. The study focused on the effects of Covid-19 on the economy; however, there is a need to narrow-down the study to specific areas that were affected to establish the broader impact. For example, there is a need to establish how Covid-19 specifically affected the educational sector.

Conclusion

The pandemic has brought mixed feelings to the labour market with the introduction of government measures to control the virus. The lockdowns and restrictions on the movement of people from one region to another, coupled with the introduction of curfews resulted in companies improvising new ways to achieve their targets. While most companies introduced working from home as an option, others decided to reduce the number of their staff members and adopted fewer working hours for their employees. Thus, only essential staff were allowed in the office, working for less hours to avoid curfew restrictions. However, other companies chose to close completely, especially those who relied on physical activities and who employed less skilled or casual workers. This category of companies was the hardest hit by the pandemic, as the restrictions implied that workers could not access their workplaces, while the introduction of social distancing implied that fewer employees could be accommodated in the workplace.

University graduates and workers with specialized skills were less affected as they could afford to work from home. They could utilise technology and owing to the nature of their work, they were able to deliver in spite of not being at work physically. Despite this, this category of employees still faced some challenges, as some had no prior experience working from home, and thus needed some orientation to do so. Most of them also required tools to work from home. Working from home further resulted in a reduction in the number of employees needed to deliver certain tasks. Hence, some companies decided to scale down the number of workers working from home in addition to a reduction of pay packages by half, which affected the workers' economic stability hugely. Most of the unskilled workers' jobs were terminated as most companies closed. Some of them were sent on indefinite unpaid leave, which made it difficult for most of them to provide for their families as their main source of income was cut off. Therefore, the government should establish policy measures to rebuild the most affected sectors within the economy. Additionally, the government, through its Ministry of Education, should use the current findings to design a fit-for-purpose educational curriculum to deliver much-needed skills that can be applied during crises such as the current Covid-19 pandemic to mitigate its negative impacts on people, particularly the Kenyan labour force.

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YOUTH UNEMPLOYMENT SYNDROME IN NIGERIA: A CASE FOR REVIEW AND POLICY IMPLEMENTATION

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Abstract
Nigeria's youth unemployment rate is at 54.4% in the last quarter of 2020 (National Bureau of Statistics, 2020) which thus gives us an obvious reality of the danger of ever-increasing youth unemployment flooding the landscape of Nigeria, while several governmental initiatives in time past have not been able to help in curbing youth unemployment challenges in Nigeria, this study adopt the systematic review analysis in assessing the capacity of apprenticeship and informal sector capacity in reducing youth unemployment in Nigeria. This study calls for apprenticeship modernization and informal sector support in reducing youth unemployment in Nigeria as both apprenticeship and informal sector were proven to be significant measures in reducing youth unemployment in Nigeria.

Keywords: *unemployment; youth unemployment; apprenticeship; Igbo apprenticeship; informal sector.*

JEL Classification: E24 ; E26

1.1. Introduction

The consistent pattern of youth unemployment trends in Nigeria has attracted the phrase "youth unemployment syndrome" in this article. Youth Unemployment exists in every economy of the world as people may choose to become voluntarily unemployed for reasons best known to them. However, when youth unemployment rises consistently on the wings of structural, cyclical, and seasonal unemployment which are the basic, and the most common description of unemployment in any economy, it then calls for an urgent shift of focus and investigation to see to its ending as youth unemployment breeds significant negative social-economic effects on any country. Yarima (2014); Serifat (2020), confirmed the critical impact of unemployment and youth engagement in social crime in Nigeria. Sub-Saharan Africa is projected to increase the global population by more than half by 2050 and Nigeria, alongside seven countries is expected to spearhead such an increase in population (United Nations Department of Economic and Social Affairs, Population Division [UNDESA PD], 2022). Nigeria's youth unemployment rate is at 54.4% in the last quarter of 2020 (National Bureau of Statistics [NBS], 2020) which thus gives us a clear picture of the effect of increasing population and youth unemployment flooding the landscape of Nigeria and Sub-Saharan Africa. Several initiatives have been given by the government to address youth unemployment syndrome in Nigeria, however, these initiatives seem not to have an acute effect on the reduction of youth unemployment level. Ruth, Emmanuel & Ndubusis-Okolo (2014); Farayibi (2015) confirm that governmental initiatives toward ending unemployment have not yielded any positive results but rather witnessed an increasing unemployment level.

This study seeks alternative measures that can help shrink the present youth unemployment challenge in Nigeria. Theoretically, Apprenticeship and the informal sector have been depicted as a strong multidimensional model in curbing the youth unemployment syndrome in a growing number of evidence in Germany, Switzerland, and other developed countries. German, Switzerland's success in the apprenticeship model has proven it ability in reducing unemployment with the absorbing capacity of the informal sector at hand. The uniqueness of this study to literature is the contribution of the study in reviewing and evaluating alternative measures to ending youth unemployment syndrome in Nigeria that can be implemented even by other stakeholders with little governmental support, owing to the limitations of past government intervention plans. The study also observed no or few investigations of similar evaluation in literature thereby contributing to the pool of policy options.

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2.1 Statement of Problem

Globally, 67 million youth are reported to be unemployed with an alarming figure pointing towards Africa (United Nations Department of Economic and Social Affairs, World Youth Report [WYR], 2018). This report further reveals that 57.4% of active youth are unemployed in South Africa while Lesotho, Mozambique, and Namibia are 38.5%, 42.7 and 45.5% respectively. Youth unemployment syndrome becomes a place for urgent and constant review, steering towards alternative measures in curbing this challenge. Over the years, different policy interventions had been rolled out to address the issues of youth unemployment in Nigeria, however, rather than a reduction in the youth unemployment trends, what we keep experiencing is a snowballing rate in youth unemployment. As also observed by past Akande (2014) that several policies and programs initiated by the government to address youth unemployment in Nigeria have not been able to bring a tangible positive effect on the Nigerian youth unemployment owing to the limitation of the country's policy formulation and implementation.

2.1 Objectives of Study

The study aimed at reviewing and evaluating alternative measures that can curb youth unemployment in Nigeria. Particularly, the study:

1. Evaluate the capacity of Apprenticeship in reducing youth unemployment in Nigeria
2. Evaluate the capacity of the informal sector in reducing youth unemployment in Nigeria

3.1 Conceptual Clarification

Youth Unemployment

NBS (2020) adopted the categorization of youth unemployment as young people within the age group of 15-34 years who are actively looking to work but unable to find any for at least 20 hours during the period of consideration to the active Labor Force. Youth unemployment is mostly caused by structural changes in the economy, in terms of shifts in the industrial skills and practices or due to the influence of cyclical fluctuations in the economy resulting in unemployment during the depression, and recession, and the seasonality structure of some economic activities which tends to determine the need for labor engagement for some season only. These types of unemployment will not be the case when people intentionally decide not to work, which is a situation of voluntary unemployment.

Apprenticeship

Several classifications have been given to the concept of apprenticeship in literature. Apprenticeship is a way of unique skills acquisition from a master craftsman to his apprentice making provision for skills preservation and transfer between generations, countries, industries, and individuals. Lerman (2019) refers to apprenticeship as a program of courses, work-based learning, and productive employment in which workers achieve occupational mastery and industry-recognized credentials. Apprenticeship only occurs when there is an agreement between the apprentice and the master craftsman, this agreement can be verbal or written depending on the parties involved (Gerald, Ifeanyi & Phina, 2020; Udua 2015).

Informal Sector

The term informal sector is commonly associated with economic activities that are undertaken with the major objective of generating employment and income for the owner (International Conference of Labour Statisticians [15th ICLS], 2002). The Informal sector is also categorized as a small-scale business where the owner doubles as the labor and Capital for production since most of the informal sector is owned by individual household members or several members of the same or different household (International labour Office [ILO], 1993).

3.2 Literature Review

Unemployment and Apprenticeship

Youth unemployment is closely associated with a lack of current industrial skills and practices by young individuals as most of them only have their degree at hand, which is more of theoretical learning. Organisation for Economic Cooperation and Development [OECD], (2018) categorical identifies that formal educational institutions continue to place a premium on theoretical knowledge and deliver subjects that are not in line with current trends in the labor market and industry. The gap between formal education programs and current industrial skills and practices is a major influence on increasing youth unemployment as employer tends to prefer worker with previous work reference or experience in a similar work role (Schoer & Rankin, 2011). Akor, Livala, Rumji & Zakari (2021); Ruth et al., (2014) concluded that the absence of labor demand, outdated curriculum, and lack of vocational and technical education not incorporated in university education is the causer effect of graduate unemployment in Nigeria. Adeyey, Falola, Waribo & Akinbode (2015) reveal in their study that apprenticeship systems can impact positively on employees' skill development in the printing industry in Lagos, Nigeria. Since apprenticeship smoothen the gap between theoretical learning and practical skill development, thereby, enhances the competency of the apprentice to be able to perform on the job and increases the chances of being able to engage in either the formal or informal sector of the economy.

Deep in the history of Nigeria is the Igbo apprenticeship system that has paved way for their success in business, entrepreneurship, and increasing wealth capacity. This kind of apprenticeship structure is mostly practiced by people from the eastern region of Nigeria culturally. The Igbo apprenticeship is mostly captured as "Igba-boi" where the apprentice learns by living close to the master apprenticeship. "Imu ahia or Imu-oru" is another traditional apprenticeship practiced by the Igbo where the apprentice or the apprentice family pays a fee to learn. The uniqueness of the Igbo apprenticeship system makes it regarded as the largest apprenticeship business support program in the world because an apprentice will be provided with start-up capital by his master at the end of the apprentice service year (Neuwirt, 2015). Even though in the case of "Igbo-boi" apprentices are not paid during services but have access to basic social amenities that will be provided by their master, and by so doing, discourages a lot of youth from being idle and reduces the tendency for social vices in society. Alake (2018); Okwuowulu, (2022) opined that the Igbo apprenticeship system has stayed ahead of the business curve in Nigeria. Mary (2021) regards the Igbo business and entrepreneurial activities as a significant influence on their increasing wealth and standard of living for Nigerians both in Lagos and other regions of Nigeria.

Unemployment and the Informal Sector

The changeover of interest to the potential of the informal sector of the economy globally is a result of its contribution to employment generation and the national gross domestic product of countries. Africa's informal employment constitutes 85.8% of the total employment with more than 60% of the world's employed population earning their livelihood in the informal economy (ILO, 2018). The informal sector can no longer be silent or be at the mercy of partial policy support. Its capacity to offer such huge employment support for people that cannot be absorbed by the formal sector is a sufficient condition to look closely and offer policy support that can help steam the informal sector for optimal economic performance. Tamunomiebi & Ukachukwu (2018) oppose that historic and institutional abandonment are the factor that had reduced the performance of the informal sector in Nigeria. The study also ends that the informal sector can be the strength of the Nigerian economy because of its role in employing people that can't be taken in by the formal sector. Onwo & Ohazulike (2021) revealed that the informal sector is a major driver of the economy, accounting for a large portion of the employment generation and up to 90% of employment in other developing countries. The growing evidence in literature concerning the informal sector has revealed the adequacy of this sector to be an alternative source of employment for the ever-increasing population both in the developing and developed economies of the world. Fasanya & Onakoya (2012) also concluded that the informal sector activities have a significant impact on absorbing the large pool of labor force in Nigeria as it provides more than 50% of the employment in the non-agrarian sector. Onwe (2013) identifies that the informal sector is a safety belt in providing employment and income to less educated people.

4.1. Research Methodology

This study adopted the design of the systematic review analysis. The systematic review analysis seeks to collate all appropriate proofs that fit pre-specified eligibility criteria to answer a specific research question using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009).

The systematic review analysis was used for the search and selection of published papers on Youth Unemployment, Apprenticeship, and the Informal sector, narrowing it down to lessons for the Nigerian government and other stakeholders. The search strategy included terms for youth unemployment, youth unemployment in Nigeria, Apprenticeship, and Apprenticeship in Nigeria, Informal economy, Informal sector, and covered countries such as Nigeria, Sub-Saharan Africa, Korea, Germany, and the United Kingdom.

A search of multidisciplinary scientific electronic databases such as ERIC and worldwide sciences, together with manual searches of journals was conducted in locating articles published in journals from 2022 to 2000, for inclusion and based on relevance to the subject of interest,

Articles include met these criteria:

1.1 Focused on youth unemployment and apprenticeship;

1.2 Focused on youth unemployment and the informal sector;

1.3 Inclusion of the search items in the title/abstract;

1.4 Relevance of literature to the objectives of this study;

1.5 The internal validity of the body of evidence in the study is based on the research method adopted.

Based on these reviews, relevant data were extracted and synthesized. The overall findings are summarized in two areas in line with our research objective as stated.

5.1. Discussion of Finding

Youth Unemployment and Apprenticeship

The literature reviewed shows that Apprenticeship can significantly reduce unemployment in Nigeria. The study of Gerald, Ifeanyi & Phina, (2020) concluded that embracing apprenticeship is the most visible way forward in curbing the army of unemployment in the southeast region and Nigeria in general with little governmental support. Mary, (2021) also confirms that the Nwaboi apprenticeship system has the potential to significantly increase the level of entrepreneurial practices in Nigeria and can spearhead the socio-political and techno-economic sectors of Nigeria, Africa, and the world at large. Utilizing the Likert scale structural questionnaire in Anambra, Nigeria, Okwuowulu, (2022) revealed that the Igbo apprenticeship system has a positive and significant impact on the development of small and medium-scale enterprises in Nigeria. The study further recommends the modeling of such apprenticeship as a policy for the development of Nigeria and Africa. Adeyeye, Falola, Waribo & Akinbode, (2015) indicate that the apprenticeship system has positive significant impacts on employees' skill development in the informal sector and particularly in the printing industry in Lagos Nigeria using a Structural equation model.

Youth Unemployment and Informal sector

The literature reviewed shows that the informal sector can significantly absorb unemployment in Nigeria. The study by Onwo & Ohazulike, (2021) revealed that Nigeria's informal sector accounts for a significant portion of employment and covers over 90% of the developing countries' national gross domestic product. Abakpa, Kwajaffa & Tinyang, (2020) also confirm that the informal sector in Nigeria is continuing to grow and taking the position of the formal sector in terms of job creation, and wealth generation due to their profitable engagement in manufacturing activities. Farayibi, (2015); Yusuf, (2014); Fasanya & Onakoya, (2012) conclude in their study that the Nigeria informal sector can take all levels of workers irrespective of their education, and serve as a perfect tool for employment creation, income generation, and poverty reduction in Nigeria. Philip, Samson &

Haruna, (2013) explore the role of the informal sector as a strategy for reducing unemployment in Kogi State, Nigeria, and conclude that the informal sector is pivotal in the social-economic development of Nigeria.

5.2. Conclusion

The systematic analysis adopted by this study reviews that both apprenticeship and the informal sector can significantly reduce youth unemployment in Nigeria. One of the most prominent contributors to youth unemployment is the lack of current industrial skills and training as general education tends to focus on theoretical learning that doesn't match up with the current skills demand in the labor market. The gap between industrial skills demand and training will continue to result in unemployment for the youth, as firms will always choose someone or prefer someone with previous or similar work experiences ahead of other young graduates with no experience (Schoer & Rankin, 2011). Apprenticeship empowers apprentice with certain occupation skills, mentoring, current industrial ethic, and fund assistance for start-ups, leading to a reduction in youth unemployment as evident in the literature reviewed and the reasons for the increasing wealth of the Igbo ethnic group in Nigeria (Mary, 2021).

On the other hand, the informal sector of the economy will continue to open doors for small-scale businesses in respect of their gender, and educational attainment, and be a source of livelihood for most Nigerians (Farayibi, 2015).

5.3. Recommendation

Based on the findings of this study, the following recommendation will be suitable to harness apprenticeship and the informal sector to reduce youth unemployment in Nigeria:

1. A call for the modernization and the general acceptance of the traditional apprenticeship system for the Nigerian Youth as a means of enhancing the needed occupational skills demand. Apprenticeship is mostly viewed and practiced in the traditional setting where there is a lack of stable and common structure for the operation of the apprenticeship system in terms of durations, ethics, competency measures, and operating policies. Modernizing the apprenticeship system in Nigeria will create room for an accommodated innovational structure that will help enhance the overall impact of apprenticeship in empowering youth with occupational competency. On the other hand, youth orientation and the public perspective on the apprenticeship system need to change as it's the most visible way out of youth unemployment in Nigeria. Government should provide incentives

that will support apprenticeship practices in Nigeria, through financial support, public reorientation on apprenticeship, and policy initiatives in apprenticeship practices.

2. Other stakeholders such as NGOs, Parents, and religious organizations should partner in enhancing the practices of the apprenticeship system among the youth to empower unemployed youth and reduce future unemployment as the youth population is expected to increase speedily by 2050 (UNDESA PD, 2022).

3. Government and other stakeholders should provide support for the informal sectors that will gear up their operations and capacity to continue to absorb more unemployed youth from the formal sector of the economy. Business loans, business support, environmental support, and other policies inclusion should be customized to boost the informal sector for optimal performance.

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PRODUCTIVITY ENHANCEMENT THROUGH TOTAL REWARDS: AN EXPLORATION PRACTICES IN THE FINANCIAL SERVICES SECTOR

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Abstract

The Financial Service Sector is facing significant challenges in employee productivity. In order to enhance productivity amongst employees, total rewards could assist the financial service sector in enhancing productivity. The current study aimed to explore the role of total rewards in productivity enhancement in the financial service sector. The importance of this study is to aid financial service sector organisations in implementing and developing the appropriate rewards systems to fit the need of current employees to ensure perceived productivity. A qualitative approach using thematic analysis employed for the study. The current study's findings have indicated that total rewards significantly impact employee productivity and that financial and non-financial rewards effectively improve employee productivity. The findings have also indicated that the structure of reward systems and reward systems overall impact productivity. This study provided critical practical guidelines that financial service sector organisations could use to develop and implement a total rewards strategy valued by employees, which enhances productivity.

Keywords: *total rewards; training and development; employee performance; employee productivity.*

JEL Classification: *G14*

Introduction

The pandemic and economic crises that the globe has experienced has left various companies vulnerable. The South African financial sector was not immune to these challenges. Of note, South Africa's decline in the labour productivity sector is a cause for concern. Zondo (2018) attests that organisations are faced with the challenge of promoting innovative productivity improvement among employees. Thus, for an organisation to evolve, people working within it must be involved in processes that improve their productivity (Zondo, 2018). The South African workforce's productivity remains a central business concern. It plays an essential role in every person's life and the performance of every business. Organisations are challenged to promote innovative productivity improvement among employees (Zondo, 2018). Employee satisfaction with remuneration is the primary concern for organisations that aims to remain competitive in the turbulent business environment. These organisations should pay attention to factors that affect motivation and productivity at the same time. Rewards play a significant role in employee productivity in organisations. The current business landscape of globalisation and ageing has become problematic and complex to find outstanding talent as changes are happening in the globalised economy, leading to skills shortages in the labour market (Sotirova, 2019).

Therefore, organisations need to enhance employee productivity by utilising rewards to aid organisational performance, contributing drastically to the Gross Domestic Product (GDP). The financial sector plays a significant role in economic growth. According to Fintech (2021), the financial services sector in South Africa is one of the most developed sectors in the country. Statistics South Africa (2020) reveal that the financial sector contributes 16.5% to the gross domestic product (GDP). The South African financial sector's workforce is skilled, 62% has post-school education, and over 40% of employees have university degrees and above (FASSET, 2020). It is worth investigating the financial services sector since Landelahni (2010) survey found that Financial Services has challenges in attracting and retaining staff, a shortage of crucial staff locally and globally, and greater staff

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mobility. These problems will not be solved quickly; strategies are needed to increase skills and training and better manage talent. Therefore, the financial sector must acquire and retain talent in the dynamic and competitive business environment. Failure to attract and retain talent in the financial sector can adversely affect the country's economy. There is little or no research conducted on the rewards system and productivity in the finance services sector. This allows this study to examine how the reward system in the financial services sector it enhances employee productivity.

Problem statement

Productivity is the ultimate measure of production efficiency as well as a measure of the growth potential of an organisation. Employees' productivity does not commensurate with their rewards in organisations. Salman and Olawale (2021) attest that in organisations if employees are rewarded inadequately this can result in decrease productivity, increase skepticism and contribute to opposition in the workplace which can lead to unproductive workforce, defeat of organizational objectives and goals. In addition, Zafar, Sarwar, Zafar and Sheeraz (2021) state that employees' productivity is an significant component to build the good reputation for the outsider towards the image of the organisation. Therefore, good productivity can be maintained by rewarding the employees because "the behaviors you reward are the behaviors you get". However, the correlation between employees' remuneration/rewards and their productivity still needs to be explored in the South African finance sector.

Research purpose and objectives

The current study aimed to explore the impact of total rewards on productivity enhancement in the financial service sector. Additionally, the study seeks to unearth what total rewards elements enhance employee productivity. The current study aims to conceptualise total rewards from the literature and view employees' lived experiences regarding the current rewards offered by the financial service sector. This will give a researcher an indication of which rewards elements influence employees' productivity in the organisation. The findings could assist in providing more efficient financial services by improving the reward structure. The findings could also provide managers with the perspective to develop strategies to improve employee performance to increase productivity. Increasing productivity could benefit clients and lead to increased customer experience.

Literature review

Theory underpinning the study

Expectancy Theory

Victor H. Vroom (1964) The father of the expectancy theory of motivation, describes motivation as a procedure that governs the selections individuals make based on alternative forms of activities that are voluntary. The expectancy theory of motivation proposes that a person will act and behave in a specific way as a result of motivation to achieve a desirable outcome which results in high productivity. This theory looks at the cognitive element process of how an individual processes different elements of motivation before making a choice (Chiang & Jang, 2010). The position of Expectancy Theory in total reward strategy centers on the relationship between pay-for-performance and the expectancy theory of motivation (Robbins & Judge,2008).

Equity Theory

The equity theory developed by J. Stacy Adams (1965) focuses on "ratio" it suggests that individuals compare the work they put in based on the output they receive and compare this to their peers (Husmen, Hatfield, & Miles, 1987). It proposes that individuals that see themselves as over-rewarded and under-rewarded will experience distress. The criticism of this theory is that research has questioned the simplicity of the model, suggesting that the model can be affected by differences in demographics and psychological variables of people's interactions with others and what they consider to be fair (Husmen, Hatfield, & Miles, 1987). Therefore, total rewards provided by the organisation should comply with justice aspects like distributive and procedural justice.

Reinforcement Theory

Reinforcement theory by Burrhus Frederic Skinner, states that an individual's behaviour leads to consequences, good behaviour is often repeated while bad behaviour is cancelled, it also suggests that an individual will often continue behaving in a certain way as to enhance their productivity based on the level of unpleasant or pleasant results (Tanner, 2020). This theory is based on the "Law of effect". The consequences of this theory are that it focuses on the external environmental factors that shape behaviour that can be positive or negative and overlooks the internal state of an individual (Everett, 1981). The theory emphasizes the importance of a person experiencing the reward. Like reinforcement theory, expectancy theory focuses on the link between rewards and behaviours (instrumentality perceptions), although it emphasizes expected (rather than experienced) rewards (i.e., incentives). Compensation systems differ according to their impact on these motivational components. Generally speaking, pay systems differ most in their impact on instrumentality: the perceived link between behaviors and pay, also referred to in the pay literature as "line of sight." Valence of pay outcomes should remain the same under different pay systems. Expectancy perceptions often have more to do with job design and training than pay systems (Robbins & Judge, 2008).

Employee rewards in organisations

Rewards can be defined as any monetary object, or even a worker receives in exchange for rendering a service or achieving an outstanding performance (Franco & Gomez, 2018). Furthermore, Edirisooriya (2014) defines rewards as all forms of monetary and non-monetary benefits employees receive as part of their employment relationship with an employer, classified into Extrinsic and Intrinsic rewards. Advocates of the theory of anticipation claim that employees enhance their conduct by working harder or prioritising efforts if they realise they will earn a reward for their efforts. Consequently, the rewards are an ideal way to reward the organisation's actions and habits; in return, rewards will improve operating efficiency and profitability, thus generating beneficial outcomes for both employer and workers in the long run when a compliance reward would contribute to the organisational goals (Hall, Taylor, Atkinson & Torrington, 2009). Selden and Sowa (2015) view employee rewards as a high-performance work practice that reduces voluntary turnover in organisations.

Moreover, it dictates employees' attitudes towards work, flexibility, and quality. Employee productivity is one of the critical issues for most organisations across the globe. Enhancing employee productivity is essential to increase employee satisfaction through attractive rewards *(Tănăsescu & Leon, 2019). In contrast, Devonish (2018) states that providing financial and non-financial rewards can enhance employee productivity. Therefore, employee rewards and productivity are the central drivers of organisational performance (Rotea, Logotafu & Ploscaru, 2018).* Previous studies indicate that when workers acquire compensation in empowerment, appreciation for performance, training, and growth prospects, they are much more prone to be positive and make additional aims to achieve the tasks (Bakker, Demerouti & Sanz-Vergel, 2014). Baranik and Eby (2016) attest that offering rewards will increase the desire of employees to develop expertise, boost their appetite to attain set goals, and allow them to build a variety of potential ideas and increase their productivity.

Total rewards to enhance employee productivity

The term' total rewards' has gained popularity over the decades. Various scholars have researched the term and recommended the implementation of a total reward system to attract and retain talent (Kaplan, 2012; Armstrong & Taylor, 2014; Bussin & Toerin, 2015; Makhuzeni & Barkhuizen, 2015; Mabaso & Dlamini; 2018; Ndivhudzannyi, Mukwevho & Bussin, 2021). Smith, Stanz and Bussin (2015) define total rewards as a compensation framework in the workplace. Chinyio, Suresh and Salisu (2018) state that total rewards consist of all monetary, non-monetary, extrinsic, intrinsic and social benefits employees receives from the employer for continuous effort in their duties. Dessler and Cole (2011) and Smit et al. (2015) attest that a reward can be cash and non-fiscal esteem, an immediate or circuitous reward or a natural or potentially outward reward offered to a worker in the trading of work performed. Chisu (2005) states that total rewards are a totality of direct and indirect rewards, ranging from social rights and benefits to an employee's work in the organisation. Malhorta, Budhwar and Prowse (2007) affirm that total rewards cover tangible and intangible forms of compensation employees receive due to their employment. Total rewards aim to attract, motivate and retain talent while enhancing employee performance (Alhmound & Rjoub, 2020). Armstrong (2010) states that total rewards include all financial and non-financial, direct and indirect, intrinsic and extrinsic rewards. The total reward system encompasses a reward framework for an organisation and the strategy to attract and retain talent (Armstrong, 2010; Hay Group, 2009; Towers Watson, 2009; World at Work, 2021). Roberts (2013) contends that total rewards are personal or tailored to the individual (such as salary and development planning), as well as those that are provided in a similar way to everyone (such as benefits programmes). Various total rewards models have been developed over the years, but the World at Work Model will explore the impact of rewards on employee productivity in the financial service sector for the current study.

Elements of total rewards

The purpose of introducing reward systems is to attract and retain qualified and competent employees while controlling costs associated with recruitment (Akhtar, Aamir, Khurshid, Abro & Hussain, 2015). According to World at Work (2020), there are five elements of total rewards, each of which includes programmes, practices, elements and dimensions that collectively define an organisation's strategy to attract, motivate and retain employees. These elements represent the "tool kit" from which an organisation chooses to offer and align a value proposition that creates value for both the organisation and the employee. An effective total rewards strategy results in satisfied, engaged and productive employees, creating desired business performance and results. World at work (2020) provided five elements: *compensation, well-being, benefits, development, and recognition*. The descriptions of these elements are discussed below:

Compensation

It is the monetary value a worker receives in return for rendering his/her services to an organisation/employer (Patnaik & Padhi, 2012). Two types of compensation include fixed pay and variable pay (Franco & Gomez, 2018). Mabaso, Maja, Kavir, Lekwape, Makhasane and Khumalo (2021) study reveals that compensation enhances employee productivity. Therefore, good rewards system needs to be in place to recognise employees' efforts in their jobs.

Benefits

These include different non-financial compensation awarded to employees as part of their contractual agreement, in addition to their monthly/weekly/quarterly salaries. These benefits increase all employees' economic security, which ultimately reduces turnover (Stalmasekova, Genzorova, & Corejova, 2017). Some of these benefits are mandatory by law, such as Unemployment Insurance Fund, and some are voluntary, such as Paid maternity leave.

Well-being

A newly debuted element of rewards replaces the work-life effectiveness of the previous model since that reward element is no longer there. The name of this reward element implies much depth to it. Not only should Total Reward practice strive for a mere' 'balance' in the workplace. A specific set of organisational

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practices, policies and programmes, plus a philosophy that actively supports efforts to help employees succeed at work and home (World at Work, 2020). A balance between work and family enhances employee productivity and talent retention in organisations (Mabaso et al., 2021).

Recognition

Formal or informal programmes that acknowledge or give special attention to employee actions, efforts, behaviour, or performance support business strategy by reinforcing behaviours (e.g., extraordinary accomplishments) that contribute to organisational success (World at Work, 2020).

Talent development

It provides the opportunity and tools for employees to advance their skills and competencies in their short- and long-term careers (World at Work, 2020).

Employee productivity in organisations

The output of every organisation largely depends on the productivity of its workforce. Organisations must motivate employees to achieve maximum performance. Bunn and Hurberts (2018) attest that including performance pay in compensation systems is one of the instruments used to incentivise workers to maximise their productivity. In its most universal sense, productivity can be defined as a quantitative correlation between the outputs produced and the materials we use (Sookdeo, 2020). To determine productivity levels, businesses need to compare one period of time to another (Sookdeo, 2020). Doing so allows them to determine their degree of efficiency, measure performance, and, most importantly, ensure their continuity (Sookdeo, 2020). Fachin and Gavosto (2010) state that productivity is critical for both the long and short term since it is the element of output and employment growth. However, certain factors influence productivity in organisations. Mojahed and Aghazadeh (2008) contend that motivation, skills, training and employer-employee relationship are significant factors that affect productivity. Thus, it is essential to investigate factors that affect productivity.

Relationship between rewards and productivity

Hameed, Ramzan, Zabair, Ali, and Arslan (2014) discovered that employees' rewards positively impacted their productivity. Pay is also a factor to consider when looking at employees' productivity levels (Mabaso et al., 2021). Pay is an employee's top priority; thus, it greatly impacts productivity and motivation (Rusmania, 2015). Manzoor, Wei and Asif (2021) reported rewards' positive and significant impact on employee productivity. If employers pay employees well, it will automatically lead to greater productivity and motivation to work as there is no more excellent motivating tool than money (Rusmania, 2015). Employees look at the returns they get from their work based on their efforts. Research indicates that employees experience low satisfaction when less favourable outputs or returns are received (Zhao & Lazor, 2019). Moreover, Alansari and Javed (2021) show that employees' satisfactory compensation enhances productivity. The study further outline that not only rewards will result in employee productivity but the organisations must make employees believe that more significant efforts will result in greater rewards (Alansari & Javed, 2021).

Productivity is at the heart of many organisations and is one of their primary goals. The remuneration that is offered to an employee should be equal to the amount of work they undertake. If an employee suspects unfair remuneration practices, this may demotivate them and lead to unproductive or, worst, drive them to exit the organisation (Assiri, 2016). Therefore, rewards impact employees' productivity. A well-structured reward system, incorporating both financial and non-financial rewards, has been shown to have a positive effect on an employee's productivity, with the effect that employees are then more likely to achieve their own goals as well as those of the organisation (Snelgar, Renard & Venter, 2013). Therefore, in the finance sector, employees are required to be satisfied and highly motivated. Without these elements being present, customer satisfaction will not be won over, especially in the banking sector (Goodwin & Gremler, 1996). Rusmania (2015) also found that if employees receive increases in their monthly wages, they put more effort into their work. In the finance sector, the reward system does not differ much from any other sector when rewarding its employees; it still focuses on critical functions such as the extrinsic rewards and intrinsic rewards mechanisms, just as fair as any organisation or organisation department. Williamson, Burnett and Bartol (2009) agree that every individual seeks three types of rewards, whether in a finance sector or any other department: social, intrinsic, and extrinsic rewards. Hence, within the finance sector, there is a must whereby a fair wage plan is needed for employees, and employers must provide a conducive working environment aligned to safety in which the employees perform their work to the best (Williamson, et al., 2009). Kolluru (2020) attests that both intrinsice and

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extrinsic rewards impact employee performance positively. It is suggested that bank managers design reward management systems aligned with organisational vision. Additionally, effective reward management leads to high employee productivity (Kolluru, 2020). Thus, appropriate remuneration is offered and the reward for preserving their employees in the same sense, delivering the best services to the customer (Khan et al., 2010). After reviewing various accounts and literature on the reward systems and their factors, rewards play an essential part in an employee's performance. Jeni, Mutsudi, Das and Momotaj (2020) affirm that rewards affect employee performance, which translates to higher productivity in the banking sector. It motivates directly or indirectly; every factor in conjunction has its importance and contribution.

Research methodology

The current study employed an exploratory qualitative research approach. Qualitative research usually undertakes a subjective approach which means that personal feelings and opinions influence it; this is a good thing as it brings in the human factor into the research (Park & Park, 2016). The current study utilised an interpretivist philosophy. Interpretative inquiry allows the researcher to interpret what they understand about the study based on their background and personal experiences. An interpretivist philosophy allows the participants and the researcher to interpret the explored problem (Creswell, 2014). In addition, phenomenology approach employed. Phenomenology analysis relies on different points of view of the phenomena, and, in this study, the evidence obtained from other people's viewpoints is crucial (Creswell, 2013). Data collected from the financial services sector organisation. Due to the complexities created by COVID-19, it was challenging to collect qualitative data to participants. However, in order to achieve these complexities, data were collected through semi-structured one-on-one interviews using an online platform (Zoom and Ms Teams) in line with COVID-19 protocol in which the researcher prepared a list of themes (Saunders, Lewis & Thornhill, 2019). The research complied with ethical consideration as the researcher requested the permission to conduct research. Furthermore, the researcher sought individual participants to participate in the study voluntarily. All the participants were given consent forms to sign, assuring them that all shared information will not be disclosed to anyone and that their safety comes first. The researcher also ensures that participants are protected from any harm by not mentioning their names. Thirteen employees in one financial services sectororganisation were selected purposefully on a purposive non-probability sampling technique. A purposive non-probability sampling technique is often utilised based on the characteristics of a population and the objectives of the research study (Bala & Etikan, 2017). This is depicted in Table 1 below:

Table 1: Description of the participants' profiles

Participants Role	Age	Gender	Presented as
Human Capital Practitioner	37	Female	*Participant 1*
Human Capital Practitioner	32	Female	*Participant 2*
Data Analyst Intern	27	Female	*Participant 3*
Data Analyst	31	Male	*Participant 4*
Senior Training and development administrator	33	Female	*Participant 5*
Group Risk Administrator	24	Female	*Participant 6*
Associate Consultant	32	Female	*Participant 7*
Associate Consultant	28	Male	*Participant 8*
Call Centre Agent	27	Female	*Participant 9*
Member's solution Administrator	28	Male	*Participant 10*
Member's solution Administrator	25	Female	*Participant 11*
Risk Management Practitioner	36	Male	*Participant 12*
Employment Relations Practitioner	31	Male	*Participant 13*

Data analysis

Thematic analysis was employed to identify patterns of meaning across the data set. Nowell, Norris, White and Moules (2017) defined thematic analysis as a method for identifying, analysing, organising, describing and reporting themes found within a data set. Atlas.ti utilised to thematically analyse the qualitative interview data (Paulus, Lester & Dampster, 2014). Atlas.ti supports the analysis of text-based documents such as transcripts, audio, video and other images as it becomes easier to organise the data and reliably synthesise the results (Soratto, Pires de Pires & Friese, 2020). Thematic data analysis is used to pinpoint themes and patterns of meaning across the qualitative dataset to answer the research question (Braun & Clarke, 2013). Data coding was conducted on the themes that

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were identified. Different categories and subcategories were identified and analysed to determine themes and findings. Data collected were analysed and interpreted for meaningful conclusions.

Research Findings

After data collection, themes deduced from the interviews with participants were formulated. These themes emerged from the empirical research and supplemented the theoretical research. The themes that arose frequently were distinguished from the combined responses from the participants. The frequent themes in the current study include compensation package, fringe benefits, well-being, flexible work arrangements, high productivity; recognition; career development opportunities; incentives and opportunities for promotion (career growth). Table 2 highlights consolidated themes that emerged from the interviews and sub-themes.

Table 2: Main themes and sub-themes

Theme	Sub-themes
1. Compensation	Financial rewards, bonuses
	Non-financial rewards
2. Benefits	Medical aid, leave, study leave
3. Career development and opportunities	Learning opportunities, career growth
4. Well-being	Support from line manager, Flexitime, work from home, maintain productivity or performance; managing and maintaining a balance between personal life and work
5. Recognition	Appreciation
	Acknowledgement
6. Productivity	

Theme 1: Compensation

The theme, compensation has been cited frequently in the current study in comparison to other themes. This shows the importance of compensation in the employment relationship. However, participants have mixed views on the compensation aspects within the organisations. Participants concur that adequate compensation does motivate them to perform as expected. Thus, compensation is the predictor of employee productivity.

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P13 mentioned:
“*The compensation that I receive from the organisation does motivate me to work extra and meet my weekly, quarterly and annual performance targets. It is a living wage and we also receive incentives for reaching our targets, which is motivating”*
P3 added:
“Compensation systems are about checking out on ”employees’ productivity and rewarding them according to their performance. Productivity is about how well employees perform in their tasks”.”
P11 added:
“Rewards systems are put in place to recognise employees who have done exceptional work which then increases the productivity of that employee. In short: Rewards = more productivity”.”
P1 added:
“Yes, people are motivated to do more, if there is a reward that can match their efforts, the greater the reward the greater the effort. Some employees would actually put a lot of hours trying to reach a certain target because of the compensation aligned with the result”.”
P3 added:
“The organisation is good and loyal to us even during the tough times of COVID we get full pay without full capacity of working. This encourages me to be part of this organisation for as long as I live. Additionally, during the normal working days, the employer does motivate us with the current remuneration that they are providing, it does improve our productivity. There are also various non-financial rewards like learning and development, workplace autonomy etc”
P8 alluded:
“*I am motivated because the organisation has a good culture and a lot of opportunity for growth and remuneration is very good considering my qualification and experience. People within the organisation are also keen to share knowledge”* ~~“.~~
P10 added:
“Yes I am motivated by the compensation offered in the organisation. I have to work hard so that I also obtain such compensation. The company not only remunerate me with money but there are various non-financial rewards that we receive which enhances productivity among us as employees” “.
Participants acknowledged that rewards systems are established and implemented to motivate employees to put more effort into their work or tasks.
P10 mentioned

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"Yes, people are motivated to do more, if there is a reward that can match their efforts, the greater the reward the greater the effort. Some employees would actually put a lot of hours trying to reach a certain target because of the incentive aligned with the result."

P2 added

"Definitely! The better you perform, the better your chances of receiving a reward also the better your performance rating, the better your performance bonus"

The participant further acknowledged that rewards increase employees' productivity; however, it only does so in the short term and is not feasible in the long term sustainability of improved employee productivity because it becomes redundant and boring.

P7 mentioned:

"Short term yes there is an impact on productivity, its high everyone is doing their best. However, after a while it becomes redundant and boring as to say we know who will reap the benefits. In the long run it dies out."

P6 added:

"In general rewards systems are put into place to motivate employees and to not only do the work but to go the extra mile. The way it partners up with productivity is that it managers foresee that employees will see it as tangible reward for example, monetary rewards however, and that only lasts for a short while."

It is worth noting that not all the employees agreed with the compensation offered. Some participants mentioned that their overall work does not commensurate with their remuneration and discourages them from working.

P11 added:

"The compensation that I receive from the organisation is not enough. It does not match my standard of living, only those in high positions get adequate compensation. It demotivate me to work in this company, if I can get a job somewhere, I can resign with immediate effect"

Theme 2: Fringe benefits

The theme, benefits, was not cited the most compared to other elements; it was mentioned five times by different participants. The sub-theme, *medical-aid, leave and study leave,* were the most cited by the participants. The participant further acknowledged that benefits supplement their overall compensation and increase employees' productivity; however, it only does so in the short term and is not feasible in the long-term sustainability of improved employee productivity because

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it becomes redundant and boring. Participants seem to be satisfied by the benefits offered by the organisation.

P7 mentioned:

“The organisation do supplement our compensation with various fringe benefits such as retirement funds, medical aid, leave benefits. These benefits assist us a lot because if you look at the cost of medical care in our country, it is exorbitant.”

P5 added:

“Salary, bonuses and organisational benefits (bursaries). I have benefited a lot on the study grant and study leave since I was upgrading my qualifications. This motivate me since they are assisting with equipping me with more skills so that I can enhance my performance”.

P1 added:

“Employees' benefits, are considered a basic and important foundational element in attracting or retaining talent as competitors for talent also offer employee benefits, the organisation should stretch these benefits so that they can attract more talent".

Theme 3: career development and opportunities

The theme, career development and opportunities, was the third frequent mentioned during interviews in the study. It comprises of sub-theme, learning opportunities and career growth. The participants did acknowledge that there are career development and opportunities, but it needs to be improved on a continuous basis so that it benefits everyone.

P12 mentioned:

"It's a way of recognising the inputs of the employees. It could be via promotion or certain incentives are given when employees have outdone themselves. Rewards lead to productivity. When an employee is recognised that serves as a motivator."

P13 added

"The organisation does provide training and development opportunities and they also supplement that with full tuition reimbursement after finishing your qualification. Additionally, they do provide study leave during exams. These learning opportunities enables us as employees to acquire more skills will assist us to be more productive"

P2 added:

"It is well-structured because they have performance scorecards, performance management and performance development. The company ensures that its employees are well equipped in terms of performance development".

P10 added:
"What contributed to my overall productivity in this organisation is the learning and development opportunities provided to me, skills that I have acquired from these programmes assisted me to be the overall performer in my department. I have been able to progress in my career and I won't leave this organisation because I'm grateful for their personal growth aspect I am given."
P8 added:
"I have grown tremendously in my portfolio, I joined the company without any qualification, and their training programmes presented to us as employees enable me to progress in my career. Training and development opportunities has also presented me with relevant skills that enable me to be productivity in my unit."
P6 added:
"*What motivates me to stay with the organisation is because of the growth opportunities that are possible within the organisation, the fact that the organisation allows for growth obtained outside the organisation, like further education".*

Theme 4: Well-being

Well-being was the theme that arose frequently from the interviews conducted, and it was mentioned 23 times. The sub-theme *support from line manager (12), flexible work arrangements (9), work from home* (17), *maintenance of productivity (11), manage a balanced life between work and personal (11)* were the most cited theme in the current study. The numbers next to the sub-theme illustrate the frequency of theme cited by the participants.

Flexi-time aims to empower employees as they can decide when they undertake their specific hours of work, though there are often several mandatory core hours to enhance employee productivity.

P3 mentioned:
"*One of the major reason I chose to work here is flexibility in your job. If you ask staff especially, what is the one thing . . . flexi-time. It's actually a huge thing. The majority of us do work flexi-time. It assist us to be more productive and meet our deadlines early than expected*."
P5 added:
"*Flexi-time assist with work-life balance, also it helps managers because they can manage peaks and troughs of work as well. Just having people in 7 'til 5 doesn't always mean that we're meeting business need*"

P7 added:
"*The flexi-work arrangements has assisted me with my time management. I have learn to structure my work so that it does not conflict with my personal life. This arrangement has assisted me to meet my deadlines. I have received accolades from my manager about my impressive productivity, it is encouraging*"

However, flexible work arrangements are not always the best solutions for employees. Some participants indicated that inadequate proper infrastructure at their homes like offices, connectivity hinder their performance. In most cases, it becomes impossible to enjoy flexible working arrangements provided by the employer since they do not have adequate resources to work.

P8 mentioned:
"*At home, it is not conducive to work simple because I do not have proper office and the connectivity is very poor, that affects my productivity since I cannot meet my deadlines*"

P2 added:
"*Ever since the country was on locked down due to Covid-19, I ended up working more hours without rest, my productivity has been enhanced however, and my family life has been affected*"

P6 added:
"*The environment at home is not conducive at all, it is even difficult to have these virtual meetings since the kids come and disturb you now and again. This affects my performance since I cannot meet my weekly productivity targets. I am also forced to work during the night trying to catch up but it does not help since my work depends on my colleagues*"

In some instances, participants have also alluded to the support that they got from their line managers, especially during the dawn of the Covid-19. New normal of working proven to be challenging, especially when you do not have enough support.

P1 mentioned:
"During the first lockdown, our manager has been very supportive, I was not coping to work from home but she was making a point that she provide us with all the necessary support and resources to achieve our targets"

P9 added:
"As much as lockdown took us by surprise, but our line manager has been supporting us, checking us on a daily basis, sometimes have one-on-one virtual meetings, that shows that she cares for our well-being"

P11 added:
"*Not only during the Covid-19, but my manager also always support me both personally and professionally, he has shown that in several times. This encourage me to work tirelessly so that I can return the favour by being a top performer in my unit*"

Theme 5: Recognition

The recognition theme emerged in the interviews frequently, and it was mentioned 14 times. The sub-theme, *appreciation and acknowledgement,* was cited the most in the current study.
P1 mentioned:
"*My line manager always acknowledge our efforts, it's not always money, but a pat on the back goes a long way. They have also introduced the "employee champion of the month". It encourages us when we are recognised*"
P2 added:
"There's been a drive over the years to give employees recognition, no matter how small the achievement may be, at the same time, our line managers do acknowledge us on good deeds. It is not always about money, thank for the manager give us a courage to do more. The focus here isn't the money, it is about acknowledgement from the efforts I put in my duties on a daily basis. It is more about the development and the fulfilment and the satisfaction of people in their work environment that has proven to improve productivity to a very large extent."
P4 added:
"*They have changed systems and introduced a few rewards such as innovation, informal and formal awards and corporate awards. There is a change".*
P1 added:
"The organisation do provide fringe benefits but they should develop and enhance intangible incentives such as praising and appreciating employees with high performance who perform and award them with some sort of rewards".

Theme 6: Productivity

The productivity theme emerged in the interviews frequently, and it was mentioned 9 times.
P5 mentioned:
"The flexible work arrangements provided by the employer has enhance my productivity in the workplace since I have enough time to focus on other things like my studies etc"

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P6 added:
"The importance of the use of total reward programs that people value so that we can be productivity in our day-to-day tasks. In addition, attractive rewards motivate the us to work harder" ".
P1 added:
"If we are not recognised enough in terms of rewards, the level of dissatisfaction will be increased which reduce our productivity which is not good for the organisation"

Discussion

The current study aimed to explore the impact of total rewards on productivity enhancement in the financial service sector. It is noted that not only rewards that enhance productivity in the financial service sector, but there are also other factors that have been established. However, for the purpose of the current study, the focus was on rewards. Additionally, the study seeks to unearth what total rewards elements enhance employee productivity. It has been indicated that the financial services sector has witnessed challenges in talent attraction and retention. The sector witnessed a slow recovery and shortage of crucial staff locally and globally, followed by massive staff mobility (Landelahni, 2010). The current study utilised the Total Rewards Model of the World at Work (2020) to determine the role of total rewards on employee productivity in the financial service sector. The participants highlighted that adequate compensation motivates them to perform as expected; hence their productivity is enhanced. This finding is in line with the findings of Shelton and Renard (2015) which their study confirms that employee compensation plays a pivotal role in employee productivity as employees view compensation as an indication of being valued by the organisation. Similarly, Kgoedi and Pillay (2018) reveal that compensation motivates employees to perform in the financial services sector, enabling their productivity. Mukwevho and Bussin (2021) attest that inadequate compensation will hinder employees from performing their organisational duties. Therefore, compensation plays a significant role in employee productivity. Compensation is also a factor to consider when looking at employees' productivity levels (Mabaso et al., 2021). Ahmed and Shabbir (2017) attest that the rewards system is pivotal in increasing individual performance.

The participants further acknowledge that fringe benefits provided by the employer improve their productivity in the financial services sector. The finding is

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also in line with the findings of Makhuzeni and Barkhuizen (2015), who attest that fringe benefits are essential to attract, motivate and enhance employee productivity. Moreover, the findings are also in line with the findings of Karell and Widlund (2019), which reveal that fringe benefits enhance employee productivity. Similarly, Mukwevho and Bussin (2021) attest that fringe benefits enhance employee productivity while maintaining talent retention. Joshi (2015) further outline that fringe benefits give security to employees and their families. The participants attest that they were provided with career development opportunities on the career development opportunities. However, career development opportunities need to be improved on a continuous basis as to benefit everyone in the organisation. The participants revealed that the organisation's talent development and career opportunities improve their productivity. Talent development opportunities equip employees with necessary skills that are critical in enhancing their performance.

Furthermore, career opportunities are translated to growth within the organisation. The finding reemphasised that providing adequate talent development and career opportunities will enhance 'employee productivity. The finding is in line with Jeni, Momotaj and Al-Amin (2021) which reveal that training and development initiatives saves time and equip employees with essential skills to improve their performance. Moreover, managers need to identify only those employee development programs that can add value to the central and the organisation, and those developed employees who need the necessary resources to work with them and provide the necessary management or leadership support to translate new skills acquired from them ((Jeni et al., 2021). Research findings Kolluru (2020), Jen et al. (2020); Alansari and Javed (2021), Manzoor et al. (2021) also reveal that employee rewards contribute to employee productivity. Support from line manager, flexible working arrangement and new normal (working from home) are other factors that participants confirmed to increase their overall performance. However, the flexible working arrangements are not always the best option for employees considering the inadequate proper infrastructure at their homes. These findings further support the findings of Mukwevho and Bussin (2021) that employee well-being, including work-personal life effectiveness, enhances employee productivity. Similarly, Makhuzeni and Barkhuizen (2015) pointed out that flexibility in the workplace improves employee performance and talent retention. Suhaimi and Seman (2019) reveal a positive relationship between work-life balance practices and 'employees' job performance in banking sector.

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Their finding could help and promote the management of companies to practice and to provide the work-life balance policies for employees in banking sector.

Finally, the findings showed that recognition is also essential in boosting 'employee's morale, which results in higher productivity among employees. This finding agrees with the findings of Tirta and Enrika (2020) in which their study revealed that recognition have a significant positive effect on employee productivity and indirectly significant positive effect on employee retention. Recently, the study of Manzoor, Wei and Asif (2021) show a positive and significant relationship between intrinsic rewards like recognition and with the performance of employees.

To summarise, the findings displayed that total rewards element, i.e., compensation, benefits, talent development and career opportunities, employee well-being and recognition, playsy a significant role in 'employees' productivity. Therefore, organisations must devise strategies to enhance employees' productivity to respond to clients' and stakeholders' ever-changing needs. Therefore, employee productivity is significant for an organisation's survival in a turbulent and competitive environment. Research revealed a positive impact between rewards and productivity in organisations (Hameed, Ramzan, Zabair, Ali, & Arslan, 2014). Therefore, organisations must reward employees for resulting in them being productive (Murphy, 2015). Productivity is at the heart of many organisations and is one of their primary goals. The remuneration offered to employees should be equal to their work (Assiri, 2016). If an employee suspects unfair remuneration practices, this may demotivate them and lead to unproductive or, worst, drive them to exit the organisation (Assiri, 2016). Thus, total rewards impact employees' productivity. A well-structured reward system, incorporating both financial and non-financial rewards, has been shown to have a positive effect on an employee's productivity, with the effect that employees are then more likely to achieve their own goals as well as those of the organisation (Snelgar, Renard & Venter, 2013). In the finance sector, the reward system does not differ much from any other sector when rewarding its employees; it still focuses on critical functions such as the extrinsic rewards and intrinsic rewards mechanisms, just as fair as any organisation or department. Williamson (2009) agrees that every individual seeks three types of rewards, whether in a finance sector or any other department: social, intrinsic, and extrinsic rewards.

Practical implications

The exploration of total rewards that enhance employee productivity is noteworthy for the financial sector organisation. Policymakers should consider including these total rewards for implementation to enhance employee productivity.

Limitations and recommendations

The current study had some limitations, which included a small sample size and Covid-19 restrictions. Therefore, the current study's findings cannot be generalised to the entire financial service sector. It is recommended that policy owners in the financial service sector develop a total rewards system that will enhance employee productivity. It will be of great significance if organisations in the financial sector adopt total rewards in their rewards system, enhancing productivity and talent retention while maintaining a competitive advantage. The development of the reward system should entail the proper job evaluation process, and all the stakeholders should be included in developing the improved reward system. The rewards practitioners can also use salary surveys to develop new rewards systems that incorporate total rewards. Additionally, this research study has significant implications as it may assist the management in the financial sector to recognise the needs of workers and their opinions regarding incentives for performance development. Management may be given a transparent approach to enhance the current compensation scheme structure and policy linked to benefits and compensation. This will help them improve workers' performance by acknowledging their viewpoints, encouraging specific performance results. The current study further recommends that organisations prioritise talent development considering future skills set that will be required to remain relevant in the industry. Furthermore, the financial sector should improve the performance management system so that employee productivity translates to optimise organisational performance. Finally, the study recommends that the financial service sector improvise total rewards to motivate employees, thus enhancing employee productivity. Future research should be conducted in other sectors to compare the findings.

Conclusion

The main objective of the current study was to explore the impact of total rewards in productivity enhancement in the financial service sector. Additionally, the study seeks to unearth what total rewards elements enhance employee productivity. The current study's findings assist in painting a picture of total rewards that enhance employee productivity in the financial service sector. The findings established that total rewards enhance productivity amongst employees. The total rewards model by World at Work was instrumental in benchmarking rewards in the financial service sector. The current study contributed to the literature on total rewards by increasing academic knowledge concerning on the impact of total rewards on employee productivity within the financial service sector.

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STRATEGIES FOR ACHIEVING AN AGILE-PERFORMING AND PRACTICAL-TRANSFORMATIONAL CHANGE LEADERSHIP MODEL AT THE COMPANY LEVEL

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Abstract

Change is a common thread that runs through all businesses, regardless of size, industry and age. The business world is changing rapidly, and organizations must change just as quickly. Organizations that engage in change thrive, while those that do not end up struggling for survival. Change leadership plays a key role in any successful business, representing an important part of leading a high-performing team as well as a successful business. Regardless of whether a company's team is working on a project, a software update, or an ongoing optimization idea, change leadership is extremely important. As the business grows, so does the team. With more employees and more tasks, any business needs a plan to manage change and *stay on track for performance. Given the fact that resistance to change can play a major role in determining how a company operates, it is necessary for those who deal with change leadership to find strategies and solutions to avoid mass resistance when a change occurs. In this paper we will address precisely the strategies, solutions and planning of a permanent leadership of change at the company level, so that a business becomes successful. We will go through the steps that were taken by a company to get the agile-performing and practical- transformational change leadership model, which comes with strategies, principles and modern business tools and solutions.*

Keywords: *optimization idea, successful business, transformational, agile, change leadership, human resources, strategies*

JEL Classification: *M12, M15, M29*

Introduction to change leadership through a specialized literature review

Change leadership is the process by which organizations manage any change, whether planned or unplanned, within an organization. The term "change leadership" is very broad and can refer to planning change, managing change within an organization and/or managing the impact of change within a company. (Jabri, M., & Jabri, E. , 2022).

The concept of "change leadership" is a familiar one in most businesses today. But how companies manage change, and how successful they are at it, varies enormously depending on the nature of the business, the nature of the change, and the employees involved. A key part of change leadership depends on how well employees within the company understand the change process. (Ali, BJ, & Anwar, G.,2021).

According to the definition given by SHRM (Society for Human Resource Leadership), change leadership is the systematic approach and application of knowledge, tools and resources to deal with change. Moreover, it involves defining and adopting strategies, structures, procedures and technologies to deal with changes in external conditions and the business environment. (Jotabá, M. N., Fernandes, C. I., Gunkel, M., & Kraus, S., 2022)

The main goal in change leadership is the successful implementation of new processes, products and business strategies, in which undesired effects are at a minimum. (Diana, D., & Aslami, N. , 2022).

Companies, like any organization, go through change processes, more or less radical. Changes can be caused by changes in the external environment or internal changes, they can be an effect of changes in other systems or they can be caused consciously, with the intention of optimizing the activity.(Kitchen, P. J., & Daly, F. , 2002).

In an organization, aspects of effective change leadership are important to successfully manage changes to processes or the general way the company operates. (Franklin, M. , 2021).

Change-impact factors for performant corporate strategies

Corporate strategy came to be seen as "value leadership", where the job of corporate managers was less to act as a proxy investor and more to extract maximum value from the businesses in hand. As the business environment evolved there are arrising new and different demands on corporate strategies. (El-Amin, A., & George, B., 2020). Here are the most important factors that are driving these changes in leadership strategies, seen by authors Martin Reeves and Annelis O'Dea in their article entitled *Six Factors Driving Changes to Today's Corporate Strategies*, published in June 2022 by Harvard Business Review :

1. *Dynamism.* Active business portfolio leadership is again important: companies need to ensure that their business portfolios are continuously rebalanced to maintain growth expectations. New businesses need to be seeded at a higher rate, requiring large companies to behave more like entrepreneurs in one part of their business and to build the skills and structures necessary to ensure this. Recovery or transformation has become a dominant and strategic capability for repairing or renewing businesses that have experienced competitive disruption, matured, or fallen into decline. (Narisetti Raju, 2020)

2. Uncertainty. As a product of the technological revolution, business plans have become less predictable. This is expected to continue with other waves of technological disruption, such as artificial intelligence (AI) or machine learning (ML) washing through the corporate economy. (Smith, T. G., Norasi, H., Herbst, K. M., Kendrick, M. L., Curry, T. B., Grantcharov, T. P., & Cleary, S. P. , 2022). In addition, it appears that climate-based technologies and business models will have at least as large an effect. *(*Buschmeyer, K., Hatfield, S., Heine, I., Jahn, S., & Markus, A. L. , 2022). In environments with high rates of change, scale can help companies manage risk through superior access to information, maintain operational and financial buffers, and conduct rapid experiments. These

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capabilities combine to create a new type of dynamic advantage: resilience, which provides long-term performance in uncertain times. (Fritz Nauck, Luca Pancaldi, Thomas Poppensieker, & Olivia White, 2021)

3. Contingency. The business environment has become more dynamic and uncertain. The variety of competitive environments facing businesses has increased. Depending on the uncertainty, malleability, or rigidity of each, corporations must take very different approaches to strategy development, each with its own distinct processes and tools. (Valene Jouany, Mia Makipaa , 2022). These approaches include: classical strategy (where firms compete on scale and position), adaptive strategy (they compete on their ability to learn), vision-based strategy (they compete on imagination, creativity and innovation), shaping strategy (they compete on their ability to collaborate with partners) or turnaround (they compete on their ability to renew a business). (Levonen, S., 2022). In this case, corporate strategy must cultivate capabilities to apply and balance these different frameworks, choosing the right approach to strategy for each business and creating a common platform to operationalize them. (Allaya Cooks-Campbell, 2022)

4. Connection. The orchestrators of the digital ecosystem (like Amazon), profoundly changes the role of corporate strategy, as the diversity of offerings and capabilities that contribute to a firm's value creation may now reside beyond firm boundaries. (Addo, A., 2022). The goal of corporate strategy becomes to create an advantaged position within an advantaged ecosystem. The strategy has become more open to external influence and collaboration, even for non-platform businesses. (Kasemsap, K., 2017).

*5. Contextuality. T*he sheer size of the footprint of business, the size of individual corporations, and increasing concerns about societal and planetary externalities no longer permit managers to adopt a simplified view: corporations now need to demonstrate purpose, social contribution, trustworthiness, and ecological responsibility. (Abbas, A., Ekowati, D., Suhariadi, F., Fenitra, R. M., & Fahlevi, M., 2022). This involves not only matters of intent, measurement, compliance and communication, but also increasingly issues of competitive advantage. A corporate strategy must now create credibility, social contribution, and generate advantage by dealing creatively with new social and ecological constraints, as well as deliver on the traditional variables. (Gregor Pfajfar, Aviv Shoham, Agnieszka Małecka, Maja Zalaznik, 2022)

*6. Cognition.M*achine learning (ML) and IoT (Internet of Thhings) has now reached a level of sophistication that rivals or exceeds human expert capabilities for an increasing scope of tasks. This has profound implications for corporate strategy. (Buschmeyer, K., Hatfield, S., Heine, I., Jahn, S., & Markus, A. L., 2022) The cognitive advantage of corporations becomes a potential axis of competition, determined by its ability to deploy AI/ML/IoT in each business effectively, and also to shift the focus of human minds to more uniquely advantaged areas like ethics, empathy, and creativity. (Muttaqin, R., Alam, G. N., & Saputera, D., 2022). Similarly, companies will compete on designing and orchestrating new types of "bionic" organization that combine human and machine cognition syngergistically. (Clementino, E., Perkins, R., 2021).

Strategy is competitive and always evolves in response to competition. The magnitude of the changes in the technological, social, and natural environment are such that corporate strategy will need to be qualitatively reinvented again for new circumstances. (Li, R., & Feng, Y., 2022).

Through a well-designed human resources policy, and with the adoption of the correct strategies, the transition to new situations and ideas will be easier for those companies directly involved. (Mazikana, A. T., 2022).

The need for transformational change or fail to change leadership

When an organization goes through a process of changing or transforming the values of the company culture, there are many details and information that need to be communicated, and the individuals involved want to understand what this change means for them. (Sulistiyani, E., Ali, A. H. N., & Astuti, H. M., 2020)

The needs for change in business organizations can be caused by aspects such as:

1.Market competition. According to the Report *State of Digital Transformations Worldwide 2019-2020* issued by TRIANZ , a principal analyst Bryan Solis reveals in his research that at least 51% of survey applications chose market competition and growth opportunities as a cause for change. (van der Heijden, B., Viaene, S., & Van Looy, A., 2022).

2.Competitive pressure. The KMPG study entitled *Succeeding in disruptive times. Three critical factors for business transformation success* released in 2016, pointed out that 41% of survey applicants selected competitive pressure as the main reason for change. In a market where new business startups are constantly emerging,79.7% of people need to adapt their enterprises every two to five years to survive. (Olimova, N., Teshabaev, O., & Usmonaliev, I., 2022).

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*3.Evolution of technology.*The main driver of change over the years has been advancements in technology. People do not, however, keep up with the rapid advances in technology. (Vahs, D., & Weiand, A., 2020). Because change affects a team’s performance and, by extension, the entire business, organizations need to keep their employees informed of new developments and mentor them through the transition. (Attaran, M., Attaran, S., & Kirkland, D. , 2020).

4.Crisis response. Every organization ought to be ready for these crisis situations. A fresh strategy that will stop the crisis from doing more harm to the organization should be put in place right away as the organization’s response. While the leadership component focuses on the plan, another area of attention should be on the employee, understanding how they will adjust to that change and by consistently giving them an impression that their opinions are valued.(Thakur, R., & Hale, D. , 2022).

On the other hand, one in three CEOs admit that they have failed to achieve the desired outcome from past transformation initiatives when it comes to bringing new strategies within the organizations. So, *the causes of fail in organizational transformations* are mainly the results of processes such as (Eaves, D., & Lombardo, L., 2021):

1.Underestimation of Operating Model Changes. The most common barrier to transformation failures is that 37% of executives tend to underestimate the importance of operating model changes within the organization and their impact through the transformation phase. (Parida, V., Sjödin, D., & Reim, W., 2019).

2.Employee Resistance. According to the article entitled *Changing change leadership,* released by McKinsey &Company in 2015 and written by Boris Ewenstein, Wesley Smith, and Ashvin Sologar, the most crucial aspect of organizational changes is the cooperation of the workforce. If they don’t support the change, the transformation won’t succeed. As a result, employee resistance in regard to change and lack of leadership support causes at least 70% of change initiatives to fail. However, there are some cases when 30% of employees commit to the change and continue with the transformation. (Ewenstein Boris, Wesley Smith, & Ashvin Sologar, 2015)

3.Lack of communication by the upper leadership. If there is a lack of communication, clarity, and unmanageable workload by the manager, that will lead to employee burnout crisis—a state of physical/emotional exhaustion. In a survey conducted by Gallup in 2022 and written by Denise McLain, entitled *How Leaders Can Communicate Change to a Burned-Out Workforce,* with over 7,500 full-time

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employees envolved, it was found that two-thirds of workers feel workplace burnout. As a result, employee burnout causes a loss of productivity, engagement, motivation, impatience, and increased stress, which can conflict with the organization's goals and new strategies. (McLain Denise, 2022). From a study conducted by Michael Blending in 2015, entitled *National Health Costs Could Decrease if Managers Reduce Work Stress*, published in Working Knowlwdge. Business Research for Business Leaders and issued by Harvard Business School, it appears that workplace stress also impacts employee health, accounting for 8% of national health care spending ($125 to $190 billion) and causing 120,000 deaths yearly. (Blending Michael, 2015)

4.Digital Change Transformation. What sets digital change transformation apart from change leadership is the drive to integrate digital technology into businesses– a transformation within the firm that affects technology, culture, work, and much more. (Jedynak, M., Czakon, W., Kuźniarska, A., & Mania, K., 2021). For more than 20 years, various businesses have been gradually converting themselves with digital technology in order to adapt to the constantly shifting market. Then COVID-19 occurred, which altered the process for nearly all businesses. (Abbas, A., Ekowati, D., Suhariadi, F., Fenitra, R. M., & Fahlevi, M., 2022).

The role of AI, ML, IoT, big data, cloud computing and analytics in agile-performance and practical-transformational leadership

According to a survey conducted by Twilio in San Francisco and published on 15th of July 2020, at least 97% of decision-makers believe that the pandemic sped up their company's digital transformation process. As a result of the pandemic, 95% of all companies are looking for new methods to interact with their customers. (Twilio, 2020)

Steve Van Kuiken**,** who is a senior partner in McKinsey's New Jersey office, wrote an article on 21 October 2022 entitled *Tech at the Edge: Trends Reshaping the Future of IT and Business* in which it draws the attention that the digital transformation market is more focused on cloud computing, artificial intelligence (AI), big data and analytics, mobility/social media, cyber security, and so far. (Olabode, O. E., Boso, N., Hultman, M., & Leonidou, C. N., 2022). Further, the global market for digital technology has been expanding quickly, reaching $421.8 billion in 2020 and projected to reach $1,692.4 billion by 2030. Leaders are now using AI to assist employees with the aim of bringing more success within their organization. (Van Kuiken Steve, 2022)

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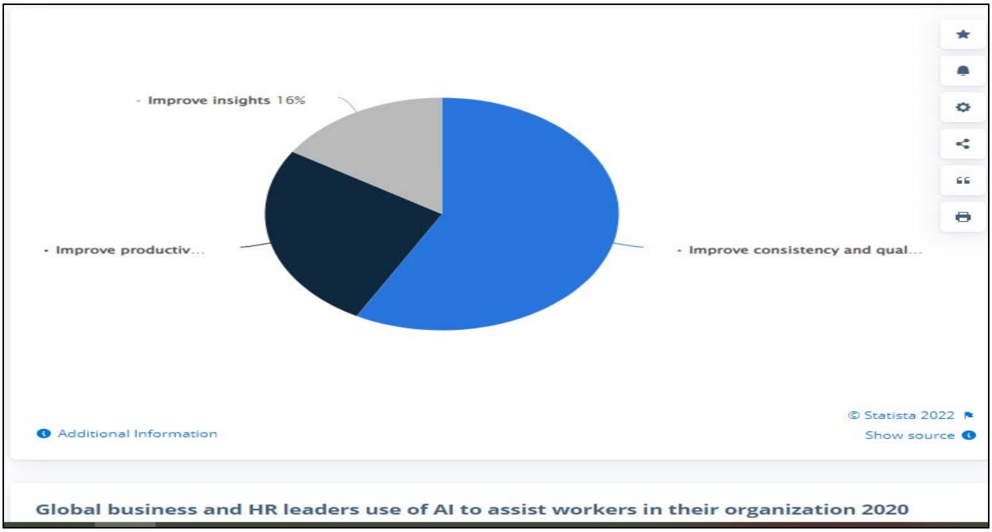
According to a Statista 2020 study, entitled *Global Business and HR Leaders Use of AI toAssist Workers in the Organization*, written by Thomas Alsop and issued on 22 February 2022, 58% of the business and HR leaders surveyed worldwide who use artificial intelligence (AI) to assist workers in their organization use AI to improve consistency and quality, 26% to improve productivity, and 16% to improve insights. AI is being implemented in today's world in big companies such as Google, Facebook, and Amazon; however, it is just the beginning, as employees will be affected by automation, advancement in digital skills, and so on.(Statista, 2022)



Source: Statista, 2022

The same study highlights the fact that by 2030 it is predicted that human labor will no longer be necessary in specific industries as a result of artificial intelligence (AI) and machine learning(ML). Some of the positions expected to be automated are (Jallow, H., Renukappa, S., Suresh, S., & Al-Meraikhi, H. S. , 2022).:

1. Warehouse and manufacturing jobs
2. Customer service
3. Production line evolution
4. Banking services and retail checkout

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The digital transformation will only increase as new software platforms are released daily, so to survive, companies will have to adapt and integrate new tools, as well as install and deploy them. (Alsop Thomas, 2022)

The World 2022 Stats Report, named *Internet Growth Statistics, Today's Road to the E-commerce and Global Trade Internet Technology Reports*, highlights the fact that even though it was COVID-19 that increased the rate of digital transformation through modern technology within the company, that will continue in the future as 92% of decision-makers believe that their organization is very likely to expand digital communication channels. Established change frameworks, resistance leadership, and risk analysis processes will not change. (Grodal, S., Krabbe, A., & Chang-Zunino, M., 2022). However, technology will impact the future of change leadership as it is advanced every day, with more than 5,382 million users active in 2022. (https://www.internetworldstats.com/emarketing.htm)

In a 225-company research study entitled *The Hard Side of Change Leadership*, issued in 2015 by Harvard Business Review, authors Harold L. Sirkin, Perry Keenan and Alan Jackson revealed a consistent correlation between the outcomes (success or failure) of change programs and four hard factors: project *duration*, particularly the time between project reviews; performance *integrity*, or the capabilities of project teams; the *commitment* of both senior executives and the staff whom the change will affect the most; and the additional *effort* that employees must make to cope with the change. (the DICE factors) (Lauer, T., 2022):

1.Duration. Time is of the essence especially in crisis situations where companies need to respond. Harvard Business Review demonstrates that a long project that is reviewed frequently has a higher success rate than a small project that isn't reviewed frequently.(Kim, W. C., & Mauborgne, R. A. , 2017).

2.Integrity. Companies should choose a team leader which will guide the other employees towards success. Most importantly, leaders should clarify the employee's roles and responsibilities in terms of the strategy in place. (Ali, BJ, & Anwar, G., 2021).

3.Commitment. Commitment is a mutual part between the company and employee. As companies expect employees to commit to the strategy, the company should as well commit to employees. It is not enough for the company to commit to managers as what may be seen as a good strategy will not be the same for employees. So, the leaders must encourage building staff support in their organizations. (Bankar, S., & Gankar, S. , 2013).

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4.Effort. Companies often overlook the fact that their staff members are already occupied with daily responsibilities while planning for transformation. Therefore, implementing a strategy that only results in a 30–40% increase in employee workload would simply cause resistance and failure inside the firm. (Kasemsap, K. , 2017). So, the leaders must estimate the necessary adjustments and how much extra work the employees will have to complete on top of their regular tasks, and try not to go over 10% of each employee's workload. (Sirkin Harold L., Keenan Perry & Jackson Alan, 2015).

Change leadership vs. change management for agile-performant organizations

Often change leadership and change management are used interchangeably. However, the question here is whether or not it's just a matter of semantics. Both these concepts are significantly distinct. (Lang, M., & Wagner, R., 2020).

Change management usualy is associated with small-scale changes and is a set of tools and/or measures to keep a change effort under control and to provide solutions to any organizational resistance to a change. (Obina, F., & Adenike, S., 2022). The goal is to minimize the change initiative's disruption, make it cost-effective, and reduce the chances of change failure. On the other hand, change leadership is related to the vision and driving force behind large-scale transformational changes, ensuring the implementation process quicker, more innovative, and efficient. (Bagga, S. K., Gera, S., & Haque, S. N., 2022)

A change leader makes the difference. Most organizations have a dedicated change leadership team to combat employee resistance, yet the failure rate of change projects still exceeds 70%.

The actions taken differently by change leaders to set organizations up for success are as follows:

- *Linchpin Linkages*: Change leaders connect top leadership's aspirations and strategic intent with market insights, allowing them to convert into responsive workforce actions. (Scott, T., & Asavisanu, P., 2021).
- *Holistic Impact*: Change leaders aim to create a holistic impact on their reports, peers, and superiors instead of following the conventional top-down approach. They often influence people to get on board and use several motivational tools to achieve this result. For example, according to an article published on *Whatfix* in the 19th of November 2021 by Pryanka Malik, entitled *Change Leadership: How to Lead Change Effectively (2023)* it is highlighted that *Netflix*

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takes a result-oriented approach instead of microleadership. It motivates its employees with perks such as unlimited PTO, flexible work schedules, and more as rewards.

- *Multiple Approaches:* Change leaders aren't afraid to use various approaches or a combination of leadership models for effectively solving a problem. (Jaaron, A. A., Hijazi, I. H., & Musleh, K. I. Y. , 2022). If their methods cannot adapt to the situation, change leaders delegate others to help lead the current vision to lead the team to the finish line. (Cameron, E., & Green, M., 2019).

While different change leaders may opt for unique leadership approaches & techniques to drive their company to a unified vision, here are some significant piece of advice for change managers to become successful change leaders (Franklin, M., 2021).:

1. A clear vision. A successful change leader is an inspiring visionary. Successful leaders anticipate employee concerns well in advance and address them throughout their vision to support the change. This clarity in vision will help employees overcome fears and keep them engaged throughout the process. (Obina, F., & Adenike, S., 2022)

2. An action-oriented, strategic plan. It's imperative for a change leader to create a well-detailed strategic plan to kickstart the change initiative and achieve critical milestones. A well-drafted plan helps employees connect with the vision and understand their roles and responsibilities in making the initiative successful. It also highlights the underlying tasks, priorities, structures, behaviors, and resources. (Scott, T., & Asavisanu, P., 2021).

3. Proactive in creating relationships across the organization. Since change leadership demands a people-centric approach, a change leader must build a strong foundation by creating relationships with internal and external stakeholders. These relationships reduce friction and ensure a smoother change transition. (Brown, C., 2022).

4. Exploring technological trends. In the age of digital transformation, harnessing the strength of technology such as digital adoption platforms can make the change leadership more effective. (Boratyńska, K., 2019). Digital Adoption Platforms (DAP), for example, helps employees steer through change by providing contextual in-app guidance and on-demand support. It offers intuitive UX features such as pop-ups and beacons, ensuring that small changes don't go unnoticed, said Nikolette Lorincz in her 25th of November 2022 article, entitled *Popup UX Design: Best Practices, Tips &Examples,* released on *OptiMonk.com*

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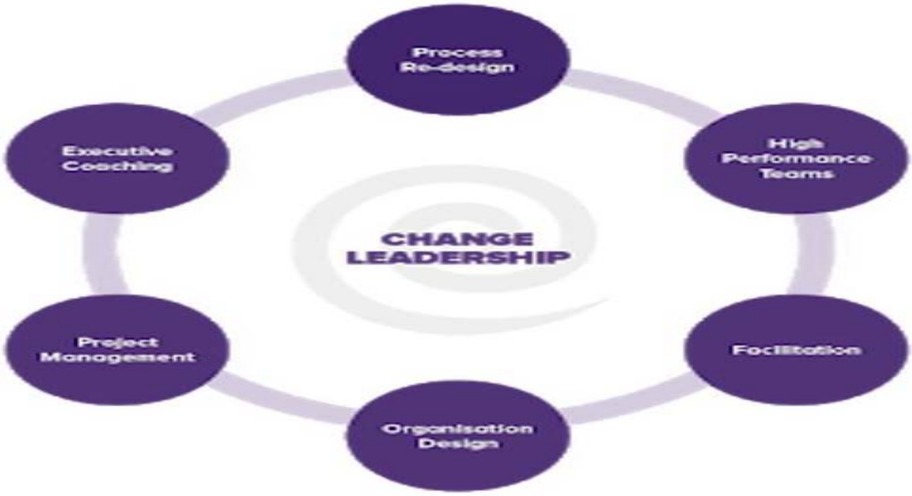
5. *Communicating effectively and transparently.* 65% of change leaders feel that clear and frequent communication with employees was the most crucial factor in driving their change efforts. Effective change communication must address the questions such as 'the need for change', 'benefits of change' and 'what's in it for me'. This communication must be bi-directional and encourage employees to voice their concerns. (Fyshchuk, I., & Evsyukova, O., 2020).

6. *Identifing & confronting barriers and resistance to change head-on.* Change imposition is often met with pushback. Change leaders must conduct baseline assessments and ensure employees look at the change as an opportunity instead of a threat. It is equally important for the change leadership of the companies to provide consistent support and provide employees with onboarding training to succeed in the change effort. (By, R. T., 2021).

7. *Collaborate with team members across the organization.* Change leaders must lead the change by setting an example. They should create a collaborative culture within the organization so that people can step-up in case of emergencies. They should also collect regular feedback to improve the leadership approach and change techniques for future initiatives. (Brown, C., 2022).

8. *Hold the employees accountable.* According to a CEO survey, 18% of the leaders cited "holding people accountable" as their biggest weakness. Since people drive change initiatives, it is essential for a change leadership to hold the employees accountable. Fostering a culture of accountability improves employee performance, empowers team members with a sense of ownership, and drives organization growth. (AlKhoori, I. , 2022).

The Baldrige Criteria related to Shannon Connon's article entitled *Change Leadership*, issued on 27th of June 2019 in *Quality in Mind* which can be found on *asq.org*, defines change management as a leadership-induced process that involves transformational organizational change that leadership controls and sustains. (Klein, N., Ramos, T. B., & Deutz, P., 2022). It requires dedication, involvement of employees at all levels, and constant communication. Transformational change is strategy-driven and stems from the top of the organization. Its origin may be from needs identified within the organization and it requires active engagement of the whole organization. (Valene Jouany, Mia Makipaa, 2022). Below it can be observed the *Change Leadership Process*, made schematic by *KnowledgeBrief (KBM)*, on *asq.org.*



Source: *The Change Leadership Process, KnowledgeBrief (KBM)*, on *asq.org*.

According to Luciana Paulise, who wrote in *BIZTORMING.COM* on the 26th of June 2019 an article entitled *The Role of the Leader in Agile Organizations*, many companies around the world are moving towards an agile way of work to be able to tackle constant changes and capture the opportunities those changes bring. Agile organizations can develop products five times faster, make decisions three times faster, and reallocate resources adroitly and quickly, based on the research of the authors De Smet, A., Lurie, M., & St George, A. (2018). "*Leading agile transformation:The new capabilities leaders need to build 21st-century organizations*", published by *McKinsey & Company*.

Agile companies work in small teams that are multidisciplinary and autonomous, some don't have leaders, some simply have facilitators to ensure successful interactions among team members, suppliers and customers. (Zu, Y., & Zhang, R., 2022). New leaders need to let go of micromanaging the day-to-day activities to become success facilitators. They will set a long-term vision, promote interaction across the organization, provide support to unleash team member's idea and define priorities. (Arefazar, Y., Nazari, A., Hafezi, M. R., & Maghool, S. A. H., 2022).

Leaders are no longer masters of the people on their team, instead customers are. That's why structures in agile companies flatten to (Jallow, H., Renukappa, S., Suresh, S., & Al-Meraikhi, H. S., 2022):

–Allow fast and online communication top down, bottom up and inside out.

– Facilitate fast decision making within the team, without the need to wait for management approval

– Ensure everybody is connected to the customer needs, and the needs of each of the team members.

In agile companies, every employee can become a change leader within their teams, depending on the task at hand, so everybody needs to be trained to CARE (Method/Tool) for their team, through four main habits (Arefazar, Y., Nazari, A., Hafezi, M. R., & Maghool, S. A. H., 2022):

- *Connect:* Communicate the vision, values and objectives that drive the team and build the network of stakeholders required. Team members now decide the best way to accomplish the goals. (Valdemarin, S., & Mayrhofer, U., 2022)
- *Ask:* Asking more questions at the front-line to deeply understand results, instead of advocating opinion or direction. Analyze risks and always look for outside-in perspectives from the customers to make decisions with the team. (Brown, C. , 2022)
- *Respect:*Build confidence and trust, foster open communication and respect differences in the workforce to allow multidisciplinary teams to thrive. Strengths, skills and ideas work at their best when relationships are based on mutual acceptance. (van der Heijden, B., Viaene, S., & Van Looy, A. , 2022).
- *Empower:*Prioritize objectives visually, build systems and team routines, promote self-discipline and time management and encourage immediate problem-solving. Avoid constant updates, briefings, micromanagement, and approvals, all very costly. (Jaaron, A. A., Hijazi, I. H., & Musleh, K. I. Y., 2022)

According to McKinsey&Company's study, issued on the 1st of October 2018, by the authors De Smet, A., Lurie, M., & St George, A. (2018)., entitled "*Leading agile transformation:The new capabilities leaders need to build 21st-century organizations*", agile organizations, viewed as living systems, have evolved to thrive in an unpredictable, rapidly changing environment. These organizations are both stable and dynamic. They focus on customers, fluidly adapt to environmental changes, and are open, inclusive, and nonhierarchical. They evolve continually and embrace uncertainty and ambiguity. Such organizations, we believe, are far better equipped than traditional ones for the future. (Ekhsan, M., Sudiro, A., Mugiono, M., & Hussein, A. S., 2022).

Strategies for successfully implementing a company-wide agile-transformational and practical-change leadership model (case studies)

As we mentioned from the beginning of this work, no organization, company or business can afford to remain rigid, without innovating or embracing change. We live in a world that continues to change at a rate of proportion. There will always be new challenges and new approaches to work. Changes in work procedures, company functions, organizational and technical restructuring, these are just some of the procedures related to change leadership. (Buschow, C., & Suhr, M., 2022).

In small companies, implementing new office software solutions is not too much of a challenge. Usually a manager has to deal with the technical support and coordinate the training of the teams. However, the real problem arises when forcing a change in current habits on a group of one hundred, five hundred or even thousands of employees. (By, R. T. , 2021)

Through this study, we will help managers better understand this process of large-scale change and teach them to prepare for such changes with office software tools, such as the Google Workspace office package.

The change leadership process was said to represent a collective name for all activities that prepare employees for significant organizational changes. This set of procedures anticipates, organizes and helps to overcome the challenges that the company may face during the process of changing to new technologies, for example.(Henriette, E., Feki, M., & Boughzala, I. (2016, September).

But, we believe that the easiest way to understand this issue is to use an appropriate example. FOTosic, which is a partner of Google Cloud, is a company specialized in implementing the Google Workspace package in companies in many different industries, regardless of the number of employees (Koll, H., & Jensen Schleiter, A., 2020).

Aparna Pappu, the GM and Vice President of Google Workspace, in an article released on the 11th of October 2022, entitled *Introducing innovations in Google Workspace to help your organization thrive in hybrid work* is talking about the implementation of the standard package at company level, which should include:

• Consultations to select the best service for the company.
• Migrate emails from old mailboxes to Gmail services.
• Help in configuring the administration console and security settings.

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• Post-implementation technical support.
• Possible training for users and system administrators.

However, the points mentioned above are only part of the long list of tasks that are part of the entire change leadership process. (Jakobsen, M. L. F., Andersen, L. B., & van Luttervelt, M. P., 2022).

For corporations that want a thorough preparation for the implementation of Google Workspace, according to the same author, Aparna Pappu, the GM and Vice President of Google Workspace (in her article released on the 11th of October 2022, entitled *Introducing innovations in Google Workspace to help your organization thrive in hybrid work)* FOTosic will also be able to offer:

• A series of consultations and trainings that will prepare the decision makers in the company to take the next steps.
• A detailed plan, tailored to the organization's needs, consisting of four steps and a detailed list of additional details.
• The implementation team, consisting of FOTosic representatives and company representatives from the technical, sales and other departments.
• Setting up an information campaign.
• Closed group service testing.
• "Day 0" – start of services for all users.
• A program of internal ambassadors, who will support these changes from within.

The benefits of implementing change leadership with Google Workspace would be (Aparna Pappu, 2022):

• Change leadership shortens the transition time, so these changes will not interfere with the operation of the company.
• Planning reduces the risks associated with adopting new solutions. It helps avoid data leaks, slowdowns and unnecessary frustrations.
• Greater user satisfaction with early clarifications.
• Monitoring the progress of the change together with a Google partner allows the company to detect potential problems in advance and prevent them effectively.
• Change leadership involves employees from all structures, and common direction towards a goal helps the culture of the organization.
• Faster adoption of Google's suite of cloud-based office tools has the potential to increase team collaboration efficiency.

The preparations for the change process would consist of the following phases, described below.

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The first step towards a successful change is the understanding by specialists of the existing procedures in the organization. Implementing Google Workspace is a complex, multi-level endeavor. That is why it is very important to have a common vision and a goal that everyone can identify with. When planning the individual stages of implementation, leaders must consider both the roles of each individual and a predefined broad perspective. (Marco-Lajara, B., Sánchez-García, E., Martínez-Falcó, J., & Poveda-Pareja, E., 2022).

The FOTosic methodology implementation strategy consists of the three levels of change that must be taken into account at the company level, namely (Cook , 2022):

1. Changes at the product level. The first thing that will be noticed in the company culture is the emergence of new work tools. Depending on the degree of openness to new experiences, employees may receive them with reserve, indifference or enthusiasm. Every end user will have to invest time to get used to the interface of these new applications. Most employees will feel confident using Gmail after a few minutes, but some users may need practical advice, support or additional training. (Niero, M., & Kalbar, P. P., 2019).

2. Changes at the company's policy level. Along with new applications, the cloud will bring many new possibilities for the company. The implementation team must decide which Google Workspace features can be safely turned on and which should be kept for security reasons. For example, the following scenarios can be considered:

• Will users be able to sign in to their work accounts immediately on mobile devices?

• Can the files be distributed outside the organization?

• Will the use of two-step verification and a strong password be voluntary or enforced across the company? (Baumgartner, F. R., Berry, J. M., Hojnacki, M., Leech, B. L., & Kimball, D. C., 2009)

3. Changes at the level of procedures in the company. The least tangible level of change is a gradual metamorphosis of employee culture procedures and habits. It is worthwhile for this progress to be planned and coordinated by the company's leadership team, but the effects will not be visible immediately. For example, if the company has never managed to use shared mailboxes and resource bookings in a calendar, then leadership should expect it to take some time before this becomes automatic for employees. (Tyler, T. R., & De Cremer, D., 2005)

Change leadership is associated with continuous improvement of business processes, which often can be achieved by deploying one of the following prominent *change models*.Change leadership will necessarily have to go through the four stages of implementation at the company level, to get to the next level, namely agile-performing and practical-transformational change leadership model (Eaves, D., & Lombardo, L., 2021):

Alpha stage - planning and communication. In the first stage of preparation for the implementation, the FOTosic company specialized in the implementation of the Google Workspace package in companies from many different industries, will first have to consult with its client. After preliminary arrangements, FOTosic will appoint a team of shift supervisors, create an individual implementation program and then start an information campaign that will gradually fuel the involvement of the employee community. The FOTosic Change Leadership Assistant will provide templates for promotional materials and become an external consultant monitoring implementation progress. (Maali, O., Kepple, N., & Lines, B., 2022).

Beta stage - testing and training. In the next step, the leadership of the company involved in the change will have to involve in this process first its technical team that will test the capabilities of Google Workspace. In cooperation with FOTosic, user account creation, data migration and administration console configuration will begin. Meanwhile, there are a series of training sessions for future administrators and a group of employees who will become Ambassadors of Change. The implementation team continues the awareness campaign and prepares a support plan to ensure that no employee questions go unanswered. (Wright, D. B., Mayer, G. R., Cook, C. R., Crews, S. D., Kraemer, B. R., & Gale, B., 2007).

Gamma stage - official inauguration of the implemented program. In this stage, the last corrections and a detailed review of the settings of the service implemented at the company level will be carried out. Campaign supervisors will conduct readiness surveys and begin distributing logins to all employees so that on "Day 0" everything is set up. "Day 0" is where the entire organization starts using the new service. (McConnell, C. R., & Brue, S., 2017)

Delta stage - support and control of progress. The last stage of change leadership consists of collecting feedback from administrators, users and ambassadors, and implementing new applications (if not all of them have been immediately made available to employees). If necessary, it is possible to organize additional, practical workshops. (Hayes, J., 2022).

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And in this way, the detailed list of tasks to be performed in each of the four phases above will have to be adjusted to the structure and requirements of the organization of each individual client.

Conclusion

Resistance to change can play a major role in determining how a company operates, and that is why it is necessary for those who deal with change leadership to find strategies and solutions to avoid mass resistance when a change occurs.

Thus, to reduce the resistance to change, it is necessary for the leadership to adopt and implement a strategy from the initial stage of the project. By means of it, various activities can be established from the very beginning that can cause employees to be open to change.

The most important aspect that must be taken into account is related to the communication regarding the need for change, the impact and benefits brought by it to the organization as a whole. Also, the human resources department together with heads of departments or divisions can organize various activities to prepare the moment of change by discussing with employees and receiving suggestions from them, to improve the process. This is also the reason why we chose to debate this topic, motivating our choice with the reproduction of two real case studies, on the example of a company. (Justice-Amadi, S. N., & Orokor, F. A. , 2022).

In conclusion, change leadership is important for any type of business, because it helps the company's leadership team to avoid multiple problems that may arise during the development of this arduous process.

Here are some *practical steps* a manager can take to anchor change in the culture of their organization or team:

• building an identity that supports change;
• identifying barriers to supporting change;
• ensuring support from leadership;
• creation of a reward system;
• establishing feedback systems;
• adapting an organizational structure as needed;
• keeping all employees informed in a sustained manner;
• celebrating success. (Nazir, S., Price, B., Surendra, N. C., & Kopp, K. , 2022).

By implementing a robust change leadership process, any company will be able to keep disruptions to its operations to a minimum while reaping the benefits of any new idea or transformation. Effective and ongoing change leadership will ensure the company has the best chance of success with any new idea or transformation, keeping. (Castelló-Sirvent, F., & Roger-Monzó, V., 2022).

Embracing change requires more than a change leadership approach. It needs change leaders who can provide a path, lead, and diligently work to ensure the organization's success. When change practitioners manage change as it happens, they often attempt to avoid threats. On the contrary, when leaders adopt a change leadership approach merged with technological support, change becomes an opportunity to thrive.

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POVERTY, INEQUALITY, ECONOMIC WELLBEING AND THE AFRICAN ECONOMY: PANEL DATA ANALYSIS (2000 – 2020)

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Abstract
High GDP per capita and growth rate seems not to spur greater reduction in poverty and inequality in most African countries. Thus, this study examined the possible cause of this unparalleled situation and established the nature of the relationship between the much better measure of economic well-being (GDP or HDI) using panel data analysis on cross section data collected for 15 countries in Sub Saharan Africa (SSA). Conducting the Hausman test, it was discovered that the Fixed Effect Method rather than Random effect Method was more efficient in interpreting the behavior of GDP per capita and HDI. The results showed that HDI is a better measure and determinant of wellbeing than GDP per capital. Furthermore, the variables of the model were all statistically significant and correctly signed. The study recommended that governments should embark on programs that directly impact the quality of life of the people.

Keywords: *Poverty, inequality, economic growth, wellbeing, panel data analysis*

JEL Classification: I32; I14; O40; I31; C23

1.0. Introduction

The attainment of a higher level of development has been a major objective of many African countries and indeed a global concern. Policies in African countries has been directed towards programs sponsored by international organizations and the governments of the African continent. Examples are the Millennium Development Goals (MDG) and the Sustainable Development Goals (SDG) to mention a few. African governments have all embraced these programs in a bid to reduce poverty and inequality in their countries. They believe that growth in the economy had a significant impact in reducing poverty and so as a result a lot of attention is shifted direct and indirect policies that increase the national output.

Although, growth in the economies of Africa has been tremendous and significant over the last decades with a stable GDP growth between 2.3 percent and 3.3 percent from 2016 to 2019 (World Bank database, 2020). However, a greater number of the population of the world is still living in abject poverty and a considerable number of the poor (56%) is concentrated in Sub Saharan Africa (World Bank Report, 2015). it becomes notably obvious that the African populace are still highly impoverished because of the widening inequality gap.

As Kharas, et al., (2018) suggested lack of income is not the only parameter for describing the poor, it includes other parameters such as health care, education, security, access to basic facilities and employment which are obviously deficient in the region of Africa. According to UNESCO (2020), of all the regions, SSA has the highest rate of education exclusion. As of 2019, 234 million people living in SSA were extremely malnourished, more than in any other region in the world (FAO, 2020). The report further stated that about 20 percent of the people in Africa (250 million) were suffering from hunger. Also, the high poverty rate in Africa is reflected in the rate of unemployment (International Labor Organization (ILO), 2018 and Egunjobi, 2017). The inequality gap and impoverishment in Africa is also reflected in the low quality of health care and accessibility to social amenities, about 60 percent of the total population in SSA are rural dwellers (World Bank, 2020).

A lot of studies carried out focused on the effect of economic growth on poverty, (Upadhyay and Fanta, 2009 and Fosu, 2011), some on the effect of inequality on the level of poverty (Tripathi, 2013), some studies even went further to look at the relationship between inequality, absolute poverty and economic growth (Janvry and Sadoulet, 2000; Ayad, 2016; Fosu, 2018 and Theorbecke and

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Ouyang, 2018) but there seems to be no study for the reason of the correlation between increased economic growth yet unparalleled increases in poverty and inequality.

This study is carried out to provide a justification for the insignificant reduction in inequality and absolute poverty despite significant growth in gross national incomes of SSA. This study proposed that growth of the GDP and the measure of per-capita incomes is not individual-specific and thus do not improve the well-being of the people and thereby suggests a more inclusive growth, people-specific measure that directly impact the people of a country, while also assessing the effect of poverty and inequality on this people- specific indicator that can reduce poverty and inequality significantly using a more recent data than other studies. Specifically, the objective of this paper is to examine the influence of poverty and inequality on two development welfare indicators (GDP per capita and HDI) separately to determine which is the better indicator or measure of economic wellbeing by employing panel data estimation on cross section secondary data from 15 selected SSA countries from 2000 to 2020.

The remaining section of this study is categorized into four sections. After this section one is a review of theoretical, conceptual, and empirical literature. Section three presented the research methodology while section four presented and analyzed data and section five concluded and provided policy recommendation for the study.

2.0. Review of Literature

World Bank describes poverty as "a pronounced deprivation in wellbeing" (Haughton & Khandker, 2009). Poverty is demonstrated by serious deficiency of basic needs which includes food, pure water, education, public health facilities, accommodation, and access to information (UNDP, 1995).

Inequalities are evidenced through arbitrary discrepancies in interpersonal relations, worth, position, self-esteem, and freedom. It occurs when there is denial of equity and fairness (UNICEF, 2015).

Though poverty is linked to inequality, they are distinguishable (Haughton and Khandker, 2009). While inequality focuses on the complete well-being of the people, poverty concentrates on the people who are below a specified poverty line, those at the lower echelon (McKay, 2013).

According to Osberg and Sharpe (1998) the economic wellbeing of a society is determined by four components, poverty and inequality, real per capita

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consumption flows, indicators of insecurity particularly economic security from unemployment and ill health and net social accumulation of productive wealth.

2.1. Inclusive Growth in Africa: A New Paradigm of Wellbeing

The 20th century experienced an unprecedented economic development like never before, the total world output grew on average at annual growth rate of 3 percent with a nineteen-fold increase in world output between 1900 and 2000. Also, there was fast technical advancement in the production of food and in medical science leading to noticeable decreases in infant mortality and a noteworthy rise in life expectancy. To buttress this, world life expectancy was assessed to have increased from 46 years to 66 years in 1950 and 1998 respectively (McDevitt and Griggby, 1999).

According to World Bank (2001), the major determinants of sustainable economic growth are the quality of resources of a country, improvements in these resources, appropriate and effective economic policies replicated in reasonable budget deficits and inflation, comprehensive economic management, and a strong monetary system.

The 2015 World Bank report on SSA revealed a seemingly decrease in the growth rate of SSA because of increased domestic demand yet, growth rate ranged from 2.3 percent to 2.7 percent on the average. However, projections by IMF and World Bank depicted that despite the adverse impact of harsh world financial environment and declining commodity prices, SSA will still be regarded as a region experiencing fast growth rates.

Statistics revealed a considerable increase in world population from 1.6 to 6.3 billion people and about a fivefold increase in world output per capita in the 20th century (IMF, 2000). Notwithstanding this great transformation in economic growth and with the world output increasing, why then do countries with comparable rates of economic growth have dissimilar rates of poverty and why is the inequality gap still considerably wider?

It is possible that countries with equivalent progression in per capita income could display great disparity in poverty reduction because the more equity in income distribution achieved, the tendency for poverty to be drastically reduced and vice versa given the same rate of economic growth (World Development Report, 2000/2001). Thus, the influence of economic growth in reducing poverty in countries where wealth is generated and concentrated in the few rich is limited while the effect is enormous in countries where wealth is generated by the poor.

This is explained by the fact that vast growth experienced in the African continent has little or no impact in reducing poverty which leads to greater gap in inequality**.**

The GDP growth rates then become an adequate measure of economic growth but not of economic wellbeing. GDP is inadequate in measuring wellbeing because it does not take into consideration variations in the income distribution among households, nor non- financial dealings and non-market productive activities which not only contributes to well-being but overvalues it by assuming that every spending contributes to welfare. Again, while recording, GDP is not debited and depreciation of assets is not considered (Berik, 2018)

2.2. Human Development Index: A More Improved Indicator of Economic Wellbeing

Regardless of whether the judgment is made by politicians, public officers, macroeconomists or the media, the GDP is thus identified or considered synonymous with social welfare. Economists and others have repeatedly cautioned that GDP or its variant is not and was not proposed to be a measure of economic well-being. Even in the long run, it is doubtful that variations in the rate of growth of welfare can be determined even crudely from variations in the growth rate of output (Abramowitz, 1959). Although GDP plays an important role in the economy, it is not a correct way of measuring the well-being of the people in a country since absolute poverty and inequality cannot be properly measured by income (Sen, 1980). This explains the reasons growth in GDP does not translate to development and economic well-being in Africa.

The quest for an index that will "focus directly on the lives that people lead – what they succeed in being and doing" and provide answers to questions pertaining to the welfare and well-being of the people led to the conception of the Human Development Index (HDI) (Anand & Sen, 1994).

The HDI in 1990 was created thereby making it a better and more encompassing measure of well-being than GDP. The capabilities approach propounded by Amartya Sen (1992) and Martha Nussbaum (2003) laid the foundation for the creation of HDI. Osberg and Sharpe (1998) views the HDI as a more holistic measure of economic wellbeing- an indicator that explains the wellbeing of a country- one that will capture the consumption pattern of marketed and non-marketed goods, net accumulation of human resources, poverty and inequality gaps, net variations in the worth of natural assets, insecurity and the production and consumption of social goods.

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It has been observed that small fluctuations occur in HDI values of high-income countries, while large fluctuations occur in HDI values of low-income countries, this asserts HDI as a better and superior index in evaluating is variations in well-being in low-income countries like Africa than the GDP per capita approach (Brown, 2017).

The HDI is a worthy tool in comparatively analyzing health and education outcomes in terms of inequality and impoverishment analysis, with the aim of achieving increased access to health and educational facilities and services (Berik, 2018).

2.3. Empirical Evidence

The works by Paukert (1973) and Ahluwalia (1976) perhaps verified the plausibility of inverted – U curves using cross section study. Their research showed large deviations of inequality amongst countries sampled.

An econometric study by Upadhyay and Fanta (2009) on data from 16 African countries, displayed the existence of an indirect relationship between economic growth and levels of poverty. Their study revealed that though poverty elasticity is different among countries, economic growth is required before poverty reduction can be achieved, and improved standard of living attained.

The study by Fosu (2018) discovered the reasons for high levels of inequality and poverty particularly in Africa, despite evidence of economic progress. The study concluded that this could be because growth recorded in Africa can be attributed majorly to a favorable foreign financial environment.

The study conducted by Brempong (2002) on African countries, used a dynamic panel estimator to examine the influence of corruption on economic growth and income distribution. The paper discovered that corruption is directly linked with income inequality and that via reduction in the level of investment in physical capital resources, corruption decreased economic growth positively and negatively. The result implied that the poor suffers the more from corruption in African countries.

Conducting a regional study amongst Latin American countries, to assess the consequences of economic growth on poverty in urban and local areas given variations in the distribution of income. Janvry and Sadoulet (2000) discovered that at lower levels of income inequality, growth is a significant powerful tool in reducing poverty than at higher levels of income inequality thus implying high cost of inequality in income.

For country specific studies, On India, Tripathi (2013) investigated the role of economic growth to achieve a decline in inequality and poverty. The study focused on 52 cities in the urban region of India using self -calculated inequality and poverty indices. The study showed that the major variables that reduced poverty in the region and increased inequality amongst the cities are huge city population and high economic growth.

In another related study by Ayad (2016) on Algeria using the Autoregressive Distributive Lag (ARDL) approach, the association amongst poverty, inequality and growth was explored. It could be inferred from the results that the three variables were co-integrated, and an inverse relationship existed between poverty and growth while a direct relationship existed between poverty and inequality either in the short-run or in the long-run.

Although comparative studies are sparse, some of these studies included the empirical work by Fosu (2011) which inspected the influence of growth on poverty amongst countries in Latin American, South Asia, Eastern Europe and Central Asia, Sub-Saharan Africa and Middle East and North Africa. He discovered that due to reforms executed in most developing countries, there had been progressive increases in economic growth, leading to reduction in poverty essentially in countries with a more equitable income distribution. The study recommended that policies should focus on the reduction of income inequality.

Similarly, Theorbecke and Ouyang (2018) conducted a comparative study between Africa and other developing countries on the influence of growth on poverty and inequality. In contrast to previous studies, the study examined the reverse causal link from poverty to inequality and growth and discovered in Africa, the responsiveness of poverty declines to increases in income and inequality reduction is lower, than in the developing world. In terms of the nexus between poverty inequality and growth, Africa again differs from the rest of the developing world, because African countries with greater initial poverty incidence seemed to grow successively quicker leading to poverty convergence.

Also, Agyemang et al., (2018) examined and compared amongst 48 African countries, the implications of economic inclusion on poverty and inequality. The results showed that more financial inclusion is accomplished by decreases in poverty and inequality. The study recommended the pursuance of policies and programs that will enhance the inclusion of the poor and the marginalized in the financial sector.

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Li et al. (2000), investigated the impact of corruption on income and the Gini coefficient in Latin American, OECD, and Asian countries. The study established that economic growth has no effect on the Gini coefficient, however, countries with intermediate level of corruption exhibit higher Gini coefficient than countries with high or low levels of corruption.

2.4. Limitation of the Reviewed Studies

It has been observed from the various literatures reviewed that the focus of the studies to establish the relationship amongst economic growth, poverty and inequality was achieved. However, little or no consideration was geared to the fact that the relationship amongst growth, poverty and inequality does not explain the condition of deprivation and impoverishment in the region.

Almost all the studies (Agyemang, 2010; Ayad 2010; Upadyyay and Fanta 2009) carried out on SSA and other countries concluded that growth in the economy reduced poverty significantly while growth in the economy on inequality reduction is seen by few studies as inconclusive.

There is every indication that growth in GDP is not enough to capture the well-being and quality of life of the citizens of a country (Sen, 1980; Osberg and Sharpe, 1998). Therefore, a more inclusive growth is advocated that will affect the quality of life of the people rather than just pursuing policies that will improve the GDP, much attention should be given to areas that directly impact the people of a country. The UNDP’s Human Development Index will create a more directed policy and programs that will impact the lives of the people with much attention paid to the indicators of the index.

The HDI captures the income, the educational status and health of the people and targeting to improve these indicators will advance quality of life. Thus, the study thrives to prove that HDI is a better indicator for providing a more inclusive growth and better gauge of wellbeing of a people.

2.5. Review of Growth Theories

The earliest economists known as the classists proposed the free market as an important tool for achieving economic growth. Adam Smith advanced the concept of division of labor which through specialization would promote productivity, this will spur increased income, which will promote consumption and demand and market is expanded. Thus, economic progress is achieved through a vicious circle.

The Marxian theory advanced by Karl Marx was in support of the classists that a larger market is crucial for the attainment of economic development. Marx focus was on the mode of production which is the total of all material and productive forces of society reliant on the political, social - cultural and spiritual traits of life and are affected by the level of technology, climate, and geography of the economy. This, he alleged, is conditioned by the mode of production. Thus, as productive forces change, a set of multiplier effects occurs, and a new but more appropriate production relationship evolves in the economy.

During the great depression in the 1930s, John Maynard Keynes proposed the Keynesian growth model in contrast to the classical economists. According to him, full employment cannot be achieved automatically. However, with government intervention through the implementation of demand-oriented strategies geared towards stimulating demand, employment will be generated and will eventually yield growth in national income

Furthermore, Harrod and Domar formulated a well-known model branded as the "Harrod-Domar Growth Model" in the 1940s. The model established the nature of the relationship between the economic growth rate and capital growth, wherein the actual growth rate of output is equal to the gross increase in capital stock (savings ratio). Hence, the determinants of growth rate are the domestic savings ratio and the capital output ratio. Thus, the greater the savings and investment generated from the increases in national income, the more the growth of output.

In 1956, Robert Solow and Trevor Evans theory showed how labor, capital and technology when combined effectively will bring about a steady rate of economic growth. Such that positive changes in either or all these factors will stimulate growth and bring about a short-term equilibrium. This neo – classical theory however, emphasized the need and the role of technological advancement in promoting economic progress.

Mankiw, Romer and Weil in 1992, protracted the Solow neoclassical model by including human capital. Hence, growth becomes a function of the initial level of income and some other determinants to achieve a steady state. These determinants could be technological growth, investment in education, population growth, investment in physical capital and so on. In this study, other determinants included are poverty, inequality, unemployment, investment in education and health.

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3.0. Methodology

3.1. Model Specification

This study is based on a modification of Mankiw, Romer and Weil (1992) and Forbes (2000) models. The variables used in the model are consequent on theoretical and empirical determinants of economic growth. By this, the model used in this study is specified as.

$$Growth_{it} = \beta_0 + \beta_1 GINI_{it} + \beta_2 GED_{it} + \beta_3 GEH_{it} + \beta_4 POV_{it} + \beta_5 UMP_{it} + e_{it} \quad \ldots (1)$$

From equation (1), Growth is measured by the Gross Domestic Product (GDP) per capita which is one of the indicators of economic well-being; GINI is the GINI coefficient measuring income inequality, GED is government expenditure on education, GEH is Government expenditure on health and POV is the rate of poverty (proxied by the headcount index) and UMP the unemployment rate.

According to Sen (1992), income (GDP per capita) cannot fully capture the extent of deprivation or prosperity of the individual. As a result of Sen's proposition, a more comprehensive indicator of economic well-being, HDI is introduced in place of GDP per capita in equation (1) to form another equation:

$$HDI_{it} = \beta_0 + \beta_1 GINI_{it} + \beta_2 GED_{it} + \beta_3 GEH_{it} + \beta_4 POV_{it} + \beta_5 UMP_{it} + e_{it} \ldots\ldots\ldots (2),$$

where i indicates countries (1,N) and t represents time (1 , ………T)

Apiori expecations: β_1, β_4 &β_5<0 and β_2 & β_3 > 0

3.2. Data

The World Bank classifies the African Continent based on their geographical location; the Northern part of Africa (Non-Sub-Saharan African) is classified most of the time with the Middle East because of their historical and religious backgrounds. The UNDP classified 46 out of the 54 African Countries as Sub-Saharan Africa. In the World Bank report of 2021, it was discovered that more than 50% of the world's extremely poor are living in SSA and as a result, the focus of this study is on the Sub-Saharan part of the African continent. 15 countries were then randomly selected without taking into consideration the heterogeneity of these countries.

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This study will cover periods ranging from 2000 to 2020 to incorporate more recent data into the analysis.

The data on GDP per capita, government expenditure on education, government expenditure on health, poverty indicator and GINI values was sourced from the World Bank Development Indicator. The data on HDI was sourced from the UNDP data source.

3.3. Technique of Estimation

Based on the nature of data, panel data estimation is considered because it is efficient in handling data involving N cross sections and T time periods. It is a suitable estimator because it allows the sample size to be increased considerably and as such panel data estimation gives better estimates. Another advantage of panel data estimation is eliminating the problem of omitted variables which might lead to biased estimates in a single individual regression.

4.0. Analysis and Discussion of Result

4.1. Presentation of Analysis

4.1.1. The Huasman Test (HT)

HT was conducted on random effect and fixed effect method of the panel estimation to ascertain which of the two techniques is more efficient in explaining the behaviours of the regressands. The result of the Huasman test is presented in table 4.2.

TABLE 4.1: Huasman Test Result

Test Summary	Chi Square Stat	Chi square df	Probability
Cross-section random	11.124589	5	0.0490

From Table 4.1, it can be observed that the chi-square value and the probability value of 0.0490 showed that the null hypothesis can be rejected with the alternative accepted. The null hypothesis of the Hausman test is that the random effect method is the more efficient method. At 5% level of significant the fixed effect best explains the output of the regression.

4.2. Presentation and Interpretation of Results

TABLE 4.2: The Panel Regression Results using Fixed Effect Method
Dependent Variable: GDP per capita

VARIABLE	COEFF.	T-STAT	P-VALUE
CONSTANT	6918.467	7.422202	0.0000
GINI	-12.76466	-0.617630	0.5373
GED	-1.020353	-0.013997	0.9888
GEH	16.12250	0.282230	0.7780
POV	-99.80518	-7.870229	0.0000
UMP	-36.37892	-1.650025	0.1001
R-SQUARED	0.889232		
ADJ. R^2	0.881736		
S E of Regression.	878.1173		
Sum sq. Res.	2.08×10^{-8}		
F-stat	118.6339	Prob. 0.0000	

The regression results presented in table 4.2 above are the output of the fixed effect specification of the Generalized Least Square (GLS) method with GDP as the dependent variable. Only government expenditure on health is positively related to GDP per capita. The other coefficients (GINI, GED, poverty, and unemployment) are all negatively related to GDP per capita. Also, only poverty is significant in its relationship with GDP per capita.

TABLE 4.3: Showing the Panel Regression Results using Fixed Effect Method
Dependent Variable: Human Development Index (HDI)

VARIABLE	COEFF.	T-STAT	P-VALUE
CONSTANT	0.544055	11.82478	0.0000
GINI	-0.002362	2.315505	0.0213
GED	0.018019	5.007967	0.0000
GEH	0.012063	4.278290	0.0000
POV	-0.006848	-10.93948	0.0000
UMP	-0.005457	-5.014728	0.0000
R-SQUARED	0.879383		
ADJ. R^2	0.871221		
S E of Regres.	0.043344		
Sum sq. Resi.	0.499727		
F-stat	107.7407		
Prob	0.0000		

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However, using HDI as the dependent variable, it is discovered from table 4.4 that all the variables are statistically significant and GINI, poverty and unemployment are negatively related with HDI while a positive relationship exists between HDI and GED & GEH

4.2.1. Discussion of the Results

One of the objectives of this study is to ascertain the better model of economic wellbeing between GDPs per capita and Human Capita Development Index (HDI). From the results presented in tables 4.2 and 4.3, it can be observed that the two models have good R-squared which means that the independent variables are good explanatory variables for the GDP per capita (89 percent) and HDI (88 percent). However, the first regression model has only one significant variable while in the second model where HDI is the dependent variable, all the coefficients are significant and correctly signed. It can be deduced that HDI model is a better model than that of GDP per capita. Also, the Sum Error of regression in the first regression model output (table 3) showed a value of 878.1173 while the other one is 0.043344. This buttresses that the second regression model where HDI is the dependent variable is a better model than that of GDP per capita. This conforms to the assumption of the Least Square estimation technique that describes the best fit as the one which minimizes error or residuals the least.

Table 4.2 showed that for the GINI index, there is a negative relation between the inequality indicator and HDI. This implies that a decrease in the GINI coefficient of a country by one percent will bring about an increase of 0.002 percent in economic wellbeing. Thus, efforts geared towards reducing inequality will improve the economic wellbeing of the people. This conforms to the study conducted by Beck and Katz (1995) which discovered a negative connection between inequality and development indicators.

The relationship between Government expenditures on education and HDI index is significant and positive. This means that the increase in government spending on education in these countries by one percent will increase the economic wellbeing of the people by increasing the HDI index by 0.01percent.

The relationship between Government expenditures on health is significant and positive. Thus, increases in government spending on health by 1 percent in these countries will increase the economic wellbeing of the people by 0.01percent.

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The coefficients of poverty and unemployment are negative and are statistically significant on HDI index in all the countries. Thus, any effort to reduce poverty and /or unemployment will have significant effects on the economic wellbeing of the people. This conformed to Keynes view that unemployment reduction is statistically significant in improving quality of life.

5.0. Summary, Recommendations and Conclusion

5.1. Summary

This study employed Huasman Test to determine that the Fixed Effect Method is more efficient in explaining the behaviors of the dependent variables than the Random Effect Method.

Also, in comparing the regression results it is clearly shown that the HDI regression model is better than the GDP per capita model.

When GINI index, GED, GEH, poverty rate and unemployment rate were regressed on GDP per capita, the result shows that only poverty rate is statistically significant. However, all these variables are statistically significant and as apriority expected when they are regressed on HDI.

5.2. Recommendations

This study showed that poverty reduction had a significant effect on economic wellbeing (HDI). Therefore, the governments of SSA countries should embark on programs that directly impact the quality of life of the people and are people oriented. Programs and policies that are individual specific and not group oriented. The program should set the goal of moving a certain number of people out of the poverty trap within a specific time frame and not trying to address the issue of poverty on a wider scale.

The study also revealed that Government expenditures on education and health in SSA countries have positive and significant effects on HDI. It is recommended that spending on current health and educational goods and services should be focused on making these facilities and care available to majority such as cheap primary quality education and health for the rural population and encouraging education and health personnel will assist in advancing quality of life. Therefore, institutions, governments and multi-national organizations should collaborate to provide qualitative and affordable educational goods and services as well as such health goods for the remote and rural population. The type of government spending proposed is one that affects the life of the people directly via household consumption and not spending on building or ICTs in health.

GINI, a measure of inequality showed a negative statistically significant relationship. It is recommended that the provision of infrastructures, lower taxes, subsidized housing and feeding amongst the poor, and other measures to reduce the inequality gap by government and the private sector should be pursued earnestly. Accessibility to these comforts should not be political.

Evidently a reduction in unemployment would always generate income which will spur production, increase the wellbeing of the people in SSA and encourage economic growth and development.

5.3. Conclusion

This study had revealed HDI as a better measure of economic wellbeing than GDP per capita and regression results showed that an indirect and significant relationship exist amongst poverty and inequality indicators and HDI. This is in consonance with the UNDP idea of launching the Human Development Index to capture not only poverty and inequality related to income groups but also other areas wellbeing. (UNDP, 1990).

The study also showed that unemployment reduction is statistically significant in improving quality of life as advocated by Keynes in his theory. The study also conformed to the study conducted by Brown (2017) specifying that HDI is a better gauge for measuring variations in wellbeing than GDP per capita especially as high-income countries exhibit lower HDI values than low-income countries. Thus, poverty and inequality are manifested in various magnitudes, and any form of impoverishment and deprivation will have a significant effect on the economic wellbeing of the people. This implies that HDI, with a wider coverage, rather than growth in income is a better measure of improvements in life and living conditions which is evident in reduction in poverty and inequality. Thus governments, especially those of SSA should pursue the components and indicators of HDI like education, health, employment and so on to enhance quality of life.

This research is limited to Sub – Saharan African, further research could extend to other regions or continents either independently or comparative studies among continents/ regions could be undertaken.

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GOVERNANCE RESPONSIVENESS: AN ASSESSMENT OF INCOME TAX REGULATION AND COMPLIANCE IN NIGERIA

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Abstract

Funding government expenditure can be achieved through imposition of compulsory tax or levy on individuals and businesses to raise revenue for the different functions of the State. Invariably, taxation is the forced contribution of money by an individual, exacted pursuant to legislative authority for support of the government and public welfare. This paper examined the extent to which voluntary compliance and obedience to the discharge of civic obligations such as income tax payment is influenced by governance responsiveness. The study adopted extensive review of literature on governance in Nigeria to interrogate the public compliance to income tax.

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regulations against the background of the historic culture of tax avoidance and evasion. The paper adopted the Social Contract framework to analyze and understand the phenomenon of both dependent and independent approaches. This paper revealed a significant level of noncompliance to public laws in Nigeria's Fourth Republic due to government unresponsiveness to societal needs and aspirations. Accordingly, the adoption and institutionalization of good governance practices was recommended as a sure way to win public trust and voluntary participation in civic obligations.

Keywords: *Governance, Responsiveness, Public Compliance, Trust, and Regulatory Quality.*

JEL Classification: *H11; H26 & H42*

Introduction

The autonomy of constituent units within Nigeria's fiscal federation enhances the discharge of their constitutional mandate. It could be affirmed that there is a significant relationship between revenue mobilization, economic viability, and self-rule, as the value-impact of taxation on governance remains positive. Likewise, fiscal sustainability can lead to reduced reliance on statutory allocation, prompt achievement of statutory objectives and public obedience to rules and regulations. A study by Abasili (2021) revealed that good governance promoted social trust, which significantly influenced public compliance with laws, including income tax regulations.

Governance means to exercise the state power, authority and influence required to promote citizen rights and maximize public welfare (UNDP, 2012), satisfy collective socio-economic needs (UNESCO, 2007), promote public good, and tax the population (OECD, 2014). The concept of governance as the security of public welfare, has fallen short among most sub-Saharan African countries such as Nigeria. In such climes, insecurity, inequality, poverty, corruption, ethno-religious conflicts, insurgency, insecurity, banditry, criminality, and general lawlessness have characterized governance deficits despite decades of institutional, administrative, political, and economic reforms. The poor governance system has resulted in the alienation of society from the protection offered by the state. Shaefer (2001) using Robert Merton's 'Structural-Anomie Theory' argued that rebellion and disobedience was the probable response from societies unable to meet general

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expectations and collective goals through legitimate means. Adejoh et al. (2020) further examined the legitimation crisis bedeviling governance and violent extremism confronting the State in Nigeria and concluded that declaration of 'Force Majeure' and withdrawal of support and allegiance by citizens opened access to public revolt against public agencies and institutions.

The governance malaise is not unconnected with the character of the acquisitive petit bourgeoisie ruling class, preoccupied with inherited imperial mandates, patronage, nepotism and primitive accumulation. These handicaps significantly distorted and fractured the governance ideology. Scholars such as Afeaye & Offiong (2007) opined that citizen-state partnership in Nigeria has been compromised by factionalized and fragmented governing elites, unable to effectively guarantee security or act responsibly for public welfare and the general good. The neglect of public service delivery and socio-economic infrastructural development bestowed the low standard of living and unconducive business environment, which constrain attainment of all round development. The negative indicators of governance provide further proof that the rich natural and material resources in the country have not been optimally utilized in accordance with societal welfare and aspirations. Rather than citizen empowerment and inclusion, the maladministration of Nigeria's plural society had reinforced exclusion and crisis of identity. Under such circumstances, compliance with public laws, rules and regulations becomes questionable, as their conformity with shared aspiration and societal wellbeing is hotly contested.

Chapter II, Section 2 of the 1999 Constitution (as amended) espouses government responsiveness to its primary purpose. Further prerequisites of good governance are enshrined in the 'Purpose of the State' (Chapter 2, Sections 13-16); 'State Social Order' (Sections 17-20); 'National Ethics' (Section 23), and 'Fundamental Objectives and Directive Principles of State Policy' (Section 17), CFRN (as amended). These provisions mandate the government of the Federation to prioritize security, welfare, guarantee rights, freedom, personal liberty, and equality; and promote a society based on the rule of law.

Problem Statement

The problem of noncompliance and disobedience to civic obligations stems largely from public distrust of government purposes. The lack of government responsiveness to societal needs and aspirations is the result of bad governance by the few bourgeoisies ruling class. The governing elite shifted focus from attaining the common good, socio-economic infrastructural facilities, amenities, and public services, to primitive accumulation and personal enrichment. The consequence was evident in falling standard of living, widespread insecurity, poverty, and inequality. In an environment where the population are abandoned to cater for their imminent needs in terms of housing, transportation, security, education and health services, voluntary obedience to public laws including income tax regulations become problematic. The population do not see any correlation between the taxes paid and improvement in their living standards.

The World Bank (2016) has affirmed that Nigerian society was traumatized by oppressive and repressive rule, tribalism, inequality, unemployment, huge indebtedness, high levels of poverty, insecurity, and ineffective socio-economic infrastructure. The huge housing deficits, hyper-inflation, mounting refuse dumps, traffic congestion, as well as inefficient electricity, healthcare, sanitation, drainage, and environmental degradations corroborate Nigeria's low ranking as the poverty capital of the world (World Bank, 2019). The governance ideology hinged on forceful exercise of authority, sanctions and coercive maintenance of law and order to facilitate primordial interests. The leadership unresponsiveness to socio-economic needs and aspirations undermined public trust and problematized civic obedience to laws, including income tax obligations, which is the core of this paper.

The study hypothesized that bad governance was responsible for the prevalence of poverty, insecurity, injustice, inequality, abuse of power, corruption, and low living standard in Nigeria, which instilled public distrust and civil disobedience and noncompliance to income taxation. The study assumption derived strongly from the works of Adamolekun (2006), a renowned scholar who ascribed the long lists of Africa's development crises to bad governance. Other scholars attributed the prevalence of involuntary civic culture in Nigeria to institutional fragility that suppressed citizen allegiance (Nnoli,2010; Ake,1996a; and Odukoya & Ashiru, 2007). Still, others have attributed the detachment of citizens from the State to the fragmented ruling class, corruption, abuse of power and, predatory rule (Akinboye & Fadakinte, 2010; and Babawale, 2007), and incapacity of the State to intervene with relative autonomy on development challenges (Adilieje& Ekwenugo, 2010).

Research Objectives

The paper explores the nexus between government responsiveness and incomes tax compliances in Nigeria, particularly in the fourth republic.

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Research approach

The study adopted a qualitative approach. The sources of information were obtained mainly from textbooks, newspapers, journals articles, conference proceedings and seminar papers including various printed materials related to the subject matters.

Theoretical Framework

The study adopted the social contract philosophy in a multi-disciplinary approach to refocus income tax regulation and compliance within the rubric of governance responsiveness. To that end, it adopted eclectic methodology to collect, analyze, understand, and explain the pervasive culture of income tax avoidance, evasion, and resistance in Nigeria federation. The social contract philosophy was deemed appropriate for analysis and discussion of the study problematics, as the erstwhile legalistic justification of the mechanistic approach to taxation has not improved compliance as enshrined under the 1999 Constitution (as amended).

Social contract theory, therefore, is the public welfare philosophy that advocates support to the State in expectation of good governance (Laskar, 2014). Political philosophers like Thomas Hobbes, John Locke, Jean Jacques Rousseau, Immanuel Kant, etc., affirmed that men through obedience and support consent to be governed only because the state provides protection, security, and public welfare to the population. Appadorai (1974) quoting John Locke argued that:"…assurance of freedom from want and fear are primary objectives of government delivered, not out of privilege, but as constitutional right arising from contractual pact between citizens and the State".

Gauthier (1991) queried the utility of the State that cannot perform statutory functions and duties and contended that government ineffectiveness threatened the self-binding power of consent in state-citizen relations. This is suggestive of the fact that compliance with the payment of taxes and levies is resisted when government acts contrary to public trust. The social contract ideology contended that the state as a conscious creation of people should reciprocate the citizen's surrender of sovereign rights to government through guarantee of their liberty and collective interests. The nature of this agreement was conceptualized by Weiss (2010) in the review of global governance. He described social contracts between citizens and government as formal and informal relationships that express legal rights, civic obligations, and shared prosperity. The submission suggested that the goal of social contract theory was citizen empowerment through well governed society.

Anifowose (2000) further contended that the obligatory character of government laws derives from the end they secure; that the basis for obedience of government laws, rules and regulations is defined by the purpose they serve. This implies that the willing cooperation and voluntary obedience of citizens can be sought and sustained when there is clear evidence that the state is doing its duty in accordance with its primary purposes. Conversely, when it is evident that the state has not fulfilled its obligations to society over a reasonable period, resistance by citizens ensues. From the foregoing, it can be deduced that effective discharge of basic purposes of governance broadened the areas of consent for compliance.

Conceptual Clarification: Governance and Good Governance

To govern is to exercise power and authority over territory or organization. Governance is the command mechanism of a political system, which encompasses the formulation and implementation of public policies, goals, and activities. UNESCO (2007) asserted that governance comprises the traditions and institutions through which economic, political, and social authority is executed. The central purpose of governance is human security and maintenance of public welfare, law, and order.

Kaufmann et al. (2015) interrogated the methodological and analytical issues in governance. They defined governance to be the process by which governments are selected, monitored, and replaced. Further, they emphasized governance on the capacity of the government to effectively formulate and implement public policies, and respect for institutions.

The conventional opinion on governance in Nigeria focused on power, domination, oppression, force, and control and, existed as sole authority to enact laws, appropriate obedience, and exact compliance from citizens. The conceptions are, however, inconclusive and could not empirically explain the nexus if any, between governance deliverables and citizen obligation. Fresh meanings are therefore required to establish governance as authority exercised in achievement of the obligation of the State and to stimulate citizen and group rights.

Hence, the contemporary concept of governance as explicated by the World Bank, is suggestive of shared rules in public administration. The global body asserted that the purpose of political power was to deliver acceptable socio-economic outcomes in terms of effective management of national resources, poverty reduction and sustainable development (World Bank, 2019). The UNDP also delineated governance in societal terms of participation, consensus orientation, equity, etcetera (UNDP, 2012). Development scholars have conceived governance as formal and informal institutional relationships that exercise power mainly to manage the collective affairs of a political community (Gisselqiust, 2012), and articulate legal rights, civic obligations, and shared prosperity (Weiss, 2010). Peters & Pierre (2007) posited that governance is a political mechanism based not only on bureaucratic authority and sanction, but public service effectiveness. The definitions depict governance clearly as multi-level and multi-sectoral activities that emanated from achievement of the purposes of the State and promotion of common good. The convergence of these experts consistently portrayed governance as the exercise of State authority in ways that advance capacities for the poor as well as better livelihood for all. The OECD (2014) and Economist Intelligence Unit Report (2017) explicated the nature of governance based on the existential imperative need to direct authority decisions toward accomplishment of common goals. These perceptions predicated on societal progress, engendered fresh perspectives in governance debate especially among developing nations.

Good Governance as a concept of governance was elucidated by the World Bank (2019), UNDP (2012), UNO (2007), OECD (2014); UNESCO (2007), Asian Development Bank (2013), and African Development Bank (2001). These global institutions unanimously explained good governance as public administration aimed to sustain socio-economic rights and human development. A review of some empirical studies revealed the application of development-based data to measure good governance. These include tax efficiency, quality of socio-economic infrastructure, government effectiveness, control of corruption, protection of citizens' rights and the rule of law (Garcia-Sanchez, et al., 2013 and Rontos et al., 2015).

Deduction from the above suggested that public officials exercise State power for political and economic emancipation, as well as to accelerate human development. This study intellectualized good governance as responsive exercise of public authority to formulate and administer citizen-friendly policies that satisfy socio-economic needs.

Character of Governance under Nigeria's Fourth Republic

Some instructions like UNDP (2012), among others have made profound contributions to the good governance debate. These global institutions affirmed

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that purpose of governance system was to advance capacities and opportunities for poverty reduction, rural-community empowerment, advancement of public rights, sustainable livelihood goals, and rule of law. The conclusion derived from these postulations emphasized that exercise of State power shall be for public wellbeing and societal transformation. Ogundiya (2010) and Ihonvbere (2009) interrogated Nigeria's dilemma in good governance and posited that the purpose of governance was to maintain public resources and sustain government's capacity to respond to societal needs for public services, and public trust. Holmberg, et al. (2009); Salih (2003) and Munshi (2004) made comparative analysis of governance quality within the values of sustainable infrastructural development outcomes. The common decimal in their postulations was the purpose of governance, which was linked to the achievement of societal welfare.

Governance system in Nigeria cannot be holistically analyzed without reference to the character of the ruling elites, who deployed State authority to pursue primitive accumulation and neglected constitutionally assigned purposes. The nature of post-Independence governance in Nigeria was, therefore shaped by the character of State formation, post-colonial dependent State, entrenched patronage networks and maladministration of national resources by the predatory and rent-seeking petit-bourgeois ruling class. Further, the purpose of governance in colonial and post-colonial Nigeria was defined by the predominant ideology of the bourgeois ruling class. Oyediran (2011), Mimiko (2007), and Ogundiya (2010) interrogated through qualitative studies, the character and purpose of the State in Nigeria. Their findings revealed that the State in Nigeria was colonial, clientelist and oriented to promote rent-seeking proclivities of transient custodians of power. The scholars postulated that the post-Colonial State in Nigeria lacked institutional, administrative, and political autonomy, which affected its 'reason-detre'. These governance deficits and unresponsiveness to its statutory purpose created legitimacy crisis, problematized capacity of the State to effectively penetrate society, negatively affected citizen loyalty and commitment, and reinforced civil disobedience, public apathy, and resistance to economic and political laws. The deviant governance qualities created legitimacy crisis that endured after independence and made it difficult for the population to appropriate the State, as government focused on rent-seeking. One implication of these studies is that governance philosophy relied on domination, ethnic competition, authoritarian rule, maladministration, and patronage in public policy making and implementation. Osaghae (2010) confirmed that contemporary Nigeria State was persistently repressive, exploitative, mechanical, and dictatorial. Government officials relied on coercion, aggression, and punitive sanctions to extract compliance from society.

Osaghae (1998) traced the history of public disenchantment, discontent, and detachment to failure of the post-Independence State to advance genuine development. The scholar affirmed that the Nigeria State rather than attract obedience and support from the population, forced public loyalty towards ethno-religious cleavages. The elitist governance system encouraged fragmentation of citizenship and ethnic conflicts, which culminated in emergence of 'Shadow State' structures to fill the void created by State fragility in Nigeria (Osaghae, 2007). The unresponsiveness of Nigeria State to the societal needs and aspirations pushed significant population of Nigerians towards self-help and voluntary services provided by non-State actors. The lack of commitment by the government to its legal purpose contradicted Chapter 1(secs.1-12); and Chapter 2 (secs.13-24) of the 1999 Constitution. The study deduced through the social contract philosophy that government incompetence begets ineffective administration of public affairs and consequently, the neglect of societal needs.

Assessment of Income Tax Compliance in Nigeria's Fourth Republic

Tax is any pecuniary burden imposed by legislation upon individual or profit, from charges for goods supplied or services rendered. According to Black's law dictionary (1979) a tax is the monetary charge imposed by the government on persons, entities, transactions, or property to yield public revenue. It can be described as universal contrivance where the state imposes upon citizens a compulsory financial levy or contribution for the benefit of society. Akanle (1991) in a broad view defined tax as compulsory levy imposed on a subject or upon his property by the government. Thus, tax is a natural attribute of sovereignty and sustainable means of revenue for the provision of public goods. Tax, therefore, embraces all government charges on persons, properties, occupations, and enjoyment of the people which include duties, imports, and excises; for communal welfare and for community services (lpaye, 2018). These scholarly sources afforded a wider perspective of taxation, as financial exaction not charged on persons alone but also upon properties and transactions. Hence, taxation is a measure of government, designed solely for the purpose of generating public revenue on a general and compulsory basis.

Income tax is the financial levy imposed by the state on citizens for running their own small business, under a business name or partnership. The historical narrative of taxation in Nigeria as provided by Yemtan (1998), Osuntokun (1979). However, Falola & Adediran (1986) affirmed the compulsory nature of taxation, levied in kind, or derived from the proportion of annual family harvest. The stated purpose of taxation was for communal welfare activities under traditional authority. Ipaye (2018) observed that the British Colonial Administration through the system of indirect Rule, Proclamations, Ordinances, Commissions, and Constitutions established for the formal structure for taxation in Nigeria. Direct taxation was imposed on individual income and property in the northern Protectorate, facilitated by the theocracy, lslamic religion and ethics. The land revenue Proclamation (1904) Native Revenue Proclamation (1906) and Native Revenue Ordinance (1917) were examples of direct taxation under the native authority system. The legislations and ensuing amendments were further included in the comprehensive Direct taxation Ordinance (No.49 of 1940) which applied only to Natives in Nigeria except Lagos Township. Under the indirect Rule System, the unit of income tax assessment was the village community; with the village Head responsible to collect tax on behalf of the district officer. The community Head imposed specific quota to various ward leaders, Kindred, and family units, which assign monitor and collect economic values from individuals according to their occupation and productivity. The Macpherson Constitution (1951) and Sir Louis Chick Commission (1953) adopted revenue administration structures based on derivation principle by granting regional governments the power to fix, collect, distribute the income tax proceeds to the local councils under its jurisdiction. Regarding companies' income tax, however it was fixed, collected, and expended exclusively by the central authority. In addition to Hick Philipson Commission (1946), Sir Sydney Commission, Macpherson Constitution (1951), Sir Louis Chick Commission and Constitution Conference (1953), the Federal Constitution (1954) and Raisman Commission (1958) ceded control of personal income tax to regional authorities to empower them to mobilize tax-revenue for economic and political commitments, citizenship participation and political education (Akanle,1988). The tax structure influenced the enactment of the Eastern Region Revenue law (No.1of 1956), Western Region Income Tax Law (1956) and the Northern Nigeria Personal Tax Law (1962). Thus, the legal instrument provided the framework within which regions could enact their respective tax laws, impose diverse rates of income tax, and collect same using their tax authority.

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Hence, the Nigeria tax system possess decentralized system of allocation of tax powers to constituent units, with authority to collect personal income tax, determine and vary the tax rate (Sanni, 2019). However, the Income Tax Management Decree (No.7of 1957) reversed the authority to impose and charge personal income tax to the Exclusive Legislative List and provided uniformity in taxation of personal incomes in the Federation.

Also, the tax structure and administration were reviewed, which widened the tax net as well as improved compliance through the Income Tax Management Act (1961). Income Tax Management (Uniform Taxation Provision Act No 7(1975); the Study Group on the Nigeria Tax Reform and Administration (1991); the Accelerated Revenue Generation Programmed (ARGP) of 1995; the Finance (Miscellaneous Taxation Provisions Decree No 31 (1996); and Finance (Miscellaneous Taxation Provision) Decree No 19(1998). Other measures initiated under the fourth Republic include the Task Force on Tax Administration and tax study Groups (1991 & 2002); the General Guide for Tax Administration and Practitioners (2002); the private sector-led Working Group on Tax (2004); Personal Income Tax (PITA) LFN, (2004); the Joint Tax Board (JTB) and the National Tax Policy (2008). The reforms were initiated to achieve a fair and equitable tax administration system that facilitated investment decisions and growth of the underground economy in order to reduce tax evasion. The necessity to broaden the tax base, boost independent revenue generation, enhance tax administration efficiency, facilitate fiscal sustain ability, convenience, processing, and payment procedure provided further basis for tax reforms under the Fourth Republic. The major tax enhancement measure adopted include:

National Tax Policy (2008), introduction of tax enlightenment and Advocacy Campaign, Cashless Policy & e-payment system, Technology-based Tax Computerization system, e-Assessment, e-Monitoring and e-collection of Taxes, Voluntary Assets and Income Declaration Scheme and Collaboration with Financial institution and biometric system-based revenue and service agencies.

These laws redefined and augmented income tax administration and collection, as well as established the bases for intergovernmental fiscal relations in Nigeria. The institution-focused reviews provided definite and coherent approach to levy and assess the personal income tax throughout Nigeria. The Federal Constitution (1999) also provides for concurrent responsibility of constituent governments to administer, impose, and collect personal income tax to achieve defined purpose as evidence in section 24(f) of the 1999 Constitution. Hence, the Fourth Republic

Constitution provides range of powers to constituent governments to enact appropriate laws to charge and collect assigned public revenue including personal income tax, within their jurisdictions (sec. 24 (f); sec. 3, sub-sec. (1) and (2); sec. 4 & 59(1)(b); sec. 4(7); Item 7 of Second Column of Concurrent Legislative List; Item D (9) of 1999 constitution.

Atawodi et al. (2012) examined the behavioral aspects of tax compliance regarding tax compliance among citizens in the formal sector in North Central Nigeria. Their findings confirmed that payment of personal income tax involved rational decision and cost-benefit analysis. The scholars demonstrated variedly that taxation positively affected economic growth, and government income and expenditure patterns. The studies concluded that a significant number of the population surveyed had expressed satisfaction with the provision of socio-economic infrastructure, which significantly correlated with their willingness to pay taxes. However, these studies were largely based on qualitative approach and focused exclusively on direct remittances from the Organized Private Sector, which made their findings inconclusive. Hence, the need to refocus public satisfaction of government responsiveness to its primary purpose with civic obligation became imperative.

Brewer (2004) provided fresh perspective to the tax compliance debate through the assertion that government ineffectiveness resulted lower tax yields, which undermined provision of public infrastructure and social amenities. The National Bureau of Statistics with Joint Tax Board (2018); Lagos Bureau of Statistics (2018); Sanni (2019); Onyeanakwe et al. (2017), Ifueko (2007), and NESG (2019) confirmed the prevalence of public defiance to income taxation under the Fourth Republic. Citizen's resistance may not be unconnected to unresponsive governance environment, which the Financial Times of London (2018) described as conditioned by primitive accumulation and a governance system that is insensitive to principles of equity and inclusiveness. Other scholars attributed income tax noncompliance to high cost of governance (Onyeanaekwe et al., 2017); governance challenges (Sanni & Umar, 2014); poverty, inequality, and lack of opportunities for inclusive growth (World Poverty Report, 2017); and government ineffectiveness, insecurity of life and property, restricted economic and political participation, corruption, and arbitrariness (Oxfam, 2017). These observations sustained conclusion about pervasive fiscal fragility of successive governments in Nigeria. Hence, the Fourth Republic has not demonstrated sufficient commitment to public welfare and security of life and property. In this light, many Nigerians perceive government as alien, hostile and the use of coercive power, which alienated people from governance and problematized citizenship rights and duties (Osaghae, 2007).

Some authors attributed income tax resistance under the Fourth Republic to high cost of maintaining the presidential system of governance, which inhibited public investment in essential services and compromised opportunities for inclusive growth (Sanni & Umar, 2014). Likewise, others appraised public governance quality and public tax compliance behavior in Nigeria and their finding revealed that the performance of government affected the dependent variable. Similarly, McGee (2005) who studied ethics evasion noted the limitations to pay taxes. He justified evasion of income taxes by the citizens when the government is corrupt, or taxes are regressive and capable of undermining business survival. In addition, Wambai and Yusuf (2013) predicted that general perception of governance affected public trust and loyalty, as the administrators of state apparatus made limited attempt to act responsibly towards their statutory purpose. This study inferred from these authors that governance outcomes could affect citizen-state relations, though none could explicitly isolate and interrogate specific good governance variables and indicators. (Onyeamaekwe et al., 2017 ; Alabade et al., 2011)

The implication of these scholarly postulations is that authority and order within the political community become justified only when they serve basic needs of society. Thus, tax regulatory agencies are obeyed to the extent that exchange relationships are organic and aimed to secure good life, public welfare, and prosperity. The historical culture of income tax resistance in Nigeria could, therefore, be interrogated within the prism of public apathy to government ineffectiveness, unresponsiveness, and insensitivity.

Recommendation and Conclusion

Nigeria's Fourth Republic pressured by corruption, weak socio-economic infrastructure, insecurity, unemployment, inequality, and endemic poverty could hardly gain support, resources or mobilize income taxes from its population. Government effectiveness and regulatory quality were isolated in this study due to their centrality to the entire good governance chain. From the analysis it is obvious that governance of the Nigeria State has breached the Social Contract, undermined public trust, and provided the moral justification for civil disobedience to public laws including the widespread noncompliance to income tax regulations under the Fourth Republic.

The study, therefore, established that taxation and government responsiveness are not mutually exclusive. Hence, to boost voluntary income tax compliance the government should display high sensitivity to societal needs and aspirations by utilizing significant portion of tax-revenue generated to accelerate improvement in socio-economic infrastructure, electricity supply, portable pipe-borne water, security of life and property, regulation and control of traffic, flood, waste disposal and sanitation. In addition, the government should review current mechanistic regulatory techniques to refocus organic and collaborative procedures that are clear, simple, understandable, and adequately incentivized with reward for compliance. The clarity of regulatory framework will reduce all forms of nepotism, ethnic bias, and cultural influence in the enforcement of income tax regulations. Public officials should strive for objectivity, equality, and fairness in the discharge of assigned responsibilities in the interests of the public.

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EFFECT OF TACTICAL ASSET ALLOCATION ON RISK AND RETURN IN THE NIGERIAN STOCK MARKET

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Abstract

The study examines effect of tactical asset allocation on risk and return in the Nigerian stock market. The study covers the period of 2005 to 2020. Purposive sampling was employed. 90 regularly traded firms were considered as a filter on the sample size. The monthly stock prices, market index, risk-free rate ownership shareholdings, market capitalization, book value of equity, earnings before interest and taxes, total assets and tactical asset allocation were the data used in this study. The study gathered data from the CBN statistical bulletin, Nigeria of Exchange Website and Standard and Poor (S&P). The Fama-MacBeth two-step regression method was employed. The study found that tactical asset allocation shows that it insignificantly improves return and significantly reduces risk under the whole sample sub-period except for the sub-periods in the Nigerian stock market. Thus, tactical asset allocation is a short-term investment strategy that could be used in making optimal decisions in terms of maximizing return and minimizing risk in the Nigerian stock market. The study recommended that tactical asset allocation is a short-term market timing strategy which can be used in Nigerian stock market to

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maximize return and minimize risk against buy and hold strategy which is passive and long-term in nature.

Keywords: *tactical asset allocation, risk, return, Fama-Macbeth two-step regression*

JEL Classification : *G12, G15*

1. Introduction

Asset allocation establishes the framework of an investor's portfolio and sets forth a plan specifically identifying where to invest one's money. The general approach of an asset allocation strategy is to determine which asset classes to invest in based on your risk tolerance and return objectives. Asset allocation is the combining asset classes such as equities, bonds, and cash in varying proportions within one customized, diversified investment portfolio (Mirae Asset Knowledge Academy [MAKA], 2016). Izundu, Nwakoby, Adigwe, and Alajekwu (2017) opined that the creation of an investment portfolio can be seen as a top-down process which starts with the capital allocation that is, the decision how much should be invested in the risky portfolio and the risk-free assets with a view of how to the question how to compose the risky portfolio. Their study emphasized that the construction of the risky portfolio is the concern of asset allocation which is about making a choice between the asset classes like stocks, bonds, real estate, or commodities under the assumption of neutral capital market conditions which means that no asset class is underpriced or overpriced (proportional risk-return expectations). The study of Izundu et al. (2017) classified asset allocation into three categories which are: benchmark asset allocation, strategic asset allocation, and tactical asset allocation. The benchmark asset allocation is a program that exactly replicates the investment weights of the benchmark index. It could be referred to as indexing wherein no information is used other than the usual details of indexing: determining market weights, and managing delisting, new listing, buyback, secondary market offerings, dividends, and warrants. The strategic allocation is long-term in nature with at least a five-year horizon which relies on long-term economic data to make long-term predictions about the optimal portfolio. The asset allocation set bets on the performance of asset classes based on future forecasts within two to five year and longer period which allows investor to rebalance their investment plans. The deviations that arise from benchmarks introduce a tracking error. Tactical asset allocation, the investment managers will take short term bets usually monthly or quarterly and deviate from the strategic weights. The difference between the strategic and tactical weights induces a tactical tracking error. However, the difference between benchmark weights and tactical weights is the total tracking error.

Despite this importance, Markowitz established the mean-variance model, optimal portfolio allocation has been a hot topic in both practical portfolio management and academic research. This is consistent with the assertion of Yanga, Cao, Han, and Wang (2018), as well as Afzal, Haiying, Afzal, and Bhatti (2020). This is because most investors and portfolio managers strive to optimally develop their stock portfolio to meet their investing objectives. However, the question of which combination of portfolio sets he should choose to produce the maximum return given a given level of risk, or which portfolio sets would yield the lowest risk given a given level of return, remains. To answer this question, several authors have conducted empirical studies on how portfolio optimization is driven by asset allocation (Offiong, Riman & Eyo, 2016; Yanga, et al., 2018; Gathage, 2019; Shaukat & Shahzad, 2019; Afzal, et al., 2020; Vaskikari, 2020). Although most of these studies were conducted in developed economies and, to the best of the researcher's knowledge, studies on asset allocation are very scanty in Nigeria, which justifies the importance of this study. In line with this, the study examines the effect of tactical asset allocation on risk and return in the Nigerian stock market.

The contribution of this paper to the existing body of knowledge is three folds. First, an examination of the effect of tactical asset allocation on risk and return within the context of Nigerian stock market. Second, the estimation approach is conducted using Fama-MacBeth two step regression approach under the Fama and French Five factor model. Third, the study considered the effect of tactical asset allocation as a useful tool of investment performance strategy over the long and short period. In view of this, the remainder of this study proceeds as follow; section two documents the literature review, section three details the methodology, section four presents the results and section five proffers the conclusion

2. Literature review

This section covers the review of past studies which include but not limited to Lawal (2014) examined tactical asset allocation in Nigerian banking industry. Data from the Nigeria Stock Exchange on share prices of United Bank for Africa (UBA) and Union Bank of Nigeria (UBN) for the months of September and October 2013 were used. The study used a linear programming model to find tactical solutions to problems relating to portfolio risk minimization. It was documented that optimal allocations of investible funds could be made to each bank 's stock by minimizing the portfolio variance, thus by minimizing the total risk using graphical method of linear programming. Thus, it was concluded that practitioners as well as policy makers use this approach to obtain optimal solutions when faced with decision making given various investment alternatives. Offiong, Riman and Eyo (2016) aimed at determining the optimal portfolio in a three-asset portfolio mix in Nigeria. The data used for the study were daily stock prices for First Bank Nigeria Plc, Guinness Nigeria Plc and Cadbury Nigeria Plc obtained from the Nigerian Stock Exchange for the period of January 2010 to December 2013. The study employed majorly two empirical methodologies which were Matrix algebra and Lagrangian method of optimization. The study found that the assets of Guinness and First Bank are said to be efficient assets with high expected returns and low risk. The study therefore concluded that First Bank and Guinness were the only efficient optimal assets in the three asset-portfolio mix and therefore, the preferred choice for every investor since they yielded a high return with minimum variance. Ndung'u (2016) examined the effect of assets allocation on the financial performance of pension schemes. Data on different classes of assets and performance were collected from financial statements of fifty pension funds for three years. Regression analysis was used, and it was found out that asset allocation strongly explained the variability of fund performance. In addition, it was established that instruments such as treasury bills and commercial paper from cash and money market are the most liquid assets, and real estate is among the most illiquid. Thus, fund managers should strike a balance between liquidity and desired returns by establishing the minimum level of liquid assets they wish to hold in the investment portfolio.

Arbaa and Benzion (2016) analyzed and compared the contribution of asset allocation decisions to the performance of Israeli provident funds relative to passive market participation. The study used 15 years of monthly data for the Israeli provident funds and stock return from January 2000 to December 2014. Cross-sectional regression and time-series regression were used and it was found that, according to time-series analysis, total market movements which account for more than 70% of total returns, and the incremental contribution of policy above the market is only 17% while from the perspective of cross-sectional analysis, security selection dictates both the return level and the variation in returns from

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active management by 53% but the influence of timing is found negligible (below 10% on average). The study concluded that Policy did very little to improve performance and it was no better than active management in explaining excess return variations in the funds. Nystrup, Hansen, Madsen and Lindström (2016) examined whether dynamic asset allocation is most profitable when based on changes in the Chicago Board Options Exchange (CBOE) Volatility Index (VIX) or change points detected in daily returns of the S&P 500 index. The data analyzed is 6,485 daily log-returns of the VIX and the S&P 500 index covering the period from January 1990 through September 2015. Descriptive statistics and shape ratio were used as the estimation techniques. It is shown that a dynamic strategy based on detected change points significantly improves the Sharpe ratio and reduces the drawdown risk when compared to a static, fixed-weight benchmark. It concluded that it is not optimal to hold a static, fixed-weight portfolio even without any level of forecasting skill.

Wu, Ma and Yue (2017) examined a continuous-time dynamic optimal consumption and portfolio choice model that captures momentum over short horizon. Data on monthly basis were sourced on Shanghai-Shenzhen 300 Index from their website from 2006 to 2011. The study used Hamilton–Jacobi–Bellman (HJB) equation for the investor's dynamic optimization problem. The study found that intertemporal hedging demand motives greatly decrease the portfolio demand for stocks whose risk aversion coefficients exceed one. The study found that risk aversion is the main preference parameter in determining portfolio choice rather than the elasticity of intertemporal substitution. Namusonge, Sakwa and Gathogo (2017) assessed the impact of asset mix on the financial performance of the registered occupational Pension Schemes in Kenya. Systematic sampling technique was used to select a probability sample of 297 sample units from a population of 1232 registered pension schemes for the period 2006–2016 and data were gathered through a questionnaire. A panel regression analysis was used, and it was found that a positive correlation between a financial performance of occupational Pension schemes and asset mix. The study concluded that those schemes that are more conservative will always fetch moderate returns as opposed to those schemes that have aggressive investment policies and act within the regulatory requirements of the Retirement Benefits Authority. Zaremba (2018) examined whether the value spread is useful for forecasting returns on quantitative equity strategies for country selection. The study employed data sample of 120 country-level equity strategies replicated within 72 stock markets for the years 1996–2017. The study employed

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four factor model and weighted average valuations of the long and short sides of the portfolio as the estimation procedure. It was documented that value spread is a powerful and robust predictor of strategy returns in the cross-section, subsuming other methods based on momentum, reversal, or seasonality. In addition, going long (short) the strategies with the broadest (narrowest) value spread produces significant four-factor model alphas, markedly outperforming an equal-weighted benchmark of all the strategies. The study concluded that equity strategies with a wide value spread markedly outperform strategies with a narrow value spread. Yanga, Cao, Han, and Wang (2018) investigated the performance of tactical asset allocation on technical trading rules controlling for data snooping bias. Data on the following stock indices: Korean Stock Price Index (KOSPI), FTSE Straits Times Index (FTSE STI) for Singapore stock market, Stock Exchange Sensitive Index (SENSEX30) for Indian stock market, Nikkei225 for Japanese stock market and Shanghai Composite Index (SCI) for Chinese stock market, and 1-month Treasury bill rates of U.S. as returns were sourced d MSCI spanning from December 1990 to December 2017. The study used reality check (RC), superior predictive ability (SPA) test and their extensions, and false discovery rate (FDR). It was found that no tactical asset allocation strategies on technical trading rules outperform buy and hold benchmark. The study concluded that e that the outperformance of tactical asset allocation on technical trading rules is due to data mining bias. Arbaa and Varon (2018) examined the role of asset allocation policy and active management on equity mutual fund returns. The study employed dataset which consists of two portfolio peer groups of domestic bond funds that were active in Israel as of January 2006, 129 government bond funds and 79 corporate bond funds for the period 10 years from January 2006 until September 2015. The study employed regression analysis and it was confirmed that active management is far more important than policy for corporate bond fund returns, which is mainly attributable to managers' security selection skills while government bond funds and strategic long-term policies account for a larger part of excess market return variability. The study concluded that the greater heterogeneity of investments by corporate bond funds and possibilities for tactical bets can explain the differences in the results of corporate and government bond funds.

Shaukat and Shahzad (2019) assessed the effect of buy and hold strategy, dynamic asset allocation, strategic asset allocation and tactical asset allocation on portfolio risk and return. The study employed the purposive sampling and the non-probability sampling technique in sourcing the data. The data were collected on monthly basis for the period of 14 years which constituted the 166 for annual portfolios and 1560 for the monthly portfolio from January 2005 up to December 2017 and they were sourced from KSE 100 Index, including the three sectors viz automobiles, Pharmaceutical and Cement. The study employed One-way analysis of variance (ANOVA) as the estimation technique. The study found that dynamic asset allocation, tactical asset allocation and strategic asset allocation have positive impact on the portfolio risk and return. The study concluded that the Tukey's Post hoc test proves that these strategies are different from each other and will impact the portfolio return and risk differently as the mean difference between their means is not equal to zero. Gathage (2019) determined the relationship between asset allocation and financial performance. Primary data was collected by use of semi-structured questionnaires administered to investment managers and risk managers in the 55 insurance companies. Correlation analysis and multiple regression analysis were the estimation techniques. The study found that integrated asset allocation strategy, strategic asset allocation strategy, strategic asset allocation strategy positively and dynamic asset allocation strategy influences the Kenyan insurance companies‟ financial performance. It was concluded that insurance companies should only use integrated asset allocation strategy when they have enough resources, only use strategic allocation strategy in the achievement of long-term goals and tactical asset allocation strategy should be used in achieving the short-term goals is an organization.

Afzal, Haiying, Afzal and Bhatti (2020) investigated the effectiveness of different tactical asset allocation trading strategies on global stock market indices to better forecast the returns. Data on five global stock indices such as Dutch AEX, Dow Jones, S&P 500, FTSE 100, and NASDAQ have been gathered from CRSP from 1969 to 2018.The study employed Simulated moving Average and Buy and Hold strategy. Results showed that the simulated moving average is the best strategy to generate buy and sell signals to minimize the investor's risk and maximize the return of the portfolio. Thus, it can be concluded that investors who are looking to minimize the risk of their portfolio and decrease the drawdown should use simulated moving average to achieve a balanced portfolio in the future. Vaskikari (2020) re-evaluated the forecasting ability of the most potential stock market predictors found in the tactical asset allocation and equity market timing literature. Daily data on market indices for the US and European markets were collected from various sources which include financial databases of Bloomberg L.P., Thomson Reuters Corporation, Federal Reserve Economic Data (FRED) and

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Statistical Data Warehouse (SDW) for within the period of 1917 to 2019. The estimation technique is regression analysis. It was documented that the equity premium has not been predictable in real-time after the turn of the millennium. The study concluded that the passive buys and hold strategy has the highest forecasting ability as the stock market predictor. Thus, the study recommended it for both private and professional investors. In six locations, Umutlu and Bengitöz (2020) investigated the existence and importance of a cross-sectional relationship between several index features and expected country-industry returns. Global tactical asset allocation, ETFs, stock swap agreements, and mutual funds are among the characteristics of the index. Data on daily and monthly dollar returns, earnings-to-price ratios, dividend yields, ratios of EBITDA to enterprise value, market capitalization, operating profitability, and total assets were gathered for the time from January 1, 1973, through July 31, 2015. The model specification uses the enhanced five factor Fama and French with Carhart model, while the estimating method makes use of the Fam-MacBeth two step approach. The findings demonstrated that industry indexes with high earnings-to-price ratios across all market capitalizations produce greater projected returns in the US, Europe, and Asia-Pacific. Additionally, tiny European portfolios' dividend yield is favorably correlated with their future returns, as are small portfolios in Asia-Pacific with high idiosyncratic volatility. The study concluded that local industry index-based futures and/or equity swap contracts will make it easier to take advantage of profit opportunities than a worldwide tactical asset allocation approach.

Specifically, studies within and outside Nigeria (Offiong, et al., 2016; Yanga et al., 2018; Afzal, et al., 2020 among others) have examined the tactical asset allocation on portfolio performance. However, these past related studies have not considered the effect of tactical asset allocation on the risk and return relationship. In Nigeria, Lawal (2014), Offiong et al., (2016) are the few studies documented on asset allocation in the past, but these studies failed to examine the effect of the tactical asset allocation on risk and return in Nigerian stock market. Therefore, this present study fills the gap in knowledge and contributes to scanty literature within the context of Nigeria and particularly stock market. Therefore, this present study fills in the gap in in knowledge and contributes to scanty literature within the Nigerian context. Thus, the study formulates the null hypothesis as follow:

H0: Tactical asset allocation has no significant effect on risk and return in the Nigerian stock market.

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To test the formulated hypothesis, the study is anchored on modern portfolio theory. The theory emphasized that every investor seeks to maximize their utility (satisfaction) by maximizing expected return and minimizing risk (variance).

3. Methodology

Expo Facto research design was used, and the population of the study covers all the stock listed on the on the Nigerian Stock Exchange (NSE) as of December 2020 which were 161 in number. Purposive sampling was employed, and the sample size was filtered to 90 regularly traded stocks. The monthly stock prices, market index, risk-free rate (which was substituted with the treasury bill rate), ownership shareholdings, market capitalization, book value of equity, earnings before interest and tax, total assets and tactical asset allocation were the data used in this study. The sample period covered from 2005- 2020 which was grouped into sub-sample period; 2005–2008, 2009–2012, 2013–2016, and 2017–2020 in order to compare each short period of four years with the result of the whole market. The data was obtained from the websites of the Nigerian Group of Exchange (NGX), the Central Bank of Nigeria (CBN), and Standard and Poor. The study used ordinary least square through two-step Fama-MacBeth regression method. Consequently, the baseline model chosen for this investigation was Five-Factor Fama and French model and this is specified as follows:

$$R_{it} - Rf_t = a_i + b_i(Rm_t - Rf_t) + S_i(SMB_t) + h_i(HML_t) + u_i(RMW_t) + v_i(CMA_t) + \varepsilon_{it} \quad \text{.................3.1}$$

Where: R_{it} -Rf_t is the excess return of the individual assets. Rm_t - Rf_t is the excess market return, SMB_t is the size factor premium, HML_t is the value factor premium, RMW_t is the profitability factor premium, CMA_t is the investment factor premium, a_i is the intercept, b_i is the regression parameter, S_i is the loaded factor of the size, h_i is the loaded factor of the value, u_i is the loaded factor of the profitability, v_i is the loaded factor of the investment and ε_{it} is the residual term. This model is augmented by incorporating tactical asset allocation and that led to the equation 3.2

$$R_{it} - Rf_t = a_i + b_i(Rm_t - Rf_t) + S_i(SMB_t) + h_i(HML_t) + u_i(RMW_t) + v_i(CMA_t) + d_i(TAA_t) + \varepsilon_{it} \quad \text{..........3.2}$$

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Where: TAAt is the tactical asset allocation premium and di is the loaded factor of the tactical asset. These model specifications take a lead from Kim and Kang (2015). Tactical asset allocation is measured through investors' sentiment, and this is in line with the study of Kim and Kang (2016). To capture the effect of tactical asset allocation on risk in the Nigerian stock market, the tactical asset allocation incorporated in the Glosten, Jagannathan and Runkle Generaized Autorregressive Conditional Heteroscedaticity (GJR-GARCH). This showed the effect of tactical asset allocation on risk in the Nigerian stock market and influence of asymmetric information. The model is expressed in equation 3.3.

$$h_t = a_0 + \sum_{i=1}^{n} a_{1j} h_{t-j} + \sum_{i=1}^{m} a_{2i}\varepsilon_{t-i}^2 + a_{3i} M_{t-i}\varepsilon_{t-1}^2 + \theta_1 TAA_t + \varepsilon_t \quad \text{.......} 3.3$$

Thus, the study used the investors' sentiment to capture the tactical asset allocation. The investor's sentiment is specified in equation 3.4.

$$EMSI = \frac{\sum (R_{ir} - \overline{R}_r)(R_{iv} - \overline{R}_v)}{[\sum (R_{ir} - \overline{R}_r)^2 \sum (R_{iv} - \overline{R}_v)^2]^{1/2}} * 100 \quad \text{.......} 3.4$$

Where -100 ≤ EMSI ≤ 100

This method conforms to the approach used by Bandopadhyaya (2006) to estimate investors' sentiment. R_{ir} is the daily return for individual security, R_{iv} is the volatility of individual security and are the sample mean return and historical volatility respectively.

4. Results and Discussion

This section presents the result and discussion of the study. The result starts from the descriptive statistics present in Table 1 below.

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Table 1: Descriptive Statistics

	AVR	B	S	H	R	C	TAA
Mean	0.014	0.717	-0.097	-0.358	0.130	0.180	0.688
Median	0.011	0.749	-0.122	-0.360	0.158	0.087	0.749
Max	0.092	2.013	2.078	9.281	8.121	8.69	0.908
Min.	-0.006	-0.199	-4.791	-12.71	-5.937	-3.340	-0.500
Std.Dev	0.016	0.407	0.807	1.830	1.248	1.27	0.213
Skew	2.741	0.500	-1.93	-1.859	1.376	4.119	-3.20
Kurtosis	12.24	3.590	14.3	32.63	26.53	28.9	15.5
J.B	433.3	5.067	541.3	3345.7	2105.8	2771.0	744.4
Prob.	0.000	0.079	0.000	0.000	0.000	0.000	0.000

Note: AVR, B, S, H, R, C and TAA represent average return, systematic risk, size risk premium, value risk premium, profitability risk premium, investment risk premium, and tactical asset allocation.
Source: Author's computation, (2022)

The result is depicted in Table 1, which reveals the average values of average return, estimated risk premia-market, size, value, profitability, investment, and tactical asset allocation. Market risk premium, profitability risk premium, investment risk premium and tactical asset allocation tend to increase average return. On the other hand, the size risk premium, and value risk premium tend to decrease during the sampling. The return values range from -0.006740 to 0.092572, which implies that there are tendencies to make losses and capital gains on the market's trading activities within the sample period. This indicates that there is a presence of active securities on the market. The values of the market risk premium range from -0.199242 to 2.013677, and this suggests that investors are not always rewarded. The values of the size risk premium range from 2.078426 to -4.791040, and this implies that investors are not always rewarded for the size of their portfolio. The value risk premium has a minimum value of -4.791040 and a maximum value of 2.078426. This implies that at some point in time, the co-

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skewness tends to be less volatile than the market, but at other times it tends to be more volatile than the market. The profitability risk premium value ranges from -5.937704 to 8.121966 and this implies that the investment risk premium values range from -3.340886 to 8.696328. Also, the tactical asset allocation has a maximum value of 0.908427 and a minimum value of -0.5, and this implies that the tactical asset allocation strategy tends to increase return and risk throughout the sample period.

The standard deviation in the Table indicates that the value risk premium is the most volatile among the variables, while the least volatile variable among the variables is the average return. Looking at the score of skewness, it reveals that the systematic risk, profitability risk premium, investment risk premium, and average return are positively skewed, while the size, value risk and tactical asset allocation. The scores of kurtoses show that the variables are platykurtic in nature and they are not normally distributed, as shown by the associated probability values of the Jarque-Bera being close to zero. Having described the characteristics of the variables both in their average return for each portfolio, estimated risk premia and tactical asset allocation, the study proceeds to conduct the correlation analysis to show whether the assumption of multicollinearity is refuted among the variables or not.

Table 2: Correlation Analysis

	B	S	H	R	C	TAA
B	1	-0.496	-0.275	0.090	0.421	-0.120
S	-0.496	1	0.836	-0.498	-0.236	0.095
H	-0.275	0.836	1	-0.834	-0.141	0.047
R	0.090	-0.498	-0.834	1	0.231	-0.002
C	0.421	-0.236	-0.141	0.231	1	0.032
TAA	-0.120	0.095	0.047	-0.002	0.032	1

Source: Author's Computation, (2022)

The result shows the correlation coefficients in-between each of the following: risk premia, and tactical asset allocation. The first column shows the correlation between market risk premium, size risk premium, value risk premium, profitability risk premium, investment risk premium and tactical asset allocation. The first pair has a correlation coefficient of -0.4964, the second pair has -0.2753, the third pair is 0.0907, the fourth pair is 0.4218, and the fifth pair has -0.1208. The implication

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of this is that the market risk premium moves in the same direction as the profitability risk premium and investment risk premium, but the market risk premium moves in the opposite direction with size risk premium, value risk premium and tactical asset allocation. The second column reveals that the size risk premium is linearly correlated with the value risk premium, and tactical asset allocation but the size risk premium moves in the opposite direction to the market risk premium, profitability risk premium, and investment risk premium.

The correlation coefficients in the third column show that the value risk premium has linear correlation with size risk premium and tactical asset allocation, but it has negative correlation with market risk premium, profitability, and investment risk premia. The fourth column shows the correlation coefficient with the following coefficient values; 0.0907, -0.4981, -0.8341, 0.2311, and -0.0027. This signifies that profitability risk premium moves in the same direction as market risk premium, and investment risk premium but it moves in the opposite direction with size risk premium, value risk premium and tactical asset allocation. The fifth column of the correlation matrix shows that the investment risk premium moves linearly with the market risk premium, profitability risk premium and tactical asset allocation.

More so, tactical asset allocation has a positive correlation with size risk premium, value risk premium and investment risk premium but it has an inverse correlation with market risk premium and profitability risk premium. The result shows that the coefficients of correlation among the variables are very low except in the cases of 0.8365 and -0.8341, and this implies that the assumption of multicollinearity can be refuted. This simply means the variable can be estimated in the specified models. Having conducted the analysis on the descriptive, the study proceeds to the estimation of the model under the whole samples and sub-periods samples.

The result of the estimation is done fold which are the effect of tactical asset allocation on return in the Nigerian stock market and the effect of tactical asset allocation on risk in the Nigerian stock market**.** Table 3 presents the effect of tactical asset allocation.

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Table 3: Tactical Asset Allocation and Expected Return

Variables	FF5F[1]	FF5F[2]	FF5F[3]	FF5F[4]	FF5F[5]
α	0.006	0.0349	-0.0240	-0.0082	-0.0101
	(0.947)	(3.4877)	(-2.7742)	(-1.2510)	(-1.8649)
	[0.346]	[0.0008]	[0.0068]	[0.2144]	[0.0658]
b	0.001	0.0224	0.0101	-0.0050	0.0074
	(-0.2408)	(3.7671)	(0.6452)	(-1.3085)	(1.2230)
	[0.8103]	[0.0003]	[0.5206]	[0.1943]	[0.2249]
s	-0.0013	0.0415	-0.0090	-0.0001	-0.0463
	(-0.2263)	(5.2782)	(-0.5081)	(-0.1149)	(-4.2158)
	[0.8215]	[0.0000]	[0.6127]	[0.9087]	[0.0001]
h	-0.0037	0.0020	-0.0072	-0.0031	0.0336
	(-0.9632)	(0.3668)	(-1.3090)	(-1.6491)	(3.2163)
	[0.3382]	[0.7147]	[0.1941]	[0.1029]	[0.0019]
r	0.0043	0.0052	0.0068	0.0036	0.0101
	(-1.1920)	(0.9323)	(1.1914)	(1.2494)	(4.1427)
	[0.2367]	[0.3538]	[0.2369]	[0.2150]	[0.0001]
c	0.0048	0.0326	0.0070	-0.0141	0.0071
	(2.9597)	(7.4609)	(1.3981)	(-4.8284)	(1.5660)
	[0.0040]	[0.0000]	[0.1658]	[0.0000]	[0.1212]
Taa	0.0095	0.0021	0.0070	0.0139	0.0004
	(1.2108)	(0.1231)	(1.3084)	(1.1845)	(0.0539)
	[0.2294]	[0.9023]	[0.1943]	[0.2396]	[0.9571]
R2	0.207684	0.6678	0.7059	0.7854	0.8233
Adj-R2	0.1504	0.6438	0.6846	0.7699	0.8102
P(F-Stat)	0.0030	0.0000	0.0000	0.0000	0.0000
Diagnostic Test					
LM Test	2.0814	0.1069	0.3938	1.0091	0.3266
	[0.0911]	[0.8987]	[0.6757]	[0.3691]	[0.7223]
BPG Test	2.2259	0.4690	1.3730	0.8819	1.6780
	[0.0522]	[0.8295]	[0.2351]	[0.5119]	[0.1369]
JB	609.020	0.7280`	0.0335	4.7138	0.0879
	[0.000]	[0.6948]	[0.9833]	[0.0947]	[0.9569]

Note: The figures in parentheses () are the standard error and the one in square brackets [] are the probability values. FF5F[1]-FF5F[5] represents the estimation of five-factor model under whole sample, 2005-2008, 2009-2012, 2013-2016 and 2017 -2020 sub-periods respectively.

Source Author's Computation, (2022)

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The result shows that tactical asset allocation has a positive and insignificant effect on return. This is because the coefficient values of tactical asset allocation 0.009507, which correspond with the probability value of 22 percent. The alpha value has coefficients of 0.006642 with corresponding probability value of 94 percent. This means the alpha value has a positive significant effect on return. Also, the coefficient of systematic risk is 0.001267, which correspond to probability value of 81 percent this signifies that systematic risk has positive but insignificant effect on return and this negates the assumption of the slope hypothesis but conforms to the positive risk-return trade-off. The coefficient of the size risk is -0.001350 with corresponding probability value of 82 percent and this implies that size risk has a negative and insignificant effect on return. However, the coefficient of value risk is -0.003789, which corresponds to the probability value of 32 percent, and this suggests that value risk has a negative and insignificant effect on return. Furthermore, the coefficients of profitability and investment risk are 0.004356 and 0.004851, which correspond with probability values of almost 0 percent, and this means that profitability reveals a positive but insignificant effect on return while investment risk shows a positive and significant effect on return. The model is significant at 0.05, indicating that the models are fit and the joint coefficient of the model influences return.

From the 2005 to 2008, the estimation reveals that tactical asset allocation has a positive but insignificant effect on return. This is because the coefficient value of tactical asset allocation is 0.002191, which corresponds with the probability value of 90 percent. Also, the coefficient of alpha is 0.034915, which corresponds with the probability value of almost 0 percent, and this signifies that the alpha value has a positive but insignificant effect on return. However, the coefficient of systematic risk is 0.022402, with associated probability value of almost 0 percent and this implies that systematic risk has a positive and significant effect on return, which is consistent with the a priori expectation. Also, the result shows that the coefficient values of size risk and investment risk are 0.041521 and 0.032600 with associated probability values of 0 percent, respectively, and this suggests that size and investment risks have a positive and significant effect on return. On the other hand, the coefficient values of value risk and profitability risk are 0.002000 and 0.005237, which correspond with the probability values of 71 and 35 percent, respectively, and this implies that value risk and profitability risk have a positive but insignificant effect on return. The model is significant at 0.05 because the

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probability value of the F-statistic is 0.000 which is less than 0.005. The models are further subjected to diagnostic tests.

Under the 2009 to 2012 sub-period, the report shows that the coefficient of tactical asset allocation is 0.007048, which corresponds with the probability value of 19 percent. This means that tactical asset allocation has a positive but insignificant effect on return under each model, and this suggests that the tactical asset allocation strategy is not significantly priced in the Nigerian stock market. The coefficients of alpha, systematic risk, size risk, value risk, profitability risk, and investment risk are -0.024017, 0.010196, 0.009041, 0.007296, 0.006879, and 0.007048, which are associated with the probability values of 0, 52, 61, 19, 23, and 16 percent, respectively. This suggests that alpha value has a negative but significant effect on return, while size and value risk have a negative and insignificant effect on return, and systematic, profitability and investment risk have a positive but insignificant effect on return. The probability value of F-statistic is 0.00 which is less than 0.05, and this suggests that the model is fit, but the study further subjects the models to diagnostic tests.

The results under 2013 to 2016 sub-period also report that the coefficient of 0.013959 is associated with probability value of 23 percent. This means that the tactical asset allocation has a positive but insignificant effect on return, and this suggests that investors are not rewarded for using such an investment strategy. The estimation of the model shows that the coefficients of alpha, systematic risk, size risk, value risk, profitability risk, and investment risk are -0.008223, -0.005059, -0.000183, -0.003124, 0.003691, and -0.014184, which correspond with the probability values of 21, 19, 90, 10, 21, and 1 percent respectively. This indicates that alpha value, systematic, size, and value risks have negative and insignificant effects on return, but investment risk has a negative but significant effect on return, and profitability risk has a positive but insignificant effect on return. The probability value of the F-statistics is 0.035362 which is less than 0.005. This shows that the models are fit but further subjected to diagnostic tests.

Under the 2017 to 2020 sub-period, the tactical asset allocation coefficient is 0.014735 with corresponding probability value of 95 percent. The evidence from this sub-period also supports that tactical asset allocation has a positive but insignificant effect on return, and this suggests that the introduction of tactical asset allocation does not command a premium. More so, the coefficients of alpha, systematic risk, size risk, value risk, profitability risk, and investment risk are -0.010167, 0.007454, -0.046331, 0.010128, and 0.007161, with corresponding probability values of 6, 22, 0, 0 and 12 percent, respectively. This means that the alpha value has a negative and insignificant effect on return, while value and profitability risks have a positive and significant effect on return. The result of the model also shows that systematic and investment risks have a positive but insignificant effect on return, while size risk has a negative but significant effect on return. The model is significant at 0.05 because the probability value of 0, which is less than 0.05.

It is very explicit from the result that the assumption of no autocorrelation cannot be refuted, and this suggests that the residuals of the models do not correlate over time. Also, the corresponding probability values of F-statistics are larger than 0.05 and this implies that the homoscedastic assumption holds. The normality test reveals the normality hypothesis is violated and this is because the probabilities value of Jarque bear is 0.0001 under the model. This shows the residuals of the models are not normally distributed to the FF5F model.

The study presents the effect of tactical asset allocation on risk, having studied the findings of the study on the estimation of tactical asset allocation on return. The study employs the GJR-GARCH model to estimate the effect of tactical asset allocation on risk in the Nigerian stock market. This method was chosen because it also reveals the effect of asymmetric information on the risk. Thus, for proper estimation, the study conducts some pre-estimation tests before fitting the data for estimation under the whole sample and sub-periods sample.

Table 4. Pre-estimation Test on GJR-GARCH Model

Statistics	Whole Sample	2005-2008	2009-2012	2013-2016	2017-2020
Normality	1375.299	442.1290	26.9199	0.47314	101.7025
	(0.0000)	(0.0000)	(0.0000)	(0.7893)	(0.0000)
Unit root	-13.647	-9.116133	-7.1348	-6.0483	-7.0179
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Q-Sat	20.130	16.193	16.964	8.8307	16.812
	(0.028)	(0.094)	(0.075)	(0.548)	(0.079)
Arch Effect	33.47632	15.0298	10.2113	1.4143	1.2455
	(0.0000)	(0.0001)	(0.0014)	(0.2343)	(0.2644)

Note: The figures in square brackets [] are the probability values.
Source: Author's Computation, (2022)

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Table 4 reports that the normality assumption is rejected under the whole sample period and sub-periods as shown by the probability values of less than 0.05. However, the unit root tests show that the null hypothesis is rejected at the 0.05 level of significance since the P-value is less than 0.05. This implies the whole sample and sub-sample returns have no unit root, i.e., they are stationary. The study presents the autocorrelation using the Ljung-Box Q-Statistic test since it is assumed to be more powerful due to its consideration of the overall correlation coefficients from lags. The p-values from the Q-Statistics test are not significant for all lags under the sub-periods except for the whole sample. The results show persistence in return series and the presence of serial correlation over the whole period, which is an indication of non-random returns in the whole sample period.

The probability (chi-square) of the observed R-square in the table is base 5 percent significance level to reject or accept the null hypothesis of the ARCH effect. The p-value of the observed R-square is 0.0007 under the whole sample, which is less than 0.05, and this implies that the residuals of the Nigerian stock market return have an ARCH effect. This complies with the assumption of estimating the GJR-GARCH model. The result reveals that the p-value of the observed R-square is 0.0001, which is less than 0.05, and this means that the residuals of the stock market volatility have an arch effect in the sub-period 2005 to 2008. Similarly, the arch effect is also present under the 2009 to 2012 sub-period since the associated P-value of the observed R-square is less than 0.005. However, this contradicts the results under the periods of 2013 to 2016 and 2017 to 2020 because the associated P-values are larger than 0.05. The results indicate that the returns of the whole sample and sub-period of 2005 to 2008 violate the homoscedasticity assumption, which suggests that innovations in the returns are heteroscedastic, and these tests allow the returns to be modeled on the GJR-GARCH model, which assumes that the variance of the errors is not constant. However, the GJR-GARCH is not applicable to the sub-periods of 2013 to 2016 and 2017 to 2020. Thus, the study examines the effect of tactical asset allocation on risk in the Nigerian stock market using the GJR-GARCH model. The model incorporates tactical asset allocation and evaluates its e as well as the underlying asymmetric information. The estimation is performed for both the whole sample and sub-periods.

Table 5: Tactical Asset Allocation and Risk

Variable	whole sample	2005-2008	2009-2012
Constant	-0.0001	0.0126	0.0012
	(0.0002)	(0.0052)	(0.0038)
	[0.4981]	[0.0170]	[0.7477]
Taa	0.0004	-0.0155	-0.0008
	(0.0003)	(0.0065)	(0.0044)
	[0.1996]	[0.0173]	[0.8413]
ARCH(Alpha1)	0.1465	0.4495	-0.2204
	(0.0434)	(0.1034)	(0.1326)
	[0.007]	[0.0520]	[0.0967]
GARCH(Beta1)	0.8891	0.5485	1.0405
	(0.0385)	(0.1496)	(2.99E-99)
	[0.0000]	[0.0002]	[0.0000]
GJR(Gamma1)	-0.2353	-0.3938	-0.2511
	(0.0515)	(0.2199)	(0.3614)
	[0.0000]	[0.0734]	[0.4871]
Diagnostic ARCH	2.8591	0.1147	0.1267
	[0.0909]	[0.7348]	[0.7218]
Q-Statistic	7.1621	12.770	9.4952
	[0.710]	[0.237]	[0.486]

Note: The figures in parentheses () are the standard error and the one in square brackets [] are the probability values.
Source: Author's Computation, (2022)

The result shows that tactical asset allocation has a positive but insignificant effect on risk under the whole sample and 2009 to 2012 sub-period. However, during the 2005–2008 sub-period, tactical asset allocation has a significant negative effect on risk. The result shows that there is a long-term memory as to the effect of the shock in the Nigerian stock market across the whole sample and the sub-periods. The leverage effect is negative and insignificant at 0.05 under the sub-periods but significant at 0.05 under the whole sample period, and this indicates the presence of an asymmetric effect under the whole sample period. Thus, the presence of a negative asymmetry effect reveals that a positive shock or good news associated with a tactical asset allocation strategy increases risk more than a negative shock under the whole sample. However, the result of the sub-periods reveals that tactical asset allocation has a negative symmetrical effect on risk, which means the stock market volatility's response to good or bad news associated with tactical asset allocation is the same. The study conducted the diagnostic tests, and it was found that the model was fit and meaningful, hence generalization can be drawn from it. The study examines whether the third objective of this study is achieved in the following sub-sections.

4.1. Discussion of Findings

The findings of the study reveal that tactical asset allocation has no significant effect on return in the Nigerian stock market. The findings show that tactical asset allocation has a positive but insignificant effect on the whole sample and the sub-periods. Contrary to this, it was found that tactical asset allocation has a significant effect on risk in the Nigerian stock market. Also, under the whole sample, it was found that tactical asset allocation has a positive and significant effect on volatility, but under the sub-periods, the result shows that tactical asset allocation has a negative but significant effect on volatility. The study discussed the findings with other previous studies, which included but not limited to Shaukat and Shahzad (2019), who found that portfolio strategies such as tactical asset allocation have a positive effect on the portfolio risk and return in the Pakistan stock market. This does not conform to the findings of this study but partially supports the a priori expectation because it has a positive and significant effect on return. However, the expectation of using tactical asset allocation is to improve performance through risk minimization, and this is in line with the findings of the study under the sub-periods. Also, Afzal et al. (2020) established that tactical asset allocation minimizes risk and maximizes return of a portfolio in five global stock markets, and this partially supports the findings of this study. The results of the whole sample and sub-period sample both establish that the short selling strategy is not significantly priced in the Nigerian stock market. The whole sample result and the 2005 to 2008 sub-period show a negative and insignificant effect on return, while the 2009 to 2012, 2013 to 2016, and 2017 to 2020 sub-periods show a positive but insignificant effect on return.

5. Conclusion

The study found that drawdown has no significant effect on risk in the Nigerian stock market. More so, the findings revealed that the tactical asset allocation is not significantly priced in the Nigerian stock market. Contrary to this, it was found that tactical asset allocation has significant effect on risk in the Nigerian stock market. This means that tactical asset allocation shows that it insignificantly improves return and significantly reduces risk under the whole sample sub-period except for the sub-periods in the Nigerian stock market. Thus, tactical asset allocation is a short-term investment strategy that could be used in making optimal decisions in terms of maximizing return and minimizing risk in the Nigerian stock market. The study recommended that tactical asset allocation is a short-term market timing strategy which can be used in Nigerian stock market to maximize return and minimize risk against buy and hold strategy which is passive and long-term in nature. Further studies should be replicated by comparing Nigeria with other Sub-Saharan African countries to see whether the effect of tactical asset allocation on risk and return is replicated.

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DO MIGRANT REMITTANCES DRIVE PRIVATE INVESTMENT? EMPIRICAL EVIDENCE FROM NIGERIA

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Abstract

The study conducts investigation into how migrant remittance drive private investment in Nigeria spanning from 1980 to 2021. The study adopts flexible accelerator theory as its theoretical framework. The study employs Augmented Dickey-Fuller (ADF) unit root test to test for stationarity of each variable, and the result reveals that there is mixed among the variables. Sequel to the mixed level of stationarity of the variables the study employs ARDL estimation technique to investigate the impact of migrant remittance on private investment. The study found that in the short run migrant remittance and interest rate drive private investment while exchange rate, gross domestic product growth rate, inflation rate and financial deepening crowd-out investment in Nigeria. Whereas in the long run, all the variables drive investment aside financial deepening. Consequently, that policy makers and government should formulate policies for free flow of remittance into the economy without any difficulties, also the study recommends that adequate monetary policy should be formulated to ensure that the financial sector serves its function of enhancing private investment in Nigeria.

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Keywords: *migrant remittance, private investment, level of integration, exchange rate, gross domestic product growth rate, inflation rate, financial deepening crowd-out investment*

JEL Classification : *G11, G31*

1. Introduction

Failure of successive governments of many African countries to curb her ever increasing population with appropriate policies has over the years created a lot of unemployment, increase crime rate, insecurity, and other poverty-related problems in these economies. Poverty often time instigates large scale migration of economically productive age people to other countries in search of greener pasture. Traditionally, People migrate when they are driven by lack of opportunities at home and attracted by the hope of economic gains elsewhere. This implies that hope of decent job opportunity and improved standard of living are the major incentive factor for migration. As the matter of fact, labor is the primary resource of the great majority of the world's poor and migration provides the best open door to find a better life and, in this manner, having chances to escape poverty vis-a-vis unemployment in their home country (World Bank, 2016). The number of migrants has risen significantly over the past decades for several reasons among which are: job search, climate change, natural disasters, labor shortage, caused by declining birth rates etc. (World Bank, 2016).

There are 250 million international migrants worldwide, of which over 150 million (approximately 60% of the total number) are classified as worker’s migrant (World Bank, 2016). The figure increased to 272 million in 2019 from 175 million in 2000. Migration has been identified as strategy by families of developing countries Nigeria inclusive to escape poverty vis-à-vis increase consumption, obtain new investment funds and protection against the unexpected. It is therefore not astounding that professionals and talented skilled African workers are leaving their home country in search of better economic status in countries across the globe. The migrants remit money from their earnings back to their families in their home countries. The remittance inflow has been an important role in reducing poverty in their family and in general stimulating investment which in turn enhances the growth of the home countries. The remittance inflow which is one of the largest sources of stable international financial inflow to sub-Sahara Africa is on a constant increase, in fact, it is now overshadowing the traditional inflow

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foreign direct investment, foreign portfolio investment and foreign aids (Dash 2020; Saydaliyev et al., 2020; Githaiga, 2020). The World Bank (2020) reported that global migrant remittance has been on a steady increase unlike other inflow like foreign direct investment and foreign aid which often fluctuate and as such unpredictable. Nigeria is no exception in this trend as the value of foreign direct investment even falls whereas migrant remittance maintains its steady rise (WBI 2020). This reveals the important of migrant remittance and as such is major foreign earnings in Nigeria as it is second only to foreign earnings from crude oil. Depending on the usage of migrant remittances, they are expected to increase household consumptions, enhance human capital development, promotes financial development, alleviate poverty, and stimulate economic growth in the home countries (Dash 2020; Karikari et al., 2016; Vaaler 2011; Misati, 2019; Adeseye 2021; Saydaliyev et al., 2020; UNDP 2011; and Moslares 2020). However, most of the extant studies focus on how it affects economic growth and financial development. Only a few studies have examined the impact of migrant remittances on private investment as such this study will empirically investigate to determine how migrant remittance affects private investment.

The rapid growth of remittances in Nigeria was expected to increase domestic investment as remittances has been identified by extent studies as an important factor that promote domestic investment and thus expansion of the productive capacity of the economy. Despite the significant flow of remittances into the country in the recent past, the level of investment as not increase as expected as such this study investigates to determine the impact of migrant remittance on private investment in Nigeria.

Furthermore, there is no empirical consensus among the few previous researchers on the impact of migrants' remittance on private investment. For instance, (Dash 2020; Yasmeen et al., 2011; Balde 2011; Hossain and Hasanuzzaman 2015; Yang 2008), argued that migrants remittance has positive impact on private investment while authors such as (Mallick 2012; Hrushikesh 2012), revealed that migrants' remittance have negative effects on private investment. Therefore, this study will investigate to know the exact impact of migrant's remittances on private investment in Nigeria.

The rest of the paper is organized as follows: section two is devoted to literature review, section three from model specification, section four is all about result presentation and analysis while the last section is dedicated for conclusion and recommendation.

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2. Literature Review

This study starts the empirical review with the work of Dash (2020) who investigated the impact of remittances on domestic investment of six South Asian countries over the period of 1991 to 2017 using system-GMM and panel causality. The study found that remittances boost domestic investment both in the short run and long run, the panel causality result revealed that there is unidirectional causality that runs from remittances to domestic investment in the six countries. Similar result was also obtained by Yasmeen et al., (2011), in their study of Pakistan's economy using Ordinary Least Square method. Using two least square method for the study of 37 sub-Sahara African countries, Balde (2011) found that both remittance and foreign aids promotes domestic savings and investment. The study further revealed that remittance has a higher magnitude effect on domestic investment compared to domestic savings. Su et al., (2021), analyzed the effect of remittance and institutional quality on private investment in seven emerging economies using GMM technique. They found that institutional quality along remittance promotes private investment. In the study of Hossain and Hasanuzzaman (2015), they explored the relationship between remittance and private investment in Bangladesh. The study found that remittance drives investment. In the case of India, Mallick 2012 assessed the impact of remittance on domestic private investment between 1996 and 2005 using autoregressive distributed lad (ARDL) estimation technique. The study found that remittance determines domestic private investment. On the investigation of 19 Asia Pacific countries between 1980 and 2015, Tung 2008 employed system GMM technique, and he found that that remittance dissuade investment.

Yang (2008) examined the how families of migrant's remittance recipients react to using the fund for investment in Filipino using household data. The study revealed that ~~the~~ remittance boosted investment in the families. In the case of Nigeria Okeke et al., 2019 explored the impact of remittance on private investment in Nigeria. They found that migrant remittance stimulates private investment. In the study of Woodruff and Zenteno (2007), they investigated the relationship between remittance and private investment in Mexico. The study found that remittance instigates private investment. Using ~~a~~ panel data of 40 developing countries, Dzansi (2013) investigated the link between remittances and investment in the manufacturing sector over the period of 1991 – 2004. It was observed that migrant remittance drive investment and growth in the manufacturing sector in these countries. Hrushikesh (2012), utilized dynamic ordinary least square (DOLS) to examine the effect of remittances on private investment in India. The paper

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found that remittances crowd out private investment Bjuggren et al., (2010) investigated the impact of remittances on investment in 79 developing countries between 1995 and 2005 using dynamic panel method. The study found that remittance, well developed credit market and high-quality institutional framework boost investment. Incaltarau and Maha (2012), explored the impact of remittance on consumption and investment in Romania between 1990 and 2009 using ordinary least square method. They found that remittance spur both consumption and investment and that the impact of remittance on investment is stronger

3. Method

This study adopts flexible accelerator theory as its theoretical framework. The model was postulated by Lucas R. ~~by~~ (1967) and furthered by Fry M.J. (1993). The theory states that an increase in the rate of output of a firm will require a proportionate increase in the capital stock. The capital stock refers to the desired or optimum capital stock, K. Assuming that capital ratio output is constant V, the optimum capital stock is a constant proportion of output so that in any period t,

$K_{t} = VY_{t}$.. (1)

Where K_t is the optimal capital stock in the period t, v (the accelerator) is a positive constant and Y is output in period t.

Any change in output will lead to a change in the capital stock. Thus

$K_t - K_{t-1} = V\ (Y_t\ Y_{t-1})$ ………………………………… (2)

Note that change in capital = investment

I.e $\Delta K = I$

Therefore: $I = K_t - K_t - 1$

$I_t = V(Y_t - Y_{t-1})$………………………………..…... (3)

Where $\Delta Y_{t-} = Y_{t-1}$, and I is net investment.

Model Specification

$1_t = F(Y_{t-})$…………………………………………… (4)

Introducing other control variables such as exchange rate, financial deepening, real interest rate and GDP which are identified by (Githaiga, 2020; Dash, 2020; Bruiket, 2018; Bjuggren et al., 2010) as important factors that influences Private Investment. As such, in specifying our model, our independent variables shall be the Remittance inflow, Economic growth, Real interest rate and financial deepening, while our dependent variable shall be the annual time series data of Private Investment. Therefore, our multiple regressions model can be specified as thus:

$PIV = f\ (MGR, GDPGR, INTR, FDP$, INFR, EXR) …………………… (5)

Where: PIV = Private Investment
MGR= Migrant Remittance
GDPGR = Gross Domestic Product Growth Rate
INTR = Real Interest Rate
FDP = Financial Deepening
INFR= Inflation rate
EXR= Exchange Rate

For the purpose of empirical computation, the econometric form of the model is expressed as:

$$PIV_t = \beta_0 + \beta_1 RI_t + \beta_2 GDPGR_t + \beta_3 INTR_t + \beta_4 FDP_t + \beta_5 INFR_t + \beta_6 EXR_t + \mu_t \quad \text{.......................................} \ (6)$$

To create an equal base for the employed variables, the log form might be applied to the specified model above.

$$Log(PIV_t) = \beta_0 + \beta_1 Log(MGR_t) + \beta_2 (GDPGR_t) + \beta_3 (INTR_t) + \beta_4 (FDP_t) + \beta_5 (INFR_t) + \beta_6 (EXR_t) + \mu_t \quad \text{...} \ (22)$$

β_0= the constant term
β_1, β_2, β_3,& β_4,β_5&β_6 = the parameters to be estimated
U_t= Error term

A-priori Expectation

The apriority expectation provides expected signs of the value of the coefficient parameters in the model in line with economic theories and extant studies. It is expected that Migrant remittance (MGR), Gross domestic product growth rate (GDPGR), financial deepening (FDP) and exchange rate (EXR) would have positive effect on Private Investment (PIV), while Interest rate (INTR) and Inflation rate (INFR) are expected to have a negative effect on Private Investment (PIV). Symbolically we have: $\beta_1>0$, $\beta_2>0$, $\beta_3<0$, $\beta_4>0$, $\beta_5<0$, $\beta_6>0$

4. Results and Discussion

Descriptive Statistics

Descriptive statistics reveal the qualities of the variables to be used in the model, this will enhance our estimation. The table below summarizes the descriptive statistics.

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Table 1: Result of the Descriptive Summary of the Variables

	EXR	FDP	GDPGR	INFR	INTR	LOG(MGR)	LOG(PIV)
Mean	98.31591	16.66077	3.141136	18.74132	17.67097	20.41121	28.22809
Median	101.6973	13.527	4.195924	12.21778	17.55333	20.87737	28.51026
Maximum	358.8108	28.62522	15.32916	72.8355	31.65	23.9142	31.4454
Minimum	0.546781	9.063329	-13.1279	5.388008	8.431667	14.70115	25.19074
Std. Dev.	100.6852	6.103193	5.335983	16.73026	4.75659	3.203938	1.970042
Skewness	0.916135	0.553967	-0.88014	1.863495	0.152142	-0.36822	-0.19758
Kurtosis	3.034671	1.692179	4.841582	5.312575	3.925038	1.667603	1.650677
Jarque-Bera	5.737297	5.018933	11.08714	32.86571	1.619984	3.959282	3.377073
Probability	0.056776	0.081312	0.003913	0.00001	0.444862	0.138119	0.18479

Source: *Author's computation*

From table 1 above, the estimated mean value which is been used to examine the pattern of distribution shows that exchange rate has the highest mean value with 98.31591 and the lowest mean value was recorded by GDP growth rate with 3.141136. The standard deviation showed that exchange rate, financial deepening, gross domestic product growth rate, inflation rate and migrant remittance demonstrates high variability within the country while private investment with the value of 1.1970042 showed low variability within the country. In summary, all the variables under this study are widely dispersed around their means indicating that they are grossly affected by their extreme value. Furthermore, the result showed that exchange rate, financial deepening, inflation rate, and interest rate are positively skewness towards normality while gross domestic product growth rate, migrant remittance and private investment are negatively skewness towards normality. The kurtosis that measures the weakness or flatness of the distribution reveals that, exchange rate, inflation rate, gross domestic product growth rate, interest rate is leptokurtic indicating that the distributions are peaked relative to normal distribution, while financial deepening, migrant remittance and private investment are platykurtic which implies that the distribution of the variables are flat relative to normal distribution. Lastly, Jarque-Bera which is test statistic for testing whether the series is normally distributed reveals that all the variables except GDP growth rate and inflation were normally distributed at 5% significant level.

Unit Root Test

The unit root test is conducted to determine the stationarity of the data to be used for analysis in this study. It is necessary and essential to conduct the unit root test to determine the stationarity of each variable as regressing a non-stationary variable will lead to spurious or misleading result. To avoid a spurious or misleading result, it is required that variables be stationary before the application of standard econometric techniques (Gujarati, 2004). Therefore, before estimating the model of the research, we shall check for the time-series properties of the data and Augmented Dickey-Fuller (ADF) test was used to determine this.

Table 2: Result of Augmented Dickey Fuller Unit Root Test

	AT LEVELS		IST DIFFERENCE		LEVEL OF INTEGRATION
VARIABLE	ADF-Test	5% C.V	ADF-Test	5% C.V	
EXR	-2.249736	-2.93694	-4.15371	-2.93899	I(1)
FDP	-2.26214	-2.93694	-9.23549	-2.93899	I(1)
GDPGR	-2.78517	-2.93899	-11.7966	-2.93899	I(1)
INFR	-3.02259	-2.93694	-6.35243	-2.94115	I(0)
INTR	-2.59498	-2.93694	-5.54402	-2.94115	I(1)
LOG(MGR)	-0.76852	-2.93694	-6.44285	-2.93899	I(1)
LOG(PIV)	-0.620582	-2.93694	-3.89392	-2.93899	I(1)

Source: *Author's computation*

Table 2 above presents the results of the stationarity test of all the variables at levels and first difference. The result reveals that all the variables are integrated of order one I (1) expect inflation rate (INFR) which is stationary at level. This implies that there is mixed level of integration among the variables as such Autoregressive Distributed Lag (ARDL) is the most appropriate estimation technique to be used in the study.

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Co-integration Test

Having identified the appropriate estimation technique to be used, it is essential to conduct bound test to determine if the model cointegrates, that is if there is long run relationship among the variables in the model. This study will employ Pesaran Bound test as it is the most suitable when there is mixed level of integration in variables under study. The null and alternative hypotheses are specified below:

H_o: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots = \beta_7$

H_1: $\beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \neq \beta_7$

The null hypothesis is that there is no cointegration among the variables while the alternative hypothesis is that there is cointegration among the variables.
The Pesaran Bounds Co-integration test result is provided thus:

Table 3: Result of ARDL Bound test

F-Statistics	significant level	Lower Bound I(0)	Upper Bound I(1)
5.719	1%	2.88	3.99
	5%	2.77	3.28

Source: *Author's computation*

Table 3 above shows that the value of F-statistics is greater than the value of both the lower and upper bounds. This implies that there is cointegration among the variables i.e., there is long run relationship among private investment, migrant remittance, interest rate, inflation rate, gross domestic product growth rate, financial deepening, and exchange rate as such, both short and long run analysis are important.

Table 4: Result of long run ARDL analysis

Variables	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
LOG(MGR)	0.404829	0.088619	4.568193	0.0001
INTR	0.114033	0.071861	1.586849	0.1256
INFR	0.041443	0.02117	1.957616	0.0062
GDPGR	0.045991	0.037391	1.229984	0.2306
FDP	-0.10198	0.052478	-1.94338	0.0638
EXR	0.016502	0.005725	2.882145	0.0082
C	18.47715	1.553141	12.06547	0

Source: *Author's computation*

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The result in table 4 above shows that migrant remittance has a positive and significant impact on private domestic investment at 1% significant level. The result further shows that 1% increase in migrant remittance will lead to 0.4048% increase in private domestic investment in Nigeria in the long run. This implies that remittance drives domestic private investment in Nigeria i.e., as remittance inflow increases, the private investment will also increase in the long run. This is in tandem with the findings of (Dash, 2020; Hossain and Hasanuzzaman, 2015; Dzansi, 2013) and it confirms the apriority expectation.

In the same vein, the table shows that inflation rate has a positive and significant impact on domestic private investment at 5% significant level. The result further shows that a 1% increase in inflation rate will lead to a 0.0062% increase in domestic private investment in the long run. This implies that inflation rate boosts private investment i.e., as inflation rate increases, the level of private investment in Nigeria increases in the long run. This is in tandem with Bruiket, (2018) but does not confirm to the apriority expectation. Furthermore, the table shows that the exchange rate has a positive and significant impact on private investment at a 10% significant level, and that a 1% increase in exchange rate will cause private investment to increase by 0.0165% in the long run. This implies that exchange rate spur private investment in Nigeria i.e., as exchange rate increases, private investment increases in the long run. This is in tandem with the studies of Clement (2017) but contradicts the findings of Dash (2020). Contrariwise, the table displays that financial deepening has a negative and significant impact on private investment in Nigeria, and that 1% increase in financial deepening leads to 0.0165% decrease in private investment in the long run. This implies that financial deepening crow out private investment that is as financial sector gets deepen, private investment deteriorates in Nigeria in the long run. This is in tandem with the studies of Hammed (2018) but contradicts the findings of Githaiga (2020). This does not match the apriority expectation. Lastly. Interest rate and gross domestic product per capital had no impact on private investment in Nigeria in the long run.

Table 5: short run analysis with ECM

Variables	Coefficient	Std. Error	t-Statistic	Prob.*
DLOG(MGR)	0.16014	0.020301	-0.79499	0.0344
D(INTR)	0.016851	0.004161	4.049617	0.0005
D(INFR)	-0.063979	0.012896	-4.961168	0.0003
D(GDPGR)	-0.01305	0.003467	-3.76291	0.001
D(FDP)	-0.2525	0.005273	-4.78865	0.0001
D(EXR)	-0.00064	0.000618	-1.03658	0.3103
CointEq(-1)*	-0.69755	0.007672	-15.3221	0.0000
R-squared	0.816749	Durbin-Watson stat		2.242336
Adjusted R-squared	0.77537			

Source: *Author's computation*

The result in table 5 above shows that migrant remittance has a positive and significant impact on private domestic investment at 5% significant level. The result further shows that a 1% increase in migrant remittance will lead to 0.4048% increase in private domestic investment in Nigeria in the short run. This implies that remittance drives domestic private investment in Nigeria i.e., as remittance inflow increases, the private investment will also increase in Nigeria in the short run. This is in tandem with the findings of (Dash 2020; Hossain and Hasanuzzaman 2015; Dzansi 2013) and it confirms the apriority expectation. Furthermore, the table shows that interest rate has a positive and significant impact on private investment in the short run at 1% significant level, and that 1% increase in interest rate leads to 0.01685% increase in private investment in Nigeria in the short run. This denotes that the interest rate stimulates private investment i.e., as interest rate increases, private investment increases. This contradicts the findings of Dash (2020), and it does not confirm to the apriority expectation. In the same vein, the table shows that inflation rate has a positive and significant impact on domestic private investment at 5% significant level. The result further shows that 1% increase in inflation rate will lead to 0.0062% increase in domestic private investment in Nigeria in the short run. This implies that inflation rate boosts private investment i.e., as inflation rate increases, the level of private investment in Nigeria increases in Nigeria in the short run. This is in tandem with Bruiket, (2018) but does not confirm to the apriority expectation.

Contrariwise, the table reveals that GDP growth rate has a negative and significant impact on private investment at 1% significant level, and that 1% increase in GDP growth rate leads to 0.01305% decrease in private investment in Nigeria in the short run. This implies that GDP growth rate deters private investment in Nigeria i.e., as the economy grows, private investment decline in Nigeria in the short run. This contradicts the findings of Githaiga (2020) and does not confirm to the apriority expectation. Also, the table displays that financial deepening has a negative and significant impact on private investment in Nigeria, and that 1% increase in financial deepening leads to 0.0165% decrease in private investment in Nigeria in the short run. This implies that financial deepening crow out private investment that is as financial sector gets deepened, private investment deteriorates in Nigeria in the short run. This is in tandem with the studies of Hammed (2018) but contradicts the finding of Githaiga 2020 does not confirm to the apriority expectation. Exchange rate was found not to have any impact on private investment in the short run.

Lastly, the coefficient of ECM (-1) is well defined as it is negative and statistically significant at 1% significant level. The result further shows that approximately 69.76% of the previous year's disequilibrium in private investment will be corrected by migrant remittance, inflation rate, interest rate, GDP growth rate, financial deepening, and exchange rate. The coefficient is also the speed of adjustment, and it shows that the model converges back to long run equilibrium at the speed rate of 69.76% following a short run shock. The coefficient of (R^2) is 0.816749, this implies that migrant remittance, inflation rate, interest rate, GDP growth rate, financial deepening and exchange rate are responsible for approximately 81.67% of the total change in private investment in Nigeria.

Diagnostic test

Having estimate both the short and long-run analysis, it is required to verify whether the estimated model follows the OLS technique assumptions so as to know the efficiency and consistency of the model.

Table 6: Diagnostic test result

Test	F-Stat (Prob)
Jarque-Bera test	2.504 (0.286)
Breusch-Godfrey Serial Correlation test	1.525 (0.239)
Breusch-Pagan-Godfrey Heteroskedasticity Test	0.669 (0.780)

Source: Author's computation

The result of the diagnostic test is presented in table 6 above and it reveals that the probability value of the test conducted was greater than 5% significant level. this implies that the null hypothesis of non-normality test, serial correlation, and nonexistence of heteroskedasticity were not rejected and as such it denotes that there the model is normally distributed, no serial correlation and no homoscedastic variance in the mode. This implies that the model is reliable.

5. Conclusion and recommendation

The study conducts investigation into how migrant remittance drive private investment in Nigeria spanning from 1980 to 2021. The study adopts flexible accelerator theory as its theoretical framework. The study employs Augmented Dickey-Fuller (ADF) unit root test to test for stationarity of each variable, and the result reveals that there is mixed level of integration among the variables. Sequel to the mixed level of stationarity of the variables the study employs ARDL estimation technique to investigate the impact of migrant remittance on private investment. The study found that in the short run migrant remittance and interest rate drive private investment while exchange rate, gross domestic product growth rate, inflation rate and financial deepening crowd-out investment in Nigeria. Whereas in the long run, all the variables drive investment aside financial deepening.

Consequently, the study recommends the following policies: It is suggested that policy makers and government should formulate policies for free flow of remittance into the economy; government should formulate policies to stabilize interest rate and make it attractive to investors; government should formulate policies in order to caution the rise of inflation for the growth of investment; government should formulate economic policies that will stimulate the economy to have an inclusive growth so that it will enhance private investment; and lastly, adequate monetary policy should be formulated to ensure that the financial sector serves its function of enhancing private investment in Nigeria.

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SUSTAINABLE BANKING PRACTICES ON SOCIAL AND ENVIRONMENTAL RISK MANAGEMENT IN ACCESS BANK OF NIGERIA

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Abstract

The study aims to show how effective risk management can be implemented in the Nigerian banking industry, as well as how various risks associated with Nigerian banks' performance can be mitigated by following the sustainable banking principle, which encourages effective risk management in Nigerian banks. A survey research design was used in this study. The population of the study is 19,982 members of staff that are in all the Access Bank branches across Nigeria. The officers that are needed for this research are management staff, risk officers, sustainability officers and accountants. The estimated *number of risk officers and sustainability officers in all the Access bank branches across Nigeria are 1650 and 1805 respectively. The total relevant officers for this research are 257 in number which are selected from five major branches and the Headquarters of access bank in the whole of Nigeria. The sample size was 157. Data collected was analysed using statistical package for social science students (SPSS) while Chi-square was used to test the hypotheses formulated. The two hypotheses which were tested in the research work showed a clear indication of positive contribution of sustainability principles adoption on risk management, profitability, and bank reputation in Access Bank Plc. The two hypotheses tested showed chi-square test values of 11.949 and 15.834 with a p. Value of 0.018 and 0.0003 which shows that the tests are statistically significant at 5% significance level. It was concluded that the banks' goodwill had increased tremendously because of their sustainability, which boosted their external image and attracted more customers through word-of-mouth advertising, which is very effective in Nigeria. The government should therefore encourage banks to adopt sustainable banking as an important component of their critical strategy for long-term goals and sustainability that improve people's lives, according to the recommendation.*

Keywords: *sustainability, banking, environmental risk, risk management*

JEL Classification : G21, M54

Introduction

Through its lending and investment activities, the banking sector is uniquely positioned to help Nigeria's economy grow and develop. However, the from our trade pantlessness decisions are made is marked by complex and growing challenges such as population growth, urban migration, poverty, biodiversity and ecosystem destruction, pressure on food sources, prices and security, lack of energy and infrastructure, and potential climate change legislation from our trade partners to name a few. It is becoming increasingly clear that Nigeria's development imperative must be not only economically viable, but also socially relevant and environmentally responsible (Carey, 2006). Bowling, (2005) posit that institutional changes in the subset of technological changes, economy, and even the social and political landscape that may intersect with the cultural set up require sustainability. Sustainable Development goals, such as economic development, social development, and environmental development, were identified at the 2005 World

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Summit on Social Development; these are sometimes referred to as the three pillars of sustainability. Al-Tamimi, (2007) explained that the banking industry is a high-risk environment. It's risky because it's the only business where the proportion of borrowed funds exceeds the equity of the owners. Financial leverage is usually associated with a high level of risk. This can easily be seen in a situation where false or unfounded rumours caused financial panic and, as a result, a bank runs. Even in the presence of a good lender of last resort, few banks, according to Umoh (2002) and Ferguson (2003), can withstand a persistent run. The bank suffers haemorrhages as depositors withdraw their funds, and in the absence of liquidity support, the bank is forced to close its doors. As a result, some of the risks that banks face is endogenous, meaning they are related to the nature of the banking business, while others are exogenous to the banking system. Tschoegl, (2007) explained that in the delivery of banks' core business activities, it was established. A bank may be exposed to environmental and social risk because of the clients its finances' underlying business activities. These risks may represent credit or reputational risk, and a bank's enterprise risk management framework should include E&S risks. A bank can effectively assess and manage the level of E&S risk exposure associated with its clients in this way. The bank's approach must be appropriate for the client's operations' nature and scale. In the banking industry, risk management is at the heart of lending. Many Nigerian banks have failed in the past because of poor risk management. This issue has continued to have serious negative consequences for the industry. During their business operations, banks are exposed to a wide range of risks. The subject of risks now occupies a central position in bank management's business decisions, and it is unsurprising that every institution is judged and approached by customers, investors, and the public in large part based on how it presents itself in terms of risk volume and allocation, as well as risk management decisions. Poor corporate governance, liquidity risk, and insufficient strategic direction are just a few of the major risks that Nigerian banks face. As a result of the foregoing, the purpose of this study is to provide insight into how effective risk management can be implemented in the Nigerian banking industry, as well as how various risks associated with Nigerian banks' performance can be mitigated by adhering to the sustainable banking principle, which promotes effective risk management in Nigerian banks.

Literature Review

Definitions for sustainable banking can be found at the level of financial instruments (e.g., sustainable finance indices or green bonds), financial market

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subsectors (e.g., sustainable insurance or responsible banking), international organizations (e.g., UN, World Bank, or OECD), as well as national and international definitions (e.g., the G20 Sustainable Finance Study Group). The assessment of the environmental integrity of sectors (e.g., infrastructure, agriculture, or energy efficiency) or themes are not the only definitional challenges (e.g., adaptation or circular economy business models).

Theoretical framework

Sustainable banking practice models are required in the banking sector. This means that banks should conduct business in a balanced manner, considering the interests of both direct and indirect stakeholders (Polonskaya and Babenko, 2012). This balanced approach to banking necessitated changes, as well as an innovative banking model based on sustainable principles. This type of innovation is becoming more widely recognized as critical to delivering a long-term business model that includes greater social and environmental sustainability (Lüdeke, 2010). The stakeholder theory perspective is the first approach to describing and analysing the long-term viability of banking principles. The primary obligation, or way of doing business, of many companies is to maximize profits for shareholders (Stubbs and Cocklin, 2008). However, according to Bocken (2014), a company with a sustainable banking model considers all its stakeholders, including society and the environment, because they must be stakeholder sensitive in order to build a good reputation for the company, which will lead to long-term profit.

Empirical Review

According to Cornett, Erhemjamts, and Tehranian (2008), there are three approaches to implementing sustainable banking practices in the banking sector. They believe there is a link between CSR activities and bank financial performance. Nonetheless, Oyewumi (2007) argues that investing in CSR depletes banks' financial resources; as a result, the recommendation that banks disclose their commitment to CSR activities to improve their reputation, which will improve their financial performance. The second approach encourages banks to engage in activities that directly reduce negative environmental effects, reduce carbon emissions, and protect the climate. Reduced energy and water consumption, as well as waste management, have been suggested for the service industry, particularly banking, to cut costs and present a positive brand image while also fulfilling their environmental responsibilities.

Research Design

Survey research design is used. (Osuala, 2004) The population of this study is 19,982 members of staff that are in all the Access Bank branches across Nigeria. The officers that are needed for this research are management staff, risk officers, sustainability officers and accountants. The estimated number of risk officers and sustainability officers in all the Access bank branches across Nigeria are 1650 and 1805 respectively. The total relevant officers for this research are 257 in number which are selected from five major branches and the Headquarters of access bank in the whole of Nigeria. The Yaro Yamani formula is used to determine the sample size in order to draw the appropriate sample for this study. The formula is as follows:

$$n = \frac{N}{1 + N(e)2}$$

Where n = sample size, N = population size e = error limit

N = 257 e = 0.05

Therefore n = 157 approximately.

Data collected is analysed using Statistical package for social science students (SPSS) which expresses the data in tables, frequencies, and percentages while Chi-square was used to test the hypotheses formulated.

Table 1: Demographic data of the respondents

VARIABLES		FREQUENCY	PERCENTAGE (%)
SEX	Male	60	38.2
	Female	97	61.8
	Total	**157**	**100**
AGE (YEARS)	25 – 30	45	28.7
	31 – 40	65	41.4
	41 – 45	24	15.3
	46 – 50	23	14.6
	Total	**157**	**100**
WORK EXPERIENCE (YEARS)	1 -5	20	12.8
	6 -10	15	9.6
	11 -15	29	18.5
	16 -20	40	25.5
	21 -25	53	33.6
	Total	**157**	**100**

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VARIABLES		FREQUENCY	PERCENTAGE (%)
EDUCATIONAL QUALIFICATION	SSCE	25	15.9
	OND	43	27.4
	B.Sc/HND	37	23.6
	M.Sc/MBA	23	14.7
	OTHERS	29	18.4
	Total	**157**	**100**
POSITION AT WORK	Accountant	65	41.4
	Sustainability	23	14.6
	officers	24	15.3
	Management staff	45	28.7
	Risk officers	**157**	**100**
	Total		

Source: Field survey 2022

Table 4.1 above shows that male respondents made up 38.2 percent of the total, while female respondents made up 61.8 percent. In addition, 28.7% of respondents were between the ages of 25 and 30, 41.4 percent were between the ages of 31 and 40, 15.3 percent were between the ages of 41 and 45, and 14.6 percent were between the ages of 46 and 50. According to the work experience information, 20 respondents (12.8 percent) have worked between 1 and 5 years, 15 respondents (9.6%) have worked between 6 and 10 years, 29 respondents (18%) have worked between 11 and 15 years, 25.5 percent of the respondents (40) have worked between 16 and 20 years, and 53 respondents (33.3 percent) have worked between 16 and 20 years.

Table 2. Sustainable banking practice and environmental risk management practices

S/N	Statement	SA (%) 5	A(%) 4	U(%) 3	D(%) 2	SD(%) 1	Total (%)
1	There is a relationship between sustainable banking practices and risk management in Access Bank	35 (22.3)	28 (17.8)	32 (20.4)	27 (17.2)	35 (22.3)	157 (100)

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S/N	Statement	SA (%) 5	A(%) 4	U(%) 3	D(%) 2	SD(%) 1	Total (%)
2.	Sustainable banking practices have minimized Environmental and social risk associated with loans in Access bank	21 (13.4)	28 (17.8)	33 (21.0)	35 (54.83)	40 (25.5)	157 (100)
3	Sustainable banking practices have created necessary awareness about environmental and social risk associated with loans which was previously not the case	28 (17.8)	22 (14)	34 (21.7)	21 (13.4)	52 (33.1)	157 (100)
4	Sustainable banking practices has reduced loan disbursement to sin companies e.g. oil and gas, cement, chemicals, Breweries etc.	53 (33.8)	23 (14.7)	33 (21)	29 (18.5)	19 (12.1)	157 (100)
5	Sustainable banking practices help to improve banks reputation	32 (20.4)	28 (17.8)	37 (23.7)	28 (17.8)	32 (20.4)	157 (100)
6	Sustainable banking practices forces companies to reduce their environmental footprints	21 (13.4)	28 (17.8)	33 (21.0)	35 (54.83)	40 (25.5)	157 (100)

Source: Field survey 2022

Table 4.2 shows that 35 of the respondents (22.3 percent) strongly agreed that there is a relationship between sustainable banking practices and risk management in Access Bank between 2012 and 2019, and 28 respondents (17.8%) strongly agreed that sustainable banking practices have minimized environmental and social risk associated with Access Bank.

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Table 3. Social and Environmental risk management practices

6	There is a relationship between risk management and profitability in Access bank of Nigeria Ltd	35 (22.3)	28 (17.8)	32 (20.4)	27 (17.2)	35 (22.3)	157 (100)
7	Environmental and social risk management principle has enhanced profitability in Access bank of Nigeria	21 (13.4)	28 (17.8)	33 (21.0)	35 (54.83)	40 (25.5)	157 (100)
8	Noncompliance with Environmental and social risk management principle reduces profitability in Access bank of Nigeria Ltd	28 (17.8)	22 (14)	34 (21.7)	21 (13.4)	52 (33.1)	157 (100)
9	Environmental and social risk management principal drives profitability through customer and stakeholders' satisfaction	53 (33.8)	23 (14.7)	33 (21)	29 (18.5)	19 (12.1)	157 (100)
10	Environmental and social risk management principle is a major principle that promotes both profit and wealth maximization in the banking sector.	32 (20.4)	28 (17.8)	37 (23.7)	28 (17.8)	32 (20.4)	157 (100)

Source: Field survey 2022

From table 4.3 above which is analysing how to determine the extent to which risk management practices drives growth and profitability in Access bank of Nigeria shows that 35 and 28 respondents representing 22.3% and 17.8% respectively strongly agreed and agreed with the fact that there is a relationship between risk management and profitability in Access bank of Nigeria while 21 and 52 respondents representing 13.4% and 33.1% respectively strongly disagreed and

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disagreed with the fact that noncompliance with Environmental and social risk management principle reduces profitability in Access bank of Nigeria.

Table 4. Sustainable banking practices

11	Sustainable banking principles have improved Access bank reputation in Nigeria	21 (13.4)	28 (17.8)	33 (21.0)	35 (54.83)	40 (25.5)	157 (100)
12	Continuous Environmental and social risk management practices have improved Access bank reputation	32 (20.4)	28 (17.8)	37 (23.7)	28 (17.8)	32 (20.4)	157 (100)
13	Sustainable banking principles has improved the corporate image of Access bank activities with customer	53 (33.8)	23 (14.7)	33 (21)	29 (18.5)	19 (12.1)	157 (100)
14	Environmental and social risk management practices have improved customer's perception of Access bank	28 (17.8)	21 (13.4)	33 (21.0)	35 (54.83)	40 (25.5)	157 (100)
15	Sustainable banking principles has reduced the reputational risk of Access bank	28 (17.8)	22 (14)	34 (21.7)	21 (13.4)	52 (33.1)	157 (100)

Source: Field survey 2022

From table 4.4 above which is to examine how has sustainable banking principles help to improve banks reputation in Nigeria shows that not only that sustainable banking principles have improved Access bank reputation in Nigeria as supported by 53 and 23 respondents representing 33.8% and 14.7% respectively who strongly agreed and agreed to this fact however 28 respondents representing 17.8% strongly disagreed that Continuous Environmental and social risk management practices has improve Access bank reputation and 52 respondents representing 33.1% disagreed that sustainable banking principles has reduced the reputational risk of Access bank.

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Generally from the analysis of the research question it was realized that Structural dimension of quality of work life which include salary, benefit and reward, safety in work environment, job security, attracting and retaining programmes and Opportunities to learn new skills has a significant impact on employees' productivity and also managerial dimension of quality of work life and social dimension of quality of work life which include balance of workload will always reduce employees' turnover.

Analysis of Research Hypothesis

Hypothesis One

H_0: There is no association between sustainable banking practices and Environmental and Social risk Management in Access Bank of Nigeria

Table 5. Descriptive statistics of the Data

Descriptive Statistics					
	N	Mean	Std. Deviation	Minimum	Maximum
sustainable banking practices	157	2.68	1.291	1	5
Environmental and social risk management	157	2.59	1.286	1	5

Source: computation from SPSS 2020

Table 6. Chi-Square Test

Test Statistics		
	sustainable banking practices	Environmental and social risk management
Chi-Square	11.949[a]	15.834[a]
df	4	4
Asymp. Sig.	.018	.003
a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 31.4.		

Source: computation from SPSS 2022

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The hypothesis test above shows that chi-square test value of 11.949 has a p. Value of 0.018, the second which has a chi-square value of 15.834 has a p. Value of 0.0003 and the p. Values are at 5% significance level therefore we reject the null hypothesis which states that there is no association between sustainable banking practices and Environmental and Social risk Management in Access Bank of Nigeria.

We can therefore conclude that there is association between sustainable banking and Environmental and Social risk Management practices in Access Bank of Nigeria

Hypothesis II

H_0: There is no association between social and Environmental Risk management and profitability in Access Bank

Table 7. Descriptive statistics of the Data

	N	Mean	Std. Deviation	Minimum	Maximum
social and Environmental Risk management	157	1.79	.211	1	5
profitability in Access Bank	157	1.07	.216	1	5

Source: computation from SPSS 2022

Table 8. Chi-Square Test

	social and Environmental Risk management	profitability in Access Bank
Chi-Square	21.946[a]	17.337[a]
df	4	4
Asymp. Sig.	.011	.007

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 31.4.

Source: computation from SPSS 2020

The hypothesis test above shows that chi-square test value of 21.946 has a p. Value of 0.011, the second which has a chi-square value of 17.337 has a p. Value of 0.007 and the p. Values are at 5% significance level therefore we reject the null hypothesis which states there is no association between social and Environmental Risk management and profitability in Access Bank. We can therefore conclude that there is association between social and Environmental Risk management and profitability in Access Bank.

Discussion of Findings

The three hypotheses which were tested in the research work showed a clear indication of positive contribution of sustainability principles adoption on risk management, profitability, and bank reputation in Access Bank Plc. The first hypothesis test showed that chi-square test value of 11.949 has a p. Value of 0.018, which shows that the test is statistically significant since the p value is less than 0.05, the second which has a chi-square value of 15.834 has a p. Value of 0.0003 at 5% significance level led to the rejection of the null hypothesis which states that there is no significant relationship between sustainable banking practices and risk management practices in Access bank plc. It was therefore concluded that there is significant relationship between sustainable banking practices and risk management practices in Access bank of Nigeria. This is consistent with the findings of Elkington (2008) who pinpointed that companies that adopted sustainable banking practices enhances their values and it helped them to minimize all form of risk that they are exposed to especially when the companies concentrate on environmental and social risk management.

The second hypothesis test above showed a chi-square test value of 21.946 with a p. Value of 0.011, which is less than 0.05 and that means the test is statistically significant and the second which has a chi-square value of 17.337 has a p. Value of 0.007 and the p. Values are at 5% significance led to the rejection the null hypothesis which states that Risk management practices does not drive growth and profitability in Access bank Plc. It is therefore concluded that Risk management practices drive growth and profitability in Access bank Plc. This result is also backed by the sustainable banking theory which explains that there is a relationship between sustainable banking practice and profitability in the long run. This result is consistent with the findings of Wigwe (2018) that sustainability is of utmost importance for the growth and profitability of the banking sector and considering the critical importance of banking sector in the economy, the growth of banking sector is the driver for the growth and

Summary, Conclusion and Recommendations

Sustainable banking benefits all stakeholders as well as society. Banks expect to be involved in and promote sustainable development through corporate social responsibility, which entails the organization acting ethically, contributing positively to society's welfare, and improving the quality of life in the local community and the community at large. 2014 (Odetayo). The bank's goodwill had increased tremendously because of its sustainability, boosting their external image, and attracting more customers through word-of-mouth advertising, which is very effective in Nigeria as one of the most potent tools for gaining and maintaining market share in the banking landscape. According to Herbert Wigwe, Access Bank's Managing Director Officer, "sustainability" is defined as "responsible business practices and community investment." Our sustainable development work is primarily focused on health, the arts, spots, education, gender empowerment, and the bank's environment. Any bank committed to long-term viability can confidently forecast a steady increase in profit accumulation and earnings per share percentage for the benefit of shareholders and other stakeholders. As a result, banks should be encouraged to adopt sustainable banking as a critical component of their long-term goals and sustainability strategy. Banking thrives in an environment where lenders promote activities that improve people's lives, according to Collins Nweze (2018). Banking should strive to meet the triple bottom line: People, Planet, and Profit.

Areas for Further Research

It is clear from the research that most banks are only paying service lips to sustainable banking practices given the fact that some of the banks are yet to adopt the sustainable banking principles due to reasons unknown. The reasons why some banks are yet to adopt sustainable banking principles given the fact that it is obvious that the principle had been adopted by Access Bank and some other commercial banks.

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APPENDIX 1

SECTION A
Please tick (√) as appropriate

1. Sex Male [ ] Female [ ]
2. Age (a) 25 – 30 years [ ] (b) 31 – 40 years [ ]
(c) 41 – 45 years [ ] (d) 46 – 50years [ ]
3. Working Experience
(a) 1-5 [ ] (b) 6-10 [ ] (c) 11-15 [ ] (d) 16 – 20[ ] (e) 21-25 [ ]
4. Educational Qualification
SSCE [ ] OND [ ]
B.Sc/HND [ ] M.Sc/MBA [ ]
Others [ ]
5. Position at work:
Accountant [ ] Sustainability officer [ ]
Management Staff [ ] Risk officer [ ]

SECTION B
INSTRUCTION

Please, read each of the following statements carefully and tick (√) the appropriate column to show the degree of your agreement to each of the options below:

Key: **5** – Strongly Agree **4**– Agreed **3** – Undecided
2– Strongly Disagreed **1**– Disagree

S/N	QUESTIONS	1	2	3	4	5
	To what extent does a sustainable banking practice enhance social and environmental risk management practices in Access bank plc					
6	There is a relationship between sustainable banking practices and risk management in First					
7	Sustainable banking practices have minimized Environmental and social risk associated with loans in First bank					
8	Sustainable banking practices have created necessary awareness about environmental and social risk associated with loans which was previously not the case					

S/N	QUESTIONS	1	2	3	4	5
9	Sustainable banking practices has reduced loan disbursement to sin companies e.g. oil and gas, cement, chemicals, Breweries etc.					
10	Sustainable banking practices help to improve banks reputation					
11	Sustainable banking practices forces companies to reduce their environmental footprints					
	To what extent does Social and Environmental risk management practices drive profitability in Access Bank plc					
12	There is a relationship between risk management and profitability in First Bank of Nigeria Ltd					
13.	Environmental and social risk management principle has enhanced profitability in First bank of Nigeria					
14.	Noncompliance with Environmental and social risk management principle reduces profitability in First Bank of Nigeria Ltd.					
15.	Environmental and social risk management principal drives profitability through customer and stakeholders' satisfaction					
16.	Environmental and social risk management principle is a major principle that promotes both profit and wealth maximization in the banking sector.					
	To what extent does Sustainable banking principles help to improve Access Bank reputation in Nigeria					
16	Sustainable banking principles have improved First bank reputation in Nigeria.					

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S/N	QUESTIONS	1	2	3	4	5
17	Continuous Environmental and social risk management practices have improved First bank reputation					
18	Sustainable banking principles has improved the corporate image of First bank activities with customer					
19	Environmental and social risk management practices have improved customer's perception of First bank					
20	Sustainable banking principles has reduced the reputational risk of First bank					

APPENDIX II

BRANCHES	HEADQUARTERS	A BRANCH IN PORTHARCOURT	A BRANCH IN KANO	A BRANCH IN LAGOS	**TOTAL**
SUSTAINABLE OFFICER	25	13	12	19	69
ACCOUNTANT	15	14	17	13	59
RISK MANAGERS	10	9	5	12	36
MANAGEMENT STAFF	25	20	20	28	93
				TOTAL	**257**

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TESTING THE VALIDITY OF THE FISCAL THEORY OF THE PRICE LEVEL (FTPL): A REVIEW OF INTERNATIONAL LITERATURE

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Abstract *The main objective of this paper is to review literature on the Fiscal Theory of the Price Level* **(***FTPL) and its validity in price level determination for both developed and developing economies. FTPL may be understood on the categorisation of the fiscal regime into two types, namely, the Ricardian and non-Ricardian regimes. Empirical evidence for the validity of FTPL on price level determination depends on dominant characteristics of the policy regime. The Ricardian regime does not hold for FTPL, while the non-Ricardian regime holds for FTPL. Based on surveyed empirical studies, time series and panel analysis were used through various estimation methods in the validation of FTPL. Most of the findings from the studies reviewed in this paper validated the FTPL. This means that inflationary episodes tend to be influenced by fiscal dominant regimes. The study concludes that the conduct of fiscal policy influences price dynamics. Hence, fiscal variables should be considered by the central bank in its monetary policy rule.*

Keywords: *FTPL, Fiscal deficits, Fiscal and Monetary policy, Inflation*

JEL Classification : *E31, E51, E52, E62, H62*

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1.0 Introduction

Fiscal policy affects monetary authority's ability to control inflation, especially under a fiscal dominant regime where the central bank may not be able to control inflationary pressures effectively. The macroeconomic consequences of fiscal policy have continued to be a major concern because of its undesirable consequences of pointing macroeconomic variables toward an unsustainable path. Fiscal policy is an important determinant of macroeconomic stability and long-term growth, and, as such, various economies have run-up high budget deficits. For instance, countries like the United State, Sweden, Turkey, Nigeria, Ghana, and the Gambia have from one time to another experienced deficit financing. Deficit financing is a phenomenon prevalent in both developed and developing economies mainly because of decreased government revenue accompanied by increasing expenditure. Public debt arises mainly from government's annual budget deficits, and the rising public debt levels in many countries suggest an increase in government expenditure financed by debt instead of tax, or in an attempt to finance fiscal deficit without raising taxes, the government has either borrowed from domestic or foreign sources to meet its expenditure needs. According to Aimola and Odhiambo (2021) in most developing countries, fiscal deficit is largely blamed for debt crisis, high inflation, and poor economic growth, and as such, fiscal deficit reduction is crucial for macroeconomic stabilisation and adjustment in these economies. Solomon and De Wet (2004) argue that Tanzania achieved macroeconomic stability (relatively low inflation and interest rates) through tight fiscal discipline. As a result, the low inflation rate achieved at the end of 1990s and early twenty-first century was explained by the introduction of improved fiscal discipline in Tanzania's economy.

Deficit inflationary pressures are a major concern because of their undesirable consequences of pointing macroeconomic variables and ratios towards an unsustainable path. As a result, the macroeconomic consequences of fiscal policy have remained the centre of attention for policymakers. According to Sargent and Wallace (1981), fiscal deficits are always inflationary whether they are monetised or not. This suggests that controlling inflationary pressures have both monetary and fiscal policy implications. Thus, the validity of FTPL has remained a source of empirical concern for both developed and developing economies.

Afonso (2002) defines FTPL as the categorisation of fiscal regimes into two types, namely, the Ricardian and non-Ricardian regimes. The Ricardian regime does not hold for FTPL, and price level is determined by inter-temporal budget constraints because of fiscal policy dominance (Bildirici and Ersin, 2006). FTPL focuses more on the non-Ricardian regime, with fiscal policy providing the nominal anchor for the economy, while in the Ricardian regime, monetary policy performs this role (Canzoneri, Cumby and Diba, 2001). Based on the non-Ricardian regime, additional measures are taken to restrict the freedom of fiscal authorities to ensure good monetary policy conditions sufficient to ensure low inflation. For the Ricardian regime, a good monetary policy is a necessary and sufficient condition to guarantee low inflation (Moreira, Souza and Almeida, 2007).

Recent studies have shown that controlling monetary and fiscal policy have inflationary pressure implications. Therefore, the knowledge of FTPL theory and its validity in price level determination would influence policy makers in the short- and long-term either to implement contractionary or expansionary fiscal policies for macroeconomic stability and non-inflationary growth. It is against this backdrop that this paper reviews literature on FTPL theory and its validity in price level determination for both developed and developing economies. Section 2 briefly reviews FTPL theory, and Section 3 discusses the empirical evidence of fiscal theory on price level determination. Finally, Section 4 concludes the paper.

2.0 Literature review

2.1 Fiscal theory of price level determination theory

The fiscal theory of price level determination shows the potential impact of fiscal policy on price level through the monetisation and wealth effect of public debt as the channel of fiscal influence on inflation (Kwon, McFarlane, and Robinson 2006; Walsh, 2010). There are two versions of FTPL, namely, the weak-form and strong-form. The weak-form of FTPL, according to Carlstrom and Fuerst (1999), is based on the Unpleasant Monetarist Arithmetic by Sargent and Wallace (1981). This form of FTPL acknowledges that inflation is indeed a monetary phenomenon, but the growth rate of money is dictated by the monetary authorities, as a function of fiscal policy variables. Hence, budget deficit in this form of FTPL is set independently by fiscal authority, with revenue generation determined through government bond auctions, taxes and seignories. Under the weak-form of FTPL, government budget constraint is satisfied by an exogenous fiscal policy and an endogenous money supply. The strong-form of FTPL was further developed building on the non-Ricardian view of inflation and presented in the studies by

Leeper (1991), Sims (1994, 1997), Woodford (1994, 1995, 1998), Cochrane (1999, 1998b) and Walsh (2010). The strong-form of FTPL suggests that fiscal policy is independent of monetary policy changes and affects price level as well as the path of inflation in an economy. The strong-form eliminates multiplicity of different initial price levels, which is consistent with different paths of future inflation through government budget constraints pinning down the initial price level. Thus, price level is determined independently by fiscal policy, even though monetary growth remains unchanged. In contrast to the weak-form of FTPL, fiscal policy can affect price levels without the effect of money growth in an economy.

The main idea behind the fiscal theory of price level is the idea that price level is determined through the inter-temporal government budget constraint. This means that the price level adjusts to assure that the value of nominal government debt, divided by the price level, equals the real present value of future budget surpluses. Government could determine primary budget balances, regardless of the level of public debt, with money and prices adjusting to the level of public debt to ensure the fulfilment of government budget constraint (Afonso, 2002). According to Christiano and Fitzgerald (2000), the fiscal theory of price level is different from the conventional view of inflation based on how it views the government inter-temporal budget equation in relation to the conventional view. This equation is expressed as:

$$\frac{B}{P} = present\ value\ of\ future\ surpluses \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \quad (1)$$

In Equation (1), B represents the outstanding nominal public debt and P is the price level. The conventional view holds that this equation is a constraint on government's budget policy irrespective of the value of P. Thus, for disturbance in Equation (1), equality is restored by the government altering its expenditures or taxes (Christiano and Fitzgerald, 2000). On the other hand, FTPL argues that the inter-temporal budget equation is an equilibrium condition, such that any disturbance to Equation (1), market clearing mechanism would move the price level, P, to restore equality. Hence, an increase in real value of government debt would require no adjustment to fiscal and monetary policy to satisfy Equation (1), indicating a non-Ricardian fiscal policy (Christiano and Fitzgerald, 2000).

Sargent and Wallace (1981), while adopting the framework by Phelps (1973) on public finance approaches to inflation revealed that even for the Ricardian policy, it was possible for fiscal authorities to affect the level of prices. Sargent and Wallace (1981) argued that with active fiscal and passive monetary policy, monetary policy

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would respond by setting the growth rate of money to generate the money seigniorage necessary to satisfy government budget constraints. Hence, contrary to monetarist views that only monetary aggregates drive inflation, if fiscal authority acts in a dominant fashion through expansionary fiscal policy, it is inflationary.

According to Leeper (1991), the interaction of fiscal and monetary policy would determine the level at which government budget constraints allow for monetary authorities' control of inflation. In an active monetary policy environment, monetary policy is set independently by the monetary authority, making public the growth rate of base money. Under this scenario, monetary authority is unconstrained and can actively pursue price stability by reacting strongly to inflation. Monetary authority would determine the amount of the government's seigniorage revenues. Fiscal authority constraints by private and monetary policy behaviour, would passively adjust bond sales to balance the budget. Hence, inflation is controlled by the monetary authority, in this case. On the other hand, in an active fiscal policy environment, the fiscal authority determines tax and government expenditures independent of inter-temporal budget constraints, preventing deficit shocks from being financed entirely with government debt. Under this scenario, monetary authority is constrained by private and fiscal policy behaviour and allows money stock to respond to deficit shock. Active policy, according to Moreira *et al.* (2007), considers past, current, or future values of economic variables, while passive policy is limited to past and current values of economic variables. Hence, active fiscal policy is not limited by current economic situations. This suggests a forward-looking non-Ricardian regime.

Nevertheless, FTPL has been criticised notably by Buiter (1998, 1999, 2002) and Niepelt (2004). Since the main point of FTPL is a focus on price level determination through inter-temporal government budget constraint, Buiter (2002) argues that the fiscal theory of price level confuses the roles of budget constraints and equilibrium conditions in the models of a market economy. Thus, the resulting 'equilibria' are either inconsistent because they were over-determined or implied a negative price level. Buiter (2002) also argued that FTPL could only hold when the government set nominal interest rates, unlike the Ricardian approach that was valid regardless of whether the government controlled the nominal interest rate or nominal money stock. Buiter (2002) further stresses that without taking into account a given price level, it does not seem reasonable for governments to use budget constraints to determine primary balance and the issuance of public debt in an economy. Niepelt (2004), on the other hand, argued that FTPL was inconsistent with a rational expectations equilibrium where all asset holdings reflected optimal household choices. Under such rational equilibrium expectations, Niepelt (2004) showed that policy must be Ricardian even if in some states of nature, the government defaults or runs an exogenous real primary surplus sequence. In response to these criticisms, Sims (1999) and Cochrane (2000) have argued on the consistency of FTPL unconstrained valuation equation in the determination of price level and established the validity of the main idea of FTPL as well as stressed that FTPL did not misinterpret inter-temporal government budget constraints. Against this theoretical background, this study further reviewed studies on empirical plausibility of FTPL that have used different country datasets.

2.2 Empirical evidence on fiscal theory of price level determination

The interaction between monetary and fiscal policy and their effects on price stability have been assessed from an empirical perspective using the FTPL. In the empirical evidence for FTPL, results for fiscal or monetary policy depend on which policy had dominant characteristics. The consequences of policies differ depending on the active and passive characteristics of the policy regime. Based on the non-Ricardian regime, additional measures are taken to restrict the freedom of fiscal authorities to ensure a good monetary policy that is sufficient to ensure low inflation (Moreira *et al.*, 2007). Several studies followed a times series approach in examining models in which fiscal factors replaced money supply as the key determinant of price level.

Empirical studies on the validity of FTPL found mixed results for advanced economies, especially in the United State and some European Union member countries. Canzoneri *et al.* (2001) used the VAR estimation approach to examine Ricardian equivalence in accordance with the FTPL for the United States for the post-World War II era. The approach, which focuses on a set of impulse response functions involving primary surplus and total government liabilities [(both as ratios to gross domestic product (GDP)], offers a very straightforward interpretation for the Ricardian regimes, more so than do the non-Ricardian regimes. The paper thus argued that Ricardian regimes provided a more plausible interpretation for the post-World War II data for the United States than did the non-Ricardian regimes. This suggested the active characteristics of monetary policy. Canzoneri *et al.* (2001) concluded that annual data for this period was not consistent with FTPL, although price level determination was in accordance with the Ricardian regimes. Creel and Sterdyniak (2002) and Erdogdu (2002) in another United States study also used the

VAR estimation method to analyse the responses of primary surpluses to domestic debt and concluded that for the United States, dominant monetary policy was consistent with the Ricardian regimes.

In contrast to these studies, other studies have found empirical evidence for the United States consistent with FTPL. Cochrane (1998a) and Cochrane (1998b) found empirical evidence consistent with FTPL for the United States from 1960. The study used a structural VAR estimation model of prices, debt and surplus to argue and conclude that price level determination in the United States economy was consistent with the FTPL. Favero and Monacelli (2005), on the other hand, employed the Markov-switching regression methods to estimate fiscal policy feedback rules in the United States in the period 1960 to 2002. This approach captured policy regime changes endogenously and revealed evidence consistent with FTPL in the United States for the period from 1960s throughout the 1980s and early 2001.

Afonso (2002) used panel data models through VAR estimation method to examine the feasibility of the fiscal theory of price levels, by assessing primary budget surplus as a percentage of GDP and debt-to-GDP ratio. The study focused on 15 European Union (EU) member countries, namely, Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, United Kingdom, Denmark, Greece, and Sweden over the period 1970 to 2001 to assess the possibility of FTPL. The paper found for the tested hypothesis on the reaction between budget surplus and the level of public debt used to validate FTPL in the 15 EU countries that FTPL did not fit these countries. The study concluded that the hypothesis for increased budget surplus in accordance with the existing stock of public debt and compliance with budget constraints could not be rejected. This suggested consistency with a regime of monetary policy dominance, namely, a Ricardian regime. Hence, there appeared to be no evidence for empirical validation of FTPL in the 15 EU countries. In another study by Canzoneri *et al.* (2002), they argued that because of government budget discipline in the United State and the European Union, and since FTPL gives a logically consistent argument for deficit limits, it was probably not relevant for governments in the Euro area. Although for a non-Ricardian regime, according to Moreira *et al.* (2007), additional measures are needed to be taken into consideration to restrict the freedom of fiscal authority because a good monetary policy condition is not a sufficient condition for ensuring low inflation.

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Studies have also emerged for developing economies testing the validity of FTPL. Loyo's (1999) influential study was the first attempt to show that FTPL provided an explanation for price dynamics in Brazil in the late 1970s and early 1980s. After this paper, several studies have tried to evaluate from an empirical perspective the evidence for fiscal dominance or monetary dominance in the Brazilian economy. Loyo (1999) explored the fiscal effects of monetary policy in Brazil and argued that the high levels of inflation in the late 1970s and early 1980s could be explained by FTPL for the country. As a result, the study provided an explanation for the fiscal effect of monetary policy in Brazil. Tanner and Ramos (2002) used monthly fiscal data for the period 1991to 2000 to examine if the fiscal regime in Brazil was better characterised as fiscal dominant or monetary dominant. The study also tested, to limit debt accumulation, whether primary deficit adjusted to changes in liabilities or real interest payments. The findings for their paper using the VAR estimation method showed that before the Real Plan Period (1994), changes in real government debt did not influence primary surplus. This suggested a dominant fiscal regime consistent with the non-Ricardian regimes and FTPL. After the period 1994, Tanner and Ramos' (2002) findings suggested a dominant monetary regime consistent with the Ricardian regime. However, Tanner and Ramos (2002) recommended that evidence for the Ricardian regime be viewed cautiously because most of the results for monetary dominance regime after several short period analyses was concentrated on the period 1995 to 1997.

Zoli (2005) analysed how fiscal policy affected monetary policy in emerging market economies for the period 1990 to 2004. A sample of eight countries, namely, Argentina, Brazil, Chile, Colombia, Mexico, Poland, South Africa, and Thailand were used. The paper motivated by the effects of increasing public sector liabilities on the conduct of monetary policy, tested for fiscal dominance in these economies. The study used VAR, Granger causality, and impulse response function analytical methods to examine public sector liabilities and primary balances reactions for the identification of fiscal dominance regimes. Findings for the study revealed that no country had a clear dominant monetary regime for the whole sample period. Argentina and Brazil were largely characterised by a fiscal dominant regime both for the whole sample period and most sub-periods. These findings for Brazil corroborated Tanner and Ramos (2002) evidence of fiscal dominant regimes for the 1990s. Zoli (2005) concluded that only in the case of Argentina and Brazil did evidence clearly point to fiscal dominant regimes during the 1990s and early 2000s, whereas for Colombia, Mexico, Thailand and Poland, the results were more ambiguous.

Moreira *et al.* (2007) tested empirically for Brazil whether the economy presented an active or passive fiscal and monetary policies over the period 1995 to 2006. The study analysed through the transmission channels of fiscal and monetary policies by estimating the Philips curve and fiscal IS curve. The Leeper model was also used to test whether or not monetary and fiscal policies were passive. The main result from the paper using quarterly data showed that empirical evidence from the IS equation and Leeper model showed a significant fiscal dominance regime. This means that a non-Ricardian regime with the consistency of the FTPL was evidenced. Moreira *et al.* (2007) concluded that the central bank of Brazil should take into account fiscal variables in its monetary policy rule. In contrast to the studies for Brazil, other studies found empirical evidence consistent with the Ricardian regime in this economy. Rocha and Silva (2004) for the period 1996 to 2000, and Fialho and Portugal (2005) for the period 1995 to 2003 followed the approach proposed in Canzoneri *et al.* (2001) for testing the validity of the Ricardian regime in the Brazilian economy and concluded that data for the study periods were consistent with the Ricardian regime (Moreira *et al.*, 2007).

Bildirici and Erisin (2006) analysed FTPL theory for Turkey in accordance with the Ricardian Equivalence Theorem over the period 1933 to 2004. The study used Engle-Granger (1987) co-integration and vector error correction (VEC) models' analytical methods to investigate short- and long- term dynamics of domestic debt on price levels. The main findings for this study showed that the policies followed for the study period suggested strong evidence that the Ricardian equivalence theorem did not hold for the Turkish economy. This suggested that inflationary episodes in Turkey were highly influenced by fiscal dominance regimes, especially after the 1980s where increasing government bonds lead to wealth effects and caused price levels to rise. The consistency of FTPL for the Turkish economy was concluded for this paper.

Attiya, Umaima and Abdul (2008) examined the validity of FTPL in Pakistan over the period 1971 to 2007. Like many developing countries, Pakistan's monetary policy was under the pressure of budget deficit and fiscal policy shocks that might have played a role in the determination of prices. The study followed the approach suggested by Canzoneri, *et al.* (2001) as well as Tanner and Ramos (2002) to analyse the validity of FTPL theory in accordance with the Ricardian Equivalence Theorem using the Pakistani data. An unrestricted VAR model was used for the identification of monetary or fiscal dominant regimes by estimating the impulse response function and variance decomposition. The study found, as predicted by FTPL, that the occurrence of wealth effects on changes in nominal public debt might pass through to prices by increasing inflation variability in Pakistan. As a result, the authors concluded for Pakistan the validity of FTPL. In another study by Akram, Rais and Padda (2011), the interaction of domestic debt, fiscal deficit, money supply and exchange rate with the price level in Pakistan was analysed. The study tried to establish whether fiscal or monetary policy regimes were dominant in the country by using VAR models along variance decomposition, Granger causality and impulse response function estimation approach in the period 1973 to 2010. The main findings for the paper showed that both monetary and fiscal policies played significant roles in the determination of prices, but the role of fiscal policy was comparatively stronger than monetary policy. Hence, the validity of FTPL for Pakistan.

Baldini and Ribineiro (2008) investigated empirical validity of both Ricardian and non-Ricardian regimes using non-structural VAR and Johansen co-integration analytical method on a sample of 22 Sub-Saharan African countries for the period 1980 to 2005. The 22 countries were Botswana, Burundi, Cameroon, Ethiopia, Ghana, Kenya, Lesotho, Malawi, Mali, Mauritius, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Swaziland, Tanzania, Togo, Uganda, Zambia, and Zimbabwe. The sample was divided into three subgroups, namely, (i) CFA (four countries: Cameroon, Mali, Senegal, and Togo); (ii) non-CFA fixed (four countries: Botswana, Lesotho, Seychelles, and Swaziland); and (iii) others (14 countries) were tested for the wealth effects of domestic public debt and money growth on inflation. The deviations from Ricardian equivalence were also tested for the identification of fiscal dominant regimes. The main findings for the paper showed that Cameroon, Kenya, Nigeria, Rwanda, and South Africa were characterised by dominant monetary regimes, while Botswana, Burundi, Tanzania, and Zimbabwe by dominant fiscal regimes throughout the study period. For the remaining countries, results were not clear of the dominant regimes throughout the sample period. The study further showed that for countries under monetary dominant or Ricardian regime, inflation variability could also be associated with changes in nominal public debt, implying that nominal debt variability could be detrimental to price volatility.

Chuku (2010), in another study for Nigeria, examined the nature of fiscal policies in Nigeria between 1970 and 2008 using a vector autoregression model.

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The results from the simulated generalised impulse response graphs generated from VAR estimation contradicted the earlier paper as he found evidence of a non-Ricardian fiscal policy regime in Nigeria. The study tested whether fiscal regime in Nigeria followed the Ricardian or non-Ricardian approach, to ascertain whether the assumptions for fiscal theory of price level determination were valid or invalid for the country. This approach also examined the interaction between fiscal balance (overall surplus or deficit of government finances) and government liabilities (Federal Government's domestic debt outstanding), both as a percentage of nominal GDP ratio. The results showed a significant negative correlation between fiscal balances and government liability in Nigeria. This suggested that net borrowing did not decrease when fiscal balance decreased, rather it increased when fiscal balances decreased. This observed relationship suggested the existence of a non-Ricardian fiscal policy in Nigeria. The study concluded that for Nigeria, the validity of FTPL, which postulates that changes in prices are driven by fiscal policies. This meant that inflation for the study period, largely resulted from fiscal problems and not from lack of monetary control. Table no. 1 summarises the results of the selected studies on fiscal theory of price level determination.

Table no.1: Selected studies on empirical evidence of fiscal theory of price level determination

Author (s)	Title	Region/ Country	Period	Variables	Methodology	Findings
Cochrane (1998a)	A frictionless view of U.S. inflation	United States	1960-1996	• ross Domestic Product (GDP) • Primary Surplus • Primary deficit • nterest rate • nflation rate • oney supply • utput/consum	• Structural vector autoregressive (SVAR) model	Evidence consistent with fiscal theory of price level was found

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Author (s)	Title	Region/ Country	Period	Variables	Methodology	Findings
				ption ratio • otal outstanding federal debt		
Canzoneri *et al.* (2001)	Is the price level determined by the needs of fiscal solvency?	United States	Post-World War II era (1951-1995)	• ross Domestic Product • Primary Surplus/GDP • Total Liabilities/GDP. • nterest rate • ominal income • Price level	• Vector autoregressive (VAR) model	Evidence of dominant monetary policy in accordance with the Ricardian regimes was found
Erdogdu (2002)	Price level determination: Ricardian vs. non-Ricardian Policies	United States	1959-1998	• DP • rice level • nterest rate • oney supply • overnment revenue • Outstanding Federal government debt	• ointegration analysis • VAR model • tructural vector error correction model (SVECM) • mpulse Response Function • ariance Decomposition	Neither SVAR nor SVECM results provided evidence for the validity FTPL

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Author (s)	Title	Region/ Country	Period	Variables	Methodology	Findings
Afonso (2002)	Disturbing the fiscal theory of the price level: Can it fit the EU-15?	15 European Union (EU) member countries	1970-2001	• Primary budget surplus • GDP at market prices • Public debt • Total public receipts • Price deflator of private final consumption expenditure	• Panel data models • VAR model	FTPL was not consistent with the 15 EU member countries
Tanner and Ramos (2002)	Fiscal sustainability and monetary versus fiscal dominance: Evidence from Brazil (1991-2000)	Brazil	1991-2000	• Primary deficits • Price level • Public debt • GDP • Interest rate • Interest payments • Government expenditure • Government revenue	• Vector auto regression model	Evidence of dominant monetary policy regime (1995-1997) was found, consistent with FTPL for the remaining period
Favero and Monacelli (2005)	Fiscal policy rules and regime (In) Stability: Evidence from the United States	United States	1961-2002	• GDP • Primary deficit • Cost of financing debt • Federal debt • Output gap • Inflation rate	• Markov-switching regression methods	Evidence consistent with FTPL for the period 1960s throughout the 1980s was found before switching to passive in the early

Author (s)	Title	Region/ Country	Period	Variables	Methodology	Findings
						1990s and back to active in the early 2001s
Bildirici and Erisin (2006)	Fiscal theory of price level and economic crises: The case of Turkey	Turkey	1933-2004	• Inflation rate • Domestic debt • Primary surplus • GDP	• Co-integration analysis • Vector error correction mechanism	Findings supported dominant fiscal policy and the validity of FTPL
Moreira *et al.* (2007)	The fiscal theory of the price level and the interaction of monetary and fiscal policies: The Brazilian case	Brazil	1995-2006	• Output gap • Inflation rate • Nominal interest rate • Nominal fiscal deficit • Real exchange rate • Nominal exchange rate • Nominal GDP	• Estimation of Philips curve and fiscal IS curve • Leeper model • Two-stage least squares with GMM standard errors	Active fiscal policy was found, which suggested the validity of FTPL for Brazil
Baldini and Ribineiro (2008)	Fiscal and monetary anchors for price stability: Evidence from Sub-Saharan Africa	Sub-Saharan African (SSA) Countrie s	1980-2005	• Domestic debt • Reserve money growth • Discount rate • Real output gap • Inflation rate • External debt • Total public debt • Exchange rate regime • Grants	• Co-integration analysis • VAR analysis • Panel VAR analysis	Mixed evidence of dominant fiscal and monetary policy regimes was found. However, a number of countries were characteris

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Author (s)	Title	Region/ Country	Period	Variables	Methodology	Findings
				• Primary and total public surplus		ed by lack of clear monetary or fiscal policy regimes.
Attiya *et al.* (2008)	Testing the fiscal theory of price level in case of Pakistan	Pakistan	1970-2007	• Government expenditure • Government revenue • Consumer price index • Reserve money • Discount rate • GDP	• Unrestricted VAR	Evidence Supporting FTPL in Pakistan was found
Chuku (2010)	Monetary and fiscal policy interactions in Nigeria: An application of a state-space model with Markov-switching	Nigeria	1970-2008	• Fiscal balance • Government liabilities • GDP • Price level	• VAR model • Impulse response function • State-space Markov-switching VAR model	Evidence supporting FTPL in Nigeria was found
Akram *et al.* (2011)	Synthesis of the fiscal and monetary policies in price level determination: Evidence from Pakistan	Pakistan	1973-2010	• Price level • Money supply • Domestic debt • Fiscal deficit • Exchange rate	• VAR model • Granger causality • Impulse response function	Results showed that the impact of fiscal policy was stronger than monetary policy in the determinat

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Author (s)	Title	Region/ Country	Period	Variables	Methodology	Findings
						ion of price level in Pakistan

Source: Authors' compilation

3.0 Research methodology

The purpose of this study is to analyse literature on FTPL theory and its validity in price level determination by performing a literature review. The research methodology used for this paper is qualitative and consists of a review of scholarly studies on FTPL theory and its validity in price level determination in both developed and developing economies. The research methodology which is based on the purpose of the paper provides a detail surveyed of previous studies on both the theoretical and empirical fronts.

4.0 Findings

The study provides an insight into the validity of FTPL theory in price level determination based on a detailed review of literature. The surveyed literature shows that the validity of FTPL theory in price level determination varies from country to country, with either evidence supporting it or not. However, in most of the literature, the validity of fiscal theory of price level determination tilts towards evidence supporting it. This finding is more prominent in developing economies. Although there is no consensus on the validity of FTPL theory in price level determination, the study found that evidence supporting the validity of FTPL theory in price level determination tends to predominate among the studies reviewed.

5.0 Conclusion

The aim of this study was to review literature on FTPL theory and its validity in price level determination in both developed and developing economies. The role of fiscal policy in recent times has become more active in inflationary episodes. Understanding the validity of FTPL on price level determination provides a basis for deliberation among policymakers in order to design and implement effective fiscal and monetary policies. Based on surveyed empirical studies, time series and panel analysis were used through various estimation methods in the validation of FTPL theory. Most of the findings from the studies reviewed in this paper validated FTPL in price level determination. This means that inflationary episodes are influenced by dominant fiscal regimes. The study, therefore, concludes that price dynamics are influenced by the conduct of fiscal policy. The main policy implication of this paper is that fiscal variables should be taken into account by the central bank in its monetary policy rule. Going forward and considering macroeconomic fallout from Coronavirus disease (COVID-19) worldwide, research related to the inflationary impact of fiscal policy/fiscal deficit will continue to be an important area of research.

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UTILITY MAXIMIZATION ANALYSIS OF AN EMERGING FIRM: A BORDERED HESSIAN APPROACH

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Abstract:
In this paper, the method of Lagrange multipliers is used to investigate the utility function; subject to two constraints: budget constraint, and coupon constraint, and to verify that the utility is maximized. An economic model of an emerging firm has been developed here by considering four commodity variables. In the study, the determinant of the 6×6 bordered Hessian matrix is operated to verify the utility maximization. Two LaGrange multipliers are used here, as devices of optimization procedures, during the mathematical calculation. In this article, an attempt has been taken to achieve optimal results by the application of scientific methods of optimization.

Keywords: Bordered Hessian, commodity, Lagrange multipliers, utility maximization

JEL Codes: C51, C61, C67, L23, L97, I31

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1. Introduction

At present mathematical modeling in economics is an essential part; especially during the investigation of optimization policy [Samuelson, 1947; Carter, 2001]. The concept of utility was developed in the late 18th century by the English moral philosopher Jeremy Bentham (1748-1832) and English philosopher John Stuart Mill (1806-1873) [Bentham, 1780; Gauthier, 1975; Read, 2004]. The property of a commodity that enables us to satisfy human wants is called utility [Bentham, 1780; Mohajan & Mohajan, 2022a, b]. Individuals seek to obtain the highest level of satisfaction from their purchasing goods [Stigler, 1950; Kirsh, 2017]. In society, utility directly influences the demand and supply of the firms [Fishburn, 1970].

In multivariate calculus, Lagrange multipliers method is a very useful and powerful technique, which transforms a constrained problem to a higher dimensional unconstrained problem [Islam et al., 2009a, b, Mohajan, 2021 b,c]. To increase the utility of the consumers we have included a coupon system among the consumers. The individuals in the society can buy coupons with a stipulated price and buy the essential commodities on priority basis [Islam et al., 2010, 2011; Moscati, 2013; Mohajan & Mohajan, 2022b]. In society, utility maximization is a blessing both for humankind and the firm; as it provides maximum profit to the firms and in parallel increases welfare of the society [Eaton & Lipsey, 1975].

In this study, we have included four commodity variables to analyze the optimization techniques. We have operated the study with the determinant of 6×6 Hessian matrix, where four commodity variables, their corresponding four price vectors and four types of coupon number system are applied. In the analysis we have considered two commodities are of unit amount, and later we have considered four commodities are of unit amount. Finally, we have considered that prices and number of coupons of a pair of commodities are same, and ultimately we have proved that utility is maximized [Mohajan, 2021a].

2. Literature Review

Two American economists John V. Baxley and John C. Moorhouse have discussed the utility maximization method through the mathematical formulation, where they have introduced an explicit example of optimization [Baxley & Moorhouse, 1984]. Qi Zhao and his coauthors have proposed multi-product utility maximization as a general approach to the recommendation driven by economic principles [Zhao et al., 2017].

Pahlaj Moolio and his coauthors have used a Lagrange multiplier to form and improve economic models. They have also taken attempts to develop and solve optimization problems [Moolio et al., 2009]. Well-known mathematician Jamal Nazrul Islam and his coauthors have discussed utility maximization and other optimization problems by considering reasonable interpretation of the Lagrange multipliers. In their studies they have examined the behavior of the firm/organizations by analyzing comparative static results [Islam et al., 2009a, b, 2010, 2011]. Lia Roy and her coworkers have discussed cost minimization policy of an industry with detailed mathematical formulation [Roy et al., 2021].

Two authors Jannatul Ferdous and Haradhan Kumar Mohajan have tried to calculate a profit maximization problem from sale items of an industry [Ferdous & Mohajan, 2022]. Devajit Mohajan and Haradhan Kumar Mohajan have consulted on profit maximization problem. They have used four variable inputs, such as capital, labor, principal raw materials, and other inputs in an industry [Mohajan & Mohajan, 2022a]. They have also discussed the utility maximization of an organization by considering two constraints: budget constraint and coupon constraint [Mohajan & Mohajan, 2022b].

Earlier, Haradhan Kumar Mohajan has used three inputs, such as capital, labor and other inputs for the sustainable production of a factory of Bangladesh [Mohajan, 2021b]. He also discussed the utility maximization of Bangladeshi consumers, where he has followed the optimization techniques [Mohajan, 2021a]. He and his coauthors have scrutinized optimization problems for social welfare [Mohajan et al., 2013].

3. Methodology of the Study

Methodology in any creative research is organized and meaningful procedural works that follow scientific methods efficiently [Kothari, 2008]. In this study, we have considered two Lagrange multipliers λ_1 and λ_2; and have applied the determinant of 6×6 Hessian matrix [Mohajan, 2022a, b]. In this study, we have considered an economic world where there are only four commodities. We started our study with a 4-dimensional constrained problem, and later we added two Lagrange multipliers. Then the Lagrangian function becomes a 6-dimensional unconstrained problem that maximizes utility function [Mohajan, 2017a, 2022b].

To prepare this paper, we have followed both qualitative and quantitative research approaches [Mohajan, 2018, 2020]. We have tried our best to maintain the reliability and validity, and also have tried to cite references properly both in the text and reference list [Mohajan, 2017b, 2020]. In this paper, we have depended on the secondary data sources for optimization. We have taken help from the

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published journal articles, printed books of famous authors, conference papers, internet, websites, etc. [Mohajan, 2018, 2022c].

4. Objective of the Study

The core objective of this study is to verify the utility maximization policy of an emerging firm. The other trivial objectives are as follows:

- to expand the determinant of bordered Hessian matrix properly, and
- to provide mathematical calculations accurately.

5. An Economic Model

We consider four commodities of a firm as: X_1, X_2, X_3, and X_4 [Mohajan & Mohajan, 2022b]. Let a consumer wants to buy only α_1, α_2, α_3, and α_4 amounts from these four commodities. In this model, we consider that the consumer spends all of his/her income to purchase these four commodities, and also submits all of his/her coupons. Let us consider a utility function as follows [Islam et al., 2010; Mohajan & Mohajan, 2022b]:

$$u(\alpha_1,\alpha_2,\alpha_3,\alpha_4)=\alpha_1\alpha_2\alpha_3\alpha_4. \qquad (1)$$

The budget constraint of the consumer is [Moolio et al., 2009],

$$B = p_1\alpha_1 + p_2\alpha_2 + p_3\alpha_3 + p_4\alpha_4 \qquad (2)$$

where p_1, p_2, p_3, and p_4 are the prices (in dollars) of per unit of commodity of X_1, X_2, X_3, and X_4, respectively. Now the coupon constraint is [Roy et al., 2021; Ferdous & Mohajan, 2022],

$$K = c_1\alpha_1 + c_2\alpha_2 + c_3\alpha_3 + c_4\alpha_4 \qquad (3)$$

where c_1, c_2, c_3, and c_4 are the coupons necessary to buy a unit of commodity of α_1, α_2, α_3, and α_4, respectively.

Using utility function from (2) and (3) in (1) we get Lagrangian function [Mohajan & Mohajan, 2022b],

$$v(\alpha_1,\alpha_2,\alpha_3,\alpha_4,\mu_1,\mu_2)=\alpha_1\alpha_2\alpha_3\alpha_4+\lambda_1(B-p_1\alpha_1-p_2\alpha_2-p_3\alpha_3-p_4\alpha_4)$$
$$+\lambda_2(K-c_1\alpha_1-c_2\alpha_2-c_3\alpha_3-c_4\alpha_4) \qquad (4)$$

where λ_1 and λ_2 Lagrangian multipliers. Lagrangian function (4) is a 6-dimensional unconstrained problem that maximizes utility function. Using the

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necessary conditions of multivariate calculus for maximization in equation (4) we yield [Islam et al., 2011; Mohajan, 2021a];

$$v_{\mu_1} = B - p_1\alpha_1 - p_2\alpha_2 - p_3\alpha_3 - p_4\alpha_4 = 0, \tag{5a}$$

$$v_{\mu_2} = K - c_1\alpha_1 - c_2\alpha_2 - c_3\alpha_3 - c_4\alpha_4 = 0, \tag{5b}$$

$$v_1 = \alpha_2\alpha_3\alpha_4 - \mu_1 p_1 - \mu_2 c_1 = 0, \tag{5c}$$

$$v_2 = \alpha_1\alpha_3\alpha_4 - \mu_1 p_2 - \mu_2 c_2 = 0, \tag{5d}$$

$$v_3 = \alpha_1\alpha_2\alpha_4 - \mu_1 p_3 - \mu_2 c_3 = 0, \text{ and} \tag{5e}$$

$$v_4 = \alpha_1\alpha_2\alpha_3 - \mu_1 p_4 - \mu_2 c_4 = 0. \tag{5f}$$

Using equations (1) to (5a-f) we can express α_1, α_2, α_3, and α_4 as follows [Mohajan & Mohajan, 2022b]:

$$\alpha_1 = \frac{Bc_2 - Cp_2}{c_2 p_1 + c_1 p_2} + \frac{c_3 p_2 - c_2 p_3}{c_2 p_1 + c_1 p_2}\alpha_3 + \frac{c_4 p_2 - c_2 p_4}{c_2 p_1 + c_1 p_2}\alpha_4 \tag{6}$$

$$\alpha_2 = \frac{Cp_1 - Bc_1}{c_2 p_1 + c_1 p_2} - \frac{c_1 p_3 + c_3 p_1}{c_2 p_1 + c_1 p_2}\alpha_3 - \frac{c_1 p_4 + c_4 p_1}{c_2 p_1 + c_1 p_2}\alpha_4 \tag{7}$$

where $c_2 p_1 + c_1 p_2 \neq 0$.

For the simplicity let, $\alpha_3 = \alpha_4 = 1$, i.e., these commodities have one unit each; the amount of other two commodities can be accounted as;

$$\alpha_1 = \frac{(c_3 + c_4 - K)p_2 + (B - p_3 - p_4)c_2}{c_2 p_1 + c_1 p_2}, \tag{8}$$

$$\alpha_2 = \frac{-(c_3 + c_4 - K)p_1 - (B + p_3 + p_4)c_1}{c_2 p_1 + c_1 p_2}. \tag{9}$$

Since α_1 and α_2 are number of commodities, so that they are of course positive. Equation (6) indicates that $\alpha_1 > 0$, if $c_3 + c_4 > K$ and $B > p_3 + p_4$. On the other hand, equation (7) indicates that $\alpha_2 > 0$, if $K > c_3 + c_4$ and $(K - c_3 - c_4)p_1 > (B + p_3 + p_4)c_1$.

Multiplying (8) and (9) we get;

$$\alpha_1\alpha_2 = \frac{-(K-c_3-c_4)^2 p_1p_2 - \left\{B^2-(p_3+p_4)^2\right\}c_1c_2}{(c_2p_1+c_1p_2)^2}$$
$$\times \frac{\left\{B(c_2p_1+c_1p_2)+(p_3+p_4)(c_1p_2-c_2p_1)\right\}}{(K-c_3-c_4)^{-1}}. \qquad (10)$$

Since α_1 and α_2 are positive, and their product $\alpha_1\alpha_1$ is also positive. Equation (10) indicates that $c_3+c_4>K$ and $B>p_3+p_4$. Equations (8) to (10) show that $c_3+c_4>K$ and $B>p_3+p_4$ in our economic model for $\alpha_1>0$, $\alpha_2>0$, and $\alpha_1\alpha_1>0$.

Now taking second order and cross-partial derivatives in (5a-f) we obtain;

$$B_1=p_1,\ B_2=p_2,\ B_3=p_3,\ B_4=p_4.$$
$$K_1=c_1,\ K_2=c_2,\ K_3=c_3,\ K_4=c_4. \qquad (11)$$
$$v_{11}=0,\ v_{12}=v_{21}=\alpha_3\alpha_4,\ v_{13}=v_{31}=\alpha_2\alpha_4,$$
$$v_{14}=v_{41}=\alpha_2\alpha_3,\ v_{22}=0,\ v_{23}=v_{32}=\alpha_1\alpha_4,$$
$$v_{24}=v_{42}=\alpha_1\alpha_3,\ v_{33}=0,\ v_{34}=v_{43}=\alpha_1\alpha_2,\quad v_{44}=0. \qquad (12)$$

Now we consider the bordered Hessian [Roy et al., 2021; Mohajan & Mohajan, 2022a],

$$|H| = \begin{vmatrix} 0 & 0 & -B_1 & -B_2 & -B_3 & -B_4 \\ 0 & 0 & -K_1 & -K_2 & -K_3 & -K_4 \\ -B_1 & -K_1 & v_{11} & v_{12} & v_{13} & v_{14} \\ -B_2 & -K_2 & v_{21} & v_{22} & v_{23} & v_{24} \\ -B_3 & -K_3 & v_{31} & v_{32} & v_{33} & v_{34} \\ -B_4 & -K_4 & v_{41} & v_{42} & v_{43} & v_{44} \end{vmatrix}. \qquad (13)$$

In our model, the number of constraints is two and commodity variables are four. For utility to be maximized, the determinant of the 6×6 Hssian matrix must be negative, i.e., $|H|<0$. Now taking the expansion of (13) we get [Islam et al., 2010; Mohajan & Mohajan, 2022a],

$$|H| = -B_1 \begin{vmatrix} 0 & 0 & -K_2 & -K_3 & -K_4 \\ -B_1 & -K_1 & v_{12} & v_{13} & v_{14} \\ -B_2 & -K_2 & v_{22} & v_{23} & v_{24} \\ -B_3 & -K_3 & v_{32} & v_{33} & v_{34} \\ -B_4 & -K_4 & v_{42} & v_{43} & v_{44} \end{vmatrix}$$

$$+ B_2 \begin{vmatrix} 0 & 0 & -K_1 & -K_3 & -K_4 \\ -B_1 & -K_1 & v_{11} & v_{13} & v_{14} \\ -B_2 & -K_2 & v_{21} & v_{23} & v_{24} \\ -B_3 & -K_3 & v_{31} & v_{33} & v_{34} \\ -B_4 & -K_4 & v_{41} & v_{43} & v_{44} \end{vmatrix} - B_3 \begin{vmatrix} 0 & 0 & -K_1 & -K_2 & -K_4 \\ -B_1 & -K_1 & v_{11} & v_{12} & v_{14} \\ -B_2 & -K_2 & v_{21} & v_{22} & v_{24} \\ -B_3 & -K_3 & v_{31} & v_{32} & v_{34} \\ -B_4 & -K_4 & v_{41} & v_{42} & v_{44} \end{vmatrix}$$

$$+ B_4 \begin{vmatrix} 0 & 0 & -K_1 & -K_2 & -K_3 \\ -B_1 & -K_1 & v_{11} & v_{12} & v_{13} \\ -B_2 & -K_2 & v_{21} & v_{22} & v_{23} \\ -B_3 & -K_3 & v_{31} & v_{32} & v_{33} \\ -B_4 & -K_4 & v_{41} & v_{42} & v_{43} \end{vmatrix}$$

$$= -B_1 \left\{ -K_2 \begin{vmatrix} -B_1 & -K_1 & v_{13} & v_{14} \\ -B_2 & -K_2 & v_{23} & v_{24} \\ -B_3 & -K_3 & v_{33} & v_{34} \\ -B_4 & -K_4 & v_{43} & v_{44} \end{vmatrix} + K_3 \begin{vmatrix} -B_1 & -K_1 & v_{12} & v_{14} \\ -B_2 & -K_2 & v_{22} & v_{24} \\ -B_3 & -K_3 & v_{32} & v_{34} \\ -B_4 & -K_4 & v_{42} & v_{44} \end{vmatrix} \right.$$

$$\left. - K_4 \begin{vmatrix} -B_1 & -K_1 & v_{12} & v_{13} \\ -B_2 & -K_2 & v_{22} & v_{23} \\ -B_3 & -K_3 & v_{32} & v_{33} \\ -B_4 & -K_4 & v_{42} & v_{43} \end{vmatrix} \right\} + B_2 \left\{ -K_1 \begin{vmatrix} -B_1 & -K_1 & v_{13} & v_{14} \\ -B_2 & -K_2 & v_{23} & v_{24} \\ -B_3 & -K_3 & v_{33} & v_{34} \\ -B_4 & -K_4 & v_{43} & v_{44} \end{vmatrix} \right.$$

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$$+K_3\begin{vmatrix}-B_1 & -K_1 & v_{11} & v_{14}\\ -B_2 & -K_2 & v_{21} & v_{24}\\ -B_3 & -K_3 & v_{31} & v_{34}\\ -B_4 & -K_4 & v_{41} & v_{44}\end{vmatrix} -K_4\begin{vmatrix}-B_1 & -K_1 & v_{11} & v_{13}\\ -B_2 & -K_2 & v_{21} & v_{23}\\ -B_3 & -K_3 & v_{31} & v_{33}\\ -B_4 & -K_4 & v_{41} & v_{43}\end{vmatrix}\Bigg\}$$

$$-B_3\Bigg\{-K_1\begin{vmatrix}-B_1 & -K_1 & v_{12} & v_{14}\\ -B_2 & -K_2 & v_{22} & v_{24}\\ -B_3 & -K_3 & v_{32} & v_{34}\\ -B_4 & -K_4 & v_{42} & v_{44}\end{vmatrix} +K_2\begin{vmatrix}-B_1 & -K_1 & v_{11} & v_{14}\\ -B_2 & -K_2 & v_{21} & v_{24}\\ -B_3 & -K_3 & v_{31} & v_{34}\\ -B_4 & -K_4 & v_{41} & v_{44}\end{vmatrix}$$

$$-K_4\begin{vmatrix}-B_1 & -K_1 & v_{11} & v_{12}\\ -B_2 & -K_2 & v_{21} & v_{22}\\ -B_3 & -K_3 & v_{31} & v_{32}\\ -B_4 & -K_4 & v_{41} & v_{42}\end{vmatrix}\Bigg\} +B_4\Bigg\{-K_1\begin{vmatrix}-B_1 & -K_1 & v_{12} & v_{13}\\ -B_2 & -K_2 & v_{22} & v_{23}\\ -B_3 & -K_3 & v_{32} & v_{33}\\ -B_4 & -K_4 & v_{42} & v_{43}\end{vmatrix}$$

$$+K_2\begin{vmatrix}-B_1 & -K_1 & v_{11} & v_{13}\\ -B_2 & -K_2 & v_{21} & v_{23}\\ -B_3 & -K_3 & v_{31} & v_{33}\\ -B_4 & -K_4 & v_{41} & v_{43}\end{vmatrix} -K_3\begin{vmatrix}-B_1 & -K_1 & v_{11} & v_{12}\\ -B_2 & -K_2 & v_{21} & v_{22}\\ -B_3 & -K_3 & v_{31} & v_{32}\\ -B_4 & -K_4 & v_{41} & v_{42}\end{vmatrix}\Bigg\}\Bigg\}$$

$$=B_1K_2\Bigg\{-B_1\begin{vmatrix}-K_2 & v_{23} & v_{24}\\ -K_3 & v_{33} & v_{34}\\ -K_4 & v_{43} & v_{44}\end{vmatrix} +K_1\begin{vmatrix}-B_2 & v_{23} & v_{24}\\ -B_3 & v_{33} & v_{34}\\ -B_4 & v_{43} & v_{44}\end{vmatrix} +v_{13}\begin{vmatrix}-B_2 & -K_2 & v_{24}\\ -B_3 & -K_3 & v_{34}\\ -B_4 & -K_4 & v_{44}\end{vmatrix}$$

$$-v_{14}\begin{vmatrix}-B_2 & -K_2 & v_{23}\\ -B_3 & -K_3 & v_{33}\\ -B_4 & -K_4 & v_{43}\end{vmatrix}\Bigg\} -B_1K_3\Bigg\{-B_1\begin{vmatrix}-K_2 & v_{22} & v_{24}\\ -K_3 & v_{32} & v_{34}\\ -K_4 & v_{42} & v_{44}\end{vmatrix} +K_1\begin{vmatrix}-B_2 & v_{22} & v_{24}\\ -B_3 & v_{32} & v_{34}\\ -B_4 & v_{42} & v_{44}\end{vmatrix}$$

$$+v_{12}\begin{vmatrix}-B_2 & -K_2 & v_{24}\\ -B_3 & -K_3 & v_{34}\\ -B_4 & -K_4 & v_{44}\end{vmatrix} -v_{14}\begin{vmatrix}-B_2 & -K_2 & v_{22}\\ -B_3 & -K_3 & v_{32}\\ -B_4 & -K_4 & v_{42}\end{vmatrix}\Bigg\} +B_1K_4\Bigg\{-B_1\begin{vmatrix}-K_2 & v_{22} & v_{23}\\ -K_3 & v_{32} & v_{33}\\ -K_4 & v_{42} & v_{43}\end{vmatrix}$$

$$\left. +K_1\begin{vmatrix} -B_2 & v_{22} & v_{23} \\ -B_3 & v_{32} & v_{33} \\ -B_4 & v_{42} & v_{43} \end{vmatrix} +v_{12}\begin{vmatrix} -B_2 & -K_2 & v_{23} \\ -B_3 & -K_3 & v_{33} \\ -B_4 & -K_4 & v_{43} \end{vmatrix} -v_{13}\begin{vmatrix} -B_2 & -K_2 & v_{22} \\ -B_3 & -K_3 & v_{32} \\ -B_4 & -K_4 & v_{42} \end{vmatrix} \right\}$$

$$-B_2K_1\left\{ -B_1\begin{vmatrix} -K_2 & v_{23} & v_{24} \\ -K_3 & v_{33} & v_{34} \\ -K_4 & v_{43} & v_{44} \end{vmatrix} +K_1\begin{vmatrix} -B_2 & v_{21} & v_{24} \\ -B_3 & v_{31} & v_{34} \\ -B_4 & v_{41} & v_{44} \end{vmatrix} -v_{14}\begin{vmatrix} -B_2 & -K_2 & v_{21} \\ -B_3 & -K_3 & v_{31} \\ -B_4 & -K_4 & v_{41} \end{vmatrix} \right\}$$

$$+B_2K_3\left\{ -B_1\begin{vmatrix} -K_2 & v_{21} & v_{24} \\ -K_3 & v_{31} & v_{34} \\ -K_4 & v_{41} & v_{44} \end{vmatrix} +K_1\begin{vmatrix} -B_2 & v_{23} & v_{24} \\ -B_3 & v_{33} & v_{34} \\ -B_4 & v_{43} & v_{44} \end{vmatrix} +v_{13}\begin{vmatrix} -B_2 & -K_2 & v_{24} \\ -B_3 & -K_3 & v_{34} \\ -B_4 & -K_4 & v_{44} \end{vmatrix} \right.$$

$$\left. -v_{14}\begin{vmatrix} -B_2 & -K_2 & v_{23} \\ -B_3 & -K_3 & v_{33} \\ -B_4 & -K_4 & v_{43} \end{vmatrix} \right\} -B_2K_4\left\{ -B_1\begin{vmatrix} -K_2 & v_{21} & v_{23} \\ -K_3 & v_{31} & v_{33} \\ -K_4 & v_{41} & v_{43} \end{vmatrix} +K_1\begin{vmatrix} -B_2 & v_{21} & v_{23} \\ -B_3 & v_{31} & v_{33} \\ -B_4 & v_{41} & v_{43} \end{vmatrix} \right.$$

$$\left. -v_{13}\begin{vmatrix} -B_2 & -K_2 & v_{21} \\ -B_3 & -K_3 & v_{31} \\ -B_4 & -K_4 & v_{41} \end{vmatrix} \right\} +B_3K_1\left\{ -B_1\begin{vmatrix} -K_2 & v_{22} & v_{24} \\ -K_3 & v_{32} & v_{34} \\ -K_4 & v_{42} & v_{44} \end{vmatrix} +K_1\begin{vmatrix} -B_2 & v_{22} & v_{24} \\ -B_3 & v_{32} & v_{34} \\ -B_4 & v_{42} & v_{44} \end{vmatrix} \right.$$

$$\left. +v_{12}\begin{vmatrix} -B_2 & -K_2 & v_{24} \\ -B_3 & -K_3 & v_{34} \\ -B_4 & -K_4 & v_{44} \end{vmatrix} -v_{14}\begin{vmatrix} -B_2 & -K_2 & v_{22} \\ -B_3 & -K_3 & v_{32} \\ -B_4 & -K_4 & v_{42} \end{vmatrix} \right\} -B_3K_2\left\{ -B_1\begin{vmatrix} -K_2 & v_{21} & v_{24} \\ -K_3 & v_{31} & v_{34} \\ -K_4 & v_{41} & v_{44} \end{vmatrix} \right.$$

$$\left. +K_1\begin{vmatrix} -B_2 & v_{21} & v_{24} \\ -B_3 & v_{31} & v_{34} \\ -B_4 & v_{41} & v_{44} \end{vmatrix} -v_{14}\begin{vmatrix} -B_2 & -K_2 & v_{21} \\ -B_3 & -K_3 & v_{31} \\ -B_4 & -K_4 & v_{41} \end{vmatrix} \right\} +B_3K_4\left\{ -B_1\begin{vmatrix} -K_2 & v_{21} & v_{22} \\ -K_3 & v_{31} & v_{32} \\ -K_4 & v_{41} & v_{42} \end{vmatrix} \right.$$

$$\left. +K_1\begin{vmatrix} -B_2 & v_{21} & v_{22} \\ -B_3 & v_{31} & v_{32} \\ -B_4 & v_{41} & v_{42} \end{vmatrix} -v_{12}\begin{vmatrix} -B_2 & -K_2 & v_{21} \\ -B_3 & -K_3 & v_{31} \\ -B_4 & -K_4 & v_{41} \end{vmatrix} \right\} -B_4K_1\left\{ -B_1\begin{vmatrix} -K_2 & v_{22} & v_{23} \\ -K_3 & v_{32} & v_{33} \\ -K_4 & v_{42} & v_{43} \end{vmatrix} \right.$$

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$$+K_1\begin{vmatrix}-B_2 & v_{22} & v_{23}\\ -B_3 & v_{32} & v_{33}\\ -B_4 & v_{42} & v_{43}\end{vmatrix} + v_{12}\begin{vmatrix}-B_2 & -K_2 & v_{23}\\ -B_3 & -K_3 & v_{33}\\ -B_4 & -K_4 & v_{43}\end{vmatrix} - v_{13}\begin{vmatrix}-B_2 & -K_2 & v_{22}\\ -B_3 & -K_3 & v_{32}\\ -B_4 & -K_4 & v_{42}\end{vmatrix}\Bigg\}$$

$$+B_4K_2\Bigg\{-B_1\begin{vmatrix}-K_2 & v_{21} & v_{23}\\ -K_3 & v_{31} & v_{33}\\ -K_4 & v_{41} & v_{43}\end{vmatrix} + K_1\begin{vmatrix}-B_2 & v_{21} & v_{23}\\ -B_3 & v_{31} & v_{33}\\ -B_4 & v_{41} & v_{43}\end{vmatrix} - v_{13}\begin{vmatrix}-B_2 & -K_2 & v_{21}\\ -B_3 & -K_3 & v_{31}\\ -B_4 & -K_4 & v_{41}\end{vmatrix}\Bigg\}$$

$$-B_4K_3\Bigg\{-B_1\begin{vmatrix}-K_2 & v_{21} & v_{22}\\ -K_3 & v_{31} & v_{32}\\ -K_4 & v_{41} & v_{42}\end{vmatrix} + K_1\begin{vmatrix}-B_2 & v_{21} & v_{22}\\ -B_3 & v_{31} & v_{32}\\ -B_4 & v_{41} & v_{42}\end{vmatrix} - v_{12}\begin{vmatrix}-B_2 & -K_2 & v_{21}\\ -B_3 & -K_3 & v_{31}\\ -B_4 & -K_4 & v_{41}\end{vmatrix}\Bigg\}$$

$$\begin{aligned}
&= -B_1^2K_2^2v_{34}^2 + B_1^2K_2K_4v_{23}v_{34} + B_1^2K_2K_3v_{24}v_{34} + B_1B_2K_1K_2v_{34}^2 - B_1B_4K_1K_2v_{23}v_{34}\\
&+ B_1B_3K_1K_2v_{24}v_{34}\\
&- B_1B_2K_2K_4v_{13}v_{34} + B_1B_4K_2^2v_{13}v_{34} + B_1B_3K_2K_4v_{13}v_{24} - B_1B_4K_2K_3v_{13}v_{24}\\
&- B_1B_2K_2K_3v_{14}v_{34} + B_1B_3K_2K_3v_{14}v_{34} + B_1B_3K_2K_4v_{14}v_{23} - B_1B_4K_2K_3v_{14}v_{23}\\
&+ B_1^2K_2K_3v_{24}v_{34} - B_1^2K_3^2v_{24}^2 + B_1^2K_3K_4v_{24}v_{23} - B_1B_2K_1K_3v_{24}v_{34} + B_1B_3K_1K_3v_{24}^2\\
&- B_1B_4K_1K_3v_{24}v_{23} - B_1B_2K_3K_4v_{12}v_{34} - B_1B_4K_2K_3v_{12}v_{34} - B_1B_3K_3K_4v_{12}v_{24}\\
&+ B_1B_4K_3^2v_{12}v_{24} + B_1B_2K_3^2v_{14}v_{24} - B_1B_2K_3K_4v_{14}v_{23} - B_1B_3K_2K_3v_{14}v_{24}\\
&+ B_1B_4K_2K_3v_{14}v_{23} + B_1^2K_2K_4v_{23}v_{34} + B_1^2K_3K_4v_{23}v_{24} - B_1^2K_4^2v_{23}^2\\
&- B_1B_2K_1K_4v_{23}v_{34} - B_1B_3K_1K_4v_{23}v_{24} + B_1B_4K_1K_4v_{23}^2 + B_1B_2K_3K_4v_{12}v_{34}\\
&- B_1B_2K_2K_4v_{12}v_{34} + B_1B_3K_4^2v_{12}v_{23} - B_1B_4K_3K_4v_{12}v_{23} - B_1B_2K_3K_4v_{13}v_{24}\\
&+ B_1B_2K_4^2v_{13}v_{23} + B_1B_3K_2K_4v_{13}v_{24} - B_1B_4K_2K_4v_{13}v_{23} + B_1B_2K_1K_2v_{34}^2\\
&- B_1B_2K_1K_4v_{23}v_{34} - B_1B_2K_1K_3v_{24}v_{34} - B_1B_2K_2K_3v_{14}v_{34} - B_1B_2K_3^2v_{12}v_{14}\\
&+ B_1B_2K_3K_4v_{12}v_{13} + B_1B_2K_3^2v_{24}v_{14} + B_1B_2K_3K_4v_{13}v_{24} - B_2^2K_1^2v_{34}^2\\
&+ B_2B_4K_1^2v_{23}v_{34} + B_2B_3K_1^2v_{24}v_{34} + B_2^2K_1K_4v_{13}v_{34} - B_2B_4K_1K_2v_{13}v_{34}\\
&- B_2B_3K_1K_4v_{13}v_{24} + B_2B_3K_1K_3v_{13}v_{24} + B_2^2K_1K_3v_{14}v_{34} - B_2B_3K_1K_2v_{14}v_{34}
\end{aligned}$$

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$$
\begin{aligned}
&+B_2B_3K_1K_4v_{14}v_{23} - B_2B_4K_1K_3v_{14}v_{23} - B_1B_2K_2K_3v_{14}v_{34} - B_1B_2K_3K_4v_{12}v_{34}\\
&+B_1B_2K_3^2v_{24}v_{14} - B_1B_2K_3K_4v_{24}v_{13} + B_2^2K_1K_4v_{14}v_{34} - B_2B_3K_1K_3v_{12}v_{34}\\
&-B_2B_3K_1K_3v_{24}v_{12} + B_2B_4K_1K_3v_{24}v_{14} - B_2^2K_3^2v_{14}^2 + B_2B_3K_2K_3v_{14}v_{34}\\
&-B_2B_3K_3K_4v_{12}v_{14} + B_2B_4K_3^2v_{12}v_{14} - B_1B_2K_2K_4v_{13}v_{34} - B_1B_2K_3K_4v_{12}v_{34}\\
&-B_1B_2K_3K_4v_{14}v_{23} + B_1B_2K_4^2v_{23}v_{13} + B_2^2K_1K_4v_{13}v_{34} - B_2B_3K_1K_4v_{12}v_{34}\\
&+B_2B_3K_1K_4v_{14}v_{23} - B_2B_4K_1K_4v_{23}v_{13} + B_2^2K_3K_4v_{13}v_{14} - B_2^2K_4^2v_{13}^2\\
&-B_2B_3K_2K_4v_{13}v_{14} + B_2B_4K_2K_4v_{13}^2 + B_2B_3K_4^2v_{13}v_{12} - B_2B_4K_3K_4v_{13}v_{12}\\
&-B_1B_3K_1K_2v_{24}v_{34} + B_1B_3K_1K_3v_{24}^2 - B_1B_3K_1K_4v_{24}v_{23} + B_2B_3K_1^2v_{24}v_{34} - B_3^2K_1^2v_{24}^2\\
&+B_3B_4K_1^2v_{23}v_{24} - B_2B_3K_1K_4v_{12}v_{34} + B_3B_4K_1K_2v_{12}v_{34} + B_3^2K_1K_4v_{12}v_{24}\\
&-B_3B_4K_1K_3v_{12}v_{24} + B_2B_3K_1K_3v_{14}v_{24} - B_2B_3K_1K_4v_{14}v_{23} + B_3^2K_1K_2v_{14}v_{24}\\
&-B_3B_4K_1K_2v_{14}v_{23} + B_1B_3K_2^2v_{14}v_{34} - B_1B_3K_2K_4v_{12}v_{34} - B_1B_3K_2K_3v_{14}v_{24}\\
&+B_1B_3K_2K_4v_{13}v_{24} - B_2B_3K_1K_2v_{14}v_{34} + B_3B_4K_1K_2v_{12}v_{34} + B_3^2K_1K_2v_{14}v_{24}\\
&-B_3B_4K_1K_2v_{13}v_{24} + B_2B_3K_2K_3v_{14}^2 - B_2B_3K_2K_4v_{13}v_{14} - B_3^2K_2^2v_{14}^2\\
&+B_3B_4K_2^2v_{13}v_{14} + B_3^2K_2K_4v_{12}v_{14} - B_3B_4K_2K_3v_{12}v_{14} + B_1B_3K_2K_4v_{13}v_{24}\\
&-B_1B_3K_2K_4v_{14}v_{23} - B_1B_3K_3K_4v_{12}v_{24} + B_1B_3K_4^2v_{12}v_{23} - B_2B_3K_1K_4v_{13}v_{24}\\
&+B_2B_3K_1K_4v_{14}v_{23} + B_3^2K_1K_4v_{12}v_{24} - B_3B_4K_1K_4v_{12}v_{23} - B_2B_3K_3K_4v_{12}v_{14}\\
&+B_2B_3K_4^2v_{12}v_{13} + B_3^2K_2K_4v_{12}v_{14} - B_3B_4K_2K_4v_{12}v_{13} - B_3^2K_4^2v_{12}^2 + B_3B_4K_3K_4v_{12}^2\\
&-B_1B_4K_1K_2v_{23}v_{34} - B_1B_4K_1K_3v_{24}v_{23} + B_1B_4K_1K_4v_{23}^2 + B_2B_4K_1^2v_{23}v_{34}\\
&+B_3B_4K_1^2v_{23}v_{24} - B_4^2K_1^2v_{23}^2 + B_2B_4K_1K_3v_{12}v_{34} + B_3B_4K_1K_2v_{12}v_{34}\\
&-B_3B_4K_1K_4v_{12}v_{23} + B_3^2K_1K_3v_{12}v_{23} + B_2B_4K_1K_3v_{13}v_{24} - B_2B_4K_1K_4v_{13}v_{23}\\
&-B_3B_4K_1K_2v_{13}v_{23} + B_4^2K_1K_2v_{13}v_{24} - B_2B_4K_1K_2v_{13}v_{34} + B_3B_4K_1K_2v_{12}v_{34}\\
&-B_3B_4K_1K_2v_{13}v_{23} + B_4^2K_1K_2v_{13}v_{23} - B_2B_4K_2K_3v_{13}v_{14} + B_2B_4K_2K_4v_{13}^2\\
&+B_3B_4K_2^2v_{13}v_{14} - B_4^2K_2^2v_{13}^2 - B_1B_4K_2K_3v_{13}v_{24} + B_1B_4K_2K_4v_{14}v_{23} + B_1B_4K_3^2v_{12}v_{14}\\
&-B_1B_4K_3K_4v_{12}v_{13} + B_2B_4K_1K_3v_{13}v_{24} - B_2B_4K_1K_4v_{14}v_{23} - B_3B_4K_1K_3v_{12}v_{24}
\end{aligned}
$$

$$+B_4^2K_1K_3v_{12}v_{23} + B_2B_4K_3^2v_{12}v_{14} - B_2B_4K_3K_4v_{12}v_{13} - B_3B_4K_2K_3v_{12}v_{14}$$
$$+B_4^2K_2K_3v_{12}v_{13}$$
$$= -p_1^2c_1^2\alpha_1^2\alpha_2^2 + p_1^2c_2c_4\alpha_1^2\alpha_2\alpha_4 + p_1^2c_2c_3\alpha_1^2\alpha_2\alpha_3 + p_1p_2c_1c_2\alpha_1^2\alpha_2^2$$
$$-p_1p_4c_1c_2\alpha_1^2\alpha_2\alpha_4 + p_1p_3c_1c_2\alpha_1^2\alpha_2\alpha_3 - p_1p_2c_2c_4\alpha_1\alpha_2^2\alpha_4 + p_1p_4c_2^2\alpha_1\alpha_2^2\alpha_4$$
$$+p_1p_3c_2c_4\alpha_1\alpha_2\alpha_3\alpha_4 - p_1p_4c_2c_3\alpha_1\alpha_2\alpha_3\alpha_4 - p_1p_2c_2c_3\alpha_1\alpha_2^2\alpha_4$$
$$+p_1p_3c_2c_3\alpha_1\alpha_2^2\alpha_3 + p_1p_3c_2c_4\alpha_1\alpha_2\alpha_3\alpha_4 - p_1p_4c_2c_3\alpha_1\alpha_2\alpha_3\alpha_4 + p_1^2c_2c_3\alpha_1^2\alpha_2\alpha_3$$
$$-p_1^2c_3^2\alpha_1^2\alpha_2^2 + p_1^2c_3c_4\alpha_1^2\alpha_3\alpha_4 - p_1p_2c_1c_3\alpha_1^2\alpha_2\alpha_3 + p_1p_3c_1c_3\alpha_1^2\alpha_3^2$$
$$-p_1p_4c_1c_3\alpha_1^2\alpha_3\alpha_4 - p_1p_2c_3c_4\alpha_1\alpha_2\alpha_3\alpha_4 - p_1p_4c_2c_3\alpha_1\alpha_2\alpha_3\alpha_4$$
$$-p_1p_3c_3c_4\alpha_1\alpha_3^2\alpha_4 + p_1p_4c_3^2\alpha_1\alpha_3^2\alpha_4 + p_1p_2c_3^2\alpha_1\alpha_2\alpha_3^2 - p_1p_2c_3c_4\alpha_1\alpha_2\alpha_3\alpha_4$$
$$-p_1p_3c_2c_3\alpha_1\alpha_2\alpha_3^2 + p_1p_4c_2c_3\alpha_1\alpha_2\alpha_3\alpha_4 + p_1^2c_2c_4\alpha_1^2\alpha_2\alpha_4 + p_1^2c_3c_4\alpha_1^2\alpha_3\alpha_4$$
$$-p_1^2c_4^2\alpha_1^2\alpha_4^2 - p_1p_2c_1c_4\alpha_1^2\alpha_2\alpha_4 - p_1p_3c_1c_4\alpha_1^2\alpha_3\alpha_4 + p_1p_4c_1c_4\alpha_1^2\alpha_4^2$$
$$+p_1p_2c_3c_4\alpha_1\alpha_2\alpha_3\alpha_4 - p_1p_2c_2c_4\alpha_1\alpha_2\alpha_3\alpha_4 + p_1p_3c_4^2\alpha_1\alpha_3\alpha_4^2 - p_1p_4c_3c_4\alpha_1\alpha_3\alpha_4^2$$
$$-p_1p_2c_3c_4\alpha_1\alpha_2\alpha_3\alpha_4 + p_1p_2c_4^2\alpha_1\alpha_2\alpha_4^2 + p_1p_3c_2c_4\alpha_1\alpha_2\alpha_3\alpha_4$$
$$-p_1p_4c_2c_4\alpha_1\alpha_2\alpha_4^2 - p_1p_2c_2c_3\alpha_1\alpha_2^2\alpha_3 - p_1p_2c_3^2\alpha_2\alpha_3^2\alpha_4 + p_1p_2c_3c_4\alpha_2\alpha_3\alpha_4^2$$
$$+p_1p_2c_3^2\alpha_1\alpha_2\alpha_3^2 + p_1p_2c_3c_4\alpha_1\alpha_2^2\alpha_4 - p_2^2c_1^2\alpha_1^2\alpha_2^2 + p_2p_4c_1^2\alpha_1^2\alpha_2\alpha_3$$
$$+p_2p_3c_1^2\alpha_1^2\alpha_2\alpha_3 + p_1p_2c_1c_2\alpha_1^2\alpha_2^2 - p_1p_2c_1c_4\alpha_1^2\alpha_2\alpha_4 - p_1p_2c_1c_3\alpha_1^2\alpha_2\alpha_3$$
$$+p_2^2c_1c_4\alpha_1\alpha_2^2\alpha_4 - p_2p_4c_1c_2\alpha_1\alpha_2^2\alpha_4 - p_2p_3c_1c_4\alpha_1\alpha_2\alpha_3\alpha_4 + p_2p_3c_1c_3\alpha_1\alpha_2\alpha_3\alpha_4$$
$$+p_2^2c_1c_3\alpha_1\alpha_2^2\alpha_3 - p_2p_3c_1c_2\alpha_1\alpha_2^2\alpha_3 + p_2p_3c_1c_4\alpha_1\alpha_2\alpha_3\alpha_4 - p_2p_4c_1c_3\alpha_1\alpha_2\alpha_3\alpha_4$$
$$-p_1p_2c_2c_3\alpha_1\alpha_2^2\alpha_3 - p_1p_2c_3c_4\alpha_1\alpha_2\alpha_3\alpha_4 + p_1p_2c_3^2\alpha_1\alpha_2\alpha_3^2 - p_1p_2c_3c_4\alpha_1\alpha_2\alpha_3\alpha_4$$
$$+p_2^2c_1c_4\alpha_1\alpha_2^2\alpha_3 - p_2p_3c_1c_3\alpha_1\alpha_2\alpha_3\alpha_4 - p_2p_3c_1c_3\alpha_1\alpha_3^2\alpha_4 + p_2p_4c_1c_3\alpha_1\alpha_2\alpha_3\alpha_4$$
$$-p_2^2c_3^2\alpha_2^2\alpha_3^2 + p_2p_3c_2c_3\alpha_1\alpha_2^2\alpha_3 - p_2p_3c_3c_4\alpha_2\alpha_3^2\alpha_4 + p_2p_4c_3^2\alpha_2\alpha_3^2\alpha_4$$
$$-p_1p_2c_2c_4\alpha_1\alpha_2^2\alpha_4 - p_1p_2c_3c_4\alpha_1\alpha_2\alpha_3\alpha_4 - p_1p_2c_3c_4\alpha_1\alpha_2\alpha_3\alpha_4$$
$$+p_1p_2c_4^2\alpha_1\alpha_2\alpha_4^2 + p_2^2c_1c_4\alpha_1\alpha_2^2\alpha_4 - p_2p_3c_1c_4\alpha_1\alpha_2\alpha_3\alpha_4 + p_2p_3c_1c_4\alpha_1\alpha_2\alpha_3\alpha_4$$
$$-p_2p_4c_1c_4\alpha_1\alpha_2\alpha_4^2 + p_2^2c_3c_4\alpha_2^2\alpha_3\alpha_4 - p_2^2c_4^2\alpha_2^2\alpha_4^2 - p_2p_3c_2c_4\alpha_2^2\alpha_3\alpha_4$$

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$$+ p_2 p_4 c_2 c_4 \alpha_2^2 \alpha_4^2 + p_2 p_3 c_4^2 \alpha_2 \alpha_3 \alpha_4^2 - p_2 p_4 c_3 c_4 \alpha_2 \alpha_3 \alpha_4^2 - p_1 p_3 c_1 c_2 \alpha_1^2 \alpha_2 \alpha_3$$
$$+ p_1 p_3 c_1 c_3 \alpha_1^2 \alpha_3^2 - p_1 p_3 c_1 c_4 \alpha_1^2 \alpha_3 \alpha_4 + p_2 p_3 c_1^2 \alpha_1^2 \alpha_2 \alpha_3 - p_3^2 c_1^2 \alpha_1^2 \alpha_3^2$$
$$+ p_3 p_4 c_1^2 \alpha_1^2 \alpha_3 \alpha_4 - p_2 p_3 c_1 c_4 \alpha_1 \alpha_2 \alpha_3 \alpha_4 + p_3 p_4 c_1 c_2 \alpha_1 \alpha_2 \alpha_3 \alpha_4 + p_3^2 c_1 c_4 \alpha_1 \alpha_3^2 \alpha_4$$
$$- p_3 p_4 c_1 c_3 \alpha_1 \alpha_3^2 \alpha_4 + p_2 p_3 c_1 c_3 \alpha_1 \alpha_2 \alpha_3^2 - p_2 p_3 c_1 c_4 \alpha_1 \alpha_2 \alpha_3 \alpha_4 + p_3^2 c_1 c_2 \alpha_1 \alpha_2 \alpha_3^2$$
$$- p_3 p_4 c_1 c_2 \alpha_1 \alpha_2 \alpha_3 \alpha_4 + p_1 p_3 c_2^2 \alpha_1 \alpha_2^2 \alpha_3 - p_1 p_3 c_2 c_4 \alpha_1 \alpha_2 \alpha_3 \alpha_4 - p_1 p_3 c_2 c_3 \alpha_1 \alpha_2 \alpha_3^2$$
$$+ p_1 p_3 c_2 c_4 \alpha_1 \alpha_2 \alpha_3 \alpha_4 - p_2 p_3 c_1 c_1 \alpha_1 \alpha_2^2 \alpha_3 + p_3 p_4 c_1 c_2 \alpha_1 \alpha_2 \alpha_3 \alpha_4 + p_3^2 c_1 c_2 \alpha_1 \alpha_2 \alpha_3^2$$
$$- p_3 p_4 c_1 c_2 \alpha_1 \alpha_2 \alpha_3 \alpha_4 + p_2 p_3 c_2 c_3 \alpha_2^2 \alpha_3^2 - p_2 p_3 c_2 c_4 \alpha_2^2 \alpha_3 \alpha_4 - p_3^2 c_2^2 \alpha_2^2 \alpha_3^2$$
$$+ p_3 p_4 c_2^2 \alpha_2^2 \alpha_3 \alpha_4 + p_3^2 c_2 c_4 \alpha_2 \alpha_3^2 \alpha_4 - p_3 p_4 c_2 c_3 \alpha_2 \alpha_3^2 \alpha_4 + p_1 p_3 c_2 c_4 \alpha_1 \alpha_2 \alpha_3 \alpha_4$$
$$- p_1 p_3 c_2 c_4 \alpha_1 \alpha_2 \alpha_3 \alpha_4 - p_1 p_3 c_3 c_4 \alpha_1 \alpha_3^2 \alpha_4 + p_1 p_3 c_4^2 \alpha_1 \alpha_3 \alpha_4^2 - p_2 p_3 c_1 c_4 \alpha_1 \alpha_2 \alpha_3 \alpha_4$$
$$+ p_2 p_3 c_1 c_4 \alpha_1 \alpha_2 \alpha_3 \alpha_4 + p_3^2 c_1 c_4 \alpha_1 \alpha_3^2 \alpha_4 - p_3 p_4 c_1 c_4 \alpha_1 \alpha_3 \alpha_4^2 - p_2 p_3 c_3 c_4 \alpha_2 \alpha_3^2 \alpha_4$$
$$+ p_2 p_3 c_4^2 \alpha_2 \alpha_3 \alpha_4^2 + p_3^2 c_2 c_4 \alpha_2 \alpha_3^2 \alpha_4 - p_3 p_4 c_2 c_4 \alpha_2 \alpha_3 \alpha_4^2 - p_3^2 c_4^2 \alpha_3^2 \alpha_4^2$$
$$+ p_3 p_4 c_3 c_4 \alpha_3^2 \alpha_4^2 - p_1 p_4 c_1 c_2 \alpha_1^2 \alpha_2 \alpha_4 - p_1 p_4 c_1 c_3 \alpha_1^2 \alpha_3 \alpha_4 + p_1 p_4 c_1 c_4 \alpha_1^2 \alpha_4^2$$
$$+ p_2 p_4 c_1^2 \alpha_1^2 \alpha_2 \alpha_4 + p_3 p_4 c_1^2 \alpha_1^2 \alpha_3 \alpha_4 - p_4^2 c_1^2 \alpha_1^2 \alpha_4^2 + p_2 p_4 c_1 c_3 \alpha_1 \alpha_2 \alpha_3 \alpha_4$$
$$+ p_3 p_4 c_1 c_2 \alpha_1 \alpha_2 \alpha_3 \alpha_4 - p_3 p_4 c_1 c_4 \alpha_1 \alpha_3 \alpha_4^2 + p_3^2 c_1 c_3 \alpha_1 \alpha_3 \alpha_4^2 + p_2 p_4 c_1 c_3 \alpha_1 \alpha_2 \alpha_3 \alpha_4$$
$$- p_2 p_4 c_1 c_4 \alpha_1 \alpha_2 \alpha_4^2 - p_3 p_4 c_1 c_2 \alpha_1 \alpha_2 \alpha_4^2 + p_4^2 c_1 c_2 \alpha_1 \alpha_2 \alpha_3 \alpha_4 - p_2 p_4 c_1 c_2 \alpha_1 \alpha_2^2 \alpha_4$$
$$+ p_3 p_4 c_1 c_2 \alpha_1 \alpha_2 \alpha_3 \alpha_4 - p_3 p_4 c_1 c_2 \alpha_1 \alpha_2 \alpha_4^2 + p_4^2 c_1 c_2 \alpha_1 \alpha_2 \alpha_4^2 - p_1 p_4 c_2 c_3 \alpha_1 \alpha_2^2 \alpha_4$$
$$+ p_1 p_4 c_2 c_4 \alpha_1 \alpha_2 \alpha_3 \alpha_4 + p_1 p_4 c_3^2 \alpha_2 \alpha_3^2 \alpha_4 - p_1 p_4 c_3 c_4 \alpha_1 \alpha_3 \alpha_4^2 - p_2 p_4 c_2 c_3 \alpha_2^2 \alpha_3 \alpha_4$$
$$+ p_2 p_4 c_2 c_4 \alpha_2^2 \alpha_4^2 + p_3 p_4 c_2^2 \alpha_2^2 \alpha_3 \alpha_4 - p_4^2 c_2^2 \alpha_2^2 \alpha_4^2 + p_2 p_4 c_1 c_3 \alpha_1 \alpha_2 \alpha_3 \alpha_4$$
$$- p_2 p_4 c_1 c_3 \alpha_1 \alpha_2 \alpha_3 \alpha_4 - p_3 p_4 c_1 c_3 \alpha_1 \alpha_3^2 \alpha_4 + p_4^2 c_1 c_3 \alpha_1 \alpha_3 \alpha_4^2 + p_2 p_4 c_3^2 \alpha_2 \alpha_3^2 \alpha_4$$
$$- p_2 p_4 c_3 c_4 \alpha_2 \alpha_3 \alpha_4^2 - p_3 p_4 c_2 c_3 \alpha_2 \alpha_3^2 \alpha_4 + p_4^2 c_2 c_3 \alpha_2 \alpha_3 \alpha_4^2$$
$$= \left(- p_1^2 c_1^2 - p_1^2 c_3^2 - p_2^2 c_1^2 + 2 p_1 p_2 c_1 c_2\right) \alpha_1^2 \alpha_2^2$$
$$\left(+ 2 p_1^2 c_2 c_3 - 2 p_1 p_2 c_1 c_3 + p_2 p_4 c_1^2 + 2 p_2 p_3 c_1^2\right) \alpha_1^2 \alpha_2 \alpha_3$$
$$\left(- p_3^2 c_1^2 + 2 p_1 p_3 c_1 c_3\right) \alpha_1^2 \alpha_3^2$$
$$\left(+ p_1^2 c_2 c_4 + p_2^2 c_1 c_4 - 2 p_1 p_2 c_1 c_4 - p_1 p_4 c_1 c_2 + p_2 p_4 c_1^2\right) \alpha_1^2 \alpha_2 \alpha_4$$

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$$\left(+2p_1p_4c_1c_4 - p_1^2c_4^2 - p_4^2c_1^2\right)\alpha_1^2\alpha_4^2 \qquad \left(-p_3^2c_2^2 - p_2^2c_3^2 + p_2p_3c_2c_3\right)\alpha_2^2\alpha_3^2$$
$$\left(-p_4^2c_2^2 - p_2^2c_4^2 + 2p_2p_4c_2c_4\right)\alpha_2^2\alpha_4^2 \qquad \left(+p_3p_4c_3c_4 - p_3^2c_4^2\right)\alpha_3^2\alpha_4^2$$
$$+\left(3p_1p_3c_2c_4 - 7p_1p_2c_3c_4 - 2p_2p_3c_1c_4 + 2p_2p_4c_1c_3 + 3p_3p_4c_1c_2\right)\alpha_1\alpha_2\alpha_3\alpha_4$$
$$\left(+2p_1^2c_3c_4 - 2p_1p_3c_1c_4 - 2p_1p_4c_1c_3 + 2p_3p_4c_1^2\right)\alpha_1^2\alpha_3\alpha_4$$
$$\left(+2p_1p_2c_3^2 - 2p_1p_3c_2c_3 + p_1p_2c_3^2 + p_2p_3c_1c_3 + 2p_3^2c_1c_2\right)\alpha_1\alpha_2\alpha_3^2$$
$$\left(+2p_1p_2c_4^2 - p_1p_4c_2c_4 - 2p_2p_4c_1c_4 - 2p_3p_4c_1c_2 + p_4^2c_1c_2\right)\alpha_1\alpha_2\alpha_4^2$$
$$\left(-2p_1p_2c_2c_4 - p_1p_2c_2c_3 + p_1p_4c_2^2 + p_1p_2c_3c_4 - 2p_2p_4c_1c_2 + 2p_2^2c_1c_4 - p_1p_4c_2c_3\right)\alpha_1\alpha_2^2\alpha_4$$
$$\left(+p_1p_3c_2c_3 - 2p_1p_2c_2c_3 + p_2^2c_1c_3 - 2p_2p_3c_1c_2 + p_2^2c_1c_4 + p_2p_3c_2c_3 + p_1p_3c_2^2\right)\alpha_1\alpha_2^2\alpha_3$$
$$\left(-2p_3p_4c_1c_3 - 2p_1p_3c_3c_4 + p_1p_4c_3^2 - p_2p_3c_1c_3 + 2p_3^2c_1c_4\right)\alpha_1\alpha_3^2\alpha_4$$
$$\left(+2p_1p_3c_4^2 - 2p_1p_4c_3c_4 - 2p_3p_4c_1c_4 + p_4^2c_1c_3 + p_3^2c_1c_3\right)\alpha_1\alpha_3\alpha_4^2$$
$$\left(+2p_2p_4c_3^2 + 2p_3^2c_2c_4 - 2p_3p_4c_2c_3 - 2p_2p_3c_3c_4 + p_1p_4c_3^2 - p_1p_2c_3^2\right)\alpha_2\alpha_3^2\alpha_4$$
$$\left(+p_1p_2c_3c_4 + 2p_2p_3c_4^2 - 2p_2p_4c_3c_4 - p_3p_4c_2c_4 + p_4^2c_2c_3\right)\alpha_2\alpha_3\alpha_4^2$$
$$\left(+p_2^2c_3c_4 - 2p_2p_3c_2c_4 + 2p_3p_4c_2^2 - p_2p_4c_2c_3\right)\alpha_2^2\alpha_3\alpha_4. \qquad (14)$$

We use $p_1 = p_3$ and $p_2 = p_4$ where pair of prices are same, and $c_1 = c_3$ and $c_2 = c_4$, where pair of coupon numbers are same, and every term contains $p_1p_2c_1c_2$, i.e. we use $p_1^2 = p_2^2 = p_3^2 = p_3^2 = p_1p_2$ and $c_1^2 = c_2^2 = c_3^2 = c_3^2 = c_1c_2$, where the terms contain square, then (14) becomes;

$$|H| = -3p_1p_2c_1c_2 - 5p_1p_2c_1c_2 - p_1p_2c_1c_2 - 2p_1p_2c_1c_2 - 2p_1p_2c_1c_2 - 2p_1p_2c_1c_2$$
$$-2p_1p_2c_1c_2 - 2p_1p_2c_1c_2 - 2p_1p_2c_1c_2 - 2p_1p_2c_1c_2 - 2p_1p_2c_1c_2 - 2p_1p_2c_1c_2$$
$$-p_1p_2c_1c_2 - 2p_3p_4c_1c_2 - 2p_1p_2c_1c_2 - p_1p_2c_1c_2 - 2p_1p_2c_1c_2 - 2p_1p_2c_1c_2$$
$$-p_1p_2c_1c_2 - p_1p_2c_1c_2 - p_1p_2c_1c_2 - 2p_1p_2c_1c_2 - 2p_1p_2c_1c_2 - 2p_1p_2c_1c_2$$
$$-2p_1p_2c_1c_2 - 2p_1p_2c_1c_2 - p_1p_2c_1c_2 - p_1p_2c_1c_2 - p_1p_2c_1c_2 - p_1p_2c_1c_2$$
$$-p_1p_2c_1c_2 - p_1p_2c_1c_2 - p_1p_2c_1c_2 - p_1p_2c_1c_2 - p_1p_2c_1c_2 - p_1p_2c_1c_2 - p_1p_2c_1c_2$$
$$-p_1p_2c_1c_2 + 2p_1p_2c_1c_2 + 2p_1p_2c_1c_2 + 2p_1p_2c_1c_2 + 3p_1p_2c_1c_2 + 2p_1p_2c_1c_2$$

$$+2p_1p_2c_1c_2 \quad +p_3p_4c_3c_4 \quad +p_1p_2c_1c_2 \quad +2p_1p_2c_1c_2 \quad +p_1p_2c_1c_2 \quad +p_1p_2c_1c_2$$
$$+p_1p_2c_1c_2 \quad +2p_1p_2c_1c_2 \quad +p_1p_2c_1c_2 \quad +2p_1p_2c_1c_2 \quad +p_1p_2c_1c_2 \quad +2p_1p_2c_1c_2$$
$$+2p_1p_2c_1c_2 \quad +p_1p_2c_1c_2 \quad +2p_1p_2c_1c_2 \quad +2p_1p_2c_1c_2 \quad +p_1p_2c_1c_2 \quad +p_1p_2c_1c_2$$
$$+2p_1p_2c_1c_2 \quad +p_1p_2c_1c_2 \quad +p_1p_2c_1c_2 \quad +p_1p_2c_1c_2 \quad +p_1p_2c_1c_2 \quad +2p_1p_2c_1c_2$$
$$+2p_1p_2c_1c_2 \quad +p_1p_2c_1c_2 \quad +p_1p_2c_1c_2 \quad +2p_1p_2c_1c_2 \quad +2p_1p_2c_1c_2 \quad +p_1p_2c_1c_2$$
$$+2p_1p_2c_1c_2 + p_1p_2c_1c_2 + 2p_1p_2c_1c_2 .$$

$$|H| = -62p_1p_2c_1c_2 + 60p_1p_2c_1c_2 = -2p_1p_2c_1c_2 < 0 . \tag{15}$$

Since the LaGrange function contains two constraints, and we have operated the 6×6 bordered Hessian with four variables; therefore, for utility maximization Hessian needs to be negative. From (15) we observe that Hessian is negative, i.e., $|H| < 0$, and therefore utility $v(\alpha_1, \alpha_2, \alpha_3, \alpha_4, \mu_1, \mu_2)$ obtained in (4) is maximized.

6. Conclusions

In this study we have tried to verify the utility maximization policy of an emerging firm. We have used two constraints: budget constraint and coupon constraint; and consequently, we have applied two Lagrange multipliers during the mathematical calculations of optimization. We have operated the research analysis with four commodity variables and applied the determinant of bordered Hessian matrix. In one stage, we face difficulties working with four commodity variables. Then for simplicity we have considered two commodities equal to unity. Later, we measured all commodities are of unit amount, and prices of two commodities are same, and two types of coupon numbers are same. Throughout the study we have tried to introduce mathematical calculations in some detail. We hope future researchers will try to solve the optimization problem more efficiently, and they will develop their models more fruitfully.

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INNOVATION AS THE KEY TO IMPROVEMENT IN HEALTHCARE AND EDUCATION

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Abstract
In this paper we review the principles of incorporation innovation into government-led, public systems such as the Israeli healthcare system and the Israeli education system. We suggest some recommendations regarding the benefits of introducing innovation, the "dos and don'ts" of incorporating innovation, and some metrics that can be used to monitor the progress of this process, with focus on digital technology, artificial intelligence, and big data as common themes in both fields.

Keywords*: innovation, entrepreneurship, digital tools, big data, artificial intelligence*

JEL Classification: *I10, I15, I18, I20, I23, I25*

Introduction and Literature Review

The modern world has been described as volatile, uncertain, complex, and ambiguous (VUCA) [Bennet & Lemoine, 2014]. Disruptive innovation, where processes are redesigned to increase effectiveness and efficiency, while allowing workers to participate in the redesign processes, are the key to interventions for improving the quality of healthcare and education.

Innovation can be defined as creating or adding value through a ground-breaking idea which is exceptional in its originality and is being implemented or planned to be implemented. The main goals of innovation are to increase effectiveness and efficiency of resources, processes, activities, function, throughputs, results, achievements, and influences through a significant improvement of what exists, a solution to a problem or need, suggesting new value for an existing need, or suggesting new growth engines. Innovation could either be revolutionary or evolutionary. Revolutionary innovation is radical, courageous, and ground-breaking. Disruptive innovation creates a new market and turns complex and expensive products or services into simple and cost-effective ones. Evolutionary innovation is incremental; it improves the existing services and makes them more efficient [Civil Service Commission, 2020]. De Bono's "six thinking hats" method [De Bono, 1985] improves decision-making processes using team discussion based on role-playing: Each participant uses a different thinking: objective, emotional, critical, positive, and creative thinking, as well as meta-thinking. Other tools include Abazov's five ways to improve creative thinking [Abazov, 2015], hackathons, creating "innovation networks", innovation hubs, and accelerator programs [Civil Service Commission, 2020].

In every organization that strives to introduce innovation, entrepreneurship should be facilitated by establishing an infrastructure for innovation, with a clear vision for innovation, intra-organizational marketing, building methodologies, tools and processes, and workers' capabilities. An organizational culture of innovation should be established, and a framework for promoting innovative ideas should be set.

Resistance to change should be dealt with. People are often resistant to change because of preferences for a stable working environment and fear of the unknown. Fear of failure, lack of understanding regarding the need for change, lack of awareness to the initiatives of competitors, and lack of technological knowledge, as well as budgetary limitations and lack of resources, are all potential barriers to innovation.

Ways to overcome barriers include "selling" of change to opponents, with stress on potential gains to the organization and to individual stakeholders, involving workers in change processes, sensitivity and empathy to workers' feelings, fear and anxiety, empowerment of staff and support, and moving in small steps, rather than making giant leaps forward [Itzhakov, 2017].

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Innovation in the Israeli Healthcare System

Innovation in healthcare, including better use of information technology, online communication between patients and clinicians, innovative tools to decrease bureaucracy within the healthcare system and innovative redesign of processes – are all underdeveloped. While most domains described so far heavily utilize a variety of computerized reports, there is little use of information technology to *fix* problems such as real-time alerts, decision-support tools, and integrating data from multiple sources for managers to act upon. Clinicians have no training in innovative redesign of processes, even though these could be valuable tools to improve processes. In general, the topic of innovation is not central to most Israeli hospitals.

A major part of incorporating innovation in the Israeli health care system is through digital health. Digital health has been shown to improve effectiveness, equity, patient-centered care, access to healthcare, efficient use of resources and patient safety, through improving health behavior, enhancing clinical assessment, increasing patient adherence and engagement and better care coordination. The most frequently reviewed tools include mobile apps and telemedicine, followed by text messages and wearable devices [Ibrahim et al., 2022]. The main domains of digital health currently employed in Israel are listed in Figure 1.

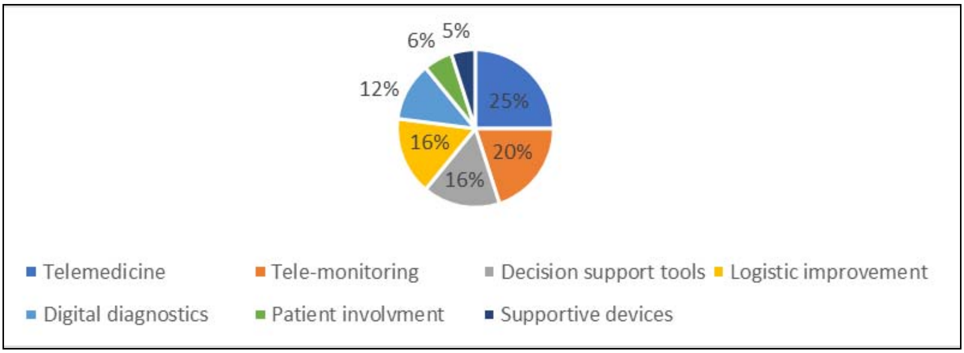

Figure 1. Digital health in Israel [redrawn from Israel Innovation Authority, 2019]

Incorporating digital health into the Israeli healthcare system could save up to 1.1 billion $ annually, and could increase the annual economic growth by 9 billion $, mostly from developing hospital-at-the-home, telemedicine, decrease workdays

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lost, decreasing multiple unneeded medical tests, decreasing medication errors, increasing adherence to medications, etc. [Deloitte, 2016].

One of the major opportunities will be to move towards using FHIR (Fast Healthcare Interoperability Resources) standard, which will allow different healthcare organizations to access, share, and incorporate data from different information systems, to facilitate medical care, research, and the industry. Another solution is to give the responsibility for the information to the patient, who will decide about data sharing for individual care, commercial, investigational, and medical uses. This could facilitate the use of big data and artificial intelligence (AI) [Ministry of Health. 2022]

To introduce innovation into Israeli hospitals, department-level development teams should work with various stakeholders to solve burning issues and future scenarios and suggest solutions and modes of action. De Bono's model should be used to allow different points of view. Workers should be encouraged and rewarded for creative ideas. A trust-based non-judgmental infrastructure will allow workers to share their ideas, successes, and challenges. Cross-sectoral, diverse team meetings can facilitate this process. The workers' unions should be partners in this process. An example is telemedicine, which can save manpower and overhead, allows flexibility of service hour and better patient experience. The "user's journey" should be defined for patients and workers alike. The different needs of the diverse patient population served by a typical hospital should all be addressed. The patient should be made aware of the added value of the hospital. This will allow better throughput and income for the hospital. Culturally diverse populations' needs (e.g., those of Arab Bedouins, ultra-orthodox Jews, Ethiopian immigrants, Holocaust survivors and a variety of communities) should be addressed. Collaboration with local authorities should be established. For example, lectures and meetings regarding physical and mental health, with experts that will offer participant health information and applicable advice. This could improve the public image of the hospital. Topics suitable for such meetings could include obesity, domestic violence, healthy lifestyle, and mental health. The educational system and local factories could be involved. For example, initiating "health days" in large factories and establishing a workers' health promotion program for the plant. The hospital's clients, workers and suppliers, their needs and interfaces that need to be created between these three groups should be mapped and addressed with a stress on flexibility and agility. Dyer's model [Dyer et al., 1985] should be used to encourage innovation. This model stresses the need to develop several capabilities including observing, associating ideas from different domains,

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experimenting, questioning, and networking. Collaboration between and within hospitals should be encouraged.

The hospitals' strategic goals should be delivered to all workers, who should be familiar with them. Future scenarios (e.g., a competitor hospital is about to be opened in the vicinity of the hospital) should be discussed with all workers, with ideas flowing from all levels.

Workers should be trained in innovation, and then ideas should be suggested for current and future challenges, those that should be implemented at the local level and those that can be copied to other hospitals, even in the future or for different health systems. Scalable tools should be developed: for example, let's assume patients with limited mobility are identified in the orthopedic surgery department and a solution is made for them – a designated nurse aid to help with mobility. This could be scaled up to other departments and health organizations.

Innovation in the Israeli Education System

Our world is characterized by technological changes that affect every area of our daily life. In its efforts to train school students for the future world of employment, the education system is required to harness technology that will help students develop the digital skills they will need in order to succeed. Students must acquire learning skills and learn how to work with each other, be active partners in the learning process and use various investigative and creative technologies. Israel is home to various educational initiatives that develop innovative technologies that seek to improve the quality of school education and learning and make them accessible to all. In addition to the technological challenges, companies in this field face the need to find investors and make their products profitable [Blonder et al., 2022; Joyti & Sutherland, 2020].

"The Innovation Authority attaches great importance to impact investments that are made with the aim of creating a measurable social or environmental return alongside a financial return," says Patricia Lahi-Engel, Senior Director of Social R&D at the Innovation Authority. "These investments provide capital that is used to create solutions to social or environmental challenges such as energy renewable, sustainable agriculture, access to basic services including health, education and affordable housing." The Innovation Authority operates several programs aimed at dealing with public and social challenges, such as the joint Israel-digital innovation program Govtech (digital government) which encourages and assists entrepreneurs and corporations offering Innovative technological solutions for the public sector.

Challenges in the fields of education, health, welfare, economy, law, local government, and others [Israel Innovation Authority. 2021].

Innovative tools for teaching and improving digital literacy have a positive effect on the education system and prepare students for the ever-changing world of employment.

The quality of teaching and innovation in the field of teaching preoccupy the higher education system in Israel and in the whole world. As part of dealing with these issues, the question of the potential in implementing use comes up repeatedly daily in new technologies to bring innovation in the methods of knowledge transfer in the academy [Blonder et al., 2022].

In recent years, the use of modern technologies has become a central component of people's daily lives. Today young people, including students, manage a large part of their lives through technological "end devices" (such as: smart phones, laptops, and tablets.) These devices accompany the student during most hours of the day, during the lessons and during learning outside the classroom. Considering this situation, leading institutions in the world (MIT as a prominent example) began to emphasize the importance of implementing modern teaching technologies in the teaching and learning process at the academy, and these change the structure of the traditional lessons and even the evaluation methods that were used in the past [Bates, 2015].

The assimilation of modern teaching technologies in academic studies is of great importance for several reasons:

1. Using advanced teaching technologies can help make the higher education system more accessible, and to respond to students with different needs, including students with learning disabilities, students with physical and mental disabilities, and students with language difficulties.

2. Use of modern teaching technologies encourages meaningful and more productive learning

Among the students, a deeper understanding and strengthening of skills such as: mental flexibility, reflectiveness, and social skills.

3. The changes in access to information have led to a change in the requirements and expectations of the world of employment from academics. Companies and businesses these days are looking for graduates who can handle a lot of information. Undergraduate studies are an important step in training to analyze it and extract new information from it. The younger generation of workers in Israel. The exposure of this generation to modern teaching technologies can

contribute to the knowledge and ability of the graduates to deal with the technological changes that characterize the world today.

4. The assimilation of modern teaching technologies can help to deal with the growing need of the employees continue the process of learning and acquiring professional tools that change throughout their career, which today is characterized by multiple shifts, and not once even in "re-creation" of entire professional fields to which the employee needs to adapt.

Use of technologies providing these tools will help develop a lifelong learning system that can be integrated into the daily life of the working person. Using teaching technologies to improve teaching in the academy the use of modern teaching technologies can be done at different stages of the teaching procedure: during the lessons, in preparation for the lessons, and within the students' independent learning process.

Here are some examples of the use of technology trends in education [Khan, 2022]:

1.Virtual reality (VR) and augmented reality (AR) provide exciting opportunities for learning. Instead of just reading or watching a video about a topic, students can use VR and AR to experience concepts in 3D [Pottle, 2019; Bailenson, 2018]. The applications are almost endless, from students virtually traveling to museums and landmarks, to medical students learning the basics of how to interact with patients in an emergency department and provide accurate diagnoses. While the pandemic brought the possibilities of VR for education to the forefront out of necessity, we will continue to see VR and AR for learning expand in 2022.

2. Gamification - Teachers have been using gamification to teach concepts to students for years. It is a great way to get students engaged in material that they might otherwise not be as interested in elements of games like competition and prizes make education fun and rewarding. Many platforms bring gamification to a new level, with many online learning game options, as well as online courses with awards and certificates for completion. This can be particularly useful for keeping students engaged in learning.

3. Big data - The amount of available data is growing at an exponential rate. Higher education is already using data to track which students are engaging in material and which students are not. This provides an opportunity for instructors to provide personalized support to struggling students. Additionally, instructors can look for engagement trends with their online course activities and tweak content where engagement is low. As more education moves online, more instructors will

have access to engagement data to help unengaged students and improve their curriculums.

4. Personalization - Once instructors have historical data on students learning behaviors through internet-based learning, they can draw inferences on how each student might learn best. This allows students to take custom learning pathways that go at their own pace. With online learning comes access to student data and more personalization.

5. Flexibility - The COVID-19 pandemic forced learning institutions and course creators to be flexible in how they deliver knowledge to students. Flexible online learning is here to stay and improve in 2022.

6. Asynchronous learning and student autonomy - Higher education has been experimenting with synchronous vs asynchronous learning. This means students can choose whether to attend class at the set time or watch recordings after class whenever is convenient for them. This gives students easier access to take courses that may not fit into their work or home schedules. It also gives instructors freedom on when to record their lesson and may take some pressure off performance compared to a live lesson. Asynchronous learning will continue, especially in higher education.

7. Artificial intelligence - AI takes things to the next level when it comes to personalization in educational technologies. While educators can find insights themselves and apply those using data analysis – AI systems can take over this time-consuming work. If provided with enough data, AI creates machine-learning models that give insights and patterns as output.

8. eLearning - refers to learning that takes place with electronics – usually on the internet. The COVID-19 pandemic forced companies and education online, and that shift seems to be here to stay. Educators, course creators, trainers, and students have all had to get comfortable with online education, so much, so that some educators are taking things to the next level.

9. Diversification - Top online course creators are no longer just creating a playlist of video lessons. They are offering complementary learning content like eBooks, personal coaching sessions, memberships, and digital downloads. This is a benefit for students who get more learning materials and a benefit for course creators who can use content to attract leads or charge extra fees for the content.

10. Mobile learning - The mobile learning industry may reach over $280 billion by 2027. Learners are looking for online education that works seamlessly on their phones and tablets, so they can learn on the go. We'll see eLearning platforms

prioritize mobile compatibility as more educators want to provide their content for mobile users.

Conclusion

Innovation does not necessarily mean additional funds. Resources could be staff's time, a different way of looking at processes, identifying my role within the organization and potential collaborators, measures of success, establishing workers' engagement, autonomy, identifying skills needed, allowing growth and development for workers, ongoing documented feedback, so that reflection can be made on meeting expectations and rewarding collaboration between departments.

Some parameters that can evaluated regarding innovation in the Israeli healthcare or education system are:

- Anderson & King's [2002] criteria:
  - Originality scale – how ground-breaking are new ideas (new to the organization? New in Israel? New worldwide?)
  - Aimed at bringing actual benefit – economic, client satisfaction, etc.
  - Resulting from intended action, rather than random variation
  - Applicability
- Scalability – can new ideas be implemented across the system
- Training of staff regarding innovation in healthcare.
- To what extent are staff rewarded for new ideas?
- Do workers know who to turn to with new / innovative ideas?
- How often is innovation proactively sought in the organization?

We have shown how these principles can be used both in healthcare and in the education system in Israel and worldwide. The recent COVID-19 pandemic opened many opportunities which can be used in both fields to introduce innovation.

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HEALTH SECURITY ISSUES AND CHALLENGES IN NIGERIA

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Abstract
The study examined the concept of health security and its applicability in Nigeria and upheld its desirability because safety is man's most prized want, including health security. However, the culture of Nigeria's ruling class, which relies on overseas medical tourism, made them unaware of this phenomenon. The study applied the descriptive design, using the case study as an investigation tool, since health security is embedded in human security. The case study procedure revealed that Nigeria spent merely two thousand Naira per capita per population. This was reflected in the country's low budgetary allocation each year, which is also the lowest in the African continent. This accounted for why the Nigeria Medical Association (NMA) embarked on strike action often as means to demonstrate inadequacies in the sector and to make the ruling elite understand the symbiosis between human and health security to prompt them to allocate resources adequately to both areas. This approach

revealed that to have health security, infrastructure must be provided adequately at three levels, namely primary, secondary, and tertiary health centers, respectively. These levels must support each other, and the services should be accessible, available, and affordable. Health security must form part of the agenda for public policy in the health sector because it is unknown to public policy drivers and the National Planning Commission that design developmental plans for Nigeria. In the absence of a functional national health insurance scheme, affordable health security is an alternative. This is one of the major ways in which the life-expectancy of Nigerians, who live in a country surrounded by brutish living conditions, can improve. Amongst others, this study proposed that the ruling elite should obtain their healthcare needs within the country, whilst all employers who have 25-30 employees, should establish a health insurance scheme for their employees.

Keywords: *Health Security, Human Security, Ignorant Elites, Health Insurance Scheme, Nigerian Medical Association*

JEL Classification: I13; I18

Introduction

Discourse on the construct, health security, is equivalent to a treatise on human security as they both have theoretical linkages and empirical dimensions, since the two concepts cut across several disciplines and generate different perspectives. It is an emerging area of study in international relations within security studies, which simply implies that in the pursuit of national interest, and others, health and security should be a composite area of interest on which to focus. Even if it is not a stand-alone item on the list of national interests, whatever is obtained from a neighboring nation for the domestic environment, should not constitute a health and security risk. Infectious diseases that become pandemics, decimating the populations of states such as the Spanish Flu of 1918, SARS in China in 2003, HIV/AIDS and the Chinese corona virus of 2019, have all made health and human security an item that states should consider when planning and developing policy in the current borderless global village.

A healthy nation is indeed a wealthy nation. Only a nation with a labor force that is healthy could boast of optimum productivity with less off-work days, which means an increase in productivity in various industries, as sick people would stay away from work and spend time to recover instead of boosting the economy. When

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children are not vaccinated, this translates to a nation building a population that would be susceptible to frequent infections without health security, which could trigger both endemic diseases and, of course, epidemic outbreaks.

Health security is a component of development and sustainable development planning. Consequent to the variety of its characteristics, the United Nations Organization (UNO) approached health security through the World Health Organization, which in turn applied the United Nations Development Program's (UNDP's) framework in pursuit of health security. The 1994 UNDP's Human Development Report entitled, 'New Dimension of Human Security', acknowledged seven (7) types of challenges to human security, namely food scarcity, economic, health, environmental, personal, community and political security (UNDP, 1994). The preface of the 1946 World Health Organization's (WHO's) constitution states, inter alia, that, harmonious relations, happiness, and security of all individuals, including the health security of everyone, is basic toward the achievement of peace and security.

To conceptualize this, one should consider the concept of security as a phenomenon to find that it denotes to 'a state of freedom from harm or any danger. It is the state of being freed from, or capacity to withstand possible danger (or other undesirable perceived changes) triggered by others. The term security encompasses that of individuals and groups in a social setting, organizations and things, environments or any other phenomenon or object susceptible to undesirable alteration (Igwe, 2005). A further interrogation of the concept of security reveals that it invokes the state's capacity to defend their territories by 'de facto' or 'de jure' principles drawn from the Westphalia Treaty of 1948. Jean Jacque Rousseau (1712-1778) had described the state as an 'organized force within its territory', placing security duties on the state to secure citizens from threats, which also implies compliance with relevant orders from the state's security institutions. Security in the broadest sense, according to Viotti (1994), is more than only armed forces considerations. It can be conceived as a defense to counter foreign (or local) threats, including the general economic and social welfare of a social order and people in that society. National security focuses on defending people from danger or any condition that can cause unwanted changes. It refers to the capacity of a nation to confront dangers opposing its authority. It has been described more broadly as all calculated arrangements to safeguard and protect the nation's citizens including the individuals, groups, businesses and national resources from disruption, or negative occurrences (Yanet & Oisamoje, 2016). Whenever someone

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takes proactive action against events that would have negative consequences, he/she would be engaging in security measures. These various conceptions of security revealed the following:

i. It is the business of the state to plan, execute and maintain the security of the citizens within its territory.

ii. People moved rural areas into the cities as the most consummate community in which to reside to achieve security of life and property.

iii. Measures should be established to prevent and protect the citizenry against any occurrence (disease, epidemic, or pandemic), which would have unpleasant consequences.

iv. It involves protection from any threat or situation that may occur; and

v. Security covers the socio-economic well-being of individuals and society.

Drawn from the above, health security involves a conscious proactive measure that the state assumes to protect citizens against known diseases and prospective health issues by establishing adequate health infrastructure that cuts across all phases of medical health levels, namely primary, secondary, and tertiary healthcare levels. Health infrastructure should be spatially distributed and supported with medical laboratories, drug manufacturing organizations and adequate personnel. The health infrastructure should be adequately staffed, while personnel should be regularly trained and retrained to have the relevant capacity to confront any unforeseen disease outbreak. This is to ensure that citizens are humanly secure. This situation is, however, alien to African states, in general, and the Nigerian government, particularly, because public officials always travel overseas to seek medical attention when they are sick. For instance, an online media report stated that Nigeria would have lost $500 million to medical travels if not for restrictions on international travels owing to COVID-19 (Onyeji, 2020). Health security is indeed a new concept in Nigeria and in many African countries, though it should not be, had it not been for a ruling elite that is closed minded.

Problem Statement

The problem stems from the fact that the concept of health security was relatively unknown at first; hence, no budgetary allocation was ever made in this respect. Health security consists of a comprehensive health policy, which ensures that the citizenry is free of diseases, epidemics, pandemic outbreaks, and any other health threats, as well as well-equipped health facilities at various levels of the

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country's health system. It involves the conception and establishment of primary, secondary, and tertiary health institutions, which are equipped, funded, and staffed with the capacity to diagnose, investigate through laboratories, and treat diseases when they occur.

Since 1960, there have been no comprehensive health policies that could be described as conducive to 'health security in Nigeria, because until 1985, when Professor Olikoye Ransome Kuti became the country's Health Minister with his Primary Health Centre (PHC) perspective and framework, there was no primary health strategy. From 1986 to 1990, the PHC programme was expanded to all local government areas on a trial basis, when it was able to achieve universal immunization/vaccination of over 80 per cent of the targeted population. Responsibilities were then devolved to PHCs in local government areas. In 1992, the National Primary Health Care Development Agency (NPHCDA) was created to ensure that the PHC initiative was sustained. However, this all ended in 1993 with the change in government. Today, less than 20 per cent of the 30,000 PHC amenities across Nigeria are still functioning. It should be noted that until then, there were no primary health securities for maternal, newborn and child health, apart from some Traditional Birth Attendants (TBAs).

Even at a secondary health level, there have been no policies on health security. Public health services have most of their doctors' diverting patients and drugs (where available) to their private clinics. In other words, secondary health institutions lack the capacity to provide adequate medical care because of poor staffing, deficient equipment, poor supply of health facilities, a lack of drugs, and so on. This is owing to a lack of directive state policy. Medical doctors in public hospitals have not been debarred from private practices to focus their attention on public hospitals. The collapse of primary health security (no doctors, no qualify nurses, no infrastructure, no drugs, and no responsibility by local government) made many to turn to secondary and tertiary facilities, which are themselves decrepit and not suitable as an alternative. Health security is focused on being preventive rather than curative. This implies that infrastructure should be established, whilst health education, sensitization and advocacy should be published in mass media channels.

The cumulative effect of the absence of health security is the country's poor public health system, where a simple ailment, for example, which could have been prevented, becomes deadly. The ruling class has always resorted to seeking health security overseas and hence, has not paid any significant attention to the country's health sector. Under these circumstances, there has been no patriotic commitment to the issue of health security in the nation. The nation's health system's mundane existence was exposed by the COVID-19 pandemic, which emerged from China and spread across the globe with no drugs to prevent or cure it initially, resulting in crises and panic, worldwide. However, when the vaccine was finally discovered, the nation depended mainly on donations from foreign countries and this situation still applies today.

Research questions

Based on the reviewed concept of health and human security, the study raised the following research questions:

- What was the state of health security in pre-colonial Nigerian societies?
- What would have accounted for the unplanned nature of health security in modern Nigeria?
- Why have health issues received a reactionary public policy approach in modern Nigeria?
- Why is it that the Nigerian state cannot tackle any epidemic or pandemic without the generosity of the global community?
- Why is the Nigerian state never part of a global research team to address and prevent both an epidemic and pandemic of any kind?
- Why do the Nigerian political elite engage in medical tourism despite the number of hospitals in Nigeria?

Research Objectives

The research objectives are:

- To explore the state of health security in pre-colonial Nigerian societies.
- To understand reasons for the unplanned nature of health security in modern Nigeria;
- To examine why health issues usually receive a reactionary public policy approach in modern Nigeria;
- To explore why the Nigerian state cannot tackle any epidemic or pandemic without the generosity of the global community;
- To understand why the Nigerian state has never been part of a global research team to address and prevent both epidemics and pandemics of any kind; and

- To explore why the Nigerian political elite, engage in medical tourism despite the number of hospitals in Nigeria.

Research approach

The study was conducted by using the descriptive research design to establish the situation regarding health security in Nigeria before and after COVID-19. It was meant to obtain relevant data concerning the status of health security in Nigeria. The basic aim was to describe 'what existed' in the face of the requirements of COVID-19, and what was required to assist with making informed decisions towards the institutionalization of a health security infrastructure to progress towards not only health, but also human security. Descriptive research design consists of various approaches, including case studies, surveys, trends, and documentary analyses (Ndiyo, 2005). Of these research strategies, the researcher adopted the case-study approach to evaluate the study's subject-matter. Application of the case study enabled the researcher to examine every significant step towards instituting health security in Nigeria.

Part of the procedure was to rely on budgetary allocation analysis and public policy on health. The researcher complemented the observation with documentary analysis. This showed an increasing budgetary allocation without corresponding output of accountability in the form of infrastructure. Inquiry and analysis indicated further that the bulk of the budgeted funds were trapped in health sector bureaucracies such as boards and health agencies, for example, the National Health Insurance Scheme (NHIS), where doctors treated patients, but were not paid by the Health Maintenance Organizations (HMOs).

The researcher considered this study to be a preliminary one, given the novelty of the concept for public policy designers and policy planners at executive state level. The unit of analysis was 'health security', which, according to the World Health Organization (WHO), encompasses all actions that are vital towards minimizing the threats and effect of severe public health situation that threatens the general health of populations. The COVID-19 pandemic exposed the absence of health security in Nigeria (WHO, 2020). It was adopted because it had the capacity to unveil the analytical picture of health security in Nigeria and, at the same time, divulge the inadequacies and propose what is needed to establish it. This case study approach allowed an assessment of a background of the problem, the trend of the allocation of resources to it and the tendency of the ruling class, both military and

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civil rulers, to seek medical treatment abroad, which accounted for the poor state of health security in Nigeria.

Theoretical foundation: Human security

Theories are often developed and tested by scholars to firm their propositions, use these to explain the issues, draw networks to other issues in the state, and based on the functionality of the theory, make predictions. Consequently, the adopted theoretical framework to analyses the subject matter of this study was human security because health security was considered to be a major component of human security.

In 1994, Mahbub Ul Haq inserted the notion of "human security" into the '1994 UNDP's Human Development Report' with the intention of placing it on the agenda of the 1995 World Summit on Social Development in Copenhagen. It reiterated that any consideration of 'global security' must ruminate 'health security' as its major component. According to Ul Haq (1994), health security comprised the following elements: (i) economic security, that is the how basic income is generated for people's living standards; (ii) Food security, that is the quality and quantity of food available to people, correlating to health security. Access to basic food is a function of their purchasing power; (iii) Health security guarantees minimum protection from diseases, which is a function of accessibility, affordability and availability of health facilities; (iv) Environmental health-protection, which concerns where people reside, as well as where their food is generated; (v) Personal security, which infers that protection from physical harm was the main reason why the state was created and why people submit to it directives; (vi) Community security, which entails the avoidance of sectarian violence and the protection of minority groups within the state's systems; and (vii) Political security, that is to honor the human rights of people in the state (UNDP, 1994). The theory of human security, in which health security is embedded, was captured by Thomas Hobbes (1588-1679), John Locke (1632-1704), J.J. Rousseau (1712-1778), and David Hume (1711-1776). They all subscribed to the 'social-contract' theories, arguing that human security was the primary purpose of the state. Hence, it is the position of this study that the above contentions of these eminent scholars could not have excluded health security and thus provided the foundation and suitability of a framework for the current narratives.

Buzan (1990: 7), like Mabub Ul Haq, identified five (5) proportions of human security, namely military, political, economic, social, and environmental security.

The differences in the components of human security between the two scholars included military, social, food, health personal and community security. It is instructive to note that health security, as a derivative of human security, and as proposed in this analysis, was almost the same as Buzan's (1990) view. He concurred on the affinity of health being a component of human security, thereby affirming suitability of the framework.

Another affirmation of the aptness of this paradigm of enquiry was established by the United Nations General Assembly (UNGA), Resolution No 66/290 of 2012, which provided a wider notion of security to focus on the individual. The assembly's resolution upheld that 'human security' does not really infer to absence of violence or war but embraced being free from terror (protection from violence), being free from poverty (adequate food, health care and shelter) and freedom to have a dignify life (human right protection and promotion). At the 2005 World Summit, the state leaders and governments agreed that all persons, particularly vulnerable individuals, are eligible to being free from fear as well as wants. This then defined human security with health security, assuming a central position within the conception.

These components are integrated and germane to human security and all hail from the processes of planning, providing resources and infrastructure for the benefit of citizens. However, it stated that 'health security' was aimed at guaranteeing minimum protection from infectious and parasitic diseases, as well as circulatory diseases, all of which arise from insufficient access to health services and poor environmental control. Throughout though, it is the poor and excluded people who constitute most of the population and who are mostly the victims. It is instructive to note that traditional security involves a state's ability to defend itself against external and internal threats, and pursuant to these, it provides a standby military, police, and subsidiary para-military institution in anticipation of any occurrence from any angle of threats. 'Health security', drawn from the above, would entail generating the ability to defend citizens against infectious and parasitic diseases by providing the necessary infrastructure, training, and obtaining the right quality of medical personnel to anticipate and manage disease outbreaks at epidemic and pandemic levels, respectively. This is a function of careful planning, resource allocation to the health sector and conscious research and development of community medicine for ailments that are community specific.

The concept of human security applied more to conflict and post-conflict arenas, where citizens remain vulnerable to different forms of security challenges, except the ruling class in every African state. All African states faces one form of security threat or another and all African states have experienced internal insurgencies, whether these are in the form of militias fighting, internal contradictions, protests on the streets, hunger threats or threats owing to poor governance. Other challenges include desertification, hunger, and poor health infrastructure. These are some of the types of security challenges that Africans face, which impinge on their health, making the adoption of this framework a categorical imperative for analysis.

The budgetary allocation to the health sector for 2013-2020 was evaluated to understand allocation trends in the sector to validate or repudiate some of the objectives of this study, namely that Nigeria had never contemplated or pursued health security in the past or in the present. The concept of health security is alien to the Nigerian ruling class because it is meant to secure all against health insecurity. There have never been health policies to achieve health security for all Nigeria's citizens. A major challenge to health issues is that the health budget of Nigeria's government is often the lowest, whether at local, state, national government, or continental level. Nigeria's health budget, according to Olufemi (2020), is merely about two thousand Naira (N2000) per head, meaning that when the budgetary allocation to health is divided by the total population, it equates to a meagre amount per citizen. This is contrary to protecting the lives of the citizens, a cardinal function of the government.

It is, therefore, imperative that Nigeria's health security should include *preventive and curative medicine*. The latest WHO (2020) report indicates that Nigeria's doctor-to-patient ratio is 4:10,000 patients and patients often wait hours to be seen. The World Health Organization (WHO, 2020) recommends that the doctor-to-patient ratio should be 1:1000. However, the *"Golden Finishing"* line in Nigeria is 1: 2,500. There is obviously inadequate input to meet the target of obtaining health security in Nigeria. The implication is that 'human security' is at risk within the nation. Hence, Nigeria has the lowest national expenditure on health, lower than Angola, South Sudan, and Ethiopia. Consequently, the cumulative effects of this are expounded below.

- Affluent Nigerians continue to travel on medical tourism. On average, Nigerians spend $1 billion yearly on medical tourism. This is happening at a time when doctors are leaving Nigeria owing to appalling healthcare amenities and deplorable conditions of employment. Nigeria spent about $11billion in the last 10 years on medical tourism (Nzor, 2022). Medical tourism is the outcome of neglected medical facilities by various levels of governments, namely local, state, and federal governments. In fact, health tourism causes tremendous hemorrhage on the foreign exchange of a nation (ibid).

- Nigeria has a high infant-mortality rate (Ajikobi, 2018). The infant-mortality rate is a measure of the likelihood that a child may die between birth and their first birthday. It simply implies the number of deaths per 1000 live births. A total of 97 deaths per 1000 was recorded in Nigeria in 2011 and 70 per 1000 in 2016/17. An under five mortality rate (U5MR) is accounted for by the gaps in '*follow-up-care'* after being discharged from hospital. According to Oladehinde (2022), a study by 'Lancet Global Health' indicated that gaps in 'inpatient' supervision of common health conditions and limited 'outpatient' management on a community-based method to manage kids after releasing them from hospital is extensively responsible for the situation. Most of the deaths that the report affirmed were avoidable disorders, which included sepsis, pneumonia, diarrhea, malnutrition, and so on. Wasting and severe weight loss, caused by inadequate food and poor quality of food lead to prolonged illness and eventually death. Post-discharge death comes from less access to healthcare. The country's Maternal Mortality Rate (MMR) stood at 545 per 100,000 live births, while the adolescent birth rate correlated with child-marriages and increased the MMR (Business Day, April 19, p.13). Nigeria currently has 13.5 million out-of-school children. This constitutes a huge health security problem in the country. Failing to provide adequately for health services required at the primary health care level through to secondary and tertiary levels, respectively, could mean deliberately anticipating health disasters to occur. These problems are compounded by the lack of accessibility, availability, and affordability of health security for all in Nigeria. It is further complicated by the lack of knowledge of what 'human security' entails.

During the first term of the current government in Nigeria, the number of fiscal resources budgeted for the State-House Clinic was more than the budget for the seventeen (17) Federal Medical Centers in the entire country. Yet, the country's President sought medical attention abroad. This is the nature of the problem of health security in Nigeria, where human security is perceived to be different to health security. Given the whopping fund allocated to the State-House clinic meant for the President and his family, he still did not trust both the facilities and the capacity of the medical personnel to cater for him and his family.

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Data presentation: 2013-2020

Application of the study procedure led to evaluation of the Nigerian Budget as a unit of analysis, which at any time indicated the priority of the government. Hence, the study sought to discover if at any time the government had come close to pursuing ‘health security’ in its fiscal allocation. In the search for data, documentary analysis of budgetary allocations to the health sector for the period 2013-2020 were examined to obtain trend analyses of fiscal allocations and priority to the sector, whilst authenticating this study’s stance that ‘health security’ is an unknown entity in governance processes in Nigeria. Application of the case study yielded the following data for analysis.

Table 1: Budgetary allocation to the health sector 2000-2020 - Billion#

Year	Amount #	Details	Others	Remark
2013	279	NA		No accountability in terms of infrastructural provisions
2014	264 * 175m	Recurrent 214.94 Capital 49.52	4% assigned to NHIS, which covers less than 4% of the population	*Allocation was made to these institutions to ***National Arbovirus & Vector Research Institute*** (nobody knows where these institutes with budgetary allocation are located. There were no budget details indicating their locations
2015	259	Recurrent 237 Capital 22		Capital budget was assigned to projects unknown and could not be accounted for
2016	249	Recurrent 221 Capital 28		
2017	307	Recurrent 252 Capital 55		

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Year	Amount #	Details	Others	Remark
2018	355	Recurrent 269 Capital 86	Total Budget # 9.1 Tn.	
2019	372	Recurrent 315 Capital 57	Total Budget #8.9 Tn.	
2020	440	Recurrent 381 Capital 59		

Sources: Adapted from Ihekweazu (2020).

Data analysis

The theoretical foundation of this study, namely human security, has revealed the significance of 'health security' for the overall wellbeing of the Nigerian people. The narrative analysis below illustrates the centrality of 'health security' to the attainment of human security in any development program as indicated in the 1994 UNDP report.

In Table 1 above, the budget for health indicated two major trends: (i) 2014-2016 indicated a decrease in the budgetary allocation to the health sector in an era of expansionist budgeting. This was critical for this analysis and for the proposition of the narrative that the ruling elite was ignorant of the concept and importance of health security in Nigeria; (ii) conversely, 2017-2020 indicated slight increases to the sector, which were considered low compared to other sectors that were not considered as important as the health sector. Again, the increase did not mean expansion in health infrastructure, as no health center witnessed additional health infrastructure based on the study's assessment. This indicated that the government elites do not comprehend how important healthy people are for the economy; and (iii) The decrease or increase in budgetary allocation did not in any way indicate a physical increase of infrastructure in either the primary, secondary or tertiary health infrastructure. The paltry amount allotted to 'capital development' could not turn around the infrastructural deficit.

Health security is at the center of human security, but the ruling elite remains ignorant of this symbiosis. When the Nigerian government begins to focus on health security, where it prioritizes the health and wellbeing of most of the citizens, then all other things are likely to follow. In this case: (i) health would receive a considerate percentage of the budgetary allocation; (ii) The budget would be divided into primary, secondary and tertiary healthcare sectors, respectively; (iii) Medical personnel development, including medical laboratory scientists' capacity training; (iv) Research and development in the various sectors of health services; (v) Standardized health architecture, citing medical institutions in a three-tier structure in all states/zones; and (vi) The fifth step above would conduce accessibility of these medical institutions and their services by the citizens. At this point, human security would have been half attained. When health security is pursued and incrementally attained, it would inadvertently generate *economic security*. The value-chain pursuant to health security would create enormous security in respect of employment, production of inputs to drugs manufacturing, construction, and so on. This is because development would grow in the sector, while areas such as research, drug development and herbal investigations would benefit owing to a spin-off effect.

Health and economic security would produce *food security* because it would empower people with basic means of livelihood in the value-chain to have purchasing-power-parity, giving them access to health services. Health, economic and food security would in turn impact the environment positively, because when these are attained, the environment would not be over-exploited, but dealt with in a sustainable manner to provide for the current generation without jeopardizing the interests of generations yet unborn. This speaks to the concept of sustainable development. When the environment is properly managed, it would not be left with ponds or stagnant waters that become the habitat of mosquitoes and many vectors of water borne diseases. All these conduce to *personal security* of the individual, as an individual's well-being is equivalent to the community's well-being. This is because the community is a collectivity of individuals. Political *security* and good governance, along with this tepid approach, would guarantee health security, as contemplated in this study.

The effects of the data in Table 1 above have their implications in terms of impact. During World Malaria Day, celebrated in Nigeria recently, it was revealed by the Adamawa State Ministry of Health that About ten (10) individuals die of malaria in Nigeria every hour. The National Malaria Elimination Program revealed that 90,000 death related malaria are recorded every year in Nigeria (Sahara Reporters, 2022). These are avoidable calamities, which, with careful public policy planning, budgetary allocation, implementation, monitoring and evaluation, can be eradicated. Freedom from the fear of a malaria attack is a component of human security. Freedom from want of health infrastructure is pivotal to human security. Given the scourge of malaria in Nigeria and the continent, health security and, by implication, human security, remains far from the public's reality and benefit.

Human and health security

It was mentioned earlier how health security is embedded in human security within society. Here the concern is how it could enter the agenda of state planning. It was the consistent poor integration of this concept into development processes in Nigeria and Third World states, which prompted initiation of the development agenda, known as the Millennium Development Goals (MDGs). In this agenda, goals 4, 5 and 6 were set towards the reduction of child mortality, improved maternal health, and combating HIV, malaria and other diseases, respectively, as desirable goals. These were all components of health security. Nigeria has failed to make significant progress in respect of these goals, and hence health security has failed. Failure to make significant progress and impact on the MDGs' template led the United Nations Organization to initiate the Sustainable Development Goals (SDGs) 2030, wherein goal number three (3), namely good health and well-being, subsumed the earlier three (3) in the MDGs, which were unattained. It is, therefore, imperative for civil society to collectively insist that these goals be included in the agenda of Nigeria's development.

Political parties must include health security in their programs and elucidate strategies for their realization in governance processes. Until there is careful planning for the primary, secondary and tertiary health sector, every fund allotted to the current structure of the Ministries, Departments and Agencies (MDAs) will be taken over by corruption as administrative expenditure. The obsession of the ruling class to embark on medical tourism (Ebuka, 2020) has made this advocacy a categorical imperative. The welfare of the people should be at the center of government programming. It is important to state outrightly that the integration of health security into the development agenda of the state is possible in a 'State-led Development Program' rather than in a free market economy. This is because it requires massive state investment at a primary, secondary, and tertiary level, respectively. This would include the training of personnel, their retention and drug provision.

Agriculture-nutrition and health security

In this section of the discourse, the study purports that health security can be approached not merely from the provision of primary, secondary, and tertiary health infrastructure, but also by ensuring that the citizens have access to adequate food and a balanced diet. Food and nutrition could serve as a health security issue

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when all people always have physical, social, and economic access to and are able to consume food in sufficient quantities and qualities to meet dietary needs, complemented by a good source of drinking water and clean environments. Put differently, when citizens of any nation, and specifically Nigeria, grow enough food and possess purchasing power parity to access the foods and eat the right quality and quantity of a balanced diet, then they would have obtained security against ill-health. The body system would then be able to produce enough antigens, which would fight foreign bodies intruding into the body's systems.

Currently, Nigeria is a state in crisis, as adequate food cannot be cultivated in the Boko Haram invaded territories of the north-east. Farmers in the Southern Kaduna state and elsewhere cannot expect harvests, while herders have continued to plunder farmlands in the middle belt and other places. The feasibility of attaining health security through agriculture, nutrition and food security is desirable, yet difficult during this period of considerable insecurity in Nigeria. Nigeria recently borrowed grains from other Economic Commission of West African States (ECOWAS) countries to augment food shortages in the country. This is an indication of state failure.

Heath security: Preventive module

One aspect of health security is its preventive component. It implies that there should always be 'health related research institutions', where investigations are carried out to understand the natures of diseases and to develop appropriate curative medicine for it. Wherever such institutions exist in Nigeria, they are often under-funded. There have been a few outcomes in this respect. (i) Poor prevention of childhood diseases. The wild-polio virus was eradicated all over the world, but persisted in Nigeria until 2020, when Nigeria was certificated as being free of the virus. This was because of cultural and religious impediments in the country. Nigerians should be sensitized to be receptive to drugs and should not allow religious bias to create a home for diseases in-house.

ii) River blindness had been eradicated in most of the world's communities, but it remained a public health challenge in Nigeria with a poor Guinea-worm control strategy. (iii) Malaria has remained endemic in Nigeria with no hope of its eradication. The scourge of Aids has continued since 1981 to devastate the nation without any national policy thrust to combat or prevent it. This was the same for the novel COVID-19 virus, where Nigeria kept depending on COVAX donations. There are no laboratory investigations into the nature of COVID-19 to produce related drugs in Nigeria. In terms of all the mentioned ailments, there have been no strategic medical outputs from the country's research institutions. Where there have been efforts, the government perceived no reason or rationale to fund such research because of their belief in medical tourism (Uzor, 2022).

Issues and challenges of health security

The issues and challenges of health security are essentially that there is no strong public health leadership. Local government officials do not know that primary health care is under the purview of their administration. This sector hardly receives budgetary allocations from that tier of government, where it belongs. They assume that it is the State's business. Conversely, the State, through the Local Government Service Commission, engages and posts nurses to local government without personnel requisition from the latter. This has the consequences of high wage bills in local government. In the final analysis, services are not rendered. At a secondary level, namely the general hospitals, drugs are not readily available, as well as relevant and appropriate personnel. Tertiary institutions are characterized by strikes amongst doctors as an appeal to the government to equip the hospitals. All these create room for medical tourism by the ruling class (Ebuka, 2020). Health security, as a concept, is alien to government operators. It requires planning and synergy at all levels of health services. This is a challenge, which requires considerable public education to mainstream it into the development agenda in Nigeria. The health institutions should have corresponding research institutions to complete it. Where the institutions exist and invent anything, the ruling elites would doubt the efficacy of the invention and rely on foreign alternatives instead.

Health security: Policy options

A public policy is a set of proposed decisions and actions that governments intend to take to resolve a raging problem. The problem that should be resolved in this instance is that health security must first enter the public policy agenda discourse with its expediencies and vastly canvass to earn public buy-in. Consequently, it would become the accepted pathway to deploy public resources to achieve expected outcomes as a distributive type of public policy. It is also important to state that public policies are not laws that must be followed, but rather that laws are public policy that must comply with its provisions. Accordingly, the enunciation of public policy on health security is not likely to be followed either at national or sub-national levels, given the multi-party system and type of federalism

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in operation in Nigeria. The party controlling the central government could evolve a health security policy, but the other political parties ruling the states may not willingly support the program, as Nigeria witnessed in the second Republic 1979-83, when policies such as the 'Green Revolution' and the 'Presidential Liaison Officers', respectively, experienced challenges in respect of buy-in from the States. The challenge is that currently, there is no strategic health policy to which advocacy could be launched.

Health security: Policy preferences

To establish health security, the preference is a federal statute or an act of parliament, enunciating it and specifying the following: (i) that the President, governors, and all public officials must not seek medical treatment abroad, whilst compelling them to allocate enough fiscal resources to the sector to ensure effective implementation. (ii) Primary Health Centers (PHCs) must be created in all local government areas, staffed by qualified personnel with strategic drug-supply arrangements, covering a range of ailments indigenous to the respective areas. (iii) Each state must have a secondary health facility (General Hospital) in all local government areas, staffed and supplied with drugs. (iv) Each state should have a teaching and specialist hospital, which would receive cases above the capacity of the general hospitals for specialist attention. (v) All employers of labor with 50-100 employees should establish functional medical facilities for its employees or have health retainerships with hospitals for its employees. Above all, the National Health Insurance scheme should be reviewed and rendered more functional with wider coverage, complemented by prompt payment to the hospitals, where treatment has been obtained. (vi) Appropriate sanctions that are enforceable should be prescribed for all entities who fail to provide functional health security for its employees. (vii) The health facilities should be inspected at regular intervals (Regulatory Public Policy) by a specialist body to ensure compliance and maintenance of standards.

The outcome of the health security policy practiced as discussed herein are numerous, namely: (i) it would create a healthy workforce for all sectors of the economy, and this would inadvertently enhance productivity in the economy, whilst a greater number of people would be present at work; (ii) truancy, which is endemic in the public and private sector in Nigeria, most of which are excuses on health grounds, would decrease and also aid the rise in productivity; (iii) the large quantum of financial resources currently being expended on medical tourism

(Ebuka, 2020; Nzor, 2022) would at least be retained in the country; (iv) jobs would be created for medical doctors and allied staff in the country; and (v) pharmacists should be encouraged to engage in regulatory research and educational development to manufacture drugs in the country, using herbs, which had been used in trade-medical practices in the past, amounting to using community medicines beneficially.

Conclusion

Health security is a new concept of development, which is yet to find expression in the development focus of development planners in Nigeria and amongst political parties seeking political power to rule the country. It pre-supposes a linkage between Primary Health Centers (PHC), which should be health facilities located in each political ward. The intention is to provide first line health treatment, maternity, and other auxiliary health services to the citizens, whilst dissuading prospective mothers from patronizing Traditional Birth Attendants (TBAs). This health level has the challenge of personnel, funding, and other inputs. The second level is the Secondary Health Centers, which include General Hospitals, where health cases, which are above the primary health centers are referred to for treatment and management. Health challenges, which are above the capacity of the General Hospitals can then be referred to the Teaching and Specialist hospitals, where specialists in all aspects of human health would be housed. This refers to the tertiary health centers. These structural linkages are hardly planned in Nigeria because the policy makers depend on overseas medical facilities. It would be recalled that the Nigeria Medical Association (NMA) and the Nigeria Association of Resident Doctors (NARD), like their university counterparts, spend most of their time striking as means to attract the attention of Government to the parlous conditions in the teaching hospitals.

Agriculture, nutrition, and accessibility of food are means to achieve health security. This is because a balanced diet would generate adequate antibodies in men and women to fight infections. Agriculture and food security have failed, given the pervasive insecurity arising from Boko Haram, kidnappings, and possibilities of being raped on farms, which have scared farmers away from their farms. There is inadequate food security in Nigeria, hence the country had to borrow 5000 metric tons of food recently from ECOWAS states. This is indeed sorrowful for a supposedly ‘great nation’.

By way of recommendation, the study submits that every organization with employees of up to twenty-five (25) persons, should have a Health Insurance Scheme (HIS), which should guarantee that employees have access to preventive, curative and rehabilitative health services of significant quality. In this case, when inflation exhausted one's disposal income, he/she would still be able to be covered by health security. This should be included in the law of the state. It is also instructive to propose that the ruling elites should, by law, access health preventive, curative and rehabilitative health services from within the country. They would be compelled to allocate more funds in the budget to this sector and ensure accountability to show that the money was well spent. This would inadvertently benefit members of other social classes and would incrementally extend to all levels of health services in the country.

The Nigeria government should be sincere and patriotic in its responses to non-state actors perpetrating insecurity in Nigeria to provide for agricultural cultivation and the production of adequate food to provide adequate nutrition to serve as health security. Health security would take a long time as a concept to be ingrained into the consciousness of development planners in Nigeria and the ruling political elite. This is a huge task, which is possible to institute, but would take time to process. A concerted effort is required from all stakeholders to bring this to bear in Nigeria. Health security is human security, as one must be healthy before he/she can do anything else. It would become a reality in Nigeria only through federal statutes, as the current system benefits a select few and not most of the population. The latest World Poverty statistics revealed that about 105 million Nigerians currently live in extreme poverty. This means that they cannot afford food, let alone health services. The state should redistribute health services through a health security policy. A healthy population would constitute a healthy nation-state. Health security is human security and *vice versa*.

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THE ROLE OF THE CONSUMER'S PERSONALITY IN CREATING THE BRAND'S PERSONALITY

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Abstract
In modern business conditions, people are constantly engaged in building their identity, so the symbolic characteristics of products are often the primary reasons for their purchase. Brand personality is generally understood as a characteristic of a brand. Accordingly, just like people, all brands have a certain degree of personality. In some cases they are very emotional and lively, in other cases they are underestimated or barely noticeable. Since the brand personality is an intangible category, marketing experts strive to understand the needs of consumers and how the brand personality affects their preferences and loyalty. Starting from the existing theoretical views, the aim of the author is to investigate the relationship between the personality of the consumer and the personality of the brand in the mobile phone market in the Republic of Serbia. The intention is to look at the relationship between personality characteristics and individual dimensions of the brand personality based on the obtained empirical data, based on which the connection between these variables will be identified, and then guidelines for further business in the mobile phone market.

Keywords: *brand personality, consumer personality, Acker's scale, mobile phones, Republic of Serbia*

JEL classification: M30, M31

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Introduction

Consumer habits have become a dynamic category as the market offers a large number of products and services. The brand has become a competitive tool that companies use to identify and differentiate products in the market. However, product differentiation in the market is less and less based on the physical characteristics of the product (quality, functionality, durability, safety, practicality), but companies are looking for ways to create a strong emotional connection between the brand and consumers. Such connections lead to a higher level of consumer loyalty, which increases the company's financial performance (Park, 2010). This approach of the company affects the minds of many consumers, which creates a strong emotional connection with the brand. Consequently, a strong brand identity and image are key to building brand equity in modern business conditions (van Rekom, Jacobs, Verlegh, 2006, p. 185). A recognizable and well-defined brand personality is the key to brand success. Researchers have pointed out that brand personality increases consumer preferences and their use (Sirgi, 1982) of emotion in consumers (Biel, 1993) and has a positive relationship with levels of trust and loyalty (Fournier, 1994). However, keeping customer satisfaction at the highest level could not guarantee customer loyalty for the firm, but it can guarantee positive word of mouth (Haciyev, 2019). Word of mouth (WOM) recommendations are very important for customers acquisition, especially for small and medium enterprises (SMEs). This is why "viral marketing" and other forms of WOM marketing have gathered a lot attention in recent researches (Remondino, 2011). Today, companies do not strive for consumer loyalty, which will mean only routine purchase of products, but also their connection with psychological characteristics. Emotion-based consumer loyalty is the highest level of consumer loyalty that results from routine brand buying without thinking about whether it should continue to be a consumer choice. Consumers of such brands remind believers because their loyalty does not come from rational thinking.

The intention of the author of the paper is to point out the importance of the brand personality and to investigate the relationship between the dimensions of the brand personality and the consumer personality. The empirical research was conducted online on the mobile phone market in the Republic of Serbia. Based on the conducted research, the intention of the author of the paper is to point out the influence of certain dimensions of the consumer 's personality on the construction of the brand personality.

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Literature review

Customer personality

The personal identity of an individual is based on the feelings, habits and understanding of oneself as a person, with an individual's awareness of oneself being very important (James, 1980; cited in Huang, 2008, p. 78). The author James defined three types of personal identity (Huang, 2008, p.79):

- Material identity (extended identity) - which consists of the body of an individual, his family and property;
- Social identity - which is the way other people see an individual;
- Spiritual identity - which represents the "inner being" of the individual (attitudes, motives, emotions, opinions, desires, etc.).

On the other hand, the American sociologist Charles Cooley put the social determination of personal identity in the forefront (Brown, 1998, p. 55). He described the creation of personal identity as a reflection in a mirror, in the sense that an individual forms his own identity based on the messages he receives from other people.

Personal concept is viewed in a somewhat narrower way in the field of consumer marketing and research than in psychology. The personal image of the consumer, which is manifested through shopping, is mostly considered. Consequently, the statement that the terms personal identity, personal concept, personal image have the same meaning, but in psychology the term "personal identity" is more often used, and in marketing the term "personal concept" or even "Personal image" (self-image) of consumers (Starčević, 2011) The reason is that the personal concept is a dynamic category that changes over time in accordance with the development of the individual as a person, his thinking and reactions of other people.

One of the most commonly used approaches in the study of personality traits is the Big Five model, which encompasses the five dimensions shown in Table 1.

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Table no. 1: Dimensions of consumer personality

Dimensions	Personality traits
EXTROVERTION	Sociability, fun, optimistic, active, communicative
AGREEBLENESS	Soft-hearted, assesses the quality of interpersonal orientation, good-natured, confidential
CONSCIENTIOUSNESS	Organized, reliable, hardworking, self-disciplined, punctual, orderly, ambitious, persistent
NEUROTICISM	Nervous, emotional, insecure
OPENNESS	Creative, original, imaginative, with keen interests

Source: Costa and McCrae, 1985

Brand personality

The concept of brand personality is one of the most frequently described concepts in the literature when it comes to branding (Davies and Chun, 2003, p. 50). According to Kassarjian (1971), the personality of the brand enjoyed a certain popularity and application more among practitioners than among scientists. Academic interest remained limited because there was no single definition, structure, and empirically valid operationalization. However, Aaker (1997) developed a scale that identified the dimensions and content of a brand's personality. Brand personality refers to "a set of human characteristics associated with a brand" (Aaker, 1997, p. 347). Researchers point out that brand personality makes it easier for the consumer to articulate himself (Belk, 1988), the ideal of himself (Malhotra, 1988), or accurate aspects of himself (Kleine, Kleine, and Kerman, 1993) through brand use. In addition, this concept encompasses direct and indirect influences on the consumer, his preferences and use (Biel, 1993). Direct influences include the consumer's image of the brand, ie they should be consistent with the characteristics of consumers of the same brand (Aaker, 1997, p. 348). On the other hand, indirect influences are related to product characteristics and relate to product category, brand name, brand and other elements of the marketing mix (Batra, Lehmann & Sing, 1996).

Brand personality is a set of human qualities associated with a brand (Azoulay & Kapferer, 2003, p. 151). Plummer (1984; 2000) argued that brand personality can be crucial in understanding and choosing a brand. Indeed, at a time when consumers view product quality as well as when competitors can easily copy product features, a strong brand identity and personality are invaluable for building

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brand value (van Rekom, Jacobs, & Verlegh, 2006). Leary and Tangney (2003) suggest personality as a good concept for differentiation. Aaker (1997) identifies five dimensions of brand personality: honesty, excitement, competence, sophistication, and toughness (Table 2).

Table no. 2: Dimensions of the brand personality

Dimensions	Relevantne odrednice
SINCERITY	Quality, comfortable, duarability, realitt, benefits, original, friendly, honest
EXCITEMENT	Style, special occasion, feeling, feeldifferent, up to date, independent, unique
COMPETENCE	Fashionable, corporate, leader, confident, reliability, affinity, faithfulness
RUGGEDNESS	Modern, masculine, out side appearence, frequent washing
SOPHISTICATION	User feeling, uper class, glamorous, smooth, charming, user's personality, consumer preference

Source: Aker, 1996

Consumers experience the so-called honest brands as quality, friendly, original, durable, comfortable. Similarly, consumers perceive exciting brands as bold, adventurous, for special occasions and special style. Consumers perceive competence as reliable, modern and leading brands. A brand that is considered sophisticated is considered charming and associated with greater value and thus corresponds to higher social strata and meets the needs of a higher order from Maslow's hierarchy of needs. Sophisticated brands have upper-class characteristics, are glamorous and charming, while strong brands are considered to be simple, good-looking and give a feeling of masculinity / femininity.

Based on the aforesaid theoretical review, the paper will investigate the relationship between the personality of the consumer and the personality of the brand, so we have worked on the following hypothesis:

H1: There is a significant positive relationship between the consumer personality and the brand personality

The research can also be shown by the model shown in Figure 1

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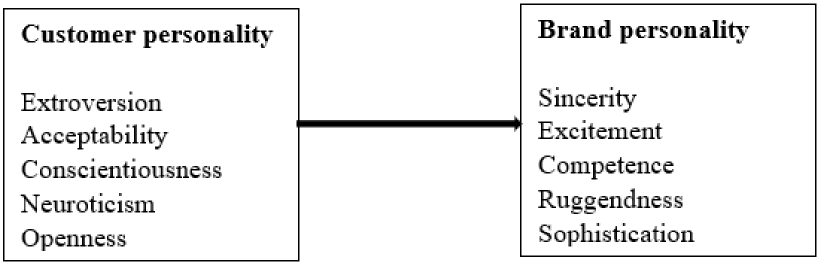

Figure nr. 1: Researsh model

Source: Autor

Research methodology

Research method and instrument. Testing of research hypotheses is based on empirical research that was realized using testing methods. A questionnaire was used to gather information in which brand personality statements were developed by Aker (1996) and consumer personality statements adapted according to Costa and McCrae (1985). The concept of brand personality includes 5 dimensions of brand personality (sincerity, excitement, competence, ruggedness, sophistication) and 5 dimensions of consumer personality (extroversion, acceptability, conscientiousness, neuroticism, openness), and each of them contained a number of determinants measured by Likert's five-level rock.

Research context. The research was conducted on the territory of the Republic of Serbia. The number of distributed online questionnaires (Google forms) was 144, and all of them were filled out and processed. The research was conducted in the period from 01.09. to 01.11. 2021.

Characteristics of the sample: In the sample structure, males participated with 35.42%, while females were higher and accounted for 64.58% of respondents, with the following age structure: up to 20 years 7.64% participated in the survey, out of 21 up to 30 years the largest number of respondents, 71.18% and from 31 to 40 years 21.18% of respondents. Regarding the level of education, the structure of respondents was as follows: 20.83% were respondents with secondary education, 32.29% of respondents with college / university, 46.88% of respondents with college / master. In the sample structure the largest number 73.96% of people are employed. Then, students / pupils 14.93% and unemployed with only 11.11%.

Analysis and procedures: Statistical processing and analysis of data was performed using Microsoft Excel and SPSS software packages (Statistical Package

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for Social Sciences, 21.0). From the statistical analyzes, appropriate descriptive measures were used, and to test the validity of all hypotheses, first the reliability analysis was used, namely the Cronbach's coefficient, and then multiple regression and correlation analysis. If the obtained p-value is less than 0.05, there is a significant statistical difference between the set variables in the hypothesis. Otherwise, if the p-value is greater than 0.05, the hypothesis is rejected.

Research results and discussion

In order to access the results of research and hypothesis testing, it is necessary to perform a reliability analysis. When the Cronbach's coefficient is greater than 0.7 it shows high reliability, below 0.35 is low reliability, while 0.5 is considered the minimum acceptable level of reliability. With the help of the Cronbach's alpha coefficient, the consistency of the dimensions was checked, ie it was determined whether the statements within the given dimensions were reliable. Specifically, in our paper, all claims about brand personality and consumer personality show a coefficient greater than 0.7, which indicates that the claims have good internal consistency and the continuation of further analysis. The results are shown in Table 1.

Table no. 3: Dimensions of brand personality and consumer personality

Dimensions	Cronbach's Alpha	N of Items
Brand personality		
Sincerity	0.865	5
Excitement	0.941	4
Competence	0.872	4
Ruggendness	0.930	3
Sophistication	0.716	4
Customer personality		
Extroversion	0.898	3
Acceptability	0.953	2
Conscientiousness	0.918	3
Neuroticism	0.919	3
Openness	0.815	3

Source: Autor's calculation.

In order to identify which dimensions of consumer personality affect the dimensions of brand personality, respondents were expected to rate the degree of agreement with claims on a five-point Likert scale, as well as to rate themselves as a person based on the characteristics offered.

Table no. 4: Pearson correlation analysis

Variables	1	2	3	4	5	6	7	8	9	10
Extroversion	1									
Acceptability	.657** .000	1								
Conscientiousness	.608** .000	.653** .000	1							
Neuroticism	.601** .000	.526** .000	.596** .000	1						
Openness	.618** .000	.406** .000	.527** .000	.595** .000	1					
Sincerity	.474** .000	.387** .000	.430** .000	.324** .000	.445** .000	1				
Excitement	.513** .000	.415** .000	.426** .000	.466** .000	.350** .000	.799** .000	1			
Competence	.557** .000	.387** .000	.421** .000	.425** .000	.409** .000	.811** .000	.876** .000	1		
Ruggendness	.599** .000	.492** .000	.411** .000	.409** .000	.375** .000	.748** .000	.876** .000	.883** .000	1	
Sophistication	.598** .000	.562** .000	.515** .000	.595** .000	.378** .000	.709** .000	.831** .000	.776** .000	.852** .000	1

Source: Autor's calculation.

To test all hypotheses, we used Pearson's correlation analysis to confirm the correlation of the two dimensions and the correlation coefficient of the corresponding variables as shown in Table 4 and the multiple regression analysis. A small correlation exists when r = 0.10 to 0.29, medium r = 0.30 to 0.49, and strong r = 0.50 to 1.00 (Cohen, 1988, pp. 79-81). Based on the obtained results and according to the author Cohen, we can conclude that between the dimensions of the brand personality of mobile phones and cars, consumer personality and consumer loyalty to the brand there is a significant statistical difference because the obtained p value is less than 0.05, while the correlation varies from medium to strong correlations, and a detailed presentation of all relationships can be found in Table 4.

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Regression analysis for the mobile phone market was adopted to examine the relationship between consumer personality traits (extroversion, acceptability, neuroticism, openness) and brand personality dimensions (honesty, excitement, competence, sophistication, toughness). From the data shown in the model 1 of Table 5, $\beta = -.294$, $t = -2.512$, $p = .013$, means that estrovert and dimension sincerity of the brand personality have a significant statistical relationship is confirmed, $\beta = .327$, $t = 2.674$, p 00 .008 then that extroversion and dimension sophistication of brand personality show a statistically significant relationship, $\beta = .389$, $t = 4.143$, $p = .000$ means that extroversion and dimension firmness of brand personality show a statistically significant relationship. The dimensions of the brand personality excitability and competence did not provide statistically significant data, and accordingly they do not have a positive relationship with the dimension of extroversion of the consumer's personality and have not been confirmed. Model 2 links acceptability as a dimension of consumer personality with dimensions of brand personality. Namely, the data $\beta = -.244$, $t = -1.988$, $p = .048$ indicate a statistically significant relationship between acceptability and the excitability dimension of the brand personality, $\beta = .335$, $t = 2.616$, $p = .009$ has a statistically significant relationship between acceptability and sophistication, while $\beta = .589$, $t = 5.981$, $p = .000$ shows a statistically positive relationship between acceptability and toughness. The remaining two personality traits of the brand did not give a positive relationship with the dimension of acceptability. Model 3 presents data for the dimension of neuroticism with the dimensions of brand personality, and it can be concluded that only the dimension of excitability is not statistically significant with the dimension of neuroticism. Model 4 indicates the connection between the dimension of openness and the dimensions of the brand personality. Data $\beta = .364$, $t = 3.827$, $p = .000$ are statistically significant and indicate a positive relationship between openness and honesty, while data $\beta = -.304$, $t = -2.276$, $p = .024$ are statistically significant and link openness with the excitement dimension. Other dimensions of the brand personality are not statistically significant. According to the test results, H1a was partially confirmed.

Table no. 5: Regression analysis of mobile phones between consumer personality and brand personality

Model / Dependent variable	Independent variables	B	t-value	p-value	Model significance
Model 1 Extroversion	Excitement Sophistication Ruggendness	-.294 .327 .389	-2.512 2.674 4.143	.013 .008 .000	R=.635 R^2=.403 F= 38.040 p= 0.000
Model 2 Acceptability	Excitement Sophistication Ruggendness	-.244 .335 .589	-1.988 2.616 5.981	.048 .009 .000	R=.586 R^2=.344 F=29.552 p= 0.000
Model 3 Neuroticism	Sincerity Competence Sophistication Ruggendness	-.260 .291 -.558 .888	-3.161 2.506 -4.623 9.585	.000 .013 .000 .000	R=.647 R^2=.419 F=40.630 p= 0.000
Model 4 Openness	Sincerity Excitement	.364 -.304	3.827 -2.276	.000 .024	R=.472 R^2=.223 F=16.177 p= 0.000

Source: Autor's calculation.

Empirical research in this paper starts from the research of the relationship between the concept of consumer personality and the concept of brand personality in the mobile phone market in the Republic of Serbia. The positive relationship between personality traits (extroversion, pleasantness, salvation) and brand personality (excitement, competence, honesty) is partially supported. The results of the research agree with the research of the authors Đukić and Stanković (2021), but the results of this study are not consistent with Aaker's (1997) view. Personality trait "conscientiousness" does not have a positive relationship with the dimensions of the brand personality. This means that consumers with a higher degree of savings do not recognize the importance of the brand personality, which leads to the fact that the mobile phone market does not have enough developed marketing strategies or insufficient investment in advertising. Such results are in line with other research (Gro, 2003, Lin 2010). According to the above, the positive relationship between the consumer's personality and the brand's personality is not fully supported.

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Conclusion

A successful brand requires building a brand personality that will differentiate itself in a market that offers a large number of products and services, all in order to establish a strong connection between consumers and the brand. In that sense, marketing experts are increasingly basing their business on satisfying the psychological needs of consumers, which affects the minds of many consumers and causes a strong emotional connection with the brand.

Empirical research conducted in our paper shows the relationship between consumer personality and brand personality in the mobile phone market. As already shown in the paper, the model is partially confirmed, considering that we did not get a positive influence of all dimensions in establishing the relationship between certain variables. This further indicates the possibility of improving marketing activities in the mobile phone market. The guidelines on which the company's business should be based are reflected in the creation of a distinct, lasting and consistent brand personality. Creating a distinct brand personality can attract the consumer and thus make him loyal, all through marketing activities to highlight the brand personality, especially those dimensions that have not shown a positive relationship in the work, to achieve brand loyalty of target consumers. The conscientiousness dimension was missing in the analysis because it did not show a significant statistical relationship between personality traits and brand personality. Therefore, companies should pay attention to consumer insights and direct marketing activities to retain existing consumer groups based on favorable dimensions of the brand personality, but also to try to understand other consumers by influencing the dimension of conscientiousness and using other variables.

The research presented in this paper also has certain limitations. Some of them are taking into account a specific brand in a particular market, sample size and including a number of factors in the analysis. However, in addition to that, the paper has a theoretical basis for further future research and guidelines on which the business of companies should be based. Therefore, companies that want to be leaders in the mobile phone market need to maintain and increase brand personality and continuously work and apply methods for building brands.

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SUSTAINABLE TRANSPORTATION IN THE TAXI INDUSTRY IN JOHANNESBURG: THE OPPORTUNITIES, CHALLENGES, AND SOLUTIONS TOWARDS ACHIEVING SUSTAINABLE TRANSPORT

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Abstract
The taxi industry provides mobility and employment. Sustainable transportation must be served by innovative practices, namely new mobility types, appropriate infrastructure, and intelligent systems to manage livable environments. This study aims to determine the current practices and sustainable alternatives for taxi role players and the Department of Transport.

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The objectives were to determine probable future changes as well as ascertain whether there is a gap between the future of transportation and the vision of stakeholders. A qualitative research approach using semi-structured individual interviews was adopted. Participants for the study were selected purposively in Johannesburg and included people working in industry as well as experts in the field. The findings highlighted a significant gap between the understanding of the South African National Taxi Council, Department of Transport, taxi owners, taxi marshals, and taxi drivers regarding the way forward towards embracing sustainable practices. The researchers conclude that sustainable innovations are imperative for transportation development, economic growth, as well as reaching the United Nations sustainable development goals. This study provides a good understanding of the backgrounds unique to taxi industry in Johannesburg, sustainable mobility practices, as well as gaps in the industry.

Keywords: *Sustainable transport, taxi industry, green economy, innovation, mobility*

JEL Classification: *L90; Z30*

Introduction

Not a single commercial industry was unaffected by the COVID-19 pandemic and subsequent lockdown, but the world is slowly returning to a post-pandemic state. Transportation is essential for the mobility of passengers since it not only plays a fundamental role in the socio-economic development of Johannesburg, Gauteng's economic hub, but also to the whole of South Africa since it ensures that a vast majority of the country's workforce get to and from their destinations. Taxi owners are the entrepreneurs of industry and the heartbeat of the economy. The taxi industry is primarily deep-rooted in the informal sector and transports up to 70% of the population (Wakelin-Theron, Ukpere & Spowart, 2021). It is a privately operated and predominantly black-owned transport segment that provides employment and contributes significantly to the tourism industry (van Dalen, 2018). Without transportation, tourism growth will not be possible. Furthermore, Johannesburg citizens live in a commuter belt in the city and in various townships, which are still poorly connected to formal transportation routes and networks.

South Africa's high unemployment level is the greatest challenge facing the people of the country, especially its youth (Altman, 2013). According to (Giddy, 2021), the tourism industry is notorious for poor working conditions and, subsequently, so is the taxi industry. However, Shah, (2018) confirms the need to regulate the taxi industry more. The taxi industry is considered an industry of employment, specifically to the youth, as it requires low entry-level requirements for workers and benefits car washers and vendors at taxi ranks. Urban areas contribute to economic growth since job creation is stimulated and to some extent assist with alleviating poverty, which is instrumental in achieving the United Nations sustainable development goals (United Nations, 2018). Extensive prospects exist for self-employment and entrepreneurial opportunities in the taxi industry that contribute to economic growth.

There have been discussions on how the emerging gig economy could potentially facilitate the formalization of the workforce in the hope of promoting future research on these increasingly significant matters (WEF, 2021). During the COVID-19 lockdown, reduced traffic was evident and walking and cycling were encouraged. Nonetheless, without transportation, an economy will experience neither growth nor any social development.

Several workers in the gig economy acknowledge that they enjoy flexible working hours while many others campaign for basic working rights, such as sick pay and holidays, and work–life balance (WEF, 2020a). Yet during and post-COVID-19, the growth of the gig economy continuously raises concerns about work pressure, anxiety, and stress. The transportation industry either wants to attract riders back to the modes of mass transit relied upon prior to the COVID-19 pandemic or to other forms of transport that are safe and accessible, yet efficient, reliable, and convenient. However, the pandemic accelerated safe mobility and therefore the need for sustainable transportation. For several transportation modes, this will require replanning their networks to deliver mobility or adopting new digitally enabled services to better provide post-COVID-19 mobility safely and with a good mobility experience. The goal is to make the system sustainable for commuters.

Research Objectives

This study aims to determine the current practices and sustainable alternatives for taxi role players and the Department of Transport. The objectives were to determine probable future changes as well as ascertain whether there is a gap between the future of transportation and the vision of stakeholders.

Theoretical Framework

System theory is an interdisciplinary theory that serves as a framework for investigating phenomena from a holistic approach. System theory is present in today's economy, information systems, nature, society, science, and in any business context. According to (Mochalin, Tyrnova, & Levkin, 2017), systems theory pronounces the interdependence of relationships in a system. The systemic theory perspective debates that we are not able to understand a phenomenon fully by simply breaking it up into small units and then realigning them; instead, we need to apply a holistic perspective to understand a system's functioning.

The taxi industry also functions as a system. The industry operates among a group of individual taxi owners, drivers, entrepreneurs, and support structures whose operations are interrelated and interdependent, and whose aim is to grow the industry. Growth is determined by the degree of modification and how sound the system fits in and engages with its existing environment. The alteration, innovation and transformation of the system approach will ultimately lead to an integrated structure that provides and maintains order (Mochalin, Tyrnova, & Levkin, 2017). Furthermore, it will enable those who work in the transportation industry to secure a better life by not compromising the environment and by achieving the sustainable development goals set out by the United Nations.

Literature review-Taxis Industry in South Africa

The taxi industry is the heartbeat of the business district, transporting at least 70% of the population from their origins to their destinations. It remains an informal sector despite it being run privately and being financed without state support (Wakelin-Theron & Ukpere, 2021). Some taxis operate without permits, while others operate illegally and end up being fined and having their taxis impounded. Evidently, the industry needs to be regulated and formalized. However, the representing governing body for the taxi industry, namely the South African National Taxi Council (SANTACO), has more than 200 000 registered minibus taxis on the road. Although SANTACO has no regulatory powers, it is directed to bring order to an industry characterized by operating differently than the regulated transport industry (Altman, 2013). Furthermore, the South African Government envisions the industry to pay corporate tax, to formally comply with labor laws, and to gear up to become more sustainable.

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Figure 1. Commuters queuing to board minibus taxis at an urban taxi rank
Source: (SA Taxi 2018)

Altman (2013) acknowledges that the nature of the industry lends itself to unfair, unequal and, to some extent, exploitive labor practices. Taxi drivers and marshals are often ignorant of their labor rights as protected by labor legislation. Daily targets are set for taxi drivers, yet there is no way of establishing the precise amount drivers collect because fares are collected in cash, and drivers and owners are resistant to using smart card payment systems. According to Vegter (2020), there are owners who are prepared to formalize their taxi operations to outrival their competition. These owners are willing to grow their businesses by registering their workers formally, abiding by employment regulations and tax regulations, and contributing to the South African Unemployment Insurance Fund (UIF).

However, several taxi owners and drivers continue to operate in the cash industry, even with the new innovations and applications available. The practice takes place out of the eyes of the Government, tax collectors, and auditors. In addition, the industry is characterized by the absence of the application of legislation such as the Occupational Health and Safety, Act 83 of 1993, and the Basic Conditions of Employment, Act 75 of 1997. It raises a concern regarding how the taxi industry, with all its employees, functions and how a flexible, reliable, and sustainable transport system plays a significant role in the country's practices and, possibly, in a gig economy environment. The gig economy encourages debates about the future of work and labor regulation – both now and in the future – regarding the impact of technology on the industry and job quality.

Indeed, the taxi industry has not complied with the set requirements determined by the UIF. Further to this, employees and taxi owners resist registering for UIF in an informal, predominantly black-owned industry (UIF, 2019). Competition is becoming fiercer and various owners are changing and adapting to certain legislative requirements. In fact, this once unregulated industry has become more regulated in recent years as testified by more financial support and the existence of various taxi associations in specific geographical areas (Mhlanga, 2017). Owners have to be affiliated with the taxi association in their geographical area to operate on certain routes. The taxi industry is to some extent part of the greater public transport sector and thus requires formal permission from a taxi association to operate in specific geographical areas Wakelin-Theron et al., (2021). During the COVID-19 pandemic, a taxi relief fund of R1.135 billion[1] was introduced as a once-off payment to taxi owners affected. To qualify for funding, taxi owners had to be permanent South African residents, have a valid driver's license and operating license, and be registered as taxpayers with the South African Revenue (South African Government, 2021b). Yet, only a few taxi owners benefitted from this once-off payment relief fund.

In future, a gig economy could intervene in the labor relationship between taxi owners, the associations, and drivers. In addition, the taxi industry has the means to enhance various sustainable practices to advance the industry and add to the customer experience.

Sustainable development goals

The United Nations defined seventeen sustainable development goals as part of the 2030 Agenda for Sustainable Development. The goals have been implemented to achieve a more enhanced sustainable future for all (UN, 2018). Sustainable transport means considering the effects of transport modes on the environment as well as the climate. However, transportation is not represented by a standalone goal but incorporated into several goals and targets, namely the United Nations Sustainable Development Goal 3 relates to good health and well-being; Goal 9 relates to innovation and infrastructure; and Goal 11 addresses sustainable cities and communities (UN, 2018). Therefore, sustainable taxi transportation is essential for working towards achieving the seventeen United Nations sustainable development goals and the 2030 Agenda for Sustainable Development (UN, 2018).

[1] R1.135 billion = $17.64 in August 2020

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As stated, Goal 3 relates to health and well-being. Concerns have been raised regarding the lack of professional conduct in the industry (van Dalen, 2018). The taxi industry is aware of incidents of abuse and, in some cases, rape and molestation; lack of servicing the disabled; violence against minibuses, adults, and children; and incidents against the LGBTQI[2] and elderly communities (DoT, 2020). The Department of Transport (DoT) published a document in 2020, namely *Taxi Industry Professionalisation and Customer Care*, which not only highlights the concerns regarding consumer well-being but also addresses future options for bettering consumers' well-being in the industry (DoT, 2020).

Goal 9 relates to industry innovation and infrastructure. This goal allows for effective and strong infrastructure, and it notes the required foundation of every successful community to meet future challenges (UN, 2018). Therefore, the taxi industry and the infrastructure thereof must be upgraded to focus on high-quality reliable transport. This will bring prosperity, create additional jobs, and ensure that stable and thriving societies are built.

Goal 11 relates to sustainable cities and communities, which means creating job opportunities to provide access to affordable, accessible, safe, equitable cities and transportation that are sustainable (UN, 2018). The transportation sector will play a particularly important and progressive role and positively improve access for women, children, and those with disabilities (DoT, 2020; UN, 2018). Thus, education awareness of transportation systems and their development is important.

Dimensions of sustainable transportation

According to Motowidlak (2017) study, sustainability revolves around long-term planning with integrated actions to achieve the strategic, sustainable goals. Table 1 lists the three dimensions of sustainable development and elaborates on each. The social dimension emphasizes the accessibility of mobility and the safety and quality thereof. The economic dimension highlights improving the economy efficiently, while the environmental dimension accentuates minimizing pollution, which includes curtailing gas emissions and reducing the use of water and non-renewable resources. As reported by Motowidlak (2017), efficient transportation is based on integrating all forms of transport, including infrastructure and various transportation systems.

[2] Lesbian, gay, bisexual, transgender, queer, and intersex.

Table 1. Sustainable development dimensions of transport

Sustainability		
Social dimension	**Economic dimension**	**Environmental dimension**
• Accessibility; • Fluidity; • Mobility; • Safety; • Social cohesions; • Transportation system integrity.	• Affordability; • Infrastructure (development, innovation, investments, transport, network capacity, quantity, and quality); • Intermodality; • Working conditions in the sector.	• Counteracting and eliminating the effects of transport-related environmental risks; • Environmental friendliness of transport (minimizing its impact on the environment).

Source: Motowidlak (2017).

The implementation of the three dimensions in Table 1 requires continuous improvement using an extensive range of educational work; economic, organizational, and technological instruments; and legislative and technological support. However, Isetti, Ferraretto, Stawinoga, Gruber and Dellavalle, (2020) acknowledge that the shift to integrated transport should incorporate public mobility management. It includes embracing aspects such as managing e-mobility and shifting portions of the request from cars to other forms of mobility; thus, changing mobility patterns and the supply of modes. Therefore, supporting and implementing alternative, new, diverse, and innovative technologies will play an essential role in the process and reduce the carbon footprint of the industry, thereby making transportation sustainable and avoiding damage to the environment (Fergusson, 1999).

A green economy for the taxi industry

A green transport economy signifies sustainable transport. Green transport embraces different modes of transport that are set out not to harm the environment, such as when using fossil fuels. Green transport modes depend on renewable energy sources powered by solar power, wind energy, hydroelectric power,

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biomass, and other sources (DoT, 2018). A new initiative was launched during 2019 to establish a green economy for the taxi industry, which is an essential feeder to the public transport system (DEA, 2019). As reported by United Nations, (2018), depending on a green system alone is not the answer. However, a sustainable green taxi transport strategy must incorporate holistic approaches such as embracing cleaner taxi vehicles, using efficient fuels, contributing to carbon and congestion taxes, providing incentives to taxi consumers, and launching educational awareness campaigns for users and suppliers of the taxi industry. The South African approach towards a green economy is to increase pro-employment growth, be resource efficient, and having a low carbon footprint. Yet, Reseroka (2019) emphasizes that the Government cannot support and fund the green economy transition alone. It is essential that the private sector and civil society come on board with technical expertise, funding, experience, and/or by playing a fundamental role (DEA, 2019). A green economy for the industry is conceived as a system of economic activities, which relates to the manufacturing and delivery of goods and services for consumption that result in improving human well-being over a long-term period, while at the same time minimizing the exposure of future generations from significant environment risks or ecological disorders (DEA, 2019).

The Department of Environmental Affairs identified nine fundamental areas in the green economy program that are crosscutting in nature. Various areas have similar roles and responsibilities across civil society, private sector, and all levels of the Government (DEA, 2019):

(i) Agriculture, food manufacture and forestry: integrating sustainable agricultural production;

(ii) Building green buildings: public and private buildings;

(iii) Conserving and managing ecosystems: upscaling the ecosystem and working towards better conservation, wildlife management, and a resilient infrastructure;

(iv) Ensuring clean energy and energy efficiency, expanding off-grid rural and urban options, upscaling solar water heater roll-out, and optimizing large-scale renewable energy;

(v) Ensuring environmental sustainability, greening of large events and hallmark/flagship events, conducting research, skills awareness and development programs, and enhancing knowledge management;

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(vi) Promoting sustainable consumption and production: changing industry production technology and applying specific industry production methods;

(vii) Ensuring sustainable transport and infrastructure that include promoting non-motorized transport;

(viii) Employing sustainable waste management practices that contribute to zero waste for 500 000 households through waste beneficiation programs;

(ix) Implementing water management and water harvesting initiatives, using alternative technology through comprehensive municipal water metering, and reducing water losses in agriculture, mining, and municipalities.

However, taxi drivers and owners are wary of the initial investment and are only concerned about whether innovation, infrastructure, and technology can benefit them financially.

The road transportation sector contributes 91.2% to the total emissions in South Africa (DoT, 2018). The Department of Transport (2018) acknowledges that the Green Transport Strategy will focus on the road sector, which will allow for greater reduction of carbon dioxide emissions. Table 2 confirms that road transport contributes the most to the total carbon dioxide (CO_2) emissions from this transportation sector. The table indicates that emissions are escalating year by year (DoT, 2018).

Table 2. CO_2 emissions – transportation

Industry	2000	2010	2020	2030	2040	2050
Aviation		2	4	5	7	8
Indirect CO_2 emissions (all modes)	25	33	42	55	71	90
Rail	0	0	0	1	1	1
Road transport	33	44	54	71	92	116

Source: Adapted from (DOT, 2018); values in CO_2 (Gg/year equivalent)

Over time, unsafe and old taxis will be replaced with newer, more efficient vehicles under a recapitalization program with compulsory safety standards (DoT, 2018). The South African Government introduced the Taxi Recapitalisation Programme (TRP) in 2021. It is an intervention to bring accessible, affordable, effective, reliable, and safe taxis to the taxi industry by introducing vehicles intended to undertake public transport functions (South African Government, 2021a). The intention of the TRP is to introduce safety requirements for all passengers, provide comfort to passengers by allocating the right size and number of seats, ensure accessibility in terms of the size and number of seats, and brand and color-code taxis to enable passengers in geographical areas to distinguish between taxis and illegal taxis South African Government, 2021a).

Thus, the world is facing significant challenges in the transformation of the transportation system to net zero emissions. However, continuous investigation into the feasibility of greener vehicles and vehicles converted to compressed natural gas is essential (SA Taxi, 2018). Decarbonizing the environment creates fantastic opportunities to drive beneficial outcomes for the transport industry from better connected communities to cleaner air, to better cities.

In resent research, Russell (2022) states that fossil fuel is indeed a term of the past and that the world is looking more to renewable energy sources. Scientific research, growth, and investment have recently introduced innovative solutions such as green hydrogen. Reuters (2022) predicts that hydrogen will be the future choice of green fuel to fight climate change and enable the transition to sustainable energy and zero emission economies. Yet, there are still many questions around the implementation of hydrogen in the real world (Vehicle Technology Office, 2022). In South Africa, the current public transport infrastructure is exceptionally poor. The country is neither equipped to deliver alternative products and services powered by solar nor does it have the required infrastructure, such as compressed natural gas filling stations and electric vehicle charging stations. Furthermore, commuters have limited access to Wi-Fi. All these components form part of the components of a smart city (UNWTO, 2020b). There are limited solar use to enable these forms of technology as well as limited commitment in rolling out such infrastructure out on a large scale (SA Taxi, 2018). The industry started making extremely limited engagements by introducing certain aspects of green initiatives to promote the uptake of cleaner fuels. However, it should be encouraged as green transportation has a wide range of economic, environmental, and health benefits, and is further cost-efficient to the individual (DoT, 2018).

Alternative transportation uses to sustain the environment

The developed world is moving towards the sustainable use of transport such as lower personal car usage and higher use of public transportation. In this regard, South Africa's public transportation system provides daily commuters with a cost-

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effective, reliable alternative to private cars, metered taxis, e-hailing services, or minibus taxis in their own geographical location and at a walking distance from their origin or destination (WEF, 2021).

However, taxi drivers show little or no concern for sustainable development goals such as environmentally friendly practices. If the taxi industry were to implement any new initiative in a gig economy or become more sustainable, it would have to make business and financial sense to the owners (Raseroka, 2019). South Africa faces a high rate of unemployment and elevated levels of poverty, and the increase in the petrol price further gives rise to several social challenges. Therefore, the focus should be on creating sustainable employment for youth and women in the mobility sector, thereby creating innovation that is green to support sustainable cities and communities.

Different innovative future developments in the transportation industry

Associates Economic Development published an article in 2019, namely, *Innovations: Shaping the Future of Transportation*. Technological innovations such as automation, electrification, and connectivity with business model innovations, like shared mobility, are indeed fundamental and will change the way goods and people are moved (E-SPIN, 2019). These innovations improve urban mobility by using autonomous vehicles, decarbonizing transit, and profiting from share mobility; however, it is all about making mobility convenient. The shift to next-generation mobility systems will not be easy for urban cities to manage as it is not clear how quickly advances will take place or precisely what the transitions will look like. However, according to Fishman, Kelkar, Schwartx and Sen (2020), transport agents are making mobility systems safer, more affordable, and more accessible. Sustainable transport goals can be achieved through i) The introduction of alternative mobile hubs with a wide range of mobility options; ii) The development and delivery of seamless mobility experiences; iii) The introduction of flexible fleets, which are electric, shared, or autonomous vehicles to connect to transit hubs in a mobility geographical area.

Under the leadership of Jacob Mamabolo,[3] the Gauteng Department of Roads and Transport (2020) launched a smart mobility plan in 2020. The vision is to grow the Gauteng economy and change the mobility patterns of commuters. This

[3] Member of the Executive Council for Public Works, Roads and Transport in the Gauteng Provincial Legislature.

involves creating connected and integrated transport systems that are efficient, reliable, and flexible. Such integration and connectivity cut across all modes of transportation in South Africa (Gauteng Road and Transportation Department, 2020). Various application developments (apps) allow users to review drivers. Users can upload images and report taxi issues. In addition, they can locate the nearest taxi rank or service center and find contact details of rank managers, including delays in real time. The apps allow users to acknowledge drivers and compliment their driving, upload images, report issues, or discover the nearest service center or contact details of a rank manager. The apps have the means to bring owners, taxi drivers, and rank marshals closer to their customer base and provide greater visibility of routes, issues, events, tracking, and payment in the future (Boxfusion, 2022). In addition, these apps will allow cashless payment and the ability to track and monitor the availability of taxis to improve timing soon (Boxfusion, 2022).

Shared mobility practices have already been taking hold across South Africa and have grown immensely since 2014; therefore, the renewed interest in urbanization and the growing environmental, energy, and economic concerns intensify the need for sustainable alternatives. Shared mobility is defined as a mobility medium shared collectively by commuters without owning assets, such as bicycles, cars, e-bikes, motorbikes, and trucks (Herincx, 2019). Significant improvements in wireless and electronic technologies make sharing mobility assets and data easier and more efficient since routes can change, empty seats can be filled, and combined cost and real-time arrival and departure information can be shared as users adopt new mobile applications (Shared-use Mobility Centre, n.d.; WEF, 202b).

Alternative forms of mobility include cycling and walking. However, bicycle lanes and designated pedestrian walkways are scarce in South Africa and there are limited racks for bicycles on buses and trains. Although these types of mobility are considered healthy, cost-effective choices, there are associated barriers to ensuring safety and providing adequate infrastructure. Yet, inclusive, and sustainable mobility is a requirement for social and economic participation (DEA, 2019). According to the Department of Environmental Affairs (2019), non-motorized transportation systems have been neglected in local urban areas. However, bike-sharing, ridesharing, and car-sharing programs are popular in Europe and Asia, where they are operated at high frequencies on different car-sharing mode types. They operate locally and regionally and connect with other types of transit connection. Bikes can be rented, used, and returned easily at multiple hubs in various areas. The advantages of bike-sharing include enhancing security, convenience, and ride mobility [some electric (battery or motor); renting at reasonable prices; and being good alternatives to transportation problems (WEF, 2020a). There is a current e-bikes initiative in the Groenkloof Nature Reserve where visitors can access e-bikes and roam around with a field guide viewing wildlife and antelope.

Although autonomous vehicles have appeared on the market, it is difficult to ascertain how integrated autonomous navigation will play out in the next generation. Driverless or autonomous cars are expected to be up to 80% safer than traditional transportation modes. Driverless cars will reduce fuel costs and be more efficient as the cars will determine the best possible routes on the journey, thereby improving city traffic flow and freeing up time for consumers to continue with other tasks during their journey (Herincx, 2019). Since autonomous tracking equipment and software are maturing and continuing to flow into commercial and consumer applications, it is impossible to avoid the implication thereof. Further development and refinement of innovative technology for the Internet of Things (IoT) will allow autonomous vehicles to communicate with other devices, which will indeed accelerate the autonomous transportation experience (E-SPIN, 2019).

New developments will soon take transportation underground. The aim is to develop a three-dimensional public transit network between city areas, which will be made feasible by significantly reducing the cost of excavating underground tunnel systems. The system will allow passengers and cars to travel underground on hydraulic tunnels between destinations (E-SPIN, 2019). Reduced travel time will have a massive implication for worker mobility as workers could live far from their place of work in the city center but still be present at work daily.

Electric mobility could reduce emissions and create economic growth. Nonetheless, ambitious governmental policies and economic input are required to make this a reality in South Africa. Cooperation between governments at local, regional, and national levels is essential for e-mobility to take off (DEA, 2019).

Table 3 lists possible future concepts of transportation modes to assist mobility. However, it is questionable whether these types of future transport mode will reduce emissions and create economic growth. It could be that interests are weakening as experiments are not producing results. The types of possible future transportation mode can change and alter as technology adapts.

Table 3. Types of future transport modes

Air-propelled trains	Hyperloops
Dual-mode transportation systems	Jetpacks
Flying cars/drones	Launch loops
Space elevator	Personal air vehicles
Spacecraft propulsion or space transport	Personal rapid transit
Walking robots	Passenger autonomous vehicles

Source: DoT (2018).

The transport industry is changing rapidly in terms of new transport initiatives, new policies, innovative technologies, and new and alternative sources of power.

Barriers to implementation

Adaptation in the transport industry still faces significant barriers – both locally and internationally, and on technical and political levels. Indeed, adaptation to climate change is associated with additional resources, especially financial support. The lack of capacity, awareness and training are also regarded as barriers, particularly during uncertain times. The Department of Transport (2018) confirms that the main difficulty in South Africa is effective implementation and sufficient funding. According to Unemployment Insurance Fund (UIF) (2019), the lack of activation and implementation is due to long-term issues. However, according to the Unemployment Insurance Fund (2019) there is neither short-term urgency nor political priority.

According to the Department of Environmental Affairs (2019), a cycle must be followed when implementing strategies. The cycle starts by raising initial awareness among decision makers and stakeholders in the specific sector. The exploration stage of risk and vulnerability follows, then the adaptation options are identified, and the adaptation strategies or action plans are developed. The implementation and the result thereof are monitored in the final stage. However, now, attention must be given to adapting transport infrastructure, namely roads, rail tracks and ports. There should be less focus on issues such as adopting transport services, including infrastructure, equipment, and personnel; deploying staff; facilitating timetables on designated geographical routes; substituting plans; and discussing alternative service and route options as these routes are functioning (DoT, 2020). Table 4 lists the national appropriate mitigation actions (NAMAs) on a short-term, mid-term, and long-term basis.

Table 4. National appropriate mitigation actions

Short-term NAMAs	Mid-term NAMAs	Long-term NAMAS
Gautrain expansion	Fuel economy standards	Behavioral change
Improved bus rapid transit systems	Fuel switch	Economic incentives
Taxi modernization and conversions	Modal shift from road to rail	Integrated urban planning
Uptake and promotion of eco-friendly non-motorized and motorized transport	Updated fuel regulations	Integrated public transport networks

Source: DoT (2018).

Research method

The study was conducted in Johannesburg in the Gauteng business district, which is the financial hub of South Africa. The business district is characterized by vast numbers of daily commuters who use minibus taxis. A qualitative research approach was deployed while conducting semi-structured interviews to expose the current practices, opportunities, challenges, and sustainable alternatives for taxi role players and the Department of Transport in a gig economy towards achieving sustainable transport. The methodological orientation was phenomenological analysis to underpin the study. A phenomenological underpinning in study helps to understand peoples lived experiences

Participants were purposively selected as they are experts and are exposed to the industry and development in various areas in the taxi industry. Consent to conduct interviews was obtained from experts and the aim of the study was clarified. Interviews were conducted face-to face, and via telephone with the help of a male fieldworker, to translate into English if required. Participating in the interviews was voluntary and participants could withdraw from the study at any time, an interview guide was provided to guide the participants. The researcher further sought participants' approval to audio-record the interviews, which lasted between 30 and 50 minutes. The researchers ensured that all COVID-19 protocols were followed in terms of sanitizing, wearing masks, and adhering to social distancing practices.

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Sample

Twelve expert participants were interviewed in the study, after four experts declined to participate the study. The selected participants in this study are experts due to their work experience in various taxi areas. Table 5 briefly presents the participants included in this study, namely taxi owners, taxi drivers, queue or rank marshals, officials, and various representatives. The taxi industry experience of study participants ranged between seven and 25 years. Almost all participants were African black males, with only one female participating in the study.

Table 5. Study participants and codes allocated

Occupation	Code	Participants' tenure	Gender
Taxi owner	TO1 TO2	25 18	Male Male
Taxi driver	TD1 TD2	20 24	Male Male
Queue marshal/ Rank marshal	RM1 RM2	7 10	Male Male
Transportation official supporting and advancing the taxi industry	OO1 OO2	12 10	Male Female
SA Taxi financial support representative	SAT1 SAT2	12 9	Male Male
Union representative	UR1 UR2	15 22	Male Male

Source: Researchers' own data

Analysis

After transcribing the interviews, the audio recordings of the interviews were read and reread by the researchers. Thematic analysis was deployed for data interpretation. Thematic analysis search for common themes as a semantic approach was adopted in this study. The themes were identified in the data set instead of involving assumptions underlying the data (Braun & Clark, 2006).

Findings

The findings are represented in the next section and are in line with the research questions. Themes were derived from the data. The findings are supported with verbatim excerpts from participants.

Theme 1: Changes that are likely to be implemented in the future

Participants were asked about changes to be implemented soon. The aim of this question was to determine what changes participants thought could be implemented to advance the taxi industry and make it more sustainable. The following sub-themes emerged:

(i) Telematics to help improve driver behavior, vehicle usage, and proactive maintenance/real-time management;
(ii) Green transportation strategy;
(iii) TRP (2021) taxation;
(iv) Solar-powered taxi ranks;
(v) Educational campaign;
(vi) Incentivized non-motorized transportation;
(vii) Renewable energy vehicles;
(viii) Electronic pay system;
(ix) Financial support;
(x) Taxation levies to continue (fuel levy; Road Accident Fund levy; equalization fund levy; custom and excise levy);
(xi) Policy to support green transport;
(xii) Taxation on CO2 emissions of new passenger vehicles to take place nationally;
(xiii) Taxation on road use and licensing to take place at provincial level;
(xiv) Procurement guidelines to promote entrepreneurship but not to promote efficient and low-carbon vehicle technology.

SAT2 acknowledged that, "We are currently using telematics and data intelligence to improve taxi safety and reliability on our roads, but in limited numbers. We developed and created various transformational technologies, which we are piloting". SAT1 confirmed, "… that the devices used trip information, namely GPS tracking, trip duration, total travel distance, idle time, and average speed covered".
SAT2 noted:

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> We already make use of this type of date for insurance and financing businesses. We are currently busy with other innovative technology projects to assist and advance, which are set to revolutionize the industry. It will increase vehicle reliability and operational efficiency and, and which is significant is that it will improve the safety of drivers, passengers, and other road users within the province.

SAT2 continued:

> Our innovation sends alerts out if taxi drivers drive too long, and sends reminders out when to stop and rest, or on long-haul trips, when to change drivers, to keep passengers safe and to reduce accident risks. The telematics deployed will soon be able to track operational efficiency to mitigate maintenance cost. This will also improve safety for taxi drivers, passengers, as well as other road users.

SAT1 commented:

> A new green transport strategy was launched. The aim of this strategy is to have a complete approach to cleaner vehicles, with greater fuel efficiency, less carbon emissions, and taxes to be imposed on taxis in highly dense traffic sections, to clamp down on congestion.

OO1 stated:

> It has the ability to transform the taxi industry, and I would like to see that the preferred green mode of transport be implemented soon. However, the uptake is questionable, as the requirements are very specific to join the Taxi Recapitalisation Programme.

TD2, a male taxi driver who has been working in the industry for 24 years, commented that:

> … we will only be taxed more and more to incentivize the introduction of vehicles that produce fewer emissions with increased fuel efficiency the taxi industry will just continue to pay more on fuel levies, annual car licensing, toll roads, it is just escalating and will be more in the future … I don't know how we will survive in the industry; we don't get support.

The Arrive Alive campaign stipulates the following basic requirements: a valid driver's license; an identification documentation; a roadworthy car disk license; proof of vehicle ownership; proof of being a registered taxpayer; and valid certificate of fitness for the industry. OO1 noted being aware that the TRP:

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> … will scrap taxis and promote training and skills development, to enhance customer services and to become more professional in daily operations. I believe that the Taxi Recapitalization Program will make sure that the taxi industry operates on viable routes, eradicate overtrading on these routes, and will secure more profit and become more sustainable.

TO2 noted that, "some taxi ranks have solar power, they are off the grid taxi ranks and more ranks will change in the future, but commuters want to charge their phones and get Wi-Fi". OO2 confirmed that, "The Taxi Recapitalization Program was introduced in 2021, and the intention is to bring affordability and more accessibility to taxis. The aim is to make the taxi industry safer, more comfortable, with bigger seat capacity and branding".

OO1 mentioned, "The public sector will be incentivized soon to use non-motorized transportation. Citizens should be educated through various awareness campaigns to address various sustainable matters in the transport industry". OO1 added:

> Electric vehicles or alternative fuel vehicles are far more expensive than normal petrol or diesel vehicles, yet the operating cost of their lifetime might be less than the actual fossil fuel. Entrepreneurs and taxi owners are walking away as they hear the cost of implementation, as the initial implementation is very costly.

SAT2 noted:

> If the taxi industry introduces renewable energy vehicles to our public transport system, we will be running a safe, inexpensive, and low-emission transportation system within the next 10 years. Through this, we will be able to reduce costs to the consumer.

When asked what technologies would make their lives easier, RM02 indicated: "We need a pay system where the drivers do not have to handle money or ask passengers to collect the money on their behalf whilst driving". Another driver (RM02) believed, "Partitioning such as Perspex screens should be inserted between driver and passengers, now and in the future, to clamp down on the spread of infectious diseases". OO2 mentioned that it would be ideal if "training could take place amongst owners, drivers and marshals to educate those in the industry about gender-based violence which will keep the industry safe".

Due to limited awareness and a lack of financial support, it seems as if limited changes are proposed to be implemented soon. More awareness needs to be created regarding electronic payment systems, renewable energy, and the benefits and possible opportunities – specifically toward benefits of renewable energy in the taxi industry. A green economy indeed signifies sustainable transport. Although certain taxi ranks are solar powered, more initiatives should be deployed, such as solar power on street benches and bus stop shelters to assist commuters with solar charge points and possible Wi-Fi in the future. These are also characteristics of smart cities (UNWTO, 2020b). The public sector needs to be incentivized to use non-motorized transportation, and entrepreneurial opportunities do exist in the field of e-transport (e-bikes, e-tricycles, and flat walkway elevators to facilitate quicker movement). Furthermore, greater policy enforcement must take place.

Theme: 2: The future of transportation and the contribution of the taxi industry

Participants were asked whether they saw a gap between the future of transportation and the contributors to the taxi industry. The aim with this question was to obtain more information about future initiatives and the level to which stakeholders make contributions. The following sub-themes emerged:

(i) Limited communication regarding sustainable and innovation practices/initiatives;
Lack of Government support;
Clear communication and guideline policy to support goals;
Inadequate legislative environment to enforce new transportation innovation;
Insufficient expertise to support regulatory and legislative challenges and technical assistance to implementation new innovative transportation initiatives into existing grid infrastructure;
Lack of financial commitment to explore new transportation mobility initiatives.
No dedicated road lines for taxis.

OO1 stated:

> We do have strategies available, but our priority is to keep commuters safe, and taxi owners are there to profit. We need to get back to our original state of transportation. The industry has suffered enough. We need to finalize a policy to support and to advance the taxi industry.

TO2 mentioned, “We do not receive information from our taxi association, nor from Government, on how we will benefit. We don’t even receive info on how we can change for the better in the future, nothing”. TD1 noted, “We did not receive funds from Government. We need more financial help”. OO2 stated:

> I am of the view that entrepreneurs within the industry could tap into new initiatives and see what works the best, but most taxi owners only

> line their pockets and just want to make money and survive. There is no incentive for them to change … there is not even dedicated lanes for them to operate in as buses do, yet they transport lots of passengers daily.

SAT2 confirmed the statement:

> … the running cost of electric vehicles are lower than petrol or diesel. The batteries can be recycled, where diesel and petrol CO_2 emission pollute our environment. Yet, we do have a perception that electrical cars contribute more to CO_2 emission. The future mix that relies more on green energy may soon change this. The downside of our current electrical system is that it will put more strain on the weak Eskom system, which has non-existent reserve margins for power generation. Yet, I believe this will be mitigated if we make use of renewable energy generation.

SAT2 further mentioned that:

> … policymakers need to accept and push for new greener electricity generation and remove red time. We require more Government intervention to assist taxi owners, like Nersa's current proposal to regulate residential solar power systems. In addition, I suggest the Government ~~to~~ subsidize all import of electric vehicles to our ports to make it attractive for manufacturers and to generate a competitive market. Another move would be to set up electric charging station depots for taxis at convenient filling stations or near a taxi rank. I suppose an initial incentive to charge no fees, or a reduced fee will stimulate a possible uptake. Charging stations can be powered through renewable energy, opening a new industry which entrepreneurs can run, which could create additional much-needed jobs. We, however, would require significant investments.

OO1 noted having "… heard about the renewable energy source powered by sunlight … tested currently in Stellenbosch and might be something to investigate in the near future. It is only in the initial phases, though".

Extremely limited discussions emerged regarding sustainability practices or implementation of technology initiatives. Furthermore, while specific policies and health and safety measures were implemented to reduce the spread of the coronavirus, no viable technology was considered to reduce the exchange of money. Likewise, participants did not allude to legislative regulations or bettering the commuters' lives while waiting or using taxis. There have been no discussions regarding initiatives to sustain and develop the industry and its infrastructure. There is indeed a significant gap between the future of transportation and the willingness to adapt and change, and there are limited contributions from the Government and other role players to support the taxi industry. More Government intervention and private stakeholder support are required to assist taxi owners to transform to solar power and other alternative types of power to modernize and introduce alternative mobility forms. The uptake and promotion of eco-friendly non-motorized and motorized transport mobility is currently non-existent in the taxi industry.

Discussion

In line with the United Nations 2030 sustainable development goals, it is time that the taxi industry rethinks its operational innovative delivery model for the near future as it will be forced to improvise to remain economically viable (UN, 2018). The current practices and adaptation to future practices seems to be misaligned with the projected outcomes of the United Nations 2030 goals (UN, 2018). The adaptation of policy and legislation will ensure effective regulation of improved technology in the mobility sector. Financial commitments need to be explored to assist new developments. The use of mobile apps can be improved by enabling access to the internet. These are smart city concepts to be embraced in an economic hub (UNWTO, 2020b). Various forms of mobility are essential for commuters and need to be explored. However, limited financial commitment from the Government and the private sector has been deployed in the taxi industry, and more needs to be done. The World Economic Forum (2020b) confirms that many African cities still have no measures in place for traffic-free zones, policy to collect additional fares in highly dense business zones, and limited adaptation to green mobility.

Furthermore, communication in the industry could improve. There are no discussions regarding implementing interactive communication technology, and new or modified services that are efficient and user-friendly, but few have made a significant impact. An intelligent transport system needs to be developed for the council to monitor the taxi industry and the public transport system through a geographical information system (GIS), IoT, and GPS connectivity. There is a need for traditional mobility to be upgraded in Africa (WEF, 2020b). Entrepreneurs should have access to a fast-playing field to tap into and to explore, especially in the taxi industry in South Africa, which could assist with alleviating poverty and unemployment (Wakelin-Theron et al., 2021).

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SANTACO and the Government should aim to implement innovative pay system devices. Seleka (2020) confirms that key strategic partners in the industry committed more than R3 million[4] to assist in the fight during and after the COVID-19 pandemic. Yet, there has been no additional funding to support future innovative initiatives with extremely limited discussions to redress future operational delivery. As the industry is unregulated, there have been limited changes under the TRP (South African Government, 2021a). No discussions have taken place regarding how the taxi industry, which is a major component of the transport sector, could engage with the public transport sector to develop their role as essential feeders to the transport system, being an entity operating on its own. Neither have there been discussions about the essential employability skills that are required when working in the industry. In addition, there should be education to ensure that taxis are made cleaner and safer, drivers and passengers are protected, and owners are incentivized to adopt sustainable alternatives to embrace sustainability.

This article provides valuable insights into sustainable transportation in the taxi industry with limited changes that are likely to be implemented. A gap exists between the future of transportation and taxi industry contributors. The findings can be used as a source of information for building and improving the system. It is time that multiple interdisciplinary stakeholders get on board, ultimately informing future initiatives, discussions, and collaboration in this scope of the taxi industry. Sustainable growth in South Africa should be dependent on economic inclusion.

Limitations and future research directions

Data was gathered from a limited number of participants in one geographical location. The findings of this study may not be representative of the taxi industry throughout South Africa. However, the limitation could be addressed in future research, which could also gather data over a longer period to determine types of innovative changes, overall operational experiences, and the impact of change on the industry.

Conclusion

The taxi industry is a fundamental role player in urban areas and the economy. Therefore, its perpetual existence is a priority for a vast number of South Africans.

[4] R3 million = $14.45 at August 2020

The industry must explore ways in which the taxi industry workers, taxi drivers, rank marshals, and others can be included into the empowerment plans of the industry as well as other innovative strategies to advance the industry towards sustainability.
While the current qualitative data may be limited in sample size, it has provided an in-depth understanding and greater information to stir future research. The results from this study would certainly be useful to taxi owners, marshals, transportation policymakers, taxi industry representatives, and the drivers themselves as a starting point for greater sustainability discussions towards achieving sustainable transportation in South Africa.
S, or non-profit sectors. The researchers would like to thank and acknowledge the taxi industry participants for the willingness to participate in this study.

Conflict of interest
The authors declare no conflict of interest.

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