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Editorial

Journal of Economics and Behavioral Studies (JEBS) provides distinct avenue for quality research in the everchanging fields of economics & behavioral studies and related disciplines. Research work submitted for publication consideration should not merely limited to conceptualization of economics and behavioral developments but comprise interdisciplinary and multi-facet approaches to economics and behavioral theories and practices as well as general transformations in the fields. Scope of the JEBS includes: subjects of managerial economics, financial economics, development economics, finance, economics, financial psychology, strategic management, organizational behavior, human behavior, marketing, human resource management and behavioral finance. Author(s) should declare that work submitted to the journal is original, not under consideration for publication by another journal and that all listed authors approve its submission to JEBS. Author (s) can submit: Research Paper, Conceptual Paper, Case Studies and Book Review. Journal received research submissions related to all aspects of major themes and tracks. All submitted papers were first assessed by the editorial team for relevance and originality of the work and blindly peer-reviewed by the external reviewers, depending on the subject matter of the paper. After the rigorous peer-review process, the submitted papers were selected based on originality, significance and clarity of purpose. The current issue of JEBS comprises papers of scholars from Ghana, Uganda, India, Malaysia and Morocco. Exploring Climate-Resilient Infrastructure and Sustainable Urban Development, Monetary Policy and Private Investment, REER, Inflation, Interest Rate and Coffee Exportation, Paradox of Continuance Commitment between Organizational Citizenship Behaviors and Signs of Burnout, Domestic Debt and Growth of Credit to the Private Sector and Evaluating The Influence of Networking Strategies on Start-Up Growth were some of the major practices and concepts examined in these studies. The current issue will therefore be a unique offer where scholars will be able to appreciate the latest results in their field of expertise and acquire additional knowledge in other relevant fields.

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PAPERS

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Exploring Climate-Resilient Infrastructure and Sustainable Urban Development in Ghana

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Abstract: The purpose of this study is to examine how climate-resilient infrastructure might support sustainable urban growth in Ghana. Rapid urbanization and climate change have posed substantial problems to Ghana's urban planning systems, resulting in frequent flooding, rising temperatures, and stressed infrastructure. This study used a mixed-methods approach, with 500 participants comprising urban planners, engineers, policymakers, and residents from various urban locations. Descriptive statistics, regression analysis, and correlation were employed to analyze quantitative data using SPSS, while thematic coding was utilized to examine qualitative insights. The findings reveal that 85% of respondents are aware of climate-resilient infrastructure, but only 16% believe that present projects adequately integrate resilience measures. Key barriers identified include weak policy enforcement, limited financial resources and a lack of technical expertise. According to regression and correlation analyses, policy efficacy, urbanization rate, and stakeholder participation are key determinants of infrastructure integration. The study emphasizes the value of targeted investments, capacity development, inclusive governance, and improved institutional frameworks. Ghana's distinct socioeconomic and environmental vulnerabilities make it an ideal case study for researching climate-resilient urban infrastructure. The findings provide empirical insights to help Sub-Saharan Africa transition from reactive to proactive planning, as well as to inspire measures for enhancing urban resilience.

Keywords: *Climate Adaptation, Policy Implementation, Urban Governance, Stakeholder Participation, Climate Resilience, Infrastructure Planning, Ghana, Sustainable Urban Development.*

1. Introduction

Ghana's urban landscape is rapidly transforming due to increased urbanization, population growth, and infrastructure development. While urbanization provides economic opportunities and social progress, it also introduces substantial obstacles such as inadequate infrastructure, environmental deterioration, and vulnerability to the effects of climate change. The consequences of climate change, including rising temperatures, increased flooding, and coastal erosion, have placed a significant strain on Ghana's urban infrastructure, prompting the implementation of climate-resilient solutions (Owusu & Addo, 2019).

Sustainable urban development in Ghana requires infrastructure that is designed to withstand climate-related risks while promoting environmental and socio-economic resilience. Climate-resilient infrastructure incorporates adaptive strategies such as flood-resistant buildings, improved drainage systems, green spaces, and energy-efficient urban planning (World Bank, 2021). These approaches not only enhance the durability of infrastructure but also contribute to sustainable growth by reducing resource consumption and minimizing environmental impacts.

Despite the growing understanding of climate-resilience in urban development, Ghana confronts a number of implementation issues. These include financial limitations, a lack of technical expertise, ineffective policy enforcement, and competing development agendas (Songsore, 2020). To address these challenges, governments, private sector partners, and international development organizations must work together to integrate resilience into urban development policies and practices.

Research Gap and Contextual Justification

Despite growing global interest in climate-resilient urban development, there remains a notable lack of empirical studies focused on Sub-Saharan African contexts. Ghana, in particular, offers a unique case due to its

rapid urbanization, high climatic sensitivity, especially in coastal areas such as Accra and Takoradi, and the existence of underutilized national regulatory frameworks. The country's urban planning landscape is marked by weak enforcement, fragmented governance, and inconsistencies in adaptation strategies. This study addresses the study gap by examining stakeholder perspectives, policy integration, and infrastructure adaptation activities in Ghana. Focusing on Ghana allows for a more in-depth understanding of the sociopolitical, environmental, and economic hurdles to climate resilience in developing cities, as well as actionable findings that may be used locally and regionally.

This study aims to investigate the role of climate-resilient infrastructure in fostering sustainable urban development in Ghana. It investigates the patterns of urbanization, the impact of climate change on infrastructure, and the solutions needed to build resilient cities.

Through an analysis of current laws, infrastructure initiatives, and best practices, the study seeks to shed light on how Ghana may strengthen its urban sustainability and resilience. Using primary and secondary data sources, this study examines contemporary issues and prospects for climate-resilient urban development. This research is based on policy documents, urban development reports, Ghanaian city case studies, and expert interviews with urban planners, engineers, and policymakers. This research contributes to the broader discourse on climate adaptation and sustainable urban development in developing nations by highlighting the significance of climate resilience in Ghana's urban environment. The results provide policymakers, city planners, and stakeholders with practical suggestions for boosting resilience, promoting the sustainability of infrastructure, and shaping livable, future-proof cities in Ghana.

2 Literature Review

Concept of Climate-Resilient Infrastructure

Systems designed to anticipate, absorb, and adjust to climate-related shocks while preserving functionality are referred to as climate-resilient infrastructure (IPCC, 2022). Particularly in developing countries, urban design is essential for mitigating exposure to climate hazards such as heatwaves and floods (World Bank, 2023). Ghana can adapt permeable pavements and urban wetlands, two examples of green infrastructure that have been successfully adopted by cities like Singapore and Copenhagen, to suit its local context (UN-Habitat, 2021). Acheampong & Boateng (2023) claim that context-specific designs combining contemporary engineering with traditional building techniques could enhance resilience in African urban environments.

Climate Change and Urban Development in Ghana

Ghana is becoming increasingly vulnerable to the adverse effects of climate change, such as erratic rainfall, increasing sea levels, and extreme heat (Owusu & Appeaning Addo, 2020). Inadequate planning and rapid urbanization make these problems worse. For instance, Accra's unregulated urban expansion has increased the risk of flooding by encroaching on river channels (Mensah et al., 2021). The critical need for resilient infrastructure and integrated flood management to safeguard socioeconomic assets in urban Ghana is highlighted by research by Adjei & Agyemang (2023).

Policy and Governance in Urban Climate Resilience

The effectiveness of policy is a critical determinant in the successful integration of climate-resilient infrastructure. However, enforcement of Ghana's framework, such as the National Urban Policy and the National Climate Change Policy, remains inadequate (Ghana EPA, 2022). According to Asante & Owusu (2023), limited decentralization and weak institutional coordination impede successful implementation. Conversely, by implementing institutional change and participatory policy methods, countries like Rwanda and Ethiopia have achieved resilience outcomes through institutional reforms and inclusive, participatory policy approaches (Danso & Frimpong, 2024).

Table 1: Field Survey, 2025

Key Climate Resilience Strategies and Implementation in Ghana		
Strategy	Description	Implementation Status in Ghana
Green Building Programs	Energy-efficient and environmentally friendly designs	Emerging but underfunded
Enhanced Drainage Systems	Sustainable stormwater management	Partially implemented.
Flood Control Infrastructure	Wetland conservation, retention basins.	Limited coverage.
Climate-Smart Transportation	Electric public transportation, bike lanes	Minimal adoption
Policy Integration	Integration of Climate resilience in urban governance	Requires strengthening

Source: Field data, 2025

Stakeholder Participation

Involving stakeholders is essential to effective climate adaptation. According to research by Williams et al. (2021), inclusive governance produces better sustainable urban planning results by involving local residents, engineers, and non-governmental organizations. However, rather than actively participating in decision-making, stakeholder participation in Ghana is frequently restricted to mere consultation. This diminishes the efficacy of urban resilience initiatives and erodes community ownership.

Urbanization and Infrastructure Pressure

Ghana has one of the highest rates of urbanization in Sub-Saharan Africa, which puts a great deal of strain on the nation's drainage, transportation, and housing systems (UN-Habitat, 2022). The lack of infrastructure development aligned with urban growth is causing congestion, inadequate sanitation, and an increase in informality. If future climate threats are not taken into consideration, urban infrastructure may soon become hazardous or outdated.

Theoretical Framework: Integrated Urban Resilience Model

The integrated urban resilience model used in this study identifies interdependent factors influencing climate-resilient development, including stakeholder participation, infrastructure adaptation, policy efficacy, and urbanization pressures. Based on systems thinking, this approach highlights how multiple actors and institutional mechanisms interact to influence urban outcomes (Cutter et al., 2008; Garcia & Martinez, 2019).

3. Methodology

Research Design

This study adopts a mixed-methods research methodology that combines qualitative and quantitative methodologies to investigate climate-resilient infrastructure and sustainable urban development in Ghana. This approach enables a thorough examination of urban resilience by incorporating multiple viewpoints from policymakers, urban planners, engineers, and inhabitants (Creswell & Clark, 2021). The study aims to evaluate the efficacy of climate-resilient infrastructure and identify gaps in existing urban development policies.

Population and Sample Size

Professionals and citizens who worked directly or indirectly in urban planning and infrastructure in Accra, Kumasi, Tamale, and Sekondi-Takoradi four major Ghanaian cities, constituted the target population. Urban planners, civil engineers, legislators, representatives of municipal assemblies, environmental scientists, non-governmental organizations, and community members were among them. For the survey component, stratified random sampling was used to select a sample of 500 participants, guaranteeing proportionate representation from each city and professional group. Additionally, 15 key informants including municipal engineers, town planners, and Ministry of Works and Housing officials were purposefully chosen for qualitative interviews (Williams et al., 2021). Eight people participated in "two focus group discussions (FGDs): one with experts from the private construction industry and the other with leaders of community-based organizations ".

Data Collection Instruments

Quantitative Instrument

A structured questionnaire was developed and pilot-tested to ensure clarity and relevance. It consisted of four main sections:

- Demographic Information
- Awareness and understanding of Climate-Resilient Infrastructure
- Perceptions on Policy Effectiveness
- Stakeholders Engagement and Implementation

Likert scales and multiple-choice formats were used in the questionnaire, which included both closed-ended and open-ended questions. To provide more accessibility and higher response rates, the survey was distributed both in-person and through digital platforms.

Qualitative Instrument

FGD guidelines and semi-structured interviews were employed, and topics covered included:

- Perceived challenges in implementing climate-resilient infrastructure
- Gaps in existing urban policy frameworks
- Best practices and international benchmarks
- Institutional collaboration and community engagement

Data Analysis

Quantitative Analysis

Descriptive statistic: frequencies, percentages
Inferential statistics:

- Pearson correlation to investigate the relationships between infrastructure, policy, and climate awareness.
- Multiple linear regression to determine predictors of the integration of infrastructure based on the rate of urbanization, the involvement of stakeholders, and the efficacy of policies

Qualitative Analysis

Thematic content analysis was used to examine the transcripts of interviews and focus group discussions. NVivo software facilitated coding of responses and grouping of data into meaningful themes. The six-step process by Braun and Clarke, (2006), familiarization, code generation, theme identification, theme review, definition, and final reporting was rigorously followed during the analysis.

Key qualitative themes that emerged included:

- Inadequate funding and inadequate maintenance of climate-resilient structures
- Political interferences in infrastructure prioritization
- Community mistrust and limited awareness
- Disconnect between national policy frameworks and local-level implementation

Ethical Considerations

The study adheres to ethical research standards, including obtaining informed consent from all participants, maintaining data confidentiality, and handling sensitive information responsibly and respectfully (Anderson & Davis, 2019).

Integration of Data

This study followed established ethical research guidelines. All participants provided informed consent, data collection, analysis, and reporting were all conducted with strict confidentiality and participant anonymity. The relevant institutional review board and participants were informed of their right to withdraw at any time (Anderson & Davis, 2019).

4. Results and Discussion

This section presents the analyzed findings from the administered questionnaires. The study employed descriptive statistics, Pearson correlation analysis, and multiple linear regression to examine the relationship among urbanization, climate change, policy efficacy, stakeholder involvement, and infrastructure development.

Demographic Profile of Respondents

Among the 500 respondents, 58% were male and 42% were female. The majority (48%) were aged between 31 and 45 years. The occupational distribution was diverse, comprising 22% urban planners, 25% engineers, 18% government officials, 10% environmental scientists, and 25% local residents. This demographic diversity provided a balanced perspective on urban resilience and planning challenges.

Urbanization and Climate Change Impacts

A majority of respondents (62%) perceived urbanization as occurring at a very rapid pace.
The following were the main effects of climate change identified:
Flooding: 78%
Rising Temperatures: 63%
Drought: 32%
Coastal erosion: 29%
Furthermore, 90% of respondents acknowledged that climate change has had a substantial impact on urban development, with many citing shifting land use patterns and increased demand for housing and infrastructure.

Table 2: Climate Change Impacts Identified by Respondents

Climate change impact	Frequency (f)	Percentage (%)
Flooding	390	78%
Rising Temperatures	315	63%
Drought	160	32%
Coastal Erosion	145	29%

Infrastructural Awareness and Implementation

The survey indicated that 85% of respondents were familiar with the idea of climate-resilient infrastructure. When asked about effective infrastructure, respondents:

- 82% recommended an improved drainage system
- 65% favored increased urban green spaces
- 52% emphasized elevated roads and flood barriers

However, only 16% believed that current urban infrastructure projects adequately incorporate climate resilience measures. This finding highlights a significant gap between policy formulation and practical implementation in urban planning.

Table 3: Awareness and Perceived Effectiveness of Climate-Resilient Infrastructure

Awareness/Action	Frequency (f)	Percentage (%)
Aware of climate-resilient infrastructure	425	85%
Support improved drainage systems	410	82%
Support the development of urban green spaces	325	65%
Believe resilience is integrated into projects	80	16%

Policy Effectiveness

Approximately 62% of respondents indicated awareness of policies related to urban resilience and climate change. However, evaluations of the effectiveness of these policies were largely negative or indifferent:

- 60% rated these policies as either ineffective or neutral
- The most significant barriers identified included:
  - Financial constraints (78%),

- Weak enforcement mechanisms (66%),
- Technical capacity gaps (52%)

Table 4: Policy Awareness and Effectiveness

Policy Indicator	Frequency (f)	Percentage (%)
Aware of policies	310	62%
Rated policies ineffective/neutral	300	60%
Financial constraints	390	78%
Weak enforcement	330	66%
Technical gaps	260	52%

Stakeholder Participation: The study discovered that community participation in climate-resilient planning remains limited.

- 46% of respondents indicated that communities are rarely involved in such initiatives.
- The development of decentralized participatory councils, stakeholder engagement frameworks and public education campaigns was among the suggestions for improvement.

These results highlight how urgently participatory governance processes in urban development and resilience planning need to be strengthened.

Correlation Analysis

Pearson correlation analysis revealed significant associations between two key variables. The results indicated the following major relationships:

- Urbanization rate and climate perception: $r = 0.64$, $p < 0.01$
- Policy effectiveness and infrastructure integration: $r = 0.52$, $p < 0.05$
- Stakeholder involvement and policy awareness: $r = 0.49$, $p < 0.01$

These findings show a robust correlation between growing urbanization and elevated perceptions of climate-related hazards. Furthermore, there is a favorable correlation between increased awareness and the application of climate-resilience techniques and stakeholder involvement.

Table 5: Pearson Correlation Matrix

Variables	1	2	3	4
Urbanization Rate	1			
Perceived Climate Impacts	0.64**	1		
Policy Effectiveness	0.33*	0.38*	1	
Infrastructure Integration	0.29*	0.41**	0.52 **	1

Note: $p < 0.05$; $p < 0.01$

Regression Analysis

A multiple linear regression analysis was conducted to examine the impacts of policy efficacy, urbanization rate, and stakeholder involvement on infrastructure integration. The model was statistically significant $F(3, 496) = 19.82$, $p < 0.001$, indicating a good overall fit. With an R^2 value of 0.31, the model indicated that the three predictor variables account for around 31% of the variance in infrastructure integration.

Table 6: Regression Coefficients for Infrastructure Integration

Predictor	B	SE	β	t	p-value
Policy Effectiveness	0.45	0.08	0.38	5.63	<0.001
Urbanization Rate	0.23	0.07	0.26	3.29	0.001
Stakeholder Participation	0.19	0.06	0.21	3.17	0.002

Policy Effectiveness is extremely significant ($p < 0.001$) and has the largest standardized impact ($\beta = 0.38$). Infrastructure integration is also significantly predicted by the urbanization rate and stakeholder participation, both of which have positive beta weights and statistically significant p-values.

5. Contributions, Policy Implications and Conclusion

Contribution of the Study

This study offers several significant contributions to the field of urban planning, climate adaptation, and infrastructure policy, particularly within the Sub-Saharan Africa context:

Policy-Practice Gap Analysis

The study reveals a considerable gap between awareness and the actual implementation of resilience strategies, offering critical insights into where reform efforts should be directed.

Integrated Methodology

By employing both quantitative and qualitative methodologies, the study delivers a comprehensive understanding of the challenges and opportunities in sustainable urban development, combining statistical rigor with a nuanced stakeholder perspective.

Identification of Key Drivers

The study provides a data-driven framework for intervention by identifying the main drivers of infrastructure resilience, including stakeholder participation, urbanization rate, and policy efficacy, through correlation and regression analysis.

Contextual Relevance

It fills a major knowledge vacuum by contextualizing climate-resilient infrastructure within Ghana's specific socio-economic, environmental, and governance institutions, rather than using generalized worldwide models.

Empirical Evidence

The study presents empirical evidence on the perspectives, awareness, and experiences of key urban stakeholders, including urban planners, engineers, policymakers, and people, regarding the deployment of climate-resilient infrastructure in Ghana.

Policy Implications

The study's findings reveal practical policy recommendations that are critical for urban development and climate adaptation in Ghana:

Financial Resilience

Ghana should explore diverse funding options such as climate bonds, public-private partnerships, and international climate finance, given the significant hurdle of financial limitations.

Integrated Data System

To support real-time monitoring, feedback, and continuous improvement in service delivery and infrastructure development, Ghana should establish a national climate-urban data system.

Urban Planning Regulations

The findings support the implementation of climate-informed spatial planning regulations that account for sustainable land use, elevation requirements, and designated hazard zones.

Decentralized Stakeholder Engagement

Decentralized planning strategies that engage local councils, non-governmental organizations, and citizens in co-developing climate-resilient solutions are essential, given the current low levels of community participation.

Targeted Infrastructure Investment

Policymakers should prioritize funding for drainage systems, green infrastructure, and the retrofitting of existing urban assets; flooding and poor drainage have been identified as the major climate threats.

Enhancing Implementation Capacity

To ensure effective policy implementation, capacity-building initiatives at the municipal and district levels are essential, given the identified gaps in technical knowledge and enforcement.

Strengthening Policy Frameworks

The weak performance of existing urban resilience policies suggests that frameworks such as the National Climate Change Policy and the National Urban Policy need to be revised and harmonized to ensure enforceability and coherence.

Conclusion

This study explored the intersection of climate change, urbanization, and sustainable infrastructure development in Ghana. Although climate-resilient infrastructure is widely known, its integration into urban development remains limited. Stakeholder involvement, urbanization pressure, and the efficacy of policy effectiveness are key factors influencing resilience, according to quantitative analysis. However, challenges such as insufficient finance, lax enforcement, and technological limitations continue to exist.

A key practical contribution of this study is its identification of the challenges that hinder the mainstreaming of resilient infrastructure, particularly inadequate enforcement, financial constraints, and limited stakeholder participation. These findings offer clear, actionable insights for government agencies, donor organizations, and urban development practitioners aiming to design and implement more flexible and inclusive infrastructure systems.

The study finds that stakeholder involvement, urbanization trends, and policy enforcement are statistically significant determinants of infrastructure performance. It also introduces a data-driven framework for evaluating the effectiveness of urban resilience strategies. Using this framework, urban planners and policymakers can better prioritize resources and initiatives that directly strengthen resilience outcomes.

Additionally, the study contributes to the broader discussion on urban sustainability by proposing a resilience model tailored to Ghana's context one that informs similar efforts in other developing countries facing rapid urbanization. Finally, the study emphasizes the urgent need for Ghana's urban governance to transition from centralized to participatory, from reactive to proactive, and from fragmented to integrated. Addressing climate resilience is not just a technical challenge; it is a critical governance and planning priority for Ghana's urban future.

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Monetary Policy and Uganda's Private Investment

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Abstract: Monetary policy determines the overall performance of an economy, particularly in developing countries where private investment is among the determinants of growth. Money supply, inflation, and changes in lending rates always influenced how the private sector invested in Uganda. This study aimed to examine how monetary policy influences private investment in Uganda focusing on money supply, interest rates, and inflation as the key determinants. Data for the period 1990 to 2020 were used for the study, which were secondary time series data provided by the Bank of Uganda and World Development Indicators publications. The Autoregressive Distributed Lag (ARDL) model was used to apply its application to both the short-run and long-run effects of monetary policy on private investment. The results showed that in the short run, private investment responded positively to increased money supply and inflation and negatively to higher lending rates. Although monetary policy can stimulate private investment in the short run, its effectiveness wanes in the long run unless carefully managed. This means that expansive policies can stimulate investment in the short run, but such heavy reliance could undermine the sustainability of investment. The study identifies that if Uganda could maintain an effective monetary policy, it is vital to balance encouraging private investment and maintaining macroeconomic stability. Such findings can assist in designing policies fostering sustainable private sector-driven growth.

Keywords: *Monetary policy, Private investment, Uganda*

1. Background

In today's development world, sustained long-term economic growth demands private investment (Gwartney, Stroup, Sobel, & Macpherson, 2021). Private investment makes economies modernize by reorganizing informal sectors into productive and formal sectors as well as producing jobs and enhancing productivity. In places where private investment is weak, it slows down the achievement of a modern competitive economy. Across the globe, countries that have managed to extend private investment have turned their informal economies into high-output, formal sectors, and this has led to economic growth with sustainability. Etim and Daramola (2020) argue that countries that have not modernized are often countries whose private sector is largely informal, an issue prevalent in sub-Saharan Africa.

The same is true in Uganda. Despite adhering to a private sector-led growth strategy for the past three decades, private investment has been rising at a slowing rate over the past two decades (Mohamoud, 2017). This slowing growth has led to enlarging government revenue deficits, increased debt levels, and other economic problems (Obol, 2023). National Private Sector Development Strategy (2017/18–2021/22) aimed at increasing the competitiveness of the private sector and driving economic growth by improving policy coordination and enterprise development supporting programs as well as increasing performance measurement and management of the country's programs (Nabiryo, 2021). These interventions targeted three levels: the entire economy, specific industries, and specific companies (Probst, Westermann, Anadón, & Kontoleon, 2021). Uganda's private sector investment is, nonetheless, still low and largely informal (Wabiga, 2020). The private sector is dominated by micro, small, and medium enterprises (MSMEs), which account for nearly 90% of private sector production and employ over 2.5 million people (Hoekman, Sanfilippo, Santi, & Ticku, 2022). The fragmentation prevents the effective use of human and material resources, thereby rendering Uganda's long-term modernization aspirations more difficult to achieve (Mohamoud, 2017). Stagnation in private investment is a cause of serious alarm about Uganda's capacity to develop economically (Obol, 2023).

The weak performance in private investment has been attributed to hindrances like high interest rates by the Ministry of Finance, making access to finance costly. Macroeconomic interventions have thus focused on maintaining fiscal discipline and a benign interest rate environment that fosters growth through monetary policy (Abdirizak, 2017). Despite this, growth in private investment has not increased as expected (Nabiryo,

2021). Empirical findings reveal that money supply and interest rates in monetary policy have an important influence on private investment since they shape credit conditions in the business sector and market demand where firms operate their activities (Wabiga, 2020). Money supply in Uganda increased more than threefold in the last decade—from 7 trillion shillings to about 23 trillion shillings in 2020—while private investment as a share of GDP rose by less than one percent (Probst et al., 2021). Such divergence is concerning because monetary policy is not contributing to the country's private sector-driven development approach (Hoekman et al., 2022). Private investment in Uganda has been investigated primarily with regard to firm-level characteristics or financial institutions, with considerably less attention being given to the impact played by monetary policy itself (Nabiryo, 2021).

Research that examines monetary policy as a potential driver of low private investment growth in Uganda remains scant (Mohamoud, 2017). It uses the accelerator model of investment to study how monetary policy impacts private investment (Abdirizak, 2017). Theory holds that net investment in an economy is a function of the level of output (Wabiga, 2020). Since monetary policy impacts aggregate demand, and output is a function of the same, monetary policy has a direct impact on investment decisions (Probst et al., 2021). This relationship is crucial for such policies to be formulated which can have a positive impact on sustainable private sector development and Uganda's economic development objectives.

Problem Statement

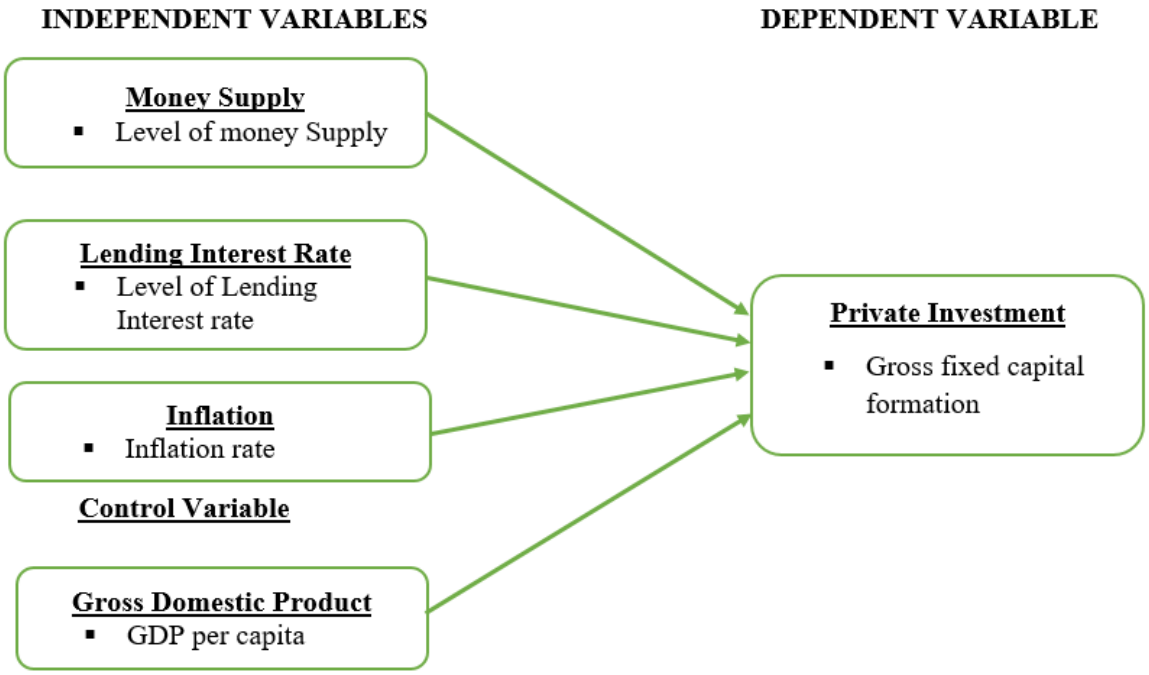
In the period of a decade, Uganda's private investment has been in decline, with its average annual growth rate yet to hit 1%. The private sector remains dominated and informal and made up of micro, small, and medium enterprises (MSMEs), which, as much as they employ the majority of Ugandans, make a very limited economic contribution. This private investment stagnation is driving the increasing jobless growth and increasing the burden on taxes since the modest revenues from the MSMEs cannot fund government investment schemes. The Ministry of Finance has credited the low growth and informality in the private sector to constrained access to credit and an indolent monetary policy.

The government has, in turn, sought to implement cautious monetary policy measures. For example, the bank rate was reduced to an all-time low of 6.5% by the central bank and maintained yearly inflation largely within single digits over the past decade. Despite all these, the expansion of private investment has yet to take off. Bank of Uganda reports have established that aspects of monetary policy, such as money supply, have not been managed cautiously, rising more than threefold from 7 trillion shillings to around 23 trillion shillings between 2010 and 2020 while there was no corresponding increase in economic activity. Facts based on evidence indicate that conservative monetary policy is crucial in the encouragement of private investment through not only increasing the availability of credit but also influencing aggregate demand (Kaplan, Moll, & Violante, 2018). Private venture activity continues to worsen despite the limited existing studies on the impact of Uganda's monetary policy on private investment specifically. This study, therefore, aims to examine the impact of different aspects of Uganda's monetary policy on private sector investment in Uganda.

Research Hypotheses

Ho1: Money supply does not affect the level of Uganda's private investment
Ho2: Lending Interest rate does not affect the level of Uganda's private investment
Ho3: The Inflation rate does not affect the level of Uganda's private investment

Conceptual Framework



Source: (Dang, Pham, & Tran, 2020; Frimpong & Marbuah, 2010)

According to the conceptual framework, monetary policy indicators, that is, money supply, lending interest rates, and inflation, directly influence private investment. The purpose of this study is to determine whether increases or decreases in these indicators, as represented by money supply level, the prevailing lending interest rate, and the level of inflation, have a real effect on private investment, which is represented by Gross Fixed Capital Formation (GFCF) in the private sector.

The model, taken from Frimpong and Mabuah (2010), has the demand situation of the economy or Gross Domestic Product (GDP) as a control variable. Central bank monetary policy-imposed interest rate changes have an effect on the cost of capital and thus the level of private investment. This is referred to as the credit transmission channel of monetary policy (Afful & Kamasa, 2020). For instance, if a tighter money policy reduces the length of money that banks have for lending, and this money is not replaced by an alternative source, the supply of money contracts. This raises the relative cost of borrowing and reduces the quantity of loans available for investors relying on bank finance as the increase in the external finance premium discourages investment and borrowing.

2. Literature Review

The Outlook for Uganda's Private Investment

Private enterprise in Uganda consists of income-generating activities that are owned and controlled independently outside the government (Obol, 2023). It is largely dominated by Micro, Small, and Medium Enterprises with over a million distributed throughout the country (Hoekman, Sanfilippo, Santi, & Ticku, 2022). Together, the enterprises employ approximately 2.5 million people, which is nearly 90 percent of the total non-farm private sector employment (Obol, 2023).

They traverse all the principal sectors, i.e., trade, construction, manufacturing, and services such as hospitality, entertainment, finance, health, education, professional services, and ICT (Obol, 2023). They form the private sector spine of Uganda and are central to propelling national development dreams (Hoekman et al., 2022). Despite their importance, these businesses face significant handicaps, including low competitiveness and high operating costs, which limit their productivity and growth potential (Probst et al., 2021).

Theoretical Literature Review

Flexible Accelerator Theory of Investment

Accelerator theory of investment, in a flexible nature, advanced by Treadway (1971), Lucas (1967), and Goodwin (1951), posits that businesses alter their stock of capital over a period of time, attempting to close the gap that exists between their current capital and the desired amount they hope to maintain over time (Abdulkarim, 2023). Simply put, the larger this gap, the higher the rate of investment a business sets toward its desired capital level (Nadabo & Abdullahi, 2024).

The desired capital stock is responsive to the level of production by the firm, the price of capital goods, and the real expense of using capital, for example, depreciation and interest (Otchia, 2025). The theory also states that assuming a firm can reach the desired level of capital, adjustment costs mean only a fraction of the goal is possible within any given time (Abdulkarim, 2023).

This model provides the overall benchmark for investment: current investment is not only influenced by past investment but also by other determinants of basic demand factors (Nadabo & Abdullahi, 2024). In this article, monetary policy ranks as such a determinant based on its impact on investment decisions and the ability of a firm to bridge the difference between needed and accessible capital (Otchia, 2025).

Empirical Literature Review

Relationship Between Money Supply and Private Investment

Money supply, as one of the monetary policy instruments, is widely recognized to have a positive impact on private investment, yet Uganda still has a lot to learn from others. Dang et al. (2020), using Vietnam provincial data and system GMM, found that conduits such as broad money, domestic credit, and interest rates increase private investment. This suggests that in the context of Uganda, which suffers from credit shortage and illiquidity for firms, a rise in money supply would be in a position to stimulate private sector investment. Hussain and Zafar (2018) examined Pakistan and found that there existed a long-run relationship between economic growth and money supply, although short-run adaptation was slow, with bidirectional causality between inflation and money supply. To Uganda, this implies that increasing money supply may not be adequate unless other macroeconomic factors like inflation are also sufficiently checked, thereby indicating a shortcoming in indigenous studies that examine short- and long-term factors. Bora, Kirikkaleli, Zoaka, Bekun, and Ekwueme (2020) in Nigeria similarly observed that private investment is sustained in the long run by the existence of broad money, pointing out the importance of proper liquidity policy, but country-specific research for Uganda does not exist.

Worldwide, Ndikumana (2016) analyzed 37 Sub-Saharan African countries and concluded that expansionary monetary policies reduce private investment through bank lending and interest rate channels. This is an indicator of the significance of considering Uganda's banking and credit systems as key transmission channels of monetary policy. In Jordan, Alawneh et al. (2015) revealed that compulsory reserve requirements strongly affect private investment, illustrating the effect of policy tools on investment channels. Hailu and Debele (2015) of Ethiopia proved that negative short-run effects of money supply and government spending were followed by positive long-run patterns, suggesting that Uganda could also experience time-varying monetary policy effects. Agu (2015) of Nigeria proved that Uganda needs to lower structural bottlenecks—high lending rates, low government spending, political tensions, and low infrastructure—as investment barriers because Nigeria is also confronted with the same constraints.

Studies also suggest variations in the influence of monetary policy on investment by domestic conditions. Fu and Liu (2015) in China found that firms respond more to credit and money supply changes when there are tight monetary conditions, suggesting Uganda's response would also vary depending on firm flexibility and market conditions. Brima and Brima (2017) in Sierra Leone illustrated that domestic savings and money supply positively influence investment, while debt and inflation have a negative influence on investment, highlighting the need for coordinated macroeconomic policies. Ralarala and Ncanywa (2020) also reported a negative relationship between investment and lending rates in some Sub-Saharan African countries, illustrating the need to consider the cost of credit while analyzing the impact of policies. Enayati and Farahani (2016) also underscored that shocks to money being negative in nature in resource-based economies are likely to be stronger than positive shocks, implying that Uganda's resource-based economy may respond asymmetrically

to monetary shocks. All these studies confirm the importance of money supply but reveal no prior Uganda-specific research on the channels, magnitude, and context-sensitive effects of monetary policy on private investment, highlighting the need for locally relevant empirical research.

Relationship Between Lending Interest Rate and Private Investment

The effect of lending rates on borrowing on private investment is typically negatively associated as a rise in borrowing prices tends to restrict the ability of firms to invest and expand. Ralarala and Ncanywa (2020) utilized a panel ARDL specification in examining some Sub-Saharan African countries during the years 1980-2018 and confirmed a long-run negative effect of lending rates on investment. This would mean that in Uganda, with real lending rates still relatively higher, the same limitation might hold back private sector growth. Magableh and Ajlouni (2016) analyzed Jordan for 1976–2012 using an ARDL cointegration approach and reached the conclusion that private investment is negatively correlated with real interest rates and public investment. This would imply in Uganda that borrowing rates and government spending would significantly drive investment in Uganda. By contrast, Afful and Kamasa (2020) examined Ghana during 1986–2016 and used ARDL and quadratic estimations to find out the threshold interest rates beyond which investment is negatively affected. They found positive effects of interest rates up to threshold values of 23.59% and 24%, indicating a knowledge gap in Uganda where the precise lending rate threshold deterring investment is yet to be determined. Waluyo (2017) in Indonesia (1990–2011) showed that interest rates negatively affect private investment but that public investment positively affects it, as does private sector funding, establishing the need for balanced macro conditions. Ababio, Kumankoma, and Osei (2018), applying an Error Correction Model to 1970–2010, also identified interest rates, inflation, exchange rates, and foreign debt to have a negative effect on investment, implying the need for Uganda-specific empirical tests for these relationships. Generally, the literature is calling for the analysis of Uganda's lending rate environment, the determination of optimal thresholds, and the revelation of the way credit costs are working in conjunction with other macroeconomic variables.

The relationship between private sector credit, inflation, and private investment is critical. Most studies point towards a positive long-run effect of credit on investment. Abate (2016) examined Ethiopia through VAR and VECM models and established that private credit is conducive to long-run private investment, though short-term effects were insignificant. This would suggest that Ugandan firms would also respond to credit growth with a lag. Okorie (2013) for Nigeria, using an Error Correction Model, determined that an increase in private sector credit by 10% raised domestic private investment by 6%, highlighting the finance access catalytic effect—a relationship which remains under-exaggerated in Uganda. Kazeem et al. (2012), for Nigeria 1970–2010 using ARDL techniques, determined that private credit, along with interest rates, GDP, exchange rates, external debt, public investment, and reforms, jointly determine long-run private investment. Ghura and Goodwin (2010) compared 31 SSA, Asian, and Latin American countries and observed that private credit enhances investment in SSA and Asia but not in Latin America, and that government-controlled credit crowds out private investment in SSA and hence the relevance of exploring how public borrowing affects private credit in Uganda. Green and Villanueva (2006) also found that foreign exchange and credit access are robust private investment stimulators, implying that Uganda may benefit from greater exchange rate stability and financial intermediation.

Overall, the literature shows that private sector lending rates and private sector credit are determinants of private investment, but their effects differ significantly with context. Sub-Saharan African data (Ralarala & Ncanywa, 2020; Afful & Kamasa, 2020) show that high lending interest rates lower investment, but moderate rates can spur investment, a phenomenon yet to be empirically studied in Uganda. Studies in Jordan, Indonesia, and Ghana (Magableh & Ajlouni, 2016; Waluyo, 2017; Afful & Kamasa, 2020) indicate that investment is inhibited by inflation and financing cost, but fueled by public investment and GDP, highlighting the significance of good policy design in Uganda. For private sector credit (Abate, 2016; Okorie, 2013; Kazeem et al., 2012; Ghura & Goodwin, 2010; Green & Villanueva, 2006), there exists evidence that credit availability encourages investment, but in Uganda, knowledge gaps exist regarding threshold effects, short- versus long-run responsiveness, and public borrowing interactions. These knowledge gaps are vital to be plugged so that monetary and financial policies can be formulated that will help promote the development of private investment in Uganda.

Relationship Between Gross Domestic Product and Private Investment

There has been research linking domestic investment and GDP, focusing on the contribution of private investment towards economic growth, with most of the evidence validating a positive impact. Tang et al. (2008) examined the interactions between domestic investment, foreign direct investment, and Chinese economic growth from 1988-2003 and established two-way causality between domestic investment and growth, though foreign investment supplemented domestic investment further to enhance output. For Uganda, this would mean that private investment will become the largest contributor to GDP growth, although there is little research comparing the interaction between domestic and foreign investment in Uganda.

Yovo (2017) compared public and private investment in Togo from 1980 to 2013 and found that both types of investment complement each other in stimulating economic growth. This finding implies that in Uganda, public and private investment convergence can support growth performance. Javid (2019), examining Pakistan for 1972-2015 using Johansen cointegration and fully modified OLS methods, discovered that public and private investment enhances growth but with differing productivity across sectors. In Uganda, this implies that sectoral allocation is required to avail investments for efficient utilization in order to boost GDP. Tran and Hoang (2018), in a panel study of 47 Vietnamese provinces between the years 2012-2015, found that domestic investment combined with human capital development stimulated growth positively. Uganda could similarly benefit by merging financial investment with human capital development to harness the greatest dividend.

Some studies provide cautionary results. Nguyen and Trinh (2018) examined Vietnam over the period from 1990 to 2016 and found that public and private investment both have beneficial effects on short- and long-term growth, and it is necessary for Uganda to consider how public investment complements private sector activity, particularly in view of the dominance of micro, small, and medium enterprises. On the other hand, Bakari (2017) considered Gabon between 1980 and 2015 and found that domestic investment and exports had negative long-term effects on growth but positive short-run effects. Bakari (2020) found the same in Tunisia between 1965 and 2016, in which domestic investment negatively correlated with economic growth in the long term but had positive short-run impacts. For Uganda, the conclusion is that private investment alone will not result in long-term growth unless coordinated or in strategic sectors.

Together, the studies confirm that the effect of private investment on GDP is highly context-specific and subject to monetary policy, sectoral composition, credit access, as well as public investment policy. While studies like Tang et al. (2008), Yovo (2017), Javid (2019), and Nguyen & Trinh (2018) demonstrate the potential for growth to be driven by private investment, Bakari (2017, 2020) shows that without correct policy guidance, long-term benefits will not be imminent. In Uganda, little empirical work has been done on how money supply, lending rate, and private sector credit influence private investment relative to GDP. Studies in this regard are most important to understand how investment dynamics in micro, small, and medium enterprises can promote long-term economic growth sustainably through monetary policy.

3. Methodology

Research Design/Approach

This research study follows a longitudinal research design rooted in a quantitative research approach. According to Bloomfield and Fisher (2019), a quantitative research approach is one in which research variables are described by assembling numerical data that are analyzed using mathematically structured methods. This study proposes a quantitative design because private investment, the variable under investigation, can only be observed in quantitative terms

Model Specification

The research adopted an analytical framework based on the flexible accelerator theory. It adopted the investment equation of Frimpong & Marbuah (2010), where the money supply and lending rate are used as monetary policy tools as the predictor variables, and the private sector credit and gross domestic product per capita as proxies for the liquidity constraint and demand conditions in the economy, respectively. The application of such variables rendered the investment function Uganda-specific. The research then set the functional form of the model as in equation 1 below.

$GFCF = f(MSP, LNTR, INFR, GDPPC)$ …… (i)

Where GFCF = Gross Fixed Capital Formation, MSP = Money Supply, LNTR = Lending Interest Rate, INFR = Inflation Rate, and GDPPC = Gross Domestic Product per capita
The clear, estimable econometric model will be formulated as follows:
$\ln GFCF_t = \alpha_0 + \alpha_1 \ln MSP_t + \alpha_2 \ln LNTR_t + \alpha_3 \ln INFR_t + \alpha_4 \ln GDPPC + \varepsilon_t$ …….. (ii)

Where α_0 is the intercept of the model, while $\alpha_1 - \alpha_4$ are the parameter coefficients to be estimated. Ln is a natural log indicator, ε indicates the error term of the model, whereas the subscript "t" is a current period indicator. The a priori expectations of the research are such that $\alpha_1 < 0$, $\alpha_2 < 0$, $\alpha_3 > 0$, and $\alpha_4 > 0$. The other variables remain as described above.

Measurement of Variables

Variables	Measurement	Definition	Data source
Gross Fixed Capital Formation (GFCF)	Total Investment by the private sector in Local Currency Units	Gross outlays by the private sector (including private nonprofit agencies) on additions to its fixed domestic assets.	WDI (2021)
Money Supply (MSP)	Amount of money in circulation in Ugandan shillings	The money outside banks, demand deposits of the central government excluded, and the time, savings, and foreign currency deposits of the central government excluding resident sectors. This definition of money supply is usually called M2	BOU (2021)
Lending Interest Rate (LNTR)	Average level of lending rate in the market	A rate that usually accommodates the short- and medium-term funding needs of the private sector. It is usually differentiated according to borrowers' credit quality and funding purposes.	BOU (2021)
Gross Domestic Product (GDP)	Gross Domestic Product per capita in Uganda shillings	GDP per capita is gross domestic product divided by the population in midyear. It is value added by all resident producers in the economy, plus taxes on products and minus subsidies on products not included in product value	WDI (2021)

Source: Author's compilation

Type of Data
Time series data was employed. Time series data refer to a type of quantitative and longitudinal information from different observable points of a single phenomenon in chronological order. The longitudinal design of the research necessitated this kind of data. The data were collected from secondary sources where it was already aggregated. Such secondary sources were the Bank of Uganda's (BOU) online databases and the World Development Indicators (WDI). The information accessed was for 1990–2020, the years that Uganda undertook a series of economic reforms with a target to restart private sector-led growth.

Data Analysis
The research analyzed data using the Stata Statistical package 14. The analysis will include data description, correlation analysis, diagnostic checks, and model estimation, among others.

Tests of Pre-Estimation Diagnostic

Before model estimation, the research will first carry out diagnostic tests to ensure that including the research variables together in the model would not result in econometric problems that would render the model results spurious.

The Test For Serial Correlation
This study performed a test of serial correlation, i.e., the relationship between the current values of a variable and its past values for a duration of time. Serial correlation can be problematic in time series analysis because

it distorts the efficiency of OLS estimates of standard errors in a manner that they would seem smaller than they are in reality (Roberto & Jódiney, 2019). In order to surpass this, the Breusch-Godfrey test via the Lagrange Multiplier was employed, with the null hypothesis of no autocorrelation.

The Test For Normality

Tests for normality were conducted in this research in order to ascertain whether the error terms of the econometric model under study were constant over observations and variables throughout the research period, that is, whether they were normally distributed with zero mean and constant variance. The predictive ability of the independent variables would not be reliable over the sample period if the error terms are not normally distributed (Gujarati, 2004). To test this, the Jarque-Bera test was employed, testing the null that the error terms were normally distributed.

The Test For Multicollinearity

This study screened whether multicollinearity, which is the situation where independent variables correlate highly among themselves, was present. Tabachnick and Fidell (2007) explain that correlations should be below 0.7, whereas Cooper and Schindler (2003) advise that correlations greater than 0.8 could mean a severe multicollinearity problem. To correct it, the study used pairwise correlation coefficients in combination with the Tolerance value as well as the Variance Inflation Factor (VIF). Tolerance value estimates the proportion of variation in an independent variable unexplained by the other independent variables included in the model.

Model Estimation Procedure

Unit Root Test

Before estimating the model, it was essential to test each research variable for stationarity. The research made use of the Augmented Dickey-Fuller (ADF) test which is known for its accuracy and reliability in determining unit roots. The test used an autoregressive process of order p. The Null hypothesis (Ho) was of such a nature that $\rho = 1$, i.e., the series is not stationary and has a unit root. If the null hypothesis could not be rejected, then there was a unit root implied. Alternatively, if the null was rejected, then the series was stationary and unit root-free. A time series was integrated of order zero, I(0), if it was stationary in levels and regression estimates were not spurious.

Co-Integration Test

The research tested if there was a long-run relationship between the variables through Johansen's (1998) cointegration method in a vector autoregressive (VAR) framework. If two or more series were non-stationary, then it was necessary to test whether their linear combination was stationary, a situation described as cointegration. The existence of cointegration implied that the variables experienced a stable long-run relation in the sense that although they may diverge in the short run, they had a tendency to return to equilibrium in the long run. The study also ascertained the number of cointegrating vectors in the model according to Johansen's likelihood ratio test using both the trace and maximum eigenvalue tests. Having ascertained the number of cointegrating relations, the research estimated the Vector Error Correction Model (VECM) to account for both short- and long-run dynamics.

Vector Error-Correction Model (VECM)

VECM estimation was employed in this study because the variables were non-stationary at their levels but became stationary after differencing at the same order of integration. The VECM is most suited here, as it provides reliable estimates of both short-run and long-run relations. Acting as a restricted version of VAR, the VECM deals with cointegration by placing the long-run equilibrium relationship on the independent variables while allowing for short-run adjustments. According to Granger (1986), cointegrated series require an error correction representation to connect long-run equilibrium and short-run dynamics. In this study, the error correction mechanism (ECM) was a methodical adjustment process that prevented the dependent variable (Y) and the independent variables (X) from moving too far away from their long-run equilibrium. The ECM is represented by:

$$\Delta Y_t = A_0 + \Pi Y_{t-1} + \sum_{i=1}^{k-1} A_i^* \quad \Delta Y_{t-i} + \emptyset X_t + \varepsilon_t \quad \text{..... (iii)}$$

Where Y_t and Y_{t-i} are both (j x1) column vectors with j as the number of endogenous variables, Y_t includes observations at time t, and Y_{t-i} includes the *i*th lagged value of endogenous variables. A_0 denotes a (jx1) vector

of intercept terms. ΔY_t is the first difference of Y_t. Π is the coefficient matrix containing information on the long-run relationship among Y_t. Matrix A_i^* contains information on short-run dynamics in the cointegrated system. X_t indicates an (m x 1) column vector of m exogenous variables. ε_t is a (j x1) vector of disturbance terms.

Post Estimation Diagnostic Test

After model estimation, the research went on to carry out post-estimation diagnostics as confirmatory tests that the estimated model meets all econometric assumptions.

Model Stability Test

The research tested for the stability of the model as approximated by the Cumulative Sum of Squared Residuals test. The test was performed for recursive regression residuals against possible breaks in the model within a significant 5% range. The model was considered to be stable when the cumulative sum of the residuals indeed fell within these ranges.

Ethical Considerations

The obtained data was used for only academic reasons and not for any other purpose away of academics.

4. Presentation and Interpretation of Findings

Descriptive Evidence of The Research

Descriptive statistics were presented in tables to give the overall nature of the data description. It was utilized to make sure the data were good enough for estimation; otherwise, it would lead to incorrect conclusions. In particular, a table of mean, minimum, maximum, and standard deviation values was computed. Data was analyzed and processed with the STATA computer package version 14.

Summary Statistics of Study Variables

The summary statistics of the research variables are presented in Table 1 below, outlining the mean, maximum values, minimum values, and the standard deviations.

Table 1: Summary of study variables

Variables	Mean	Standard Deviation	Minimum	Maximum
GFCF	8,450,000,000,000	9,210,000,000,000	89,000,000,000	25,300,000,000,000
MSP	6,917.239	7,208.332	353.9663	24,285.2
LNTR	13.19	8.795	1	28
GDPPC	1,200,771	1,063,323	79,273.69	3,139,881

No. of Observations: 32. Source: Researcher's computation using secondary data

The first objective of the descriptive analysis was to test the goodness of fit of the observed data. The data offer gigantic standard deviations. This is consistent with evidence that the observed data stray from the means and therefore represent an unstable investment climate. As volatile as macroeconomic data are traditionally, this particular observation in this study could have been attributed to the short data set this study utilized as well. However, variables in studies were transformed into log form in the interest of partial mitigation of reported volatilities.

Pre-Estimation Diagnostic Tests

Pre-estimation diagnostics are statistical tests carried out before model estimation to ensure that the selected variables are fit to be included in the model to be estimated.

The Test For Multicollinearity

To test for multicollinearity, this study first established the correlations between the variables and then estimated the variance inflation factor (VIF) for each of the independent variables. The results are indicated as follows;

Table 2: Pairwise correlation analysis results

	LgGFCF	LgMSP	LgLNTR	LgINFR	LgGDPPC
LgGFCF	1.0000				
LgMSP	0.8133* (0.0211)	1.0000			
LgLNTR	-0.2236* (0.0000)	-0.2311* (0.0188)	1.0000		
LgINFR	-0.2488* (0.0163)	-0.2013 (0.2861)	0.2183 (0.2381)	1.0000	
LgGDPPC	0.7971* (0.0000)	0.8901* (0.0000)	-0.2384* (0.0000)	-0.2567 (0.1633)	1.0000

* Indicates significance at the 0.05 level. Source: Researcher's computation using secondary data

Gujarati and Porter (2009) note that a very high correlation coefficient among independent variables is r = ±0.8. Beyond this cut-off, the correlation matrix in Table 2 reveals that most of the variables have correlation coefficients below 0.8; however, there are strong and statistically significant correlations between "LgMSP" and "LgGFCF" (r = 0.8133), LgGDPPC and LgGFCF (r = 0.7971), and LgGDPPC and LgMSP (r = 0.8901). This was an indication that these variables might have multicollinearity. To rule out the possibility of multicollinearity, the study performed the variance inflation factor (VIF) for all independent variables in the empirical model. The results are as depicted below;

Table 3: VIF Results

Variable	VIF	1/VIF
LgMSP	8.66	0.115446
LgLNTR	3.69	0.270826
LgINFR	1.11	0.900815
LgGDPPC	1.06	0.942295
Mean VIF	3.63	

Source: Researcher's computation using secondary data

According to Suleiman (2019), the VIF values should be below 10, while tolerance levels should be above 0.2 for there to be no danger of variables causing multicollinearity in the model. Since it would be evident from the findings presented in Table 3 that the VIF for all the variables was found to be below 10 and all the tolerance values were above 0.2, the test concluded that there was no risk of multicollinearity and therefore moved on to model estimation.

Stationarity Tests on The Model Variables

The study also subjected the model variables to the test of stationarity under the application of the Augmented Dickey-Fuller (ADF) test which is traditionally applied in research for such a purpose. The ADF test examines whether or not there exists a unit root by examining the null hypothesis that a given time series possesses a unit root. If the ADF test statistic (t-statistic) is smaller than its critical value at the 5% significance level, then the null cannot be rejected. In this research, unit root tests were performed both at the variable level and at their first differences, as outlined in Table 4.

Table 4: ADF test results

ADF			
Variables	**Z-Statistic at Levels**	**Z-Statistic at First Difference**	**Integration**
LgGFCF	-2.293 (0.1743)	-4.203** (0.0007)	I(1)
LgMSP	-1.302 (0.6281)	-7.414** (0.0000)	I(1)
LgLNTR	-2.004 (0.2850)	-7.048** (0.0000)	I(1)
LgINFR	-4.935** (0.0000)	-	I(0)
LgGDPPC	-1.790 (0.3855)	-4.358** (0.0004)	I(1)

Source: Researcher's computation using secondary data

The unit root test results in Table 4 above indicate that, aside from the Inflation rate (LgINFR), which was stationary at levels, other research variables were stationarised at first difference. The results thus affirm that variables for use in the model exhibit different degrees of stationarity. It was here that the researchers selected the Auto Regressive Distributed Lag (ARDL) model to estimate. ARDL has been reported to give reliable parameter estimates in series with mixed orders of integration, such as the case with this research.

Cointegration Test

A few of the variables in the study were unstable at their levels but became stable after taking first differences, showing the possibility of a long-run relationship between them. This kind of long-run relationship is known as cointegration. In order to determine whether such a relationship existed, the study employed the bounds test for cointegration in the ARDL model. The bounds test checks for the null hypothesis of no cointegration among the variables. If the F-statistic calculated is higher than the critical values at both the lower and upper points for all the significance levels, then the null hypothesis is rejected; otherwise, the null hypothesis is not rejected. The results of this test are shown in Table 4.5.

Table 5: ARDL bounds test results

Wald F-statistic = 13.723* **	**t = -7.343**	**k = 4, n = 32**	
		Critical Value: Narayan (2005)	
Level of Significance		**Lower Bound**	**Upper Bound**
1%		4.29	5.61
5%		3.23	4.35
10%		2.72	3.77

Source: Researcher's computation using secondary data

The results in Table 5 show that the F-statistic (13.723) exceeds the upper bound critical value of 5.61 at the 1% level of significance. The research thus rejected the bounds test null hypothesis of no cointegration. These results, therefore, affirm the existence of a long-run relationship among the research variables.

Model Estimation

Owing to the mixed stationarity of the variables within the model and the relatively short time series used in this study, the ARDL approach was considered the most suitable method. The approach is highly recommended in small sample sizes where data have various orders of integration. Enkoro (2016) says that one of the merits of the ARDL approach is that, when properly implemented, it effectively avoids endogeneity and serial

correlation issues. In the current research, the most suitable lag order was determined as two lags in the dependent variable and one lag in all the independent variables. The selection was confirmed through the use of the Schwarz Bayesian Information Criterion (SBIC) in the ARDL model as a step before the estimation of the model in error correction form. Table 6 presents the ARDL results in error correction form.

Table 6: Results of the estimated ARDL model

Dependent Variable: **D.LgGFCF**			
Independent Variables	Coefficient.	Std. Error	P>|t|
ADJ $LgGFCF_{L1}$	-0.6590483***	0.2273341	0.010
Long Run			
LgMSP	-0.4586287***	0.2212994	0.005
LgLNTR	-0.0577472**	0.0392343	0.015
LgINFR	-0.0350774***	0.0566714	0.005
LgGDPPC	0.8968751***	0.2874133	0.006
Short run			
$LgGFCF_{t-1}$	0.0829654**	0.1428303	0.015
D(LgMSP)	0.2306715**	0.2373159	0.034
D(LgLNTR)	-0.0336807**	0.0237013	0.017
D(LgINFR)	0.0470311	0.0251476	0.078
D(LgGDPPC)	0.7869167**	0.2807191	0.012
Constant	8.561797**	3.582832	0.028
R-Square: 0.7528			
Adj R-Square: 0.7411			
Root MSE: 0.0894			
No. Observations: 29			
Log likelihood: 35.793309			

Notes: D = First difference in variable. ***, **Indicate significance at 1% and 5% levels, respectively. ARDL regression (2, 1, 1, 1, 1). Source: Researcher's ARDL computation using secondary data

Table 6 ARDL estimates show several intriguing dynamics for private investment (LgGFCF) in Uganda. Private investment is significantly determined by its lagged level of the previous year, such that a one percentage point increase in last year's private investment raises current private investment by 0.08 percentage points, holding all else equal. The relationship is statistically significant at the 5% level.

Money supply is also demonstrated to have a short-run positive effect on private investment. An increase in money supply of one percent, for example, will result in an increase in private investment by 0.23 percent in the short run. In the long run, however, the effect of money supply turns negative, where an increase of one percent results in a reduction in private investment by 0.46 percent. Lending interest rates have an adverse impact in both the short and long run. A one percent rise in the lending rate lowers private investment by 0.03 percent in the short run and 0.058 percent in the long run.

Inflation does not affect private investment in the short run but, in the long run, a one percent rise in inflation reduces private investment by 0.035 percent. GDP per capita, on the other hand, has a positive impact on private investment in both the short and the long run. A one percent rise in GDP per capita raises private investment by 0.79 percent in the short run and 0.897 percent in the long run, ceteris paribus.

The error correction term is also substantial and carries a negative coefficient of -0.4586 at the 1% level, indicating that about 46% of short-run disequilibrium is corrected each year, thus enabling the model to converge to long-run equilibrium. The constant term is also positive (8.5618) at 5%, meaning that about 8.56 billion shillings of private investment cannot be accounted for by the independent variables of the model. Generally, these results both establish the short- and long-run monetary and macroeconomic sensitivities of private investment in Uganda.

Post Estimation Diagnostic Tests
After running the estimated model above, the research proceeded to carry out further diagnostic tests on the model to conclude that there are no common econometric problems.

Serial Correlation Test
The Breusch-Godfrey LM test for serial correlation with small samples was conducted in the study. The null hypothesis is that there is no serial correlation. The null hypothesis cannot be rejected in the scenario of the corresponding F-statistic at 5% level of significance; it is rejected. The results are 7 below

Table 7: Breusch-Godfrey LM test results

lags(p)	F	df	Prob.
1	2.676	1	0.6565

Ho: no serial correlation. Source: Author's computation based on secondary data

The research observed that the F-statistic (2.676) associated with the B-Godfrey test was not significant at 5% level. Thus, the null hypothesis could not be rejected. The research thus concluded that the model did not suffer from serial correlation.

Heteroscedasticity Test
The Breusch-Pagan test was conducted for the purpose of testing the Heteroscedasticity in the data. The null hypothesis of the test is no Heteroscedasticity. If the chi-square value of the test is not significant at the 5% level of significance, then the null cannot be rejected; it is rejected. The results are presented in Table 8 below.

Table 8: Breusch-Pagan Test results

chi2(1)	Prob > chi2
0.49	0.4837

Ho: homoscedasticity. Source: Author's computation based on secondary data

This study observed that the chi-square value (0.49) was not significant at 5% level. Thus, the null hypothesis of the test could not be rejected. The research thus concluded that the estimated model did not suffer from heteroscedasticity.

Test For Normality of Residuals
Skewness & Kurtosis test of Normality was applied in the study to test for the normal distribution of residuals within the model. Normality is used as the null hypothesis. The null hypothesis cannot be rejected but is rejected if the value of the chi-square, alongside the measures of skewness and kurtosis is not significant at 5% level of significance. The results are presented in Table 9 below.

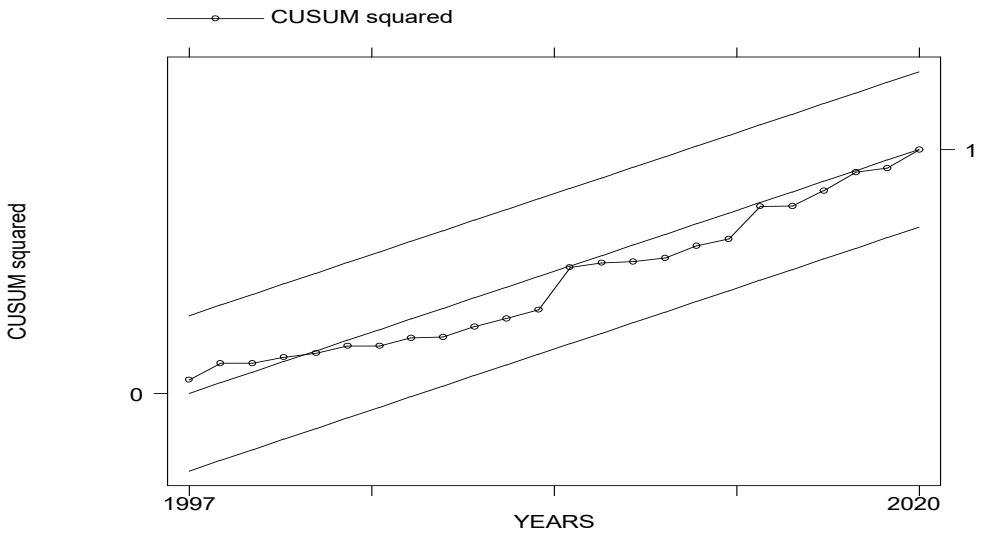
Table 9: Skewness & Kurtosis tests for Normality results

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
Residuals	29	0.0000	0.0005	20.89	0.2336

Ho: Normality. Source: Researcher's computation using secondary data

The results in Table 8 indicate that the chi-square value and the associated skewness and kurtosis are not significant at 5% level. The research thus could not reject the null hypothesis of normality, and thus concluded that the error terms in the model are normally distributed.

Test For Model Stability
The research was conducted to check if the model that was estimated was stable. The Cumulative Sum (CUSUM) test was employed. This test is based on recursive regression residuals plotted versus possible break points in the model in significant ranges of 5% significance. The model is stable as long as the CUSUM of residuals is within the 5% critical range. The test results are presented in the form of a graph below.



The CUSUM graph indicates that the dotted line (the cumulative sum of residuals) entirely falls within the upper and lower critical bounds over the research period. The research thus concluded that the estimated model is stable.

5. Discussion, Conclusions and Recommendations

This study is based on four major objectives from which four important hypotheses were drawn and tested. The discussion below explains the findings in relation to the objectives that the research set out to achieve.

Money Supply and Uganda's Private Investment

The first objective of this study was to examine how the money supply influences private investment in Uganda. Using empirical data, it was assumed that changes in the money supply affect private investment levels. The ARDL model results show that in the short term, money supply has a positive and significant impact on private investment, particularly in gross fixed capital formation. This short-term boost occurs because an increase in money supply tends to lower lending rates, making credit more accessible and encouraging investment.

However, in the long term, the effect of money supply on private investment is strongly negative. As the money supply grows over time, inflation rises, reducing the value of money and increasing production or investment costs, which in turn lowers private investment. The long-term contraction effect is larger than the short-term expansionary effect, suggesting that the negative impact dominates over time. In conclusion, while money supply can temporarily stimulate private investment, it cannot be relied upon as a sustainable driver of Uganda's private sector growth. These findings align with the results of Akhyuni and Aimon (2021), who also found a short-term positive but long-term negative effect of money supply on investment.

Lending Interest Rate and Uganda's Private Investment

The second objective of the study aimed at examining the role of lending interest rates on private investment in Uganda. Based on empirical evidence, it was anticipated that changes in lending rates would have an impact on the volume of private investment in the country. Empirical evidence from the ARDL model revealed that lending interest rates negatively impact private investment in the long and short term. The null hypothesis could not therefore, be rejected.

In the short run, higher lending rates reduce private investment since they raise the cost of capital and add to the operating expense for businesses. If borrowing is expensive, businesses are forced to reduce their investment and production plans. The negative effect perpetuates in the long run, thus ongoing high lending rates continue to restrain private investment in the long run. Such findings are consistent with theoretical expectations as well as previous empirical evidence, e.g., De Groot and Haas (2022), that highlight the discouraging effect of high interest rates on private sector investment.

Inflation Rate and Uganda's Private Investment

The third objective of the research was to analyze the impact of inflation on private investment in Uganda. From the results with the ARDL model, it was found that inflation has a significant influence on private investment with both a positive short-run and a negative long-run impact. The null hypothesis, thus, could not be rejected. In the short term, higher inflation actually encourages private investment. This may be regarded as demand-driven investment, where higher prices equate to higher demand, which encourages producers to produce more in order to meet the demand in the market (Sodini & Virgillito, 2015). This result aligns with Muritala's (2011) findings in Nigeria.

But over the long run, inflation negatively affects private investment. As prices rise persistently, production costs of raw materials and labor will also tend to increase, and therefore investment will be less attractive. It deters companies from expanding or bringing new investments, which leads to decreased overall private investment in the long run (Azam & Khan, 2022).

Conclusion

This study aimed to examine the effect of monetary policy, in the form of money supply, lending rates, and inflation, on private investment in Uganda, as indicated by gross fixed capital formation. The Autoregressive Distributed Lag (ARDL) approach was utilized since it provides good estimates even when variables have different orders of integration. The results showed that, in the short term, money supply and inflation both have positive impacts on private investment, and a rise in lending interest rates decreases it. In the long term, all three monetary policy variables were determined to have negative impacts on private investment. The study, therefore, implies that even as expansionary monetary policy will stimulate investment in the short run, it must be properly controlled in the long run to sustain and augment private sector growth.

Recommendations

The government should stop constantly expanding the money supply, as it may have detrimental effects on private investment in the long run. However, money supply increases in the short run can be tightly managed to support private investment, particularly by raising the narrow money component (M2). Lending rates should also be low and stable, since high or volatile interest rates can hamper business activity and deter investment. Similarly, inflation needs to be low, especially in the long run, as rising prices discourage private investment. Inflation management by implementing a tight monetary policy can deliver a stable environment favorable to long-run private sector development.

Study Limitations

This study was limited by the availability of data on the research variables. Although the researcher would have loved to go further back in time, it was not possible because of the shortness of the available data series.

Areas For Further Research

Further studies on this subject can consider carrying out a comparative study across East Africa to understand how the different member countries' monetary policies affect growth.

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REER, Inflation, Interest Rate and Uganda's Coffee Exportation

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Abstract: This study examines the effect of the REER (real effective exchange rate) known as the relative currency value, inflation, and interest rate on the exportation of coffee in Uganda. To achieve the study's objectives, the study employed an Auto Regressive Distributive Lag Model using annual data from 1990-2019. It was discovered to have a beneficial effect on coffee export volumes in the long run when the relative currency value appreciates, while short-run appreciation of the effective currency rate has a negative effect that carries over to a three-year period. An increase in the rate of inflation has a positive effect on coffee exports in the two-year short run, but in the longer term, an increase in the inflation rate has a negative effect. An increase in the lending rate has a negative effect on coffee exports in the two-year short term as well as in the first and third year, but in the long run, the effect is positive. The coffee production capacity of Uganda was captured by the estimated model through the incorporation of a variable on the volume of coffee production that was found to have a positive effect in both the short and long run periods. The study observes that the responsiveness of the volume of coffee exports to the responsiveness of IVs is low, an indicator that Ugandan coffee exports are facing inelastic demand on the global market. The study thus recommends that the government seize this golden chance with its hands by making cheap capital available to farmers, processors, and exporters, issuing more export licenses and encouraging more households to produce more coffee.

Keywords: *REER, inflation, interest rate, Uganda, coffee exportation*

1. Background of the Study

Improving coffee performance in export is critical to any coffee-producing economy as it leads to increased export earnings, tax returns, and ensures employment of many nationals (Sänger, 2018). Al-Abdulkader, Al-Namazi, AlTurki, Al-Khuraish, and Al-Dakhil (2018) also speculate that the position of the second-largest coffee exporter across sub-Saharan Africaat coffee is becoming more popular throughout the world as it has a spillover effect on the economic growth of most of the producing countries. The beverage is one of the most drunk commodities in the entire world, with a market that is valued at more than $20 billion across the entire world in exportation alone; however, world levels of exports are not constant. Uganda holds the position of the second-largest coffee exporter across sub-Saharan Africa and is positioned to continue this through growing coffee export levels to more than 20 million bags every year (UNCTAD, 2018). Annual coffee exports, though, have settled at below 5million bags and do not increase despite the government setting up the Uganda Coffee Development Authority (UCDA) and providing the producers with credit through the Agricultural Credit Facility.

In spite of the enhanced coffee exportation in the past decade, an increase of 40% to 4.6 million bags during the 2016/2017 season mainly on the back of a good Robusta crop production, the ten-year average has been approximately 3.5 million bags per year. This is far from the desired 20million bag exportation level. The UCDA reports of indicated may be explained in part by unfavorable exchange rates, inflation, and interest, which have a tendency to raise Ugandan coffee's relative price (UCDA, 2015). The UCDA is of the view that coffee processing in Uganda for export is labor- and capital-intensive work, with the payment of initial costs, which are met through the utilization of the processors' own funds and outside resources. The processors usually buy the farmers' raw dry coffee and factory overheads on bank credit. It thus follows that an increase in lending rates and inflation would be correlated with an increase in the cost of processing coffee for exportation.

Whilst the interest rate can determine the quantum of credit the processors would need, the inflation rate can determine the purchasing power of their working capital with regard to the processing inputs, i.e., the raw coffee. This can be argued in Uganda since the macroeconomic variables have not been constant. Empirical results provide evidence that exchange rates, interest rates, and inflation are the most significant macroeconomic determinants of coffee exportation. Evidence from research by Muchtolifah and Muljani (2020) and Hussien (2015) and others, citing the exchange rate, inflation, and interest rates as major drivers of coffee export volumes in Indonesia and Ethiopia, respectively, confirms this. Although little research has been done to establish comparable variables as determinants of Uganda's coffee exportation, evidence exists to show that not only has it remained low but also been consistently volatile. The macroeconomic conditions in Uganda have also been mostly volatile with, for instance, the exchange rate varying between 2000 and 3500 in the last five years, as highlighted by the Bank of Uganda (BOU).

The interest rate has ranged from 17% to 25% over the same period, and inflation has ranged from 5% to 9% (BOU, 2019). It is against such that the present study aims to conduct a coffee shipments abroad analysis to determine the link between exchange rate, inflation, interest rate, and Uganda's coffee exportation.

Statement of The Problem

Uganda exports a total of between 5.5 million bags of coffee annually, a volume that ranks the country eighth among the world's largest coffee exporters (MAAIF, 2016). The earnings from coffee export account for approximately 18% of the nation's total export earnings, and coffee is the nation's single largest export earner. In a bid to improve coffee exportation, Uganda's government in 2015 set out to promote the production and export of 20million bags of coffee, an initiative that has so far not been achieved. Coffee exportation, among others, was liberalized to create opportunities for exporters, and UCDA was created and mandated to regulate coffee quality; however, coffee exportation (in coffee volumes) has not increased that much. By exporting just about 5.5 million bags annually, a gap of approximately 14.5 million bags is not met, hence the country loses about 500 billion shillings in revenues annually. (Shepherd, 2016). As Akinbode and Ojo (2017) averred Coffee exportation is greatly influenced by macroeconomic variables, including currency rate, inflation, and interest rate.

Underperformance of these macroeconomic variables impacts not only the relative cost of exporting coffee but also the relative price of coffee on the global market, which ultimately has an influence on the coffee shipments abroad. Unfortunately, existing literature in Uganda fails to sufficiently clarify the causal relationship between these macroeconomic drivers and the performance of Uganda's coffee exports, a knowledge gap that this study fills.

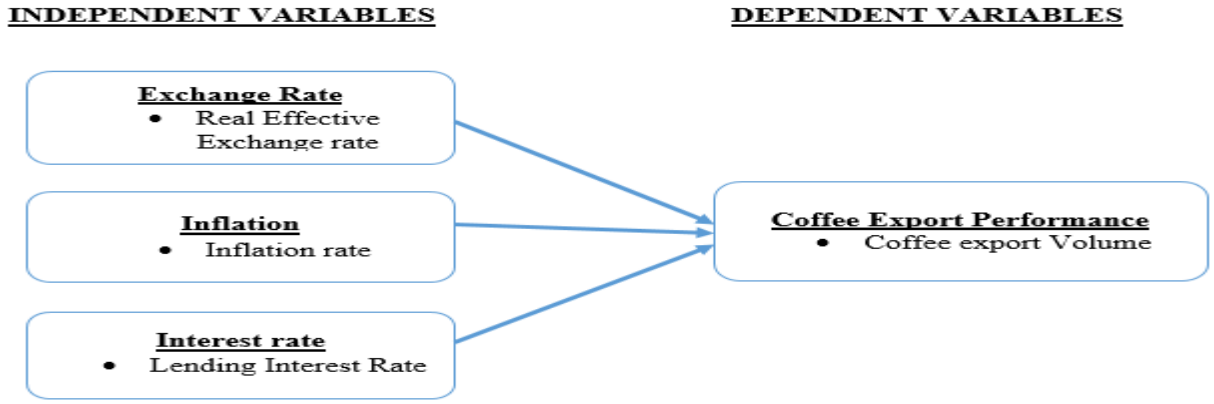
Objectives of the Study

- To determine the influence of the REER on coffee exportation in Uganda
- To determine the effect of inflation on coffee exportation in Uganda
- To determine the role played by the interest rate on coffee exportation in Uganda

Conceptual Framework

The framework below shows the relationship between the study variables. Exchange rate, Inflation, and interest rate are IVs, and coffee export volume is the dependent variable. The conceptual framework shows that the Exchange rate, inflation, and interest rate are related to coffee export volumes. The conceptual framework, adapted from Hussien (2015) and Muchtolifah and Muljani (2020), is shown in the figure below

Figure 1: Conceptual framework



Source: Hussien (2015); Muchtolifah and Muljani (2020)

Description of the Conceptual Framework

The conceptual framework assumes that the Exchange or currency rate, inflation, and the rate of interest all influence coffee exportation. The Exchange Rate as reflected by the REER affects coffee exportation in a way that a high REER makes exports less expensive to trade partners and thus leads to an increase in coffee export units, while a low REER makes exports more costly to trade partners and thus leads to a fall in coffee export units. REER is thus expected to be positively correlated with coffee exportation

Inflation is represented as the Inflation Rate. As inflation rises, the quantity of processed (and ultimately exported coffee falls because the exporters (who are also processors) would purchase less coffee volume than before. This is as per Tarawalie and Conteh (2021), who opine that inflationary pressures influence exportation by directly influencing input costs. Rising inflation increases input costs, while a drop in inflation decreases input costs. It, therefore, logically follows that when the inflation decreases, more quantities of coffee will be bought by exporters from farmers and hence they will export more. Inflation will hence be inversely related to the performance of coffee exports. The interest rate will be represented by the lending Interest Rate (RIR). It is the cost of capital (money) charged by the coffee exporters. A rise in lending rates raises borrowing costs for the exporters, and when they fail to borrow, the amount of processed coffee declines. Reducing the interest rate reduces the export price of coffee and also the price of borrowing money for coffee exporters, who in turn can buy and process more coffee. According to the UCDA national coffee strategy, many coffee processors and exporters in Uganda (almost 50%) operate on bank credit (UCDA, 2015). The interest rate is thus expected to be negatively correlated with coffee exportation

2. Literature Review

Overview of Coffee Exports in Uganda

One of the finest producers of coffee in the world is Uganda. Uganda is selling wet-processed Arabica, which smallholder farmers produce in central and southern areas (57%), Eastern Uganda (23%), and Western Kasese (10%) (Morjaria & Sprott, 2018). Uganda is selling and producing wet-processed Robusta, which the villagers cultivate in small farms. Coffee export charges went up by 40% to 4.6 million bags in 2016/2017 mainly because of the production of West Florida-style Robusta crops, but the average over the long run has been approximately 3.5 million bags annually (UCDA, 2020). Those cooperatives that market their coffees as 'Wugar' (Washed Uganda Arabica) and 'Drugar' (Dry Uganda Arabica) grow on mountain ridges near the border with the Democratic Republic of Congo on Uganda's western border (UCDA, 2020). Production of coffee began increasing in the 1980s but fell drastically in the late 1990s. But it has remained one of Uganda's leading foreign exchange earners, with a total of making contribution of 17.4% of overall export earnings, supported by rising volumes and worth. (UCDA, 2020). The European Union is responsible for over 70% of the overall coffee exports of Uganda. It is trailed by Sudan, which imports almost 10% of the Ugandan coffee, and afterwards the USA, which imports almost 3%. The export market of coffee in Uganda is wide, with over sixteen countries importing. The market has approximately twenty-nine multinational and national companies. Around 10 companies control eighty-five percent of the export market, while the largest company, Ugacof (U) Ltd, controls the majority share of around 15% of the exports of coffee (UCDA, 2020).

Theoretical Literature Review

This study applied the H-O (Heckscher-Ohlin) theory of international trade in exploring how inflation, interest rates, exchange rates, and the volume of coffee exportation interact with each other in Uganda. The Heckscher-Ohlin theory maintains that relative differences in factor endowments and their prices are the most potent forces behind importation and exportation. (Abolagba, Onyekwere, Agbonkpolor, & Umar, 2010). According to the theorem, countries only continue to trade goods with each other owing to differences and continued changes of their individual pre-trade product prices, arising from changes in their relative factor prices. Subsequently, countries with lower capital costs (i.e., lower interest rates) will enjoy a comparative advantage in capital-intensive commodities, which they should produce and export to countries with labour-intensive commodities, and vice versa. (Salvatore, 2013). Consequently, from the theory, some of the determinants upon which the export volume of any country may depend are the relative export price of its trade partners (through the exchange rate), the factor prices (through wages and interest rates) and the pre-trade product price changes (through inflation) among others. (Hussien, 2015; Muchtolifah & Muljani, 2020).

Empirical Literature Review

The Effect of the Exchange Rate on Coffee Exportation

The research that has tried to find out the impact of currency rate appreciation on performance in coffee exports has established that exchange rate appreciation can be either a significant and positive appreciation or a non-significant appreciation. Other research has established the negative relationship between exchange rate appreciation and coffee exports. Hence, the literature argument over the exchange rate effect on coffee export quantity is mostly whether or not there is any considerable effect. All of the articles have made use of time series analysis in constructing their arguments. Prajanti, Pramono, and Adzmin (2020) examined the determinants of Indonesian coffee export quantity using a Multiple Linear Regression Analysis with Ordinary Least Squares (OLS) over the 1983-2017 period. The study analyzed the effect of several variables on coffee export quantities and established that although appreciation in exchange rates was statistically positively correlated with coffee export quantities, its effect was not significant. In Ethiopia, Eshetu and Goshu (2019) using a dynamic gravity model and system Generalized Moment Method of estimation (GMM) for the 1998-2016 period validated that appreciation of the exchange rate has a diminishing effect on coffee export quantities for Ethiopia. Gebreyesus (2015) had earlier investigated the major determinants of coffee export supply in Ethiopia for the 1981-2011 period. According to the Vector Auto Regressive model (VECM), the study revealed that real appreciation of the exchange rate had no statistical effect on coffee exports in both the short and long run. In another study in Ethiopia, Goshu (2020) developed a direct effect of exchange rate appreciation on the export of spice crops whose primary crop was coffee.

Employing time series data from 1992/93 to 2015/16, in this study, the VECM has been employed to determine this. Although this particular study incorporated coffee exports into a pair of other crops, compared to the earlier studies carried out in Ethiopia, the results of the three studies can give a hypothesis that the impact of exchange or currency rate appreciation on coffee exports can change over time. In the study of the firm-level effect of exchange rate on coffee export and production, Salamat (2017) established that exchange rate appreciation positively affects the intensive and extensive margins of the firms. The study further developed the point that the intensive margin (efficient scale of production) is affected whenever the input prices change in response to exchange rate changes. The study indicates a substantial effect of exchange rate depreciation on volumes of coffee exports. The study also highlights that exchange rates have an impact at the firm level that, in turn, affects the volume of coffee export. One among the limited studies done on coffee exports in Uganda is research conducted by Nahanga, Bamwesigye and Antwi (2015).

The study analyzes the effect of certain economic determinants on coffee production and exports. The level of production and the world price index were among the determinants that were revealed to affect Ugandan coffee exports. The study did not incorporate the exchange rate, and thus it is not known what effect the exchange rate has on Uganda's coffee exports. Conclusion of the recent studies on exchange rates effect to coffee exports does not seem to indicate any convergence in the specific effect of exchange rates on the levels of coffee exports. Whereas there are some studies indicating a positive effect, there are other studies indicating a negative effect, and there is other research that has established no effect. The effect seems to be based on different characteristics of economies. It also leaves room for exploration on the impact of the exchange rate on coffee export levels. This research will therefore draw on the Ugandan example to add to the debate.

The Effect of Inflation on Coffee Exportation

The effect of inflation on coffee export has mostly been debated within the general package of the effect of inflation on the export of agricultural products by the exporting nations in the agricultural sector. This is because the products are mostly homogeneous products with a mostly similar process of exportation in the majority of the nations. It is also because inflation has been found to affect the input costs of agro-processing factories that manufacture agricultural exports. The findings of most of the studies have been that inflation is negatively related to agricultural commodity exports. There are some, however, which, to their surprise, found positive correlations, while others found no effects at all. In South Africa, Vanzyl (2016) discovered that an increase in inflation had a negative effect on agricultural exports by creating cash flow problems for farmers through increased operational management costs. Their test employed a Vector Auto Regressive (VAR) model. Equivocally, in causality testing, Oyakhilomen and Zibah (2014) discovered that the trend of inflation had a negative effect on Nigeria's agricultural exports, and also discovered that, from 1970 to 2011, inflation caused agricultural exports one-way.

Investigating the causal effect of volatility in Nigeria's macroeconomic variables for the period 1970-2010, Akpan, Udoka, and Patrick (2015) uncovered highly negative relations between agricultural export, external debt, external reserves, and short-run and long-run inflation. Industrial capacity utilization and exchange rate also uncovered highly positive relations under the cointegration model employed in the study. Identifying the long-run determinants of Nigerian agricultural exports for the span 1960 – 2014, Udah, Nwachukwu, Nwosu, Mbanasor and Akpan (2015) regressed a number of macroeconomic variables on agricultural exports. Rising inflation rate, growth in the manufacturing sector, agricultural credit, per capita income, unemployment, energy consumption, and external reserves were found to have positive long-run effects on agricultural exports. On the contrary, FDI in agriculture, oil prices and banks' lending capacity had a negative impact in the long term on exportation.

The Effect of Interest Rate on the Performance of Coffee Exports

Investigating the effect interest rate has had on South African agricultural exports, Ngondo and Khobai (2018) used the Autoregressive Distributed Lag (ARDL) model and yearly time series for the period 1994 to 2016. Their study established a highly negative association between the interest rate and agricultural exports. In contrast, Adofu, Abula, and Audu (2010) investigated the trends in agricultural exports following the deregulation of Nigeria in 1986. Employing the OLS method, their work established the significantly positive impact of the rise in interest rates on Nigerian agricultural exports. In a second empirical study that assessed determinants of Nigerian agricultural exports, Udah, Nwachukwu, Nwosu, Mbanasor, and Akpan (2015) showed that an increase in the interest rate was negatively linked with increases in agricultural exports and that changes in nearly 66.4% of the exports were accounted for by changes in the IVs used. For Uganda, empirical examinations explaining how coffee export volumes are related to macroeconomic drivers have been limited.

Byanyima (2011) examined the determinants of Uganda's coffee export volume using the time series data for the period 1991-2007. Of the determined factors, exchange rate appreciation was negatively impacted and an increase in the price of coffee internationally was positively significant. The rest of the determinants, i.e., interest rate and the GDP, were not significant. However, Shire (2018) in examining the impact of exchange or currency rate volatility on Ugandan coffee exports using ARDL models established that inflation and interest rate were highly and positively related to coffee exports, while exchange rate volatility was insignificant. This reveals that the participation of macroeconomic variables in the performance of coffee exports in Uganda is still disputed. The results of this study will hence try to bring to a close this controversy.

3. Methodology

Research Design

Time series analysis rooted in a quantitative research approach was used in the study. Time series analysis has been used because it can determine relationships among variables. This assists in attaining the entire objectives of this research. Annual data from UBOS and the Bank of Uganda for the period 1990 to 2019 were used for the study.

Data Analysis

This study employed the Stata Statistical package version 14 to establish the effects of the rate of exchange, inflation, and interest rates on the level of coffee export volume in Uganda.

Theoretical Model

This study was anchored in the Heckscher-Ohlin theory of comparative advantage as expressed by Abolagba, Onyekwere, Agbonkpolor, and Umar (2010). Under the framework, countries engage in international trade because of discrepancies and continuous changes in their individual pre-trade product prices, which arise out of changes in their relative factor prices. Subsequently, countries with lower prices of capital (i.e., lower interest rates) will have a comparative advantage in capital-intensive commodities, which they produce and export to countries with labour-intensive commodities, and vice versa. Thus, from this theory, some of the factors on which the volume of exports of any given country could depend are the relative price of its exports to trade partners (seen through the exchange rate), the factor prices (seen through interest rates and wages) and the changes in pre-trade product prices (seen through inflation) among others (Hussien, 2015; Muchtolifah & Muljani, 2020). Thus, the framework yields an export supply function of the form below.

COFFEE = f (REER, INF, INTR) …… (3.0)

Where, **COFFEE** is the Coffee export volume, **REER** is the REER, **INF** is the Inflation Rate, and **LR** is the lending Interest Rate.

Model Specification

The functional form of the model in equation 3.0 was specified in econometric form and augmented to include other variables following Tadese (2015). Thus, apart from the main variables, the model included the amount of coffee produced as a control variable to account for domestic coffee production (Tadese, 2015). Thus, the econometric form of the model was expressed as;

$COFFEEt = \beta_0 + \beta_1 REER_t + \beta_2 INF_t + \beta_3 LR_t + \beta_4 PROD_t + \mu_t$ …….. (1)

Where: COFFEE denotes the Coffee export volume measured in the form of coffee bags exported per annum; REER denotes the Real effective exchange rate; INF stands for the Inflation Rate; and LR denotes the lending Interest Rate. PROD stands for Coffee Produced measured in the form of the quantity of coffee kilograms (kgs) produced per annum; μ denotes the Error term. A priori expectations are that $\beta 1, \beta 4 > 0$, and $\beta 2, \beta 3 < 0$.

The model was adjusted to a log-log form to reduce tendencies of multicollinearity, and thus specified as;

$LNCOFFEEt = \beta_0 + \beta_1 REER_t + \beta_2 LNINF_t + \beta_3 LR_t + \beta_4 LNPROD_t + \mu_t$ ……. (2)

Definition and Measurement of Variables

Coffee Export Volumes (COFFEE): This is the yearly volume of 60kg coffee bags exported. Data were derived from the UBOS database.

REER: REER is the minimal effective exchange or currency rate (valuation of a currency's value in terms of a weighted average of a set of foreign currencies) in terms of a price deflator or cost index. Information was retrieved from the Bank of Uganda database.
Inflation Rate (INF): The speed at which the general level of prices for a basket of selected goods and services in an economy increases over time. Source: Bank of Uganda
Lending rate (LR): The average amount of money lent by commercial banks in a year, as a percentage of money lent. Data sourced from the Bank of Uganda
Coffee Produced (PROD): The amount in kilograms of coffee produced in a year. Source from UBOS.

Checking For Unit Roots

ADF test was utilized in the present research to check the stationarity of the independent and dependent variables. ADF testing checks for unit roots in a series of data to ascertain whether the series is stationary or otherwise. Libanio(2005) asserts that there is a need to check the stationarity of time series data since series are highly dependent on whether they are stationary or not. As economic theory does (and only) assume long-run stationarity of stationary series, it is very crucial to check that the series used in a study are indeed stationary. Non-stationarity of the variables would mean that the means and variances of the series change over time and thus make any hypothesis tests performed on the parameters of the regression invalid. The ADF test process entails estimating an equation of the form:

$\Delta y_t = \theta y_{t-1} + \sum_{i=1}^{p} \mu_i \Delta y_{t-i} + u_t$:

Where H_o: $\mu_1 = 0$; H_A: $\mu_1 > 0$

Where, $\mathbf{y_t}$ is a vector representing the time-series variables in the model under consideration, **t** represents the time trend; **Δ** is the first-difference operator; $\mathbf{u_t}$ is the error term; and **p** represents the optimal lag-length of each chosen variable.

The ADF tests the hypothesis, Ho: $\mu_1 = 0$, suggesting that the series are non-stationary against the alternative hypothesis, H_A: $\mu_1 > 0$, suggesting that the series are stationary. When the null hypothesis is rejected, then the series (y_t) is stationary and is said to be integrated of order zero; that is, I(0). Non-stationary series can be differenced once and then tested again for stationarity, and if the ADF null hypothesis at first-difference is rejected, then the first-difference of the series can be said to be stationary and integrated of order one; that is, I(1)(Greunen, Heymans, Heerden, & Vuuren, 2014).

Co-Integration Test

The cointegration bounds test through the ARDL framework was undertaken to verify for any long-run relationship between the variables in question. The Pesaran, Shin, and Smith (2001) test offers an f-statistic (the Wald f-statistic), which is then contrasted with critical values for different significance levels to determine whether the variables are or are not long-run related. The bounds test is used to test the null hypothesis, H0: $\beta1 = \beta2 = \beta3 = \beta4 = 0$, denoting no long-run relationship to the alternative hypothesis, HA: $\beta1 \neq \beta2 \neq \beta3 \neq \beta4 \neq 0$, denoting a long-run relationship. If in instances where the f-statistic is higher than the upper band of critical values, then there is a long-run relationship between the series, and consequently, the null hypothesis needs to be rejected. If the f-statistic falls below the lower band of critical values, then the null cannot be rejected and consequently, there is no long-run relationship. If the f-statistic is between the lower and upper bands of critical values, then as per Narayan(2005) the test is referred to as inconclusive.

Model Estimation

This study estimated a single ARDL (Auto Regressive Distributed Lag) model in examining the relationship between the exchange rate, inflation, interest rate, and quantities of Ugandan coffee exports. The rationale for employing the ARDL method is that this study had a small sample period, and the ARDL is efficacious in determining the relationship between variables when the sample period is small, i.e., fewer than 80 observations (Narayan, 2005).

Post Estimation Diagnostics

Serial Correlation Test
Serial correlation is the correlation of values at a point in time of one variable with its own values over time. Serial correlation is a problem for time series because it affects the OLS estimates of standard errors' efficiency to make them lower than they ought to be (Roberto & Jódiney, 2019). For the purpose of obtaining serial correlation in the aforementioned estimated model, the Breusch-Godfrey test with the Lagrange Multiplier was utilized. It tests against a null hypothesis of no autocorrelation.

Testing For Normality
Normality tests of econometric analysis are used to ascertain whether error terms for econometric models are consistent throughout all variables and observations of the study period; i.e., normally distributed with zero mean and equal variance throughout the model. Non-normality of the error term renders the independence of the predictability of IVs inconsistent over the sample period (Gujarati, 2004). Therefore, based on the Jarque-Bera test, there will be a test of the distributional nature of the error term in the model estimate. The Jarque-Bera test is used to test the null hypothesis of normal error terms.

Ethical Considerations
The data collected for the study were used for purely academic purposes only.

4. Presentation and Explanation of Study Findings

Description of Variables in the Study
A brief description of the variables based on how they were distributed across the study period is given in order to give a general idea about the nature of the variables selected. Specifically, a summary of the distribution of the variables and the nature of their correlation is discussed below

Distribution Summary of the Variables
The distribution data of the variables of study are shown in Table 1 below, focusing on the mean, maximum values, minimum values, and the standard deviation.

Table 1: Distribution summary of variables

Variables	Mean	Std Dev	Min	Max
COFFEE	3,446,021	1,454,126	2,002,324	8,473,931
REER	83.67307	17.38161	44.73116	108.4172
INF	7.968508	3.260338	2.887225	20.77518
LR	23.11015	5.43231	18.47639	40
PROD	197,000,000	48,800,000	110,000,000	302,000,000

Note: Observations = 30. Source: Author's calculations using Stata 14 based on UCDA and BOU annual data

The results in Table 1 above indicate that coffee exports averaged about 3.4 million 60kg bags. The highest number of exported bags was about 8.5 million, while the smallest was about 2 million. Generally, the number of exported bags deviated by about 1.45 million. The REER averaged about 83 US dollars, hitting the highest rate of 108 dollars and was lowest at about 45 dollars. The rate deviated by about 17 dollars. The inflation rate averaged about 8 percent, was highest at about 21% and lowest at about 2.9%. The rate deviated by about 3.3%. The lending rate averaged 23% over the study period, reaching a high point at 40% and was lowest at about 18.5% deviating by about 5.4%. Coffee production averaged about 197 million kilograms and was highest at 302 million kilograms. It was lowest at about 110 million, deviating by about 48.8 million. The descriptive statistics show tendencies of high spread with large differences between the lowest and highest values. Since the standard deviations are lower than the means, however, the study variables can be said not to be very volatile. Generally, these data characteristics show the instability of the macroeconomic environment within which coffee exports happen.

Correlation of the Variables

The variables were subjected to a Pearson correlation test to check how strong their relationships were. It is important to check for correlations between variables because it enables us to make certain that the variables are not highly similar, which could result in multicollinearity issues. The results from the pairwise correlation analysis are presented in Table 2.

Table 2: Correlation summary of the variables

	COFFEE	REER	INF	LR	PROD
COFFEE	1.0000				
REER	0.4217*	1.0000			
INF	-0.3906*	-0.2120	1.0000		
LR	-0.2957*	-0.3734*	0.2052	1.0000	
PROD	0.7028*	0.2795	-0.3503	-0.4507*	1.0000

Source: Author's calculations using Stata14, based on UCDA and BOU annual data

The results in Table 2 indicate that the REER (REER) and coffee production (PROD) are positively and significantly correlated with coffee exports. Inflation rate (INF) and lending rate (LR) are negatively correlated with coffee exports. The results of the Pearson correlation analysis above indicate that the correlations of selected variables are below the 0.8 threshold above which multicollinearity would arise. Thus, the variables selected can be included in the model for estimation.

The Test For Stationarity of Variables

The study examined the type of stationarity of the variables. The type of stationarity of variables can be employed in describing the long-run relationship among the variables, and thus it forms a model estimation framework. Stationarity can be verified by verifying the unit roots in the data series. First, some variables were re-specified into log form and the study thereafter employed the Augmented Dickey Fuller (ADF) test as one of the most commonly applied unit root tests within time series data analysis employed by analysts. The null hypothesis of the ADF test is non-stationarity against the stationarity alternative hypothesis. The ADF test statistic is compared to its respective critical values at three significance levels. The null hypothesis cannot be rejected if the test statistic is less than the critical values for any of the three significance levels, which would imply that the series is not stationary. The ADF test statistics of the variables at their variable levels and their first differences are given in Table 3 below.

Table 3: Results from ADF test on variables at levels and at first difference

Variable Name	Variables at Levels	First difference	Integration
logCOFFEE	-0.064 (0.9529)	-6.077*** (0.0000)	I(1)
REER	-1.292 (0.6330)	-5.031*** (0.0000)	I(1)
INF	-3.320** (0.0140)	-	I(0)
LR	-3.066** (0.0292)	-	I(0)
logPROD	-1.856 (0.3531)	-5.855*** (0.0000)	I(1)

Notes: ***, ** Indicate significance at 1% and 5% levels of significance. Values in brackets are p-values. Source: Author's calculations using Stata14, based on UCDA and BOU annual data

The result in Table 3 above shows that the variables are of differing orders of integration. While logCOFFEE, REER, and logPROD are order one, INF and LR are order zero. Because some of the variables were non-stationary at levels, and yet non-stationarity of these variables in levels is an indication of the possibility of long-run interrelationships known as cointegrations, the research proceeded to test the likelihood of cointegration of the variables.

The Test For Cointegration among The Variables

The Johansen cointegration test, a common empirical technique, was employed in the research. The test yields a trace statistic that identifies the number of cointegrating equations for the model relative to the critical values at the 5% significance level. The order of the model is represented by the number of cointegrating equations tested under the null hypothesis of having 'r' cointegrating vectors against the alternative of 'r+1' cointegrating vectors. Since the trace statistic is less than the critical value, the null hypothesis cannot be rejected. The results are shown in Table 4 below.

Table 4: Results from the Johansen Cointegration test

Null Hypothesis	eigenvalue	Trace statistic	5% critical value
r ≤ 0		82.5713	68.52
r ≤ 1	0.75741	42.9121*	47.21
r ≤ 2	0.51817	22.4677	29.68
r ≤ 3	0.37497	9.3087	15.41
r ≤ 4	0.27406	0.3408	3.76
r ≤ 5	0.01210		

Note: * indicates non-rejection of null at 5% significance level. Trend: constant. Sample: 1992 - 2019. Number of observations = 29. Lags = 2.
Source: Author's calculations using Stata14, based on UCDA and BOU annual data

The findings of Table 4 show the presence of a single cointegrating equation. This follows from the fact that the null hypothesis of at most one cointegrating equation (r ≤ 1) is not rejected, as the trace statistic is below the 5% critical value (42.9121 < 47.21). On this premise, the study established the presence of a linear combination to produce an enduring long-run relationship among the variables in question. Since some variables were non-stationary at levels, cointegration was established to merit the use of an Autoregressive Distributed Lag (ARDL) model, which is demonstrated below.

The Auto Regressive Distributed Lag Model

The study employed an ARDL model since it is most suitable when integration orders of variables are heterogeneous and less than I(2). The model is also efficient in yielding parameter estimates even with fairly small samples. The model includes short-run coefficients as well as long-run coefficients, along with an error correction term representing the long-run relationship driven by short-run disturbances in the independent variables. The best lag structure for the model was chosen automatically by employing the Akaike Information Criterion (AIC). The chosen lags were 4, 4, 3, 4, 4, indicating that each of the variables had a maximum lag of four except for inflation which had three. This selection was felt to be reasonable as the existing empirical literature suggests that macroeconomic determinants have the ability to impact coffee exports within five years (Gebreyesus, 2015).

The Long-Run Results of The ARDL Model

The results for the long-run relationship are reported in Table 5.

Table 5: Results of long-run coefficients in the model

Dependent Variable: logCoffee			
IVs	**Coefficient**	**Standard Error**	**P-Value**
REER	0.0052273**	0.0005727	0.012
INF	-0.098407**	0.0021306	0.044
LR	0.0159176**	0.0032278	0.039
logPROD	0.173014***	0.0581427	0.001

Notes: ** Indicate significance at 5% significance level.
Source: Author's calculations using Stata14, based on UCDA and BOU annual data

The findings from Table 5 reveal that all of the variables significantly influence coffee export volumes in the long run. An increase in the real effective exchange rate, lending rate, and coffee production positively affects exports, while inflation negatively affects them. Specifically, an increase in the real effective exchange rate by one unit increases coffee export volume by 0.005%. An increase in the lending rate by one unit increases export volumes by 0.012%. Likewise, an increase in coffee production by 1% increases export volumes by 0.173%. On the other hand, inflation worsens export performance such that an increase in inflation by one unit decreases export volumes by 0.098%, while a decrease of one unit increases them by 0.0098%. In general, the evidence indicates that, in the long run, coffee production is the strongest determinant of export volumes, followed by lending rates, inflation, and finally the exchange rate.

The Short-Run Results

The results for the short-run relationship between the variables are presented in Table 6 below.

Table 6: Results of Short Run Coefficients in the Model

Dependent Variable: D.logCoffee			
IVs	Coefficient.	Std. Error	P>|t|
$logCoffee_{t-1}$	0.6061309**	0.1211926	0.038
$logCoffee_{t-2}$	0.1669729***	0.1123009	0.004
$logCoffee_{t-3}$	-0.2406288	0.0962858	0.130
REER $D_{1.}$	-0.0215153***	0.0005919	0.001
$REER_{t-1}$	-0.0235958***	0.0010044	0.002
$REER_{t-2}$	-0.036598***	0.0008415	0.001
$REER_{t-3}$	-0.0007095	0.0007158	0.426
INF $D_{1.}$	0.0473332***	0.0032045	0.005
INF_{t-1}	0.0875029***	0.0014636	0.000
INF_{t-2}	0.0298767***	0.0011421	0.001
LR $D_{1.}$	-0.0542473***	0.003301	0.004
$LRt-_{1}$	-0.0557629***	0.0031996	0.003
$LRt-_{2}$	0.0048324*	0.0012725	0.063
$LRt-_{3}$	-0.0096034**	0.0016308	0.028
logProd $D_{1.}$	0.1892278***	0.167188	0.008
$logProd_{t-1}$	0.3291638***	0.1382716	0.002
$logProd_{t-2}$	0.1663394***	0.1262677	0.006
$logProd_{t-3}$	0.8614618***	0.0480116	0.003
Constant	-28.36635***	1.579764	0.003
ADJ logCoffee L1.	-0.1522327**	0.1682494	0.012

Notes: ***, **, * Indicate significance at 1%, 5% and 10% significance levels, respectively. D1 = First difference in variable. LD = lagged difference. ARDL regression (4, 4, 3, 4, 4). R-square: 0.604. Source: Author's calculations using Stata14, based on UCDA and BOU annual data

Table 6 estimates indicate that the first and second lags of coffee export volumes have a positive and significant effect on the current export in the short run and that the third lag is not significant. This suggests that coffee exports of both the immediate preceding periods increase the current volumes by about 0.6 and 0.17 respectively, but decrease when in the reverse direction. The actual effective exchange rate (REER) appreciation was found to have a negative and significant effect on coffee export volumes, with a one-unit rise in the REER reducing coffee export volumes by 0.02%. Similarly, one-unit rises in the first, second, and third lags of REER reduce coffee export volumes by 0.024%, 0.037%, and 0.0007%, respectively. Inflation was statistically significant and positively affected exports. As inflation increases by one unit, the quantity of coffee exports increases by 0.047%. In the short run, the first lag and second lag of inflation raise exports by about 0.09% and 0.03% respectively.

The lending interest rate negatively and significantly affected coffee exports. A one-unit increase in the lending rate reduces exports by 0.054 percentage points. Similarly, its increases in its first and third lags decrease export volumes by 0.056 and 0.0096 percentage points. Instead, the lending rate is positively related to coffee exports in the second lag, with a 0.0048 coefficient that is significant only at the 10% level and is thus less powerful. Overall, the negative short-run effect is greater than the positive long-run effect, which means that the adverse effect of lending rates is greater than any benefit. Both effects, nonetheless, are small, meaning that coffee exports respond relatively little to changes in lending rates. Coffee production was found to have the largest beneficial effect on exports. A rise in one unit of production raises the amount of coffee exports by 0.189%, which is the highest coefficient for any of the model's variables. Its first, second, and third lags also have beneficial effects on exports' level, but the size declines over time: 0.329 in the first, 0.166 in the second, and 0.086 in the third.

The intercept coefficient of -28.4 shows the level of exports when the independent variables take a value of zero. The error correction term, negative and statistically significant at 5% (-0.152), captures the rate at which adjustment converges back to equilibrium following a shock. It suggests that around 15.2% of past shocks to coffee export volumes caused by explanatory variables are corrected in the current year. The R-squared for the model is 0.604, implying that the variables covered so far account for 60.4% of coffee export volumes' variation and that the remaining 30.6% is explained by other variables omitted in the model.

Post Estimation Diagnostic Tests

The study proceeded and applied diagnostic tests on the estimated model with a view to ensuring that it was free from any econometric problems. The tests applied are discussed below.

The Test For The Normality of Residuals

The Shapiro–Wilk (SW) normality test was used to find out whether residuals in the model were distributed normally. The null hypothesis of the SW test is that residuals are normally distributed (Ruxton, Wilkinson, & Neuhäuser, 2015). The null hypothesis won't be rejected if the test statistics 'w', 'v', and 'z' p-values are greater than the 5% significance level. Results are presented in Table 7 below.

Table 7: Results from the Shapiro–Wilk Normality test

Variable	Observations	W	V	Z	Prob>Z
Residuals	30	0.95172	1.534	0.885	0.18799

Null Hypothesis: Normality. Source: Author's calculations using Stata14, based on UCDA and BOU annual data

The results in Table 7 above indicate that the p-value (0.18799) exceeds the 5% significance level, showing that the null assumption of normality cannot be denied and hence the residuals are normally distributed.

The Test For Serial Correlation

The Breusch-Godfrey test for serial correlation was employed to check whether the variables are correlated with the lagged values. Serial correlation would mean that OLS estimates are no longer efficient. It produces a chi-square statistic, which is a p-value, and tests the null hypothesis of no serial correlation. If the p-value > 0.05, then the null hypothesis is accepted.

Table 8: Results from the Breusch-Godfrey Serial Correlation LM Test

Lags (p)	Chi-square	df	Prob >chi2
1	0.014	1	0.9064

Null Hypothesis: No serial correlation. Source: Author's calculations using Stata14, based on UCDA and BOU annual data

The values in Table 8 show that the p-value (0.9064) exceeds 0.05. It reflects the acceptance of the null hypothesis of no serial correlation. Therefore, a conclusion is made that the error term of the model does not reflect serial correlation.

The Test For Heteroskedasticity

The Breusch-Pagan test for heteroscedasticity was conducted to determine whether the residuals are of constant variance. The test is based on the null hypothesis that there is no heteroscedasticity. When the p-value is more than the 0.05 significance level, the null hypothesis will not be rejected. The results are presented in the table below.

Table 9: White Test results for Heteroscedasticity

Chi2(1)	Prob>Chi
1.78	0.1823

Null Hypothesis: Homoskedasticity. Source: Author's calculations using Stata14, based on UCDA and BOU annual data

The results in Table 9 indicate that the p-value (0.1823) exceeds 0.05, implying that the null hypothesis of no Heteroscedasticity cannot be rejected.

Test For Multicollinearity

The Variance Inflation Factor (VIF) test was applied to determine multicollinearity between the study variables. VIF measures the degree to which multicollinearity contributes to inflation of the regression coefficient variance. The test also produces Tolerance values such that values of VIF > 10 and Tolerance < 0.2 are used to indicate high multicollinearity. The result of the VIF test is discussed below.

Table 10: Results from the Variance Inflation Factor analysis

VARIABLE	VIF	1/VIF (Tolerance)
LR	1.47	0.680369
logProd	1.46	0.682839
REER	1.20	0.836044
INF	1.14	0.879353
Mean VIF	1.32	

Source: Author's calculations using Stata14, based on UCDA and BOU annual data

Values in Table 10 indicate that VIF values are well below 10 and the tolerance values are all above 0.2, beyond which Multicollinearity would have been a concern. The findings indicate that there is no high multicollinearity in the model.

Test For Model Specification Errors

The Regression Specification Error test of RESET was utilized to check the likelihood of model specification error. It identifies if non-linear functions of estimated values can influence the dependent variable. The null hypothesis assumes that there are no variables of relevance left out. The null hypothesis cannot be rejected if the p-value for the F-statistic is more than 0.05. Results of the Ramsey RESET test are summarized in Table 11.

Table 11: Results from the Ramsey RESET test

Dependent Variable	F (3, 22)	Prob > F
logCoffee	4.90	0.903

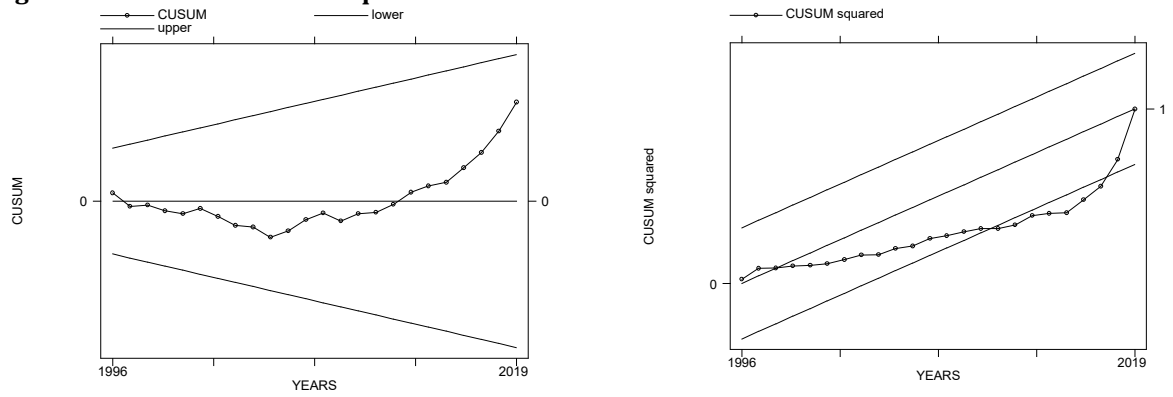
Null Hypothesis: Model has no omitted variables. Source: Author's calculations using Stata14, based on UCDA and BOU annual data

The results in Table 11 above indicate that the P-value (0.903) exceeds the 0.05 significance level and therefore the null hypothesis of the RESET test cannot be rejected. Hence, the model is properly specified.

The Test For Model Stability

The stability of the model was tested using the Cumulative Sum (CUSUM) test. The CUSUM test charts recursive regression residuals against potential break points in the model at 5% significance. The model is stable if the CUSUM of the residuals lies within these critical limits. The results are graphically presented below.

Figure 2: Cumulative Sum of Squares Test



The results of the CUSUM test in Figure 2 above indicate that the dotted line (the cumulative sum of residuals) entirely falls within the upper and lower critical bounds. This shows that the estimated model is stable.

5. Discussions, Conclusion and Recommendations

This study is based on three major objectives from which three important hypotheses were drawn and tested. The discussion below explains the findings in relation to the objectives that the study set out to achieve.

Exchange Rate and Performance of Coffee Exports in Uganda

The main purpose of the research was to examine how the exchange rate affects the performance of coffee exports in Uganda. Previous research had shown that exchange rate variations had a significant effect on coffee export volatility. The model estimates of this study in the ARDL model indicated that in the long run, the real effective exchange rate (REER) has a significant positive effect on coffee export quantities, but a significantly negative effect in the short run. The null hypothesis of no effect was therefore not rejected. The positive long-run relationship indicates that an appreciation of the exchange rate would increase coffee export quantities.

As the REER appreciates, it means a stronger local currency, which makes it more powerful as a buyer against trading partners (Hiep & Nha, 2016). This will make locally produced goods more expensive worldwide. Surprisingly, as much as this is contrary to the first instinct, the findings show that a higher REER in the long run actually favors Ugandan coffee exports. This is an interesting note, emphasizing the privileged position of coffee in the Ugandan economy. The REER coefficient of 0.00523 suggests that price has a small effect on demand for Ugandan coffee, which tends to suggest elastic demand. This supports that Uganda produces a large majority of Arabica coffee, one of the world's most sought-after coffees (Verter, Bamwesigye, & Darkwah, 2015). In the short run, the exchange rate negatively impacts coffee exports. With an appreciating domestic currency, Ugandan coffee is more expensive for international consumers, inhibiting demand. This impact is not limited to the current time but extends over a period of three periods ahead, that is, a stronger REER can discourage coffee exports over a period of three years, as contended by Hordofa (2021).

Inflation in the Performance of Coffee Exports in Uganda

The second objective of this study was to examine the impact of inflation on Uganda's coffee exports. It was assumed that inflation plays a significant part in the determination of coffee export volume fluctuations. The findings of the ARDL model revealed that inflation has a significant negative impact on coffee exports in the long run, while in the short run, it has a significant positive effect. The null hypothesis was therefore not rejected.

In the long run, rising inflation reduces coffee exports. Higher general prices in the country reduce the purchasing power of money, and it becomes challenging for processors and exporters to buy bulky coffee from farmers. They only purchase what they can process and export. This finding is in line with the study by Wondemu and Potts (2016). In the short run, however, inflation was found to increase coffee export volumes. The more the inflation, the more the exports, and a drop in inflation reduces them. This beneficial effect also carries over to the final two periods, indicating that inflationary changes continue to influence exports for at least two years. The inflation coefficient (0.047) shows that the effect is moderate, i.e., a rise in inflation affects coffee exports by approximately 5%. This shows that coffee exports are not highly sensitive to inflationary changes, at least in the short term. Tarawalie and Conteh (2021) also reached this conclusion.

Interest Rate and Performance of Coffee Exports

The third objective of the study was to find out the effect of interest rate on the performance of Uganda's coffee exports. The study henceforth presumed that the interest rate affected the variation in the performance of coffee exports in Uganda. Based on the result of the ARDL model, the lending interest rate was significant to coffee exports in the long run but with a contrary effect in the short run. The null hypothesis was thus not rejected. The positive long-run effect indicates that the cost of capital (lending interest rate) increases and coffee exports continue increasing. This also reflects that Ugandan demand for coffee is inelastic, and the relatively low long-run coefficient (0.0159) supports this. It is the measure by which quantities of coffee exports adjust only to a change in the price of capital by 1.6% in the long run. Only the presence of very high demand for coffee in world markets would make coffee exports not react to changes in interest rates. In the immediate future, however, the interest rate discourages coffee exports.

This is an indication that in the brief period, as the price of capital (lending interest rate) increases, coffee exports fall. Although the effect is small as the elasticities are not so large, the short-run effect technically lasts for three years, indicating that changes in interest rates in the short period continue to negatively affect coffee exports even after three years. Given that the agricultural sector is beset by some of the darkest interest rates in Uganda (Mugume Reagan & Lakuma). Such an effect can prove to be catastrophic. Similar results of the same trend were established by Boansi and Crentsil (2013).

Conclusion

The study aimed to test how the performance of coffee exports by Uganda has been influenced by some of the most pertinent macroeconomic variables, specifically the exchange rate, inflation, and lending interest rate. Owing to the fact that data on some variables were not long and tests of stationarity indicated that some series were not stationary at levels, the study used an ARDL model in testing the three hypotheses formulated from the research questions.

The findings showed that the exchange rate, as measured by the REER, has a positive effect on coffee export volumes in the long run but a negative effect over three years in the short run. Inflation negatively affects exports in the long run, but in the short run it positively affects exports for up to two years. The interest lending rate also has a long-term positive effect on coffee exports but a short-run negative effect for three years. The ability of Uganda to produce coffee was also added as a proxy variable in the model. Coffee production was shown to have a significant short-run and long-run effect on export levels, showing its role as a factor driving The country's coffee export performance.

Recommendations: To policymakers and the government, the world demand for Uganda's coffee export appears to be inelastic because their response to changes in relative price (REER) and other macro-economic determinants like inflation and interest rate is low, especially in the long term. This is therefore an opportunity window for Uganda to double its current coffee exportation to boost the nation's export earnings. As a starting point, the government needs to provide farmers, processors, and coffee exporters with access to affordable finance. Second, license more coffee processors and exporters, and push more Ugandan families to grow coffee as a source of revenue in the quest for middle-income status. To the coffee exporters, processors, and farmers, the cost of capital will only reduce the coffee exports in the short run, which is a 3-year duration, after which the exports will increase irrespective of the interest rate. The cost of capital should therefore not discourage new players into the coffee export business. They should plan to invest additional capital in the initial years of their firms.

Limitations of the study

Time series data on coffee exportation in Uganda is limited. The analysis of this study was based on a short time series, which lowers the degrees of freedom of most of the analytical tests carried out, and hence affects the results of the hypothesis tests.

Areas Recommended For Further Research

The researcher recommends that future studies on Uganda's performance of coffee exports should consider employing a panel study to understand how the government's national coffee policy is affecting coffee exports and coffee export earnings.

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The Paradox of Continuance Commitment between Organizational Citizenship Behaviors and Signs of Burnout

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Abstract: This study examines the paradox of continuance commitment among Moroccan middle managers (N = 220), who operate under intense hierarchical pressure and demanding performance objectives. It explores how different forms of organizational commitment relate to organizational citizenship behaviors and early signs of burnout, while examining the mediating role of perceived social justice and empowering leadership. Data were collected through a structured questionnaire including validated measures of commitment, burnout, and citizenship behaviors, and analyzed using SPSS. Results show that continuance commitment is predominant, whereas affective and normative commitment remain weak. This pattern reflects constrained attachment associated with labor market conditions and is correlated with latent symptoms of burnout. Findings also demonstrate that perceived social justice and empowering leadership significantly mediate the relationship, enabling constrained commitment to evolve into more voluntary involvement and enhancing citizenship behaviors. The study highlights that high levels of continuance commitment should not be mistaken for genuine engagement. From a managerial perspective, organizations should strengthen fairness and adopt empowering leadership practices to reduce the risks of stress, disengagement, and resignation among operational managers. This research contributes to the literature by linking continuance commitment, burnout, and organizational citizenship behaviors in a non-Western context, highlighting the critical role of social justice and leadership as mediators.

Keywords: *Organizational commitment, Organizational citizenship behaviors, Burnout, Leadership, Social justice.*

1. Introduction

In a context of accelerating organizational transformations, the question of work commitment—and its potential negative consequences, such as burnout has become central in human resource management. While organizational commitment is often portrayed as a driver of performance, loyalty, and organizational citizenship behaviors (OCB), recent studies emphasize its ambivalent nature: in certain contexts, commitment can prove emotionally costly and detrimental to well-being. This paradox is particularly acute in constrained environments, where attachment to the organization is rooted less in affective identification than in necessity or obligation.

The international literature has refined the definitions, typologies, and measurement instruments for commitment (Meyer & Allen, 1991; Meyer & Herscovitch, 2001), while integrating insights from burnout research (Maslach & Jackson, 1981; Schaufeli et al., 2002; Demerouti et al., 2001). Although often conceptualized as opposite constructs, organizational commitment and burnout can overlap in practice. In emerging economies, continuance and normative commitment anchored in obligation or lack of alternatives—may coexist with psychological exhaustion, blurring the boundaries between sustainable engagement and overinvestment.

Yet, existing research has paid limited attention to the mechanisms that may mitigate this paradox. Recent work highlights the role of contextual factors such as perceived organizational justice and empowering leadership, which can transform constrained commitment into more voluntary and sustainable involvement (Colquitt et al., 2021; Avolio & Yammarino, 2013). However, empirical evidence remains scarce in non-Western contexts, particularly in North Africa, where labor markets are characterized by precarious mobility and strong hierarchical dynamics.

This study seeks to fill this gap by analyzing the paradox of continuance commitment among Moroccan middle managers and operational employees. It does not aim to directly measure burnout using classical scales, but rather to identify signs of latent distress through responses to engagement-related questions that partially

overlap with certain burnout indicators. The objective is to examine how constrained attachment, while fostering expected organizational citizenship behaviors (OCB), may also be associated with implicit manifestations of discomfort. In addition, the study explores the mediating role of social justice and empowering leadership, which may alleviate this phenomenon and transform constraint-based commitment into more sustainable involvement.

Accordingly, the research is guided by the following central question:
To what extent can organizational commitment based on constraint and loyalty generate positive outcomes in terms of citizenship behaviors, while concealing latent distress likely to undermine employees' psychological health and long-term performance?

2. Literature Review

This study draws on a theoretical framework structured around three core dimensions: organizational commitment in its affective, normative, and continuance forms; organizational citizenship behaviors (OCB) recontextualized within Moroccan cultural specificities; and two key mediating levers—leadership and social justice. By articulating these elements, our objective is to better understand the drivers of middle managers' involvement in environments where recognition, fairness, and managerial quality are critical. The following sections present a review of existing research, the formulation of hypotheses, and the proposed research model.

"Performance-Enhancing" Organizational Citizenship Behaviors

In his multifactorial model of performance, Campbell (1990) emphasizes that performance extends beyond task proficiency. It also includes behaviors such as rule compliance, punctuality, attendance, and the ability to foster cooperation among colleagues. This perspective aligns with Borman and Motowidlo's (1993) concept of contextual performance—actions undertaken beyond formal job requirements, driven by discretionary effort. Examples include voluntarily assisting overburdened colleagues, adhering to organizational rules even in disagreement, or personally investing time to advance organizational objectives.

The notion of OCB is closely linked to the "willingness to cooperate" (Katz, 1964), particularly through spontaneous, proactive, and innovative behaviors. The concept was formalized in the early 1980s by Organ and collaborators (Organ, 1988; Smith, Organ & Near, 1983; Bateman & Organ, 1983), who defined OCB as discretionary actions not mandated by formal contracts nor penalized in their absence, yet contributing significantly to organizational effectiveness. Organ (1988) identifies several dimensions of OCB:

- Altruism: Voluntarily helping a colleague facing workload pressure.
- Conscientiousness: Rigorously following organizational procedures, such as safety protocols, even without supervision.
- Civic virtue: Active participation in company events or committees aimed at organizational improvement.
- Courtesy: Informing colleagues in advance of delays to prevent disruption.
- Sportsmanship: Accepting inconveniences, such as schedule changes, without complaint.

Podsakoff, Ahearne, and MacKenzie (1997) argue that sportsmanship boosts group morale and reduces turnover, while courtesy mitigates intergroup conflict (Paillé, 2007; Podsakoff et al., 2000). Civic virtue reflects strong organizational attachment and a willingness to engage in organizational projects (Graham, 1991). Paillé (2007) classifies OCB into two categories: (1) individual-oriented behaviors (altruism, cooperation, courtesy) and (2) organization-oriented behaviors (compliance, sportsmanship, civic virtue). His study in a French context found that employees exhibit both types of behaviors, although team spirit–related behaviors are not always the most salient, and that affective commitment is not systematically linked to OCB attributes.

Although OCB is recognized as a multidimensional construct, there is no consensus regarding the universality of its attributes, suggesting that cultural context plays a significant role in shaping its expression.

Commitment and Its Different Forms

Organizational commitment is defined by Mowday, Porter, and Steers (1982) as an employee's identification with and involvement in the organization, reflected in loyalty, willingness to exert effort, and desire to remain. Committed employees align with organizational values, seek career progression within the firm, and go beyond role requirements. Meyer and Allen (1991) refined this definition by proposing a three-dimensional model:

- Affective commitment – Emotional attachment and value alignment; the employee remains because they want to.
- Continuance commitment – Calculative attachment based on perceived costs of leaving; the employee stays because they have to.
- Normative commitment – Obligation-driven attachment rooted in moral or social duty; the employee remains because they ought to.

Despite extensive global research, organizational commitment remains underexplored in Morocco. A study of 75 public-sector employees by Côme and Yassine (2015) found that certain managerial practices enhance affective attachment, positively impacting performance. Affective and normative commitments were significantly correlated with performance, whereas continuance commitment was not—a result likely explained by the job stability inherent to Morocco's public sector.

Qualitative research by Akhlaffou, El Wazani, and Souaf (2017) identified trust as a critical lever of productive behavior. Ait Alla and Rajaa (2018) reported a correlation between organizational involvement and factors such as skill development and working conditions, though without distinguishing between commitment types. Overall, the limited available studies suggest that affective commitment is the most influential dimension for employee performance in Morocco, with calculative and normative forms playing secondary roles.

Mediating Factors: Leadership and Social Justice (enriched)

Leadership: Leadership is a central mechanism shaping the relationship between commitment and organizational citizenship behaviors. Burns (1978) defines leadership as an influence process rooted in moral values, aimed at fostering profound and lasting change. Bass (1985) extended this perspective through transformational leadership, which inspires employees to exceed formal job requirements by promoting vision, empowerment, and individualized support. Transformational leaders influence discretionary behaviors such as OCB by fostering motivation, emotional attachment, and a sense of purpose (Neveu, 2004; Saint-Michel & Wielhorski, 2011).

Leader–Member Exchange (LMX) theory (Scandura & Graen, 1984) further highlights the importance of high-quality dyadic relationships. In LMX, leaders provide resources, recognition, and developmental opportunities, which strengthen trust and commitment. Empirical studies show that LMX quality positively correlates with affective commitment and OCB, while reducing turnover intentions (Hui et al., 2013; Kent & Chelladurai, 2001; Lowe et al., 2013). Recent research in North African and Middle Eastern contexts (Ben Hassen et al., 2022; El Idrissi, 2023) indicates that leaders who combine transformational behaviors with fairness and empowerment are more likely to encourage voluntary cooperation, even in environments where employees' commitment is primarily constrained by necessity.

Leadership can therefore mediate the link between all forms of commitment and OCB:

- Affective commitment may be reinforced by inspirational and supportive leadership.
- Continuance commitment can be guided toward positive discretionary behaviors when leaders provide recognition and structured support.
- Normative commitment may translate into citizenship behaviors when leaders emphasize ethical values and social responsibility.

Hypotheses

H1: Affective commitment, mediated by leadership, predicts OCB
H2: Continuance commitment, mediated by leadership, predicts OCB
H3: Normative commitment, mediated by leadership, predicts OCB

Social Justice: Perceived organizational justice is another critical mediator in the commitment-OCB–OCB relationship. Equity theory (Adams, 1965; Homans, 1958) suggests that employees evaluate the fairness of organizational practices by comparing their inputs (effort, skills) to outcomes (rewards, recognition). Perceived imbalances may generate dissatisfaction, withdrawal behaviors, or reduced discretionary effort. Conversely, perceived fairness enhances engagement and discretionary behaviors such as OCB (Moorman, 1991; Organ, 1988; Colquitt et al., 2021).
Organizational justice is commonly conceptualized in three dimensions (Cropanzano et al., 2003):

- Distributive justice – fairness in the allocation of outcomes such as promotions, pay, or recognition,
- Procedural justice – fairness in decision-making processes, transparency, and consistency,
- Interactional justice – quality of interpersonal treatment, respect, and communication from supervisors.

Recent studies in Moroccan and North African contexts (El Idrissi, 2023; Ben Hassen et al., 2022) demonstrate that perceptions of justice strongly influence both affective and normative commitment. Employees who perceive high fairness are more willing to invest discretionary effort, help colleagues, and engage in organizational projects beyond their formal roles. Justice can also transform constrained continuance commitment into voluntary prosocial behaviors, mitigating the risk of latent burnout and disengagement.

Hypotheses
H4: Affective commitment, mediated by social justice, predicts OCB
H5: Continuance commitment, mediated by social justice, predicts OCB
H6: Normative commitment, mediated by social justice, predicts OCB

Burnout Measurement Tools and Conceptual Linkages with Commitment
Although this study does not directly focus on burnout, certain items from established burnout measurement tools provide valuable insights into the potential psychological strain associated with different commitment profiles. Burnout, as conceptualized by Maslach and Jackson (1981), is a response to chronic workplace stress and is typically assessed across three dimensions: emotional exhaustion, depersonalization, and reduced personal accomplishment. The Maslach Burnout Inventory (MBI) remains a widely used reference, despite some sector-specific limitations (Shirom, 2003).

The Oldenburg Burnout Inventory (OLBI), developed by Demerouti et al. (2001), extends the assessment to two general dimensions—exhaustion and disengagement—and incorporates both positively and negatively worded items. In the present study, these instruments serve as conceptual reference points to interpret certain patterns observed in the commitment measures derived from the Meyer and Allen (1991) scale.

Cross-analysis reveals conceptual proximity between some continuance commitment items and indicators of exhaustion, suggesting that employees exhibiting a dominant continuance commitment combined with low affective and normative commitment may be experiencing latent psychological strain. This approach allows the study to acknowledge the potential negative consequences of constrained commitment without framing burnout as a measured outcome.
H7: Continuance commitment, when not counterbalanced by substantial affective or normative commitment, is associated with indicators of latent psychological strain.

3. Methodology

Research objectives and strategy
This study aims to examine the dynamics between organizational commitment, perceived social justice, leadership, and organizational citizenship behaviors (OCB) in Moroccan organizations. Beyond a linear reading of these relationships, the objective is to capture the complexity of different forms of commitment—affective, normative, or continuance—and to analyze whether they reflect authentic engagement or, conversely, constrained and ambivalent loyalty.

Special attention is given to the transferability of classical OCB dimensions, initially conceptualized in North American contexts (Organ, 1988; Podsakoff et al., 2000), to the Moroccan environment. Through consultation

with HR directors, additional context-specific attributes—such as compliance and hierarchical obedience—were identified and integrated into the model.

The empirical strategy combines quantitative rigor with contextual sensitivity: internationally validated measurement instruments were linguistically and culturally adapted, and the research design explicitly considered cultural, religious, and organizational specificities (e.g., hierarchical norms, the Ramadan period).

Sample and procedure

The empirical study was conducted with 220 middle managers and operational employees from Moroccan organizations, drawn from an initial pool of 300 potential respondents (response rate of 74%). The sample was deliberately limited to large private and semi-public companies operating in sectors such as energy, mining, finance, and insurance. These organizations were selected because they rely on formalized HR systems (performance evaluations, structured career paths), offering more reliable conditions for studying commitment and citizenship behaviors.

SMEs were excluded due to their often-informal practices and limited capacity to institutionalize HR policies, which could have introduced difficult-to-control variability.
Participants were middle managers with at least ten years of experience and supervisory responsibilities—a particularly relevant group as they are both subject to hierarchical expectations and responsible for mobilizing discretionary behaviors in their teams.

Data collection was carried out mainly through paper questionnaires administered between September and December 2024. Follow-up phone calls were made to clarify ambiguous responses, especially those related to the translation of certain items into Arabic, ensuring semantic accuracy. The pace of data collection slowed during Ramadan, a factor that was integrated into the survey schedule. Participation was voluntary and anonymous, ensuring confidentiality, reducing social desirability bias, and strengthening data reliability.

Measurement instruments

To test the research model, we used internationally validated scales adapted to the Moroccan context, both linguistically and culturally. All items were measured on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Reliability analyses produced satisfactory results, with Cronbach's alpha coefficients ranging from 0.72 to 0.89 across the scales.

Organizational commitment: Organizational commitment was measured using the short version of Meyer and Allen's (1990) scale, adapted by Iverson and Buttigieg (1999). This 12-item instrument captures the three classical dimensions: Affective commitment (emotional attachment to the organization), normative commitment (moral obligation to remain) and continuance commitment (cost–benefit rationale for remaining in the organization).

Organizational citizenship behaviors (OCB): OCB was measured with a multidimensional scale adapted from Organ (1988), Podsakoff et al. (2000), and Paillé (2007). After validation by a panel of seven Moroccan HR directors, additional culturally relevant items were incorporated, leading to six key attributes:

- Altruism
- Conscientiousness
- Civic virtue
- Courtesy
- Sportsmanship
- Compliance / hierarchical obedience (specific to the Moroccan context).

The inclusion of compliance reflects Moroccan organizational norms, shaped by culture, religion, and colonial heritage, where "good citizenship" is often associated with loyalty and obedience to authority rather than discretionary initiative. The final scale included 28 items (24 from Podsakoff's model and 4 new items linked to compliance).

Perceived social justice: Perceived organizational justice was measured using a 10-item adapted version of Moorman's (1991) questionnaire, covering three dimensions: Distributive justice (fairness of outcomes), procedural justice (fairness of processes) and interactional justice (quality of interpersonal treatment)

The measure was translated into French and Arabic, with special attention to semantic nuances (e.g., "justice" vs. "equity") to ensure better cultural validity.

Leadership: Leadership was measured using the LMX (Leader–Member Exchange) scale developed by Scandura and Graen (1984). This six-item scale evaluates the quality of the leader–subordinate relationship, including trust, recognition, support, and reciprocity. The instrument was chosen for its conciseness and relevance in hierarchical contexts, where relational quality often outweighs formal empowerment.

Data analysis

All calculations were performed using SPSS. The analyses identified plausible links between the different forms of organizational commitment and citizenship behaviors, while also verifying the relevance of contextualizing Morgan's OCB model, which is based on five attributes. Mediation effects were also computed and summarized to facilitate the readability and interpretation of the results. Finally, the reliability of the measures was confirmed with a Cronbach's alpha coefficient of 0.72, which is considered acceptable for this study.

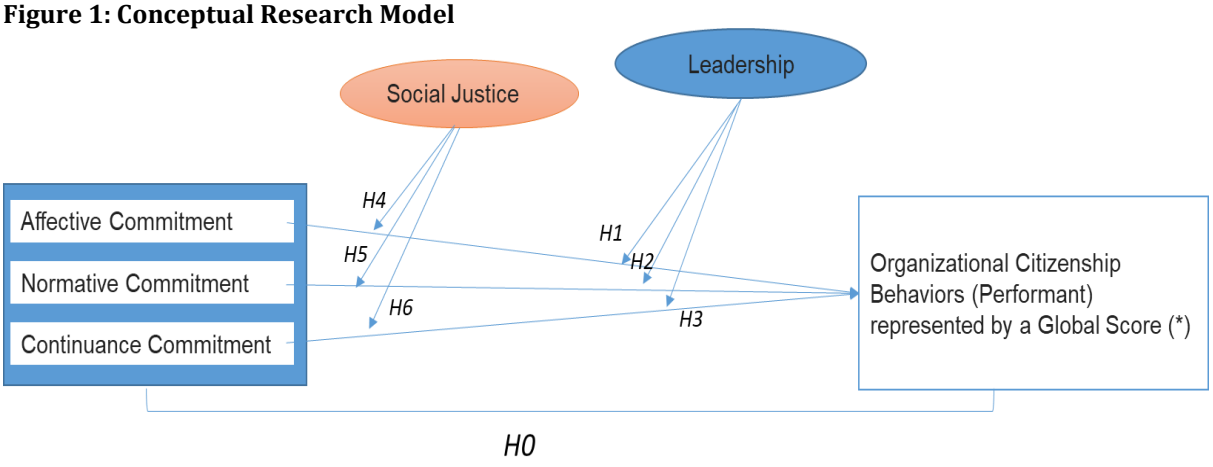
Conceptual research model

The proposed model (see Figure 1) postulates that:

- Organizational commitment (affective, normative, continuance) positively influences organizational citizenship behaviors.
- Leadership and perceived social justice act as mediators, shaping both the intensity and nature of this influence.
- Continuance commitment, though functional, may produce ambiguous effects on OCB.

By integrating both classical theories and context-specific adaptations, this methodological framework offers a nuanced and culturally grounded perspective on organizational dynamics in Morocco.

Figure 1: Conceptual Research Model



(*) The six attributes retained for this study are: Professionalism, Conformity, Consideration, Tolerance, Altruism, and Civic Spirit

Source: Author

4. Findings

The literature emphasizes a strong link between organizational commitment and discretionary, high-performing behaviors. Our study confirms this connection within the Moroccan context, while highlighting its specific characteristics and the mediating roles of leadership and social justice.

Commitment and High-Performing Behaviors

Initial analyses show that organizational commitment significantly predicts citizenship behaviors among Moroccan middle managers and operational staff. Correlation coefficients are notable, particularly for affective commitment (.337, p = .000) and continuance commitment (.458, p = .000), a stronger effect than observed in classical studies such as Organ (1988). This finding underscores the relevance of contextualizing the OCB construct, especially in environments where hierarchical obedience, cultural norms, and structural constraints shape employee behavior.

Interestingly, continuance commitment emerged as the strongest predictor, surpassing affective commitment. This contrasts with classical Western findings (Allen & Meyer, 1990) but aligns with recent studies in emerging economies (e.g., Singh et al., 2022; Zhao et al., 2023), where constrained labor markets and job insecurity enhance the behavioral impact of calculative attachment. In Morocco, operational employees—often technicians or supervisors—may demonstrate high commitment out of necessity rather than voluntary engagement.

Respondents report elevated levels of professionalism, altruism, civic virtue, courtesy, sportsmanship, and conformity, with conformity reflecting a cultural and historical expectation of hierarchical obedience. These results confirm the importance of including context-specific OCB attributes, as suggested by Hofstede's cultural dimensions (Hofstede et al., 2010) and recent MENA studies (El Idrissi et al., 2024).

The results can be summarized as follows:

Table 1: Correlation Matrices (Source: SPSS)

Corrélations

		Affective OCB Index	Continuance OCB Index	Normative OCB Index	Contextualized Global Score	Global Score According to Morgan's CI
Affective OCB Index	Pearson Correlation	1	,438**	0,008	,337**	,243**
	Sig. (2-tailed)		0,000	0,906	0,000	0,000
	N	220	220	220	220	220
Continuance OCB Index	Pearson Correlation	,438**	1	-,164*	,458**	,410**
	Sig. (2-tailed)	0,000		0,015	0,000	0,000
	N	220	220	220	220	220
Normative OCB Index	Pearson Correlation	0,008	-,164*	1	0,035	-,159*
	Sig. (2-tailed)	0,906	0,015		0,606	0,019
	N	220	220	220	220	220
Contextualized Global Score	Pearson Correlation	,337**	,458**	0,035	1	,721**
	Sig. (2-tailed)	0,000	0,000	0,606		0,000
	N	220	220	220	220	220
Global Score According to Morgan's CI	Pearson Correlation	,243**	,410**	-,159*	,721**	1
	Sig. (2-tailed)	0,000	0,000	0,019	0,000	
	N	220	220	220	220	220

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Following this, a separate mediation analysis was conducted for each of the two factors (social justice and leadership) across each form of commitment: affective, continuance, and normative (insignificant links are not presented).

Table 2: Summary of Results on the Mediating Effects of Social Justice and Leadership on the Commitment-High-Performing Behaviors Link (SPSS)

Calculations confirming the mediation effects (**)

Variable X	Variable Y	Effect of X on Y	Mediation variable M	c (Overall effect)	c' (Direct effect)	Coefficient a (Effect of X on M)	Coefficient b (Effect of M on Y)	Mediation effect (a*b)
Affective commitment	Performing behaviors (of citizenship) represented by an Overall Score (*)	Confirmed	Social Justice	c=.302 sig .019	c′=.112 sig .079	a= .412 sig.000	b=.461 sig .000	0.189
Affective commitment		Confirmed	Leadership	c=.302 sig .019	c′=.150 sig .019	a=.376 sig.000	b=.403 sig .000	0.151
Continuance commitment		Confirmed	Social Justice	c=.358 sig .000	c′=.267 sig .000	a=.226 sig.000	b= .405 sig .000	0.091
Continuance commitment		Confirmed	Leadership	c=.358 sig .000	c′=.280 sig .000	a=.217 sig.000	b=.360 sig .000	0.078
Normative commitment		*Insignificant link*	Social Justice	*NS (c=.038 sig .606)*	*Absence of significant link*			
Normative commitment		*Insignificant link*	Leadership	*NS (c=.038 sig .606)*	*Absence of significant link*			

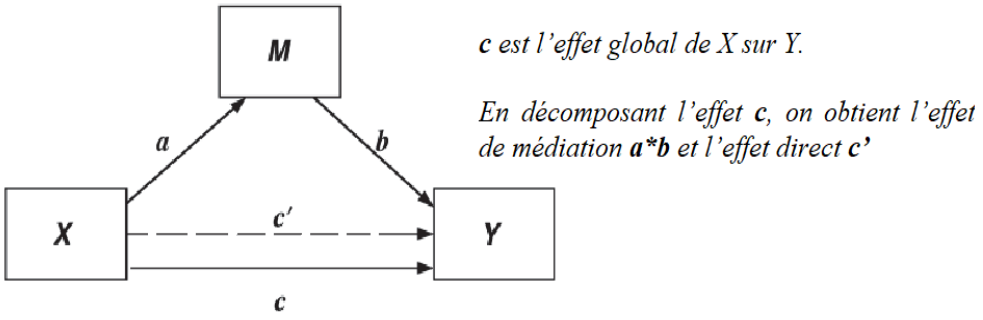
(*) Calculated based on the measurements of the six attributes: professionalism, conformity, consideration, tolerance, altruism, and civic-mindedness.

(**) Summary of calculations obtained from SPSS

Mediation Results of Social Justice and Leadership, with Additional Analysis on Burnout

Principles of Mediation: Definition and Methodological Approach
Before presenting empirical results, it is important to recall that the mediating effect of a variable (M) on the relationship between an independent variable (X) and a dependent variable (Y) is a frequent subject of study in management sciences. This mechanism, also called the indirect effect, refers to the idea that a mediator transmits the influence of X on Y (Baron & Kenny, 1986; MacKinnon, 2012; Shrout & Bolger, 2002). In the explanatory diagram below, this effect is represented by the product of coefficients a and b (i.e., a*b), corresponding respectively to the effect of X on M, then M on Y. A mediation effect is established when the total effect (c) is significantly reduced after introducing the mediator—that is, when the direct effect (c′) becomes smaller than the total effect. The results obtained not only confirm the presence of a mediation effect but also quantify its magnitude.

Figure 2: Definition of Mediation Effect According to Preacher and Hayes (2004)



In accordance with our theoretical model (see Figure 2), the analysis decomposes the total effect of affective commitment on citizenship behaviors, which includes the potential influence of mediating variables, into two components:
c′: the direct effect, obtained while controlling for the influence of mediators;
a*b: the indirect effect, reflecting the mediation pathway, estimated as the product of coefficients (link between commitment and mediator) and (link between mediator and citizenship behaviors).
Empirical results are as follows (see Table 2 summary above):

Findings of the Mediation Analysis
Mediation analyses reveal nuanced mechanisms by which commitment translates into citizenship behaviors. Following Baron & Kenny (1986) and Preacher & Hayes (2004), direct and indirect effects were estimated using SPSS, showing both full and partial mediation patterns.

Affective commitment: When introducing social justice as a mediator, the direct effect of affective commitment on citizenship behaviors becomes non-significant (c′ = .289, p = .079), indicating full mediation. Conversely, leadership partially mediates this relationship (c′ = .150, p = .019). These results suggest that operational employees, who are less frequently in direct contact with supervisors, respond more strongly to tangible fairness and equity in HR practices than to leadership alone.

Continuance commitment: For this form of commitment, both social justice and leadership partially mediate its effect on OCB. Direct effects remain significant after accounting for mediators (c′ = .267 for social justice; c′ = .280 for leadership, both p < .001), while indirect effects are also significant (ab for social justice = .226 * .405; ab for leadership = .217 * .360). These results highlight that even "necessity-driven" commitment can translate into discretionary behaviors when organizational policies are perceived as fair and managers provide support, consistent with studies on constrained labor markets (e.g., Khamis & Abdelkafi, 2021).

In the Moroccan context, particularly among middle managers and technicians, continuance commitment serves as a strategy for job security, yet organizational mechanisms such as procedural justice, equitable rewards, and supportive leadership can channel this commitment into positive behaviors. These findings align

with Podsakoff et al. (2000) and recent research in MENA countries, showing that organizational conditions moderate the translation of calculative attachment into prosocial behavior.

Additional Analysis on Burnout

While this study does not directly measure burnout, a cross-analysis of commitment items and burnout scales (MBI, OLBI) suggests the potential for latent professional strain. Specifically, dominant continuance commitment combined with low affective and normative commitment appears linked to psychological distress markers, such as emotional exhaustion or reduced personal accomplishment.

This pattern signals that high overall commitment, particularly in its continuance form, may mask underlying weariness. Employees may comply and demonstrate OCB out of obligation, fear of losing their position, or lack of alternatives, rather than genuine engagement. This observation resonates with contemporary literature highlighting the double-edged nature of commitment in constrained contexts (Nguyen et al., 2022; Al-Harthy & Al-Shaikh, 2023).

Comparison with engagement items reveals conceptual proximity to burnout indicators (see Table 3): statements such as "I feel like part of the family" or "I consider the organization's problems as my own" may simultaneously reflect loyalty and risk of emotional overload. Correlation analyses confirm that continuance commitment predominates, roughly twice as influential as affective commitment, while normative commitment is largely insignificant. These findings substantiate Hypothesis 7, suggesting that sustained, necessity-driven commitment can conceal professional suffering if not supported by affective and normative dimensions.

Hence, our results emphasize the importance of disaggregating commitment dimensions and linking them to well-being indicators. This approach allows managers to detect silent distress, prevent latent burnout, and adjust HR policies accordingly, a crucial insight for organizations in emerging economies with hierarchical and culturally influenced structures.

Table 3: Engagement vs. Burnout — Comparison of Measurement Items.

Dimensions	Typical Engagement Questions (Affective / Normative)	Typical Burnout Questions (MBI / OLBI)	Comments on the Overlap
Affective Engagement	I feel emotionally attached to this organization.	I feel emotionally drained by my work. (MBI)	Strong emotional investment, but risk of emotional exhaustion.
	I identify the organization's problems as my own.	I feel very fatigued during work. (OLBI)	Strong identification can lead to emotional overload.
	I feel like part of a family in this organization..	I wake up tired at the thought of facing a new workday. (MBI)	Strong attachment vs. chronic fatigue..
	Sometimes, I give so much that I neglect my own health.	I feel mentally and physically exhausted by my tasks. (OLBI)	Risk of overcommitment leading to burnout.
Normative Engagement	I feel that I owe a lot to my organization.	I keep working even when I'm exhausted because I feel obliged. (interpretative)	A sense of obligation that can be experienced as a psychological constraint.
	Leaving this organization would go against my moral principles.	I feel disengaged because I no longer freely choose to stay. (interpretative)	Moral obligation vs. latent disengagement..
	I would stay even if I no longer find satisfaction at work.	I feel an increasing mental distance from my work. (MBI/OLBI)	"Duty-driven" engagement can mask real disengagement.
	I would stay out of loyalty, even if it's difficult..	I treat some aspects of my work with cynicism or indifference. (MBI)	Conflicted loyalty may generate cynicism, a common burnout symptom.
Emotional Overlap	I feel a strong responsibility toward my organization.	I often feel emotionally tired from professional interactions. (MBI)	Strong moral responsibility can generate high emotional fatigue.
	I feel indebted to this organization for what it has given me.	I feel overwhelmed by the emotional load of my work. (OLBI)	A sense of obligation can become a factor of chronic stress.

Source: The author

5. Conclusion and Recommendations

This study, conducted among Moroccan middle managers in private and semi-public organizations, highlights a distinctive feature of organizational commitment in this context: continuance commitment largely predominates, while affective and normative commitment remain comparatively low. This pattern contrasts with classical findings in Western contexts (Allen & Meyer, 1990; Organ, 1988) and reflects local socio-economic constraints, such as job insecurity, limited professional mobility, and structural labor market rigidity (El Adraoui, 2025). Among operational employees—technicians and supervisors—commitment often manifests as a form of constrained attachment, driven more by necessity than voluntary engagement, whereas senior managers exhibit stronger affective and normative commitment.

Despite these constraints, employees demonstrate organizational citizenship behaviors (OCB) beyond formal role requirements. The addition of conformity as a culturally relevant OCB dimension, validated by a panel of HR directors, underscores the influence of Moroccan cultural specificities—including religious norms, hierarchical obedience, and colonial heritage—on workplace behavior. These findings support recent studies emphasizing the necessity of contextualizing classical engagement and OCB constructs in emerging economies (Singh et al., 2022; Zhao et al., 2023; Al-Harthy & Al-Shaikh, 2023).

The study further confirms the mediating roles of social justice and leadership in converting commitment into sustainable, high-performing behaviors. Social justice—through procedural fairness, equitable recognition, and transparent policies—emerges as a particularly effective lever for operational staff, while empowering leadership facilitates discretionary behaviors among middle and senior managers. These results align with recent research highlighting the critical interplay between managerial support, fairness, and engagement outcomes in non-Western contexts.

Importantly, a cross-analysis of engagement and burnout-related items reveals a latent risk: high continuance commitment, when not accompanied by sufficient affective or normative commitment, may mask psychological distress, including emotional exhaustion and disengagement. This finding stresses that global commitment scores can be misleading; managers need to deconstruct commitment into its dimensions and monitor potential signs of latent strain to prevent professional malaise and adapt HR practices accordingly (Nguyen et al., 2022; Al-Harthy & Al-Shaikh, 2023).

Practical implications of this study are clear: organizations in Morocco and similar contexts should implement engagement policies sensitive to local cultural and structural realities, prioritizing social justice, equitable HR practices, and humane leadership to balance performance and employee well-being. Policymakers and HR practitioners are encouraged to integrate contextualized OCB frameworks, including culturally salient dimensions such as conformity, into performance management systems, ensuring that commitment translates into sustainable organizational value without compromising psychological health.

In conclusion, effective engagement management in constrained contexts requires a dual approach: leveraging structural levers—justice, procedural fairness and relational levers—supportive, empowering leadership—while remaining attentive to potential latent burnout, thereby promoting a sustainable equilibrium between organizational performance and employee well-being.

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Domestic Debt and Growth of Credit To the Private Sector in Uganda

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Abstract: This study examines the effect of domestic debt on credit to the private sector, causality, and structural breaks in credit available for the private sector. Using the Auto Regressive Distributive Lag (ARDL) approach and two-step Granger causality test, evidence shows that domestic debt is negatively related to credit to the private sector in the short run as well as the long run. The study also finds a one-way Granger causality from private sector growth in credit to domestic debt, and it further reveals that the structural break variable significantly impacts credit to the private sector. The results indicate that, in the short run, private sector credit growth is positively influenced by its performance during the previous two quarters in that greater expansion of private lending during the previous quarters leads to greater private sector credit growth during the current period. Specifically, a one percent increase in Corporate credit in the most rerise in commercial cent past quarter increases current growth by 0.42 percentage points and by 0.2 percentage points for the second most recent quarter, while other variables are held constant. The study advises the government to monitor the amount of bank capital tied up in long-term government securities and avoid rapid policy reversals. Commercial banks should be cautious against over-investing in long-term government securities because rising domestic debt and declining growth in credit to the private sector can impose pressure on liquidity, and hence internal discipline on lending to government securities makes sense.

Keywords: *Domestic Debt, Private Sector Credit Growth, Uganda*

1. Background

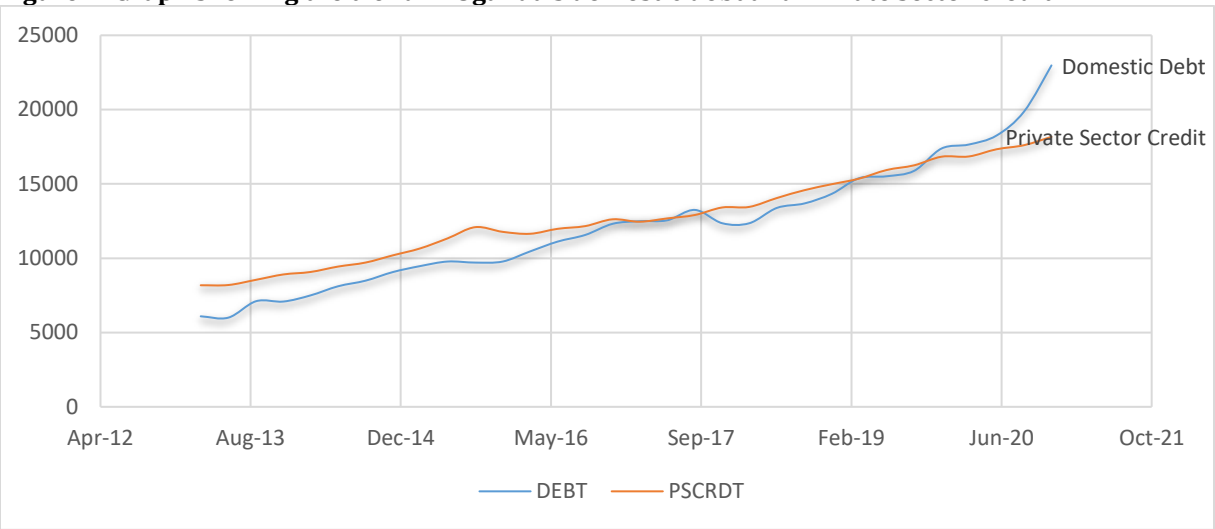
Private sector financing facilities are a fundamental force behind private enterprises' productive potential in economies worldwide (Silva, 2020). It has always been clearly shown from empirical analysis in multi-country and country-specific studies that rapid growth in private sector credit is the force behind movement towards private sector-driven economic growth significantly in developing nations (Kiriga, Chacha, & Omanyo, 2020). Those countries that fail to expand commercial loans risk constraining their businesses' productive potential, hence decelerating economic growth in general (Waeyenberge & Bargawi, 2018).

Tafirenyika (2016) further contributes that sluggish growth of the private sectors of African economies is one reason why the industrialization of the continent has been stagnant and exacerbates economic diseases like unemployment, poverty, and low incomes, and low revenues of the government from taxation. One key driver of such slow growth is constrained access of private companies to bank credit. This is a pattern that cuts right across Uganda, where despite three decades of adopting a private sector-led development strategy, the economy has not changed. Most private sector businesses remain informal, unorganized, and operate primarily as sole proprietorships (Ggoobi, Wabukala, & Ntayi, 2017). Correspondingly, the Ugandan government has actively invested in key production infrastructure such as electricity, roads, and security, seeking to provide an enabling environment for private business to flourish. In 2012, the government established a policy shift to borrow at home in order to finance its budget, hence having a considerable portion of government investment spending being financed through domestic debt from the same financial institutions lending to the private sector. Credit growth to the private sector has, during the past seven years, been minimal at 2.6%, allowing domestic debt, which grew at approximately 4.5% by the year 2019, to surpass private sector credit. Credit to the private sector stands at approximately 19.7 trillion shillings, while domestic debt stands at approximately 28.4 trillion shillings.

Theoretically, domestic debt is also one of the major constraining factors of credit availability to the private sector, as supported by a number of empirical exercises (Omodero, 2019; Silva, 2020). In instances where government borrowing is done locally, it competes with private enterprises for a limited amount of credit. Because government borrowing is considered to be more secure than lending to riskier private companies, credit requests from governments are preferred over private company requests by financial institutions. This

situation creates crowding-out as private sector businesses are excluded from acquiring funds, which can threaten their business. Domestic debt has, nonetheless, exceeded 28.4 trillion shillings and is still on the increase in Uganda, while private sector credit is still at 19.7 trillion shillings. This study utilizes the domestic debt crowding-out theory (Omodero, 2019) to examine the causal link between financing available to the private sector and domestic debt in Uganda.

Figure 1: Graph showing the trend in Uganda's domestic debt and Private sector credit.



From the graph, Uganda's domestic debt appears to move below private sector credit since 2012 until it finally exceeds it in 2019 and appears to diverge from it in 2020.

Statement of the Problem

Uganda is attempting to achieve higher economic growth over the long run by increasing private enterprises' capacity to produce more in a strategy known as private-sector-led growth. (World Bank, 2017). The government has started investing in cost-saving infrastructure to render the business climate conducive for private enterprises to expand. Because a big portion of the government investment expenditure is obtained from the same commercial banks that give loans to the private sector, the government devises expansionary plans, there is a growing problem of shrinking private sector credit in Uganda. This is risky because most private businesses utilize bank credit to grow and expand. (Nzibonera & Waggumbulizi, 2020). Private sector credit which has been growing at a mere 2.6% in the last seven years was outcompeted by government domestic debt that grew by 4.5% over the same period. Nampewo (2020) explains that a low level of growth in private sector credit can constrain growth in private sector investment and thus cause the nation to miss development targets. This is most likely to be happening in Uganda, since most private businesses are not able to access bank credit because it is costly. (Lakuma, Marty, & Muhumuza, 2019). A significant proportion of Small and Medium Enterprises (SMEs) that accessed bank credit have lost the collateral property to financial institutions because of default (Nzibonera & Waggumbulizi, 2020). Although it is theoretically clear that government borrowings can crowd out private investments in an economy by draining the available private sector credit (Traum & Yang, 2015)Empirical evidence to confirm or disprove this assertion in the Ugandan context is still scant. This study thus aimed to establish the effect of domestic debt on the rise of commercial credit in Uganda.

2. Literature Review

Overview of Private Sector Credit Performance in Uganda

Credit to the Ugandan private sector has been increasing over time, although at a continually diminishing rate (Nampewo, Tinyinondi, Kawooya, & Ssonko, 2016). Private sector credit between 2008 and 2020 increased from approximately 3,405 billion shillings to approximately 18,165 billion shillings, while the growth rate between the two years reduced from approximately 17% to 8% (Bank of Uganda, 2020). Domestic debt

increased to around 26,044 billion shillings (Kasule, 2022). Private sector credit in 2020 consisted of Ushs 11,536.9 billion in local currency and Ushs 6,293.2 billion in foreign currency equivalent (Nabiryo, 2021). Credit approval for the private sector alone for the final month of 2020 was Ushs 1,199 billion, representing 71.6% of that which had been sought (Ojangole, 2025). Sectoral credit disbursement in December 2020 had trade recording the largest percentage at 23%, followed by building, mortgage, construction, and real estate at 21%, and personal and household credits at 16% (Kasule, 2022). Credit to agriculture, trade, and manufacturing subsectors decreased in December 2020 to 8%, 23%, and 8% respectively (MoFPED, 2020), from 14%, 24%, and 13% posted in the previous month (Nabiryo, 2021).

Theoretical Underpinning of the Study

The Debt Theory

Under debt theory in the neoclassical school of thought, domestic government borrowing crowds out private sector credit when lending rates increase to levels that discourage private borrowing (Omodero, 2019). The reason is that lenders prefer lending to the government since it is safer compared to lending to private businesses. Crowding-out is in its most intense form when higher interest rates literally limit the government and government institutions from borrowing, keeping individual companies and businesses from even bidding on loans. This mechanism is also referred to as the price channel of debt crowding. Furthermore, debt theory explains that credit in the private sector can be limited through the quantity channel, where the hesitation of lenders to lend available funds to private individuals and businesses lowers the aggregate supply of credit to the sector.

The Investment Theory

Keynes, in the 1930s, developed the notion of an independent investment function within the economy, which later became the core of all investment theories (Agidew, 2014). Keynesian economics' contribution is that savings and investment, though theoretically equal, are determined by different decision-makers (Vianna, 2023). That means there can be no guarantee that savings and investment will always be equal (Ohlin, 2024). One approach supported by Keynesian theory is the accelerator theory, a neoclassical model that helps explain the way macroeconomic variables propel private investment (Kilindo, 2016; Oehmke & Opp, 2025). An example is the flexible accelerator model, which suggests that the higher the gap between actual and desired capital stock in a company, the higher the rate of investment needed to fill the gap (Vianna, 2023). Firms are assumed to aim at bridging the gap between their desired and actual capital stock stepwise (Cristiano & Marcuzzo, 2018). According to this structure, net investment can also span explanatory variables such as production, the price of external finance, and other determinants of the desired capital stock (Oehmke & Opp, 2025). This framework allows for the inclusion of domestic debt as an investment determinant, thus setting the proper basis for this study to examine (Ohlin, 2024).

The study selects these theories because they explain the state of the investment climate in Uganda. Government domestic debt is increasing rapidly above private sector credit, while businesses are failing to access credit or losing their collateral to the lenders, pointing to a possible crowding-out effect. At the same time, the continuous endeavor of businesses to seek credit even from the expensive lenders is indicative of their desire to increase their capital stock.

Empirical Literature Review

Numerous studies, both globally and across Africa, have investigated the impact of domestic debt on credit extended to the private sector. Most studies aim to determine if domestic debt reduces private investment in countries that incur large amounts of domestic borrowing. Some of the researchers concentrated on the influence of domestic debt on private sector bank credit as a proxy for private investment, while others employed real GDP as a proxy for investment. Most of the research employed econometric methods, and the findings were inconclusive: some explained that domestic debt crowds out private investment, while others provided proof that domestic debt has the capability to crowd in private investment in certain contexts.

The Effect of Domestic Debt on Private Sector Credit Growth

There were some studies globally and in Africa that examined the impact of domestic debt on private sector investment, and the question of interest is whether domestic borrowing reduces private sector credit. Moussa

and Shawawreh (2017) worked from 2000 to 2015 for Jordan and, using Ordinary Least Squares regression, concluded that domestic debt was relevant in the short term but not in the long term with respect to economic growth. Similarly, Gangadharan and Padmakumari (2016) used the ARDL approach on India's data covering 1980-2014 and discovered that domestic debt negatively affected economic growth in the short run but insignificantly affected it in the long run. Ozdemir and Gomez (2020) used a neoclassical model of investment function and the ARDL approach with data covering the period 1980-2013 for the Gambia and concluded that domestic debt exercised a negative impact on private investment in the short term but not in the long term. Perveen and Munir (2017), however, in Pakistan concluded a long-run crowding-out of domestic debt by bank credit using ARDL along with the theory of loanable funds. In Ghana, Anning, Ofori, and Affum (2016) also discovered that household debt reduced short-run investment estimates of OLS in the period 1990-2015. Similarly, Lidiema (2018) also discovered in Kenya that household borrowing from the government affected private capital construction in the short run and long run with the use of the ARDL model.

In Nigeria, only short-run borrowing by the government to private sector growth existed which was replaced with the application of Structural Vector Auto Regression, according to Ado and Ibrahim (2019). Okon and Osinimu (2017) and others (Adegboye, 2017; Oke-Bello & Toriola, 2019) also asserted that interest on domestic debt was high and substituted small and medium private investment over the short term. Aimola and Odhiambo (2018) and Asaleye, Oladipo, and Obasaju (2018) cointegration tests also validated that domestic debt could have a negative impact on long-run private sector credit and Nigerian total production. Crowding-out effects were short-run and long-run based on some research. For instance, Akomolafe et al. (2015) using Johansen cointegration and Vector Error Correction Models proved that domestic debt reduced domestic investment in Nigeria both in the short run and the long run, an assertion which was also stated by Nwaeze (2017). Yet, Omodero and Alpheaus (2019) using OLS observed a very significant positive short-run effect of domestic debt on private sector credit.

Similarly, research work such as Kelikume (2016) and Omodero (2019) did not record a crowding-out effect but a crowding-in effect where domestic debt of medium intensity stimulated private investment. Nepal (Katwal, 2017), Sri Lanka (Thilanka & Ranjith, 2018), and Nigeria (Didia & Ayokunle, 2020) also confirmed that domestic debt can stimulate private investment and economic growth if contained. In the East African setting, Babu et al. (2015) established that domestic debt encouraged investment and regional economic growth based on the Solow model of growth. Briefly, the evidence is not unidirectional: most of the studies concluded a short-run negative effect of domestic debt on private investment but long-run effects differ with various studies producing negative, positive, or zero effects. Based on the above findings, the primary research objective of this study is to analyze whether domestic debt has a significant impact on credit to the private sector in Uganda in the short run under the null hypothesis:
H_{01}: There is no short-run effect of domestic debt on credit to the private sector in Uganda. The second objective is toward the long-run impact, examining if domestic debt has a meaningful effect on private sector credit in the long term, as the evidence was conflicting in previous research.
H_{o2}: There is no significant long-run effect of domestic debt on private sector credit growth in Uganda.

Causal Direction Between Domestic Debt and Private Sector Credit Growth
While there is enough evidence to link domestic debt to total economic activity and investment (Fatás et al., 2019), the literature has been unable to hold strictly a causal effect from domestic debt to credit to the private sector (Panizza & Presbistero, 2014). Reverse causality is particularly problematic when dealing with the connection between debt and private sector credit. Keynesian policy prescriptions and neoclassical optimal policy theory generally advocate that governments should spend and borrow during bad times and save during good times. In the event of long-run investment shocks (Makhoba, Kaseeram, & Greyling, 2019), countercyclical fiscal policy can create a long-run negative debt-growth relationship, wherein low activity creates more debt rather than high debt creating less activity. Most macro theory would lead one to believe that rising fiscal deficits and the resulting debt should keep private investment down. Cross-country evidence, though, is largely correlation and not causation, and it is difficult to know with any certainty if domestic debt reduces private investment. Some empirical findings have indicated more direct proof.

Huang, Panizza and Varghese (2018) analyzed nearly 550,000 firms across 69 nations from 1998 to 2014 and demonstrated a crowding-out effect, depicting how public debt can restrict private investment. Similarly,

Huang, Pagano, and Panizza (2020) examined local government debt and investment by firms in Chinese cities and depicted how public debt reduces the capacity of private firms to access credit, influencing their investment decisions. In Kenya, Kimani and Olweny (2018) examined the effect of government domestic debt, as represented by Treasury bills and bonds, on private sector credit as an investment proxy. They found a one-way causality of private sector credit to Treasury bills, in that expansion in credit leads to issuance of government debt. Amaning and Seidu (2020) also found the presence of a causality from private investment to Treasury bills. Instructor: In Indonesia, Sijabat (2020) tested causality between debt and economic development (1998–2018) using the Granger causality test and confirmed one-way causality from economic growth to foreign debt. These results contradict South African findings by De Vita, Trachanas and Luo (2018) and Ncanywa and Masoga (2018), who found a two-way causal link between private investment and debt. In Nigeria, Adedoyin, Babalola, Otekunri, and Adeoti (2016) applied Granger causality to test for relationships between domestic and external debt, economic growth, and external debt and domestic debt and established bidirectional causation between external debt and GDP but not any causal effect between domestic debt and GDP or domestic and external debt.

Overall, there is inconsistent evidence regarding the causal relationship between domestic debt and private sector credit: some studies have supported unidirectional causality, while others have shown bidirectional causality. The majority of the studies apply Granger causality tests to examine these mechanisms. Despite the international attention, research activity remains extremely scarce for Uganda. Under the third goal, this study seeks to determine whether there is a causal relationship between growth in private sector credit and domestic debt in Uganda under the null hypothesis.
H_{o3}: There is no causal direction between domestic debt and an increase in private borrowing in Uganda.

Structural Break And Private Sector Credit Growth
A structural break is thought of as an unanticipated change in a data series and could affect the values of parameter estimates. This study hopes to take hold of a shift in government debt policy in 2012, represent it as a structural break, and estimate its effect on private sector credit growth. While most of the reviewed studies are unanimous in their findings regarding a positive or negative effect of debt on domestic credit, none of them incorporates the effects of structural breaks. According to Eke, Eke, and Inyang (2015), the consequence of ignoring structural breaks when they actually do occur in economic relationships includes parameter bias resulting from model misspecification. This study will answer its objective number three by testing the following hypothesis;
H_{o4}: There is no significant effect of a structural break on private sector credit growth in Uganda.

3. Methodology

Research Design
The research applied a longitudinal study design with the quantitative method from 2006 - 2020. The design helps in the establishment of the relationships between variables as well as hypothesis testing for the effects of variables on other variables. This type of study design helps in the successful achievement of the study objectives.

Data Types and Sources
The study utilized secondary time series data. This is due to the fact that the variables to be examined are national aggregates whose data already exist in the national databases. Time series data were utilized as the study investigates one phenomenon over a defined period of time. Data were collected from the Bank of Uganda Website. These time series data were of quarterly frequency, ranging from the periods 2006q3 – 2020q4, i.e., approximately 58 quarters of fiscal years, which effectively encompass the pre- and post-policy-change period of domestic borrowing induced by monetary policy to deficit budget financing.

Model Specification
The study modified the private sector credit function modeled by Omodero (2019) to include variables important for Uganda's context as follows.
PSCG = f (DBT, LNT, INF, Dummy_DBT) …… (1)

Where: PSCG is Public Sector Credit Growth; DBT is Domestic debt, LNT is lending interest rate, INF is inflation, and Dummy_DBT is a dummy variable for the structural break proxying the policy shift to deficit budget financing.

The econometric form of the model in equation 1 will be expressed as

$\ln PSCG_t = \alpha_0 + \beta_1 \ln DBT_t + \beta_2 \ln LNT_t + \beta_3 \ln INF_t + \beta_4 \text{ Dummy_DBT} + \epsilon_t$ ……..(2)

Where t represents time, α is the model intercept, the βs are parameter estimates, and ϵ is the error term of the model. Ln is for natural log.

Variable Description and Data Source

The variables are defined according to the official definition of the Bank of Uganda, from where they were extracted. These are represented in the table below.

Table 1: Variable Description, Data Type and Source

Variables	Definition	A priori Expectation	Data Source
PSCG	Private sector credit Growth is the growth rate in loans borrowed by the private sector from financial corporations.	N/A	Bank of Uganda
DBT	Domestic Debt is Defined as the stock of Uganda shilling-denominated liabilities excluding the stock of domestic arrears, it includes Uganda shilling-denominated central government securities.	Negative	Bank of Uganda
LNT	It is the rate charged by lenders for a certain period as a percentage of the amount lent	Negative	Bank of Uganda
INF	Percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals	Negative	Bank of Uganda
Dummy_DBT	Dummy variable for the structural break	Positive / Negative	Computation

Source: Author's compilation

Model Analytical Techniques

Unit Root Tests

Before estimating the proposed model, the study used the ADF test (Dickey and Fuller, 1981) to test the variables for stationarity. If the unit root tests establish that the variables are not stationary individually, the study employs the ARDL cointegration method of Pesaran, Shin, and Smith (2001). The ADF test was employed because of its power and has a null hypothesis of non-stationarity, which will not be rejected if the t-statistic is larger than the critical values at any significance level. The unstable variables are the non-stationary variables and the stable variables are the stationary variables. Whether the variables in the model are stable or otherwise matters because it identifies the long-run relationship between them as well as the appropriate method of estimation.

Cointegration Test

The cointegration test was conducted in the research based on Gregory and Hansen (1996), which is a technique that factors in structural breaks. It is a better technique because standard ARDL bounds testing might not be valid where there are structural breaks. The Gregory and Hansen test is a test that tests the no hypothesis of no cointegration against the alternative hypothesis that cointegration exists with one regime shift at some point in time. The time of this shift is not specified but comes directly from the data. The test is able to ascertain whether or not changes occur within the intercept and/or the slope of the variables.

Granger Causality Test

The research conducted the Granger causality test between an increase in business credit access and domestic debt to answer the second research aim. Causality testing helps ascertain cause and effect between two (and above) variables. A variable, say X will be referred to as Granger-causing another variable, say Y if the past values of variable X possess the capability of explaining the present values of variable Y (Korsah & Gyimah, 2019). The null hypothesis for the test is that lagged x-values don't explain y-variability, and cannot be rejected if the corresponding F-statistic is less than the critical F-value. The model employed for the causality test was specified as in equations 3 and 4.

$PSCG_t = \Sigma\, \pi i\ LnDBT_{t-1} + \Sigma\, \tau j\ LnPSCGT_{t-1} + \mu t$ …… (3)

$DBT_t = \Sigma\, \alpha i\ LnPSCG_{t-1} + \Sigma\, \delta j\ LnDBT_{t-1} + \mu t$ …….. (4)

Where $\pi i = 0$, $\tau j \neq 0$, $\alpha i = 0$ and $\delta j \neq 0$.

Model Estimation

The ARDL model was used in the current paper. The unit root tests indicated that the variables under study were of mixed orders of integration and therefore the ARDL approach was most appropriate to use. ARDL is an advantage in the sense that it offers short-run and long-run estimates, and the approach also addresses feedback effects. Pesaran, Shin, and Smith (2001) constructed an ARDL model that contains a Bounds test for Cointegration to analyze long-run relationships and dynamic linkages between the variables. It is more powerful than the standard cointegration tests in determining the cointegrating vectors. The ARDL also generates, through a linear transformation, an Error Correction Model (ECM) that is used to include short-run corrections to the long-run equilibrium. It does this without losing long-run information since it is taking sufficient lags to cover the data-generating process in general, as well as to specific model specifications. The ARDL approach is also appropriate for the smaller samples like the one to be used here and can always be used whenever the underlying regressors are integrated of any order less than I(2).

The study thus transformed equation 2 into the ARDL form as presented in equation 5 below.

$\Delta LnPSCG_t = \alpha_0 + \beta_1\ LnDBT_{t-1} + \beta_2\ LnLNT_{t-1} + \beta_3\ LnINF_{t-1} + \beta_4\ Dummy_DBT_{t-1} + \sum_{i=1}^{n} \theta_1\, \Delta LnPSCG_{t-i} + \sum_{i=1}^{n} \theta_2\, \Delta LnDBT_{t-i} + \sum_{i=1}^{n} \theta_3\, \Delta LnLNT_{t-i} + \sum_{i=1}^{n} \theta_4\, \Delta LnINF_{t-i} + \sum_{i=1}^{n} \theta_5\, \Delta Dummy_DBT_{t-i}\ \mu ECT_{t-1} + \varepsilon_t$…(5)

Where θ_1, θ_2, θ_3, and θ_4 are the short-run dynamic coefficients, and $\boldsymbol{\mu}$ is the coefficient of speed of adjustment, which is expected to have a negative sign. *ECT* is the Error correction term. Δ represents the difference factor, while Ln shows the natural log form. $\boldsymbol{\varepsilon_t}$ is the error term.

Diagnostic Tests

Serial Correlation

The study examined serial correlation to ensure that the residuals were not related to their past values. The Breusch-Godfrey LM test was applied because it provides direct detection of autocorrelation. This method was preferred since the Durbin-Watson h-test often underestimates autocorrelation.

Normality Test

The study tested for normality to confirm that the error terms followed a normal distribution. It employed the Skewness and Kurtosis test to evaluate the residuals. The decision was based on whether the test statistics were significant at the 5% level.

Multicollinearity Test

The study assessed multicollinearity to check whether independent variables were highly correlated. It relied on pairwise correlations, tolerance values, and the Variance Inflation Factor (VIF). The thresholds used were tolerance values below 0.2 and VIF values above 10.

Data Analysis

After downloading the data, it was put into a Microsoft Excel spreadsheet, whereby it was arranged chronologically, and the different variables were properly labelled with distinct variable names. The researcher ensured that all data points remained as numeric entries, and the data were later transferred into the STATA statistical package for analysis. During the analysis, descriptive statistics of the data were extracted in an effort to comprehend the nature of the variables' distribution. Correlation analysis was also performed in an effort to

test for the nature of relationships between the study variables. The data collected in this research were strictly used only for academic purposes.

4. Findings

Pre-Estimation Diagnostic Tests

Stationarity Tests on the Model Variables

Stationarity of the model variables was also tested using the ADF test, which is widely applied in the literature. The ADF test employs the null hypothesis that a given time series possesses a unit root and tests for unit roots. If the value of the t-statistic is lower than the critical value under the level of significance 5%, the null hypothesis cannot be rejected. For the sake of this study, variables were subjected to unit roots both in levels and first differences, as shown in Table 2 below.

Table 2: ADF test results

ADF			
Variables	**Levels**	**First difference**	**Integration**
LnPSCG	-4.076***	-	I(0)
LnDBT	-0.314	-5.530***	I(1)
LnLNT	-2.054	-7.373***	I(1)
LnINF	-3.329**	-	I(0)

Source: Researcher's computation using secondary data

The findings in Table 2 indicate that while some variables (LnPSCG and LnINF) are level-stable (order zero I(0) integrated), other variables become stable only after once-differencing (LnDBT and LnLNT) (they are I(1) integrated). The results thus indicate the concerned variables are of mixed orders of integration. This then means LnPSCG and LnINF have no unit root, but DBT and LNT have a unit root.

The Test For Cointegration

After considering the possible structural breaks in the data, the paper employed Gregory and Hansen's (1996) ARDL cointegration test to test for long-run relationships between the variables. Since traditional limit tests are unreliable when structural breaks are present, the test is best employed in ARDL models. The Gregory and Hansen method compares the potential for cointegration under a unique, unspecified change in regime with the null of no cointegration using an extension of the conventional ADF, Zα, and Zt tests. The evidence is used to estimate the change date, which is not predetermined. The final model is selected by using an information criterion to identify the most suitable lag length, and the test includes the intercept and/or slope change in the variables.

Table 3: Cointegration test results

Model	ADF	Break Date	Critical Value (5%)
Model One: (Constant)	-6.98**	2011q3	-5.28
Model Two: (Constant & Trend)	-7.03**	2011q3	-5.57
Model Three: (Constant & Slope)	-7.14**	2012q2	-6.00

** Indicates significance at 5% level. Source: Researcher's ARDL computation using secondary data

Table 3 indicates the findings of the Gregory-Hansen cointegration test, presented in terms of the ADF statistic of the Gregory-Hansen approach. Among the estimated models, Model Three best described the interaction between LnPSCG and the independent variables as it posted the highest absolute value of the ADF. This model

picked up on changes in the slope and intercept, as well as using the fewest lags according to the Schwarz Information Criterion (SIC), rendering it the most suitable choice. Samour and Isiksal (2020) cite that the SIC is beneficial in determining the optimal length of a lag, especially with small samples of time series. The ADF statistic confirmed that the variables are cointegrated and there is a structural break occurring in the second quarter of 2012. This break coincides with a policy shift by the government, when local borrowing began being used to finance the budget rather than for monetary stability. In order to account for this change, the study incorporated a dummy variable in the ARDL model equal to 0 before 2012Q2 and 1 after.

Serial Correlation Test

To check for serial correlation in the model, the Breusch-Godfrey LM test was employed. The test, under the null hypothesis, relies on the assumption that there is no serial correlation. The hypothesis would be rejected using a chi-square statistic and a 5% significance level. The null hypothesis was, however, held since the calculated chi-square statistic of 0.065 was not significant at 5%. This showed serial uncorrelation in the model. Section 4.3 provides a complete presentation of results.

Heteroscedasticity Test

To determine whether heteroscedasticity existed in the model, the Breusch-Pagan test was used. In this instance, constant variance (no heteroscedasticity) is the null hypothesis. The null hypothesis is not rejected if the chi-square statistic is not significant at the 5% level. The null could not be rejected in this instance since the chi-square value (0.00) was not significant at the 5% level. As a result, the model was determined to be heteroscedastic. Table 4 tabulates the results.

Table 4: Serial correlation and Heteroscedasticity test results

Test	lags(p)	Chi(2)	df	Prob.
B-Godfrey test	1	0.065	1	0.7981
Breusch-Pagan		0.00		0.9708

Source: Researcher's computation using secondary data

Test For Normality of Residuals

The Skewness & Kurtosis test for Normality was used in the study to examine the distribution of residuals in the model. The residuals are assumed to have a normal distribution by Ordinary Least Squares (OLS). Normalcy is the test's null hypothesis. The null hypothesis is accepted if the chi-square value, skewness, and kurtosis values are not significant at the 5% significance level. Table 5 presents the findings.

Table 5: Skewness & Kurtosis tests for Normality results

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
Residuals	58	0.4287	0.0001	12.84	0.0016

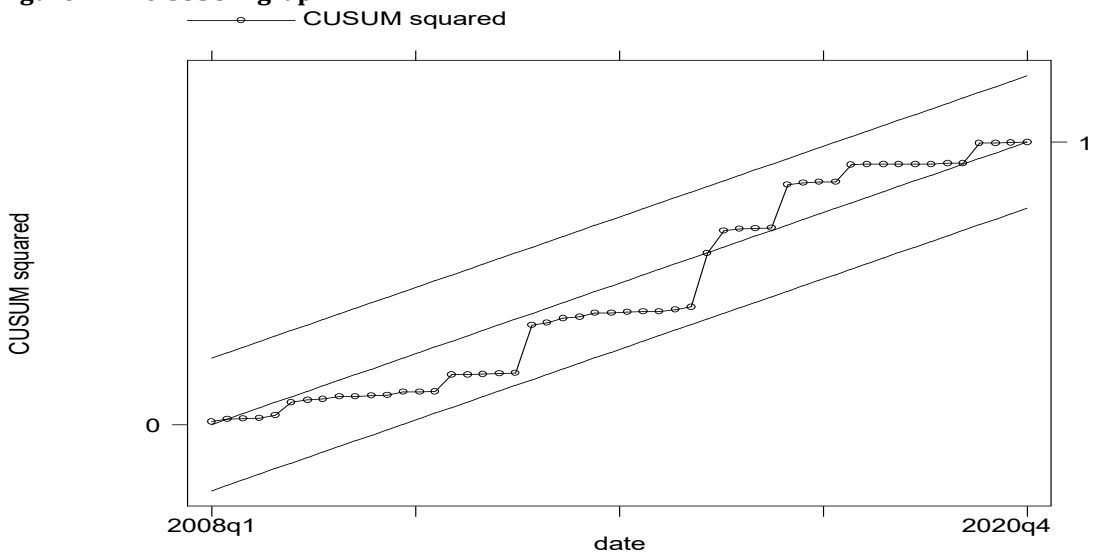
Ho: Normality. Source: Researcher's computation using secondary data

Table 5 findings show that the chi-square statistic, as well as skewness and kurtosis measures, are all significantly different from zero at the 1% level. This is the indication of rejection of the null hypothesis for normality, thus showing that model error terms are not normally distributed. Such non-normality is common in studies involving small samples, and it is most likely that the small dataset used in the case here resulted in it. However, as Maydeu (2017) indicates, non-normal residuals do not invalidate parameter estimates if other issues like heteroscedasticity do not arise. Provided that no other econometric problems were detected, the study concluded that non-normality of the residuals does not invalidate the model.

Test For Model Stability

The purpose of the test was to determine the stability of the estimated model. The test known as Cumulative Sum (CUSUM) was applied. Plotting recursive regression residuals against potential model break points under 5% critical boundaries of significance serves as the basis for the test. If the CUSUM of residuals falls under the 5% crucial boundaries, the model will continue to be stable. Figure 2 below shows a graphic representation of the test results.

Figure 2: The CUSUM graph



The graph shows that the CUSUM of residuals, represented by the dotted line, stays within the two parallel lines marking the upper and lower 5% critical limits. Since the CUSUM remains inside these bounds, it indicates that the model is stable.

The Test For Multicollinearity

According to reports, multicollinearity can develop in a regression model when one or more independent variables exhibit strong correlations with one or more independent variables. This can lower the statistical significance and reliability of the variables involved. By first creating a correlation matrix for the independent variables and then figuring out the Variance Inflation Factor (VIF) for each variable, multicollinearity was investigated in the current study. The results are shown as follows:

Table 6: Pairwise correlation analysis results

	LnPSCG	LnDBT	LnLNT	LnINF
LnPSCG	1.0000			
LnDBT	-0.4154*	1.0000		
LnLNT	-0.4394*	0.1033*	1.0000	
LnINF	0.0636	-0.5516*	0.3466*	1.0000

* Indicates significance at the 0.05 level. Source: Researcher's computation using secondary data

Following the directive of Gujarati & Porter (2009) that whenever correlation of ±0.8 or higher indicates a serious multicollinearity problem, Table 6 is the correlation matrix and it shows that all the variables have coefficients below this threshold. Thus, extremely severe multicollinearity does not exist. To validate, the study computed the Variance Inflation Factor (VIF) for each independent variable in the model, the outcome of which is presented as follows:

Table 7: VIF Results

Variable	VIF	1/VIF
LnINF	1.88	0.531090
LnDBT	1.67	0.597168
LnLNT	1.32	0.755164
Mean VIF	1.63	

Source: Researcher's computation using secondary data

Suleiman (2019) states that to exclude the possibility of significant multicollinearity in the model, tolerance values should be greater than 0.2 and VIF values should be less than 10. It is evident from the data in Table 4.3

that all tolerance values are over 0.2 and all variable VIFs are less than 10. According to the study's findings, the variables would be incorporated into the model as a whole and would not result in robust multicollinearity.

Descriptive Evidence of The Study

To give a broad overview of the type of data, descriptive statistics were calculated. This was done to make sure the data was suitable for estimation; otherwise, the findings would be deceptive. Specifically, a table of numbers with the mean, minimum, maximum, and standard deviation was calculated. The STATA package, version 14, was used for data processing and analysis.

Summary Statistics of Study Variables

The summary statistics of the study variables are presented in Table 8 below, outlining the mean, maximum values, minimum values, and the standard deviations.

Table 8: Summary of study variables

Variables	Observations	Mean	Standard Deviation	Minimum	Maximum
PSCG	58	4.368448	3.846434	-2.59893	16.99861
DBT	58	8405.878	5637.209	1906.527	23704.29
LNT	58	21.34249	2.183922	18.49017	27.21843
INF	58	6.725059	4.423825	1.181527	22.35116

Source: Researcher's computation using secondary data

The descriptive analysis's primary goal was to determine how closely the observed data points matched the model. The findings indicate that the data are concentrated around the averages because the standard deviations are moderate when compared to the mean values. Despite their exceptional size, the standard deviations of the various variables in this study represent the usual variations in the economic circumstances of credit to the private sector. The small number of observations may be responsible for some of this variation (58). The study converted the variables to their logarithmic scales in order to lessen the effect of these variations.

Test For Granger Causality

Following the ARDL procedure's determination of the variables' long-term association, the study aimed to determine the direction of causality. Cointegration does not indicate the direction of the relationship, but it does imply that Granger causality would exist. The study used the paired Granger causality test to test causal relationships in a VAR system in order to prove this.

Table 9: Granger causality test results

Null Hypothesis	Chi2	Prob > chi2
LnDBT does not Granger-cause LnPSCG	5.5366**	0.019
LnPSCG does not Granger-cause LnDBT	1.0161	0.313

Notes: Sample period = 2006q4 - 2020q4, Number of observations = 57. Source: Researcher's computation using secondary data

Because the corresponding chi-square value is significant at the 5% level, the Granger causality test results show that the null hypothesis that LnDBT does not Granger-cause LnPSCG in the first equation can be rejected. Accordingly, household debt generates expansion in private sector credit. Since the chi-square value in the second equation is not significant, the null hypothesis—that LnPSCG does not Granger-cause LnDBT—cannot be rejected. This suggests that domestic debt is not Granger-caused by an increase in private sector borrowing. The test usually shows a unidirectional causal relationship between domestic debt and the expansion of private sector credit.

Model Estimation and Results

Given the mixed stationarity of the variables and the comparatively shorter period of the series in this study, the most suitable estimation method was the ARDL method. The method was observed to cope with small

samples effectively and can be capable of coping with variables of different integration orders. Enkoro (2016) points out that among the advantages of ARDL is that it can handle serial correlation and endogeneity issues if properly specified. With this method, private sector credit was regressed over domestic debt, policy change dummy, interest rates for lending, and inflation. The AIC optimum lag lengths for the variables, as a guide during the specification of the error correction version of the ARDL model, were 3, 3, 3, 1, and 3. The results of the error correction model are in Table 10.

Table 10: Results of the estimated ARDL model

Dependent Variable: **D(PSCG)**			
Independent Variables	Coefficient.	Std. Error	P>|t|
ADJ $LnPSCG_{L1}$	-0.152432***	0.2451832	0.000
Long Run			
LnDBT	-0.3829869*	0.212739	0.080
Dummy_DBT	-0.1039065**	0.4178406	0.018
LnLNT	-0.0304781*	0.0518032	0.056
LnINF	-0.9086003***	0.2948512	0.004
Short run			
$LnPSCG_{t-1.}$	0.4241594**	0.1700448	0.017
$LnPSCG_{t-2}$	0.2276791*	0.1207275	0.067
D(LnDBT)	-0.356815**	1.742156	0.048
$LnDBT_{t-1}$	0.850502	1.95797	0.667
$LnDBT_{t-2}$	1.410208	1.882492	0.459
D(Dummy_DBT)	0.178604**	0.8015241	0.032
$dummy_DBT_{t-1}$	-1.045619	0.7915339	0.195
$dummy_DBT_{t-2}$	-0.1943811	0.8223662	0.814
D(LnLNT)	-0.1477689**	0.1231245	0.023
D(LnINF)	0.108826**	0.443937	0.019
$LnINF_{t-1}$	0.8545849*	0.4431739	0.062
$LnINF_{t-2}$	0.100490**	0.3908913	0.014
Constant	11.67464***	3.175496	0.001

Notes: D = First difference in variable. ***, **, * Indicate significance at 1%, 5% and 10% levels respectively. ARDL regression (3, 3, 3, 1, 3). Source: Researcher's ARDL computation using secondary data

The error correction term in error correction is statistically significant at 1% and its coefficient is -0.152432, which verifies the rate at which the model converges towards long-run equilibrium after a short-run shock among the independent variables (Qamruzzaman & Jianguo, 2018). This indicates that following a shock in the short run, 15.2% of the disequilibrium decreases in the subsequent period.

Short-run enterprise financing growth (PSCG) is influenced positively by its own performance during the previous two quarters. In other words, higher growth of credit in previous quarters results in higher credit growth for the current quarter. Specifically, when PSCG increases by a percent in the last quarter, the present PSCG increases by 0.42 percent, while when PSCG increases by a percent two quarters ago, the increase is 0.2 percent, other variables being equal.

Domestic debt (LnDBT) strongly suppresses PSCG in the short term; hence, domestic debt rises lower enterprise financing expansion and debt repurchases stimulate it. A rise in LnDBT by one percent reduces PSCG by 0.36 percent in the short run and there exists a long-run effect with a rise to a suppression of 0.38 percent. The structural break dummy (Dummy_DBT) is long- and short-run significant, signifying that policy change in domestic borrowing affects PSCG. The policy change is positive in the short run but negative in the long run, showing how macroeconomic variables respond to policy shocks.

Lending interest rates (LnLNT) are also in negative correlation with PSCG. A rise in lending rates by one percent lowers the credit growth by 0.48 percent in the short run and 0.03 percent in the long run. Inflation (LnINF), however, is positively correlated with credit growth in the short term because rising prices motivate businesses

to borrow more to ensure operations run on. A one percentage point increase in inflation raises PSCG by 0.1 percent in the short run with the effect traceable back to the first and second previous quarters corresponding to 0.85 and 0.1 percent, respectively. In the short run, inflation is favorable: an increase of one percent raises PSCG by 0.9 percent. This trend is reflective of the fact that while firms at first react to inflation through borrowing more, chronic inflation later deters them from repaying loans and thus restricts overall credit expansion.

5. Discussions, Conclusions and Recommendations

The Short-Run and Long-Run Effects Of Domestic Debt On Private Sector Credit Growth in Uganda

The results show that in the short term, private sector borrowing expansion (PSCG) is positively influenced by its own growth for the past two quarters. This means that higher growth in credit in earlier quarters tends to raise the current level of PSCG. Specifically, a one percent increase in PSCG during the last quarter corresponds to a 0.42 percent increase during the current quarter, and a one percent increase two quarters ago with a 0.2 percent increase, all else remaining constant.

Domestic debt (LnDBT) strongly negatively affects PSCG in the short term. Domestic debt levels are negatively correlated with credit growth, and domestic debt decreases are positively correlated with credit growth. The estimates show that the one percent increase in LnDBT lowers PSCG by 0.36 percent in the short run, and the negative impact continues in the long run with a minor increase to a fall of 0.38 percent. The dummy for the structural break (Dummy_DBT) is also significant in both the short and the long run, showing that the policy change in debt impacts PSCG. It stimulates short-term credit growth but has a negative effect in the long run, describing the behavior of macroeconomic variables to a change in policy. Lending interest rates (LnLNT) also have a negative influence on PSCG. A one percent rise in lending rates lowers credit growth by 0.48 percent in the short run and by 0.03 percent in the long run.

Inflation (LnINF) has a positive short-run effect on PSCG, which means that firms borrow more to maintain activity when there is inflation. An increase in inflation of one percentage point raises PSCG by 0.1 percentage point now, with additional effects of 0.85 and 0.1 percentage points apparent in the first and second preceding quarters, respectively. However, in the long run, inflation is negative, and a one percent increase reduces PSCG by 0.9 percent. This movement indicates that although businesses initially turn towards taking more amounts of credit when there is a declining currency, persistent inflation then restricts the financing scope of the business.

The Causal Direction Between Domestic Debt and The Rise in Credit to Businesses in Uganda

The second objective of this study was to establish the direction of causality between private sector credit expansion and domestic debt. The result shows one-way Granger causality from domestic debt to private sector credit expansion, that is, domestic debt movements dictate private sector credit movements, not the other way around. As the study has indeed found a negative relationship between private sector credit expansion and domestic debt, it follows that domestic debt is the cause of such a negative impact. Such evidence supports the premise of a crowding-out effect, as government borrowing confines available credit to the private sector. These same results were achieved by Obeng-Amponsah, Sun, Havidz, and Dey (2019) and Saungweme and Odhiambo (2019), who likewise determined causality from domestic debt to private sector credit and suggested that government-held domestic debt can be a cause of private lending. Again, this result is in contrast to the finding of Adedoyin, Babalola, Otekunri, and Adeoti (2016), who, using Granger causality tests in Nigeria, failed to determine causality between domestic debt and private sector credit.

The Effect of A Structural Break on the Rise in Commercial Credit in Uganda

The third objective of this study was to examine the effect of a structural break in private sector credit. The structural break that has been considered in this research is the sudden rise in domestic debt since the policy realignment by the Ugandan government from borrowing for monetary policy purposes to budget support borrowing. The break dummy variable was statistically significant, and hence, the null hypothesis is rejected. This means that the structural break of 2012Q2 had a significant impact on the growth of private sector credit. The change in policy boosted the growth of credit in the short term but produced a diminishing effect in the

longer term, which verifies that deficit finance through borrowing reduces private enterprise supply of credit. This is absolute evidence of the domestic debt crowding-out effect.

These findings confirm Zaheer, Khaliq, and Rafiq (2017), where government borrowing crowds out private sector credit in Pakistan under conditions of high-interest rate volatility, and Senibi et al. (2017), who found the debt to have a crowding-out effect and recommended fiscal reforms to contain it. The novelty of this study lies in the way it handled the break in domestic debt as an exogenous variable within the model. Domestic debt continued to exert a negative influence on private sector credit in Uganda even after adjusting for the break, confirming the persistence of the crowding-out effect in spite of the policy shift. This result is in line with Mohanty and Panda (2020), who used a structural vector autoregression model in India and suggested domestic debt should be efficiently managed and directed to productive ends to derive the greatest benefit to the economy.

Conclusion

The study concluded that private sector credit growth is Granger-caused by domestic debt and that private lending growth is negatively influenced by domestic debt in the short- and long-run. The significance of the short- and long-run structural break dummy variable showed that the structural break influenced commercial lending growth.

Thus, this discussion finds that the increasing domestic debt of Uganda is crowding out private companies by stifling the expansion of commercial lending. Further, the 2012 budget-supported domestic borrowing policy change remains an inhibitor to the slowing growth of private sector lending.

Recommendations

The observed negative impact of home country debt on credit in the private sector helps to highlight the need for more thoughtful domestic borrowing strategies, especially if the state intends to continue borrowing more without disadvantaging private firms. One simple measure would be relaxed regulations limiting the proportion of a bank's capital to be invested in government debt. Instead of leaving this wholly to the market, explicit investment limits may be set by the government, through the Bank of Uganda. Sudden changes in debt policy lead to both short- and long-term negative effects on business financing, so sudden policy shifts—particularly those involving local borrowing—need to be avoided.

Commercial banks also need to be careful against over-allocation of their own capital to long-term government securities at the expense of private sector lending on a short-term horizon. With growing domestic debt and reduced credit to the private sector, banks can face liquidity shortages. To counter this risk, banks need to incorporate built-in caps on the proportion of capital tied up in government bonds so that there is a balance between keeping liquidity intact and private sector lending.

Limitations of the Study

This study focuses only on credit to the private sector as recorded in commercial bank loans and thus most private sector credit outside the banking system goes unrecorded. Since most firms raise funds from alternative sources, the research sees only a part of the picture of overall private sector credit. In addition, the study covers a relatively short period of 14 years and thus has a small sample size. According to Penzin and Oladipo (2021), a duration of less than 20 years is short for effective time series analysis.

Areas Recommended For Further Research

Future studies are to consider including other sources of private sector credit so that a more comprehensive picture can be obtained of whether it is on the rise or on the fall in Uganda. Other researchers may also consider elaborating on how the capitalization of individual banks is affected by the investment of the banks in government bonds in the long term.

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Evaluating The Influence of Networking Strategies on Start-Up Growth: Evidence from Anambra State, Nigeria

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Abstract: This study investigates the influence of networking strategies on the growth trajectory of start-ups in Anambra State, Nigeria. The research aims to determine how networking behaviours such as collaboration, partnerships, and knowledge sharing contribute to business expansion and sustainability. A quantitative research design was adopted, and data were collected from 374 start-up owners and managers across Awka, Nnewi, and Onitsha using a structured questionnaire. Descriptive and inferential statistical analyses, including correlation and regression, were employed to examine the relationship between networking strategies and start-up growth. Findings reveal that effective networking significantly enhances access to resources, knowledge, and market opportunities, which, in turn, drive innovation, visibility, and business performance. The study concludes that networking serves as a strategic mechanism for sustaining competitive advantage among start-ups. It recommends that entrepreneurs invest in professional networks and mentorship programs, while policymakers create an enabling environment that promotes collaboration and knowledge exchange among start-ups. The study contributes to entrepreneurial literature by empirically validating the role of networking in fostering start-up development in emerging economies.

Keywords: *Networking Strategies, Start-ups, Growth Trajectory, Entrepreneurship, Innovation*

1. Introduction

Start-ups must know that digital transformation is a critical enabler of startup growth and innovation in the digital era, thus understanding the challenges and opportunities inherent in this journey of growth, startups must develop strategies to harness the power of digital technologies and thrive in today's dynamic business environment which will enable them to acknowledge technological advancement role on industrial landscapes, markets trends and consumer behaviour. These understandings are more feasible when proper networking is done. They observed that Start-ups leveraging emerging technologies can help drive innovation and be very advantageous to them. They further advanced that Start-ups must cultivate a culture of flexibility and resilience to swiftly respond to changing market demands, which are made feasible through networking Olorunyomi et al, 2024). Start-ups must also understand that the advent of digital technology has greatly influenced consumer behaviour and market trends, which have reshaped the way businesses engage with their target audiences (Roger, 2016; Olorunyomi et al., 2024). This is so because Start-ups can easily connect with or even larger firms through technology (internet). Leveraging technological advancement, Start-ups can gain deeper insight into consumer preferences and behaviours, which will in turn help tailor their products or services to meet the specific needs of their target audience, hence ensuring customer satisfaction and loyalty, leading to more patronage and growth (Vidhya et al. 2023; Rane, 2023; Kibria et al. 2018; Puntoni et al. 2021). Start-ups operate in a dynamic and uncertain environment where change is constant and unexpected challenges are very common; hence, start-ups should cultivate a culture of flexibility and resilience for navigating uncertainties. Flexibility allows startups to adapt quickly to evolving market conditions, customer preferences and technological advancement in their areas (Olorunyomi et al. 2024; Salmela, et al. 2022; Azra, 2023).

Start-ups need to prioritize the understanding of customer needs, preferences and pain points to create value added solution and to drive home a personalized experience. Networking will enhance collaboration that will drive Start-ups to success. Huggins and Thompson (2015) observed that networks are more than just relationships, which can create strong connections between firms and stakeholders. They emphasized that in the twenty-first century, with globalization, organisations are open to each other and can communicate easily through networking technologies. Kogut (2000) observed that most Start-ups are involved in networking because they generate ideas for coordination, collaboration, and value. It's through the understanding of networking that knowledge involving coordination between specific cooperation and competitive structures is a missing source of value that can be found.

Minhazur et al (2021), writing on how Norwegian Technology Start-ups use open Innovation Strategies to gain access to new business ideas, observed that Start-ups deal with new technological products and services, which potentially contribute to economic growth in the long run. They also observed that when Start-ups launch, they go through innovations and strategies the same way large and medium-sized organizations do to secure brighter futures. Hence, there is a need for proper networking for them to build growth after surviving.

Much work has been done on the importance of networking towards the growth of Start-ups and much more is still being done daily. In the works of Bruderl and Preisendorfer (1998), they observed that networking can lead to the emotional support needed in handling business risk. Networking can also lead to persistence in remaining in business (Gimeno et al, 1997). Other researchers observed that networking can lead to

- Accessing and providing information and advice (Freeman, 1999)
- Generating ideas and gathering information to recognize start-up opportunities (Birley 1985, Smeltzer et al, 1991, Singh et al, 1999, Hoang and Young 2000)
- Providing advice for problem-solving as well as basic information (Johannisson et al, 1994)
- Enhancement of ties to distributors, suppliers, competitors, or customer organizations (Brown and Butler 1995)
- Business exchange and friendship information (Human and Provan 1996)
- Risk reduction by associating with or by gaining explicit certification from well-regarded individuals and organizations
- Faster link to public and higher market valuation resulting from networking (Staunt et al, 1999)
- Other potential start-ups thereby spurring up startup activities (Calabrese et al, 2000).

Simon et al (2007) observed that well-established firms (large or medium firms) usually operate special departments that look after innovations and related markets and training needs, which startups cannot do due to a lack of resources, and these constitute a barrier to their growth. However, by developing their leadership and management skills to maximise internal capacities and also through networking with other startups on certain business functions or by sharing non-confidential knowledge through the network, start-ups can overcome such barriers in a relatively costless manner (Almeida and Kogut 1997; Narula 2004).

Storey (1994) identified three groups of variables that influence start-up growth: management characteristics, business strategies and firm characteristics, with Foreman-Peck et al (2006) adding a fourth as capturing the general business environment, which may include legislation such as that relating to tax, subsidies and competition. Another factor that can lead to the growth of start-ups is education and skills of start-up management (Cooper et al, 1994). Other factors are observation and the accumulation of knowledge relevant to the growth of start-ups in the future (Thorpe et al., 2005).

It could be noted that in the dynamic landscape of startup development, networking transcends mere social interactions. It represents a vital catalyst for team growth and innovation. The power of a network lies in its ability to foster connections, facilitate knowledge, exchange and unlock opportunities that might otherwise remain inaccessible. According to Orpen (1996), networking is a functional matter, with its sphere being mainly confined to connections outside of the individual's organization. Employees could be helped in their job performance by widening their network of contacts beyond their own managers and subordinates, gaining informal cooperation from those contacts because of strategic networking, particularly within the startup ecosystem, which can be likened to the intricate working of a well-designed circuit board, where each connection is purposeful and contributes to the overall functionality of the system. Martinez and Aldrich (2011) discussed the importance of networking strategies for entrepreneurs by balancing cohesion and diversity, while Albourini (2019) wrote about the impact of networking behaviours on the success of entrepreneurial startups in Jordan, where cultivating internal contacts, cultivating external contacts, and engaging in professional activities are the key factors in startups' success. Networking now does not only involve physical contacts, but the internet has made it quite easy through social media platforms. Muathe and Otieno (2023), in their article, discussed and identified six networking strategies for the growth of business. Rauch et al. (2016) discussed the effectiveness of cohesive and diversified networks in business startups.

Networking fosters collaboration. Startups can find partners, collaborators, and even co-founders through networking events, conferences and professional gatherings Spurk et al., 2015). Networking can also be viewed as a process of interacting, exchanging ideas and communicating with people with similar interests in business or any social context. Networking provides leverage to start-ups, giving them insight into the pros and cons of the industry. Networking acts as a guide to a start-up; it bridges the gap of uncertainty, and it helps the new entrepreneur understand the market better. It gives them foresight into the needs of the market, and networking not only bridges the lack of awareness, but it also helps provide the entrepreneur with investment opportunities. Forret and Dougherty (2004) discussed the networking behaviour and career outcomes and their difference for men and women. Networking, as one of the necessities of startups, allows them to tap into a wealth of resources. Startups gain access to knowledge, expertise and practical advice that can help them navigate their challenges. Networking strategies, on the other hand, are a planned act that professionals use to build and maintain their business. Before the startup begins networking, they should understand the goals and objectives of networking (Gibson, Hardy III and Buckley, 2014; Wolff and Moser, 2009). A study conducted by Zhou, Wu, and Luo (2007) shows that networking has a positive effect on profitability growth but not on the performance of sales. Most importantly, generating and maintaining networks as well as the ability to manage them, is important to the growth of startups Adomako et al., 2018). The optimal networking strategy was seen to be the best fit for ICT startups, while the interfirm networking is not necessarily needed for the growth of ICT startups Park et al., 2022).

One of the networking strategies that startups need is building real relationships. Engage genuinely with others, provide value without immediate expectations, and effectively communicate your startup's value propositions. Also, be prepared to explain your mission, products, and unique selling points. You should be able to leave a good and lasting impression on your audience. Moreso, networking doesn't end after initial interactions; startups should be able to follow up with their audience, send a gratitude text. Rahman and Rahman (2021) explained how Norwegian technology startups use open innovation to enhance their businesses. Networking is more than just relationships that create strong connections between firms and stakeholders. That's why the twenty-first century is known as the era of globalization, where firms are open to each other Huggins and Thompson, 2015). Another networking strategy is mentorship, where the mentor guides the mentee in the business world. He gives them advice and acts as a guidance counsellor in the business world. Also, conferencing can be a networking strategy when the entrepreneur discusses their products and services with a group of people.

Statement of the Problem

Based on the literature, it is necessary to find out the major factors influencing the network strategies on the growth trajectory of startups. Can startups leverage the advanced nature and spectrum of networking to advance their growth? Can there be empirical evidence to support the influence of networking on the growth trajectory of startups?

Significance of the Study

The research will be of great importance to startup management as it will equip them with the factors that will help drive the necessary growth in their startups. It will also expose them to new ideas, as well as possible collaborations and connections that are necessary for the growth trajectory of startups. It will also help entrepreneurs to understand how to effectively utilize all available networking strategies in order to enhance their business growth. It will assist the government and policymakers to promote and enact policies that will promote collaboration among startups so as to enhance startup growth, which will further translate into economic growth of the system.

2. Literature Review

Conceptual review

Networking strategies refer to deliberate actions entrepreneurs take to build and sustain relationships that provide access to resources, information, and opportunities necessary for business success. According to Muathe and Otieno (2023), networking provides start-ups with access to external knowledge, mentorship, and collaborative opportunities that strengthen their market positioning. Rauch et al. (2016) further noted that cohesive and diversified networks improve innovation and organizational growth. Similarly, Albourini (2019)

emphasized that networking behaviours, including external contacts and professional activities, enhance entrepreneurial performance in developing economies. Networking also supports the acquisition of market intelligence and promotes resilience among start-ups. As Adomako et al. (2018) observed, firms with strong networking capabilities are more alert to emerging opportunities and can navigate uncertainties effectively. Therefore, networking serves not only as a communication tool but also as a growth mechanism enabling start-ups to overcome structural and resource limitations.

Theoretical Review

This study is anchored on two complementary theories:

a. Social Capital Theory (Bourdieu, 1986; Coleman, 1990) – This theory explains how entrepreneurs derive value from their social networks. Social capital refers to the resources embedded in social relationships—trust, norms, and shared values—that facilitate cooperation and access to information. Start-ups that cultivate social capital through networking gain competitive advantages such as funding, mentorship, and market access (Nahapiet & Ghoshal, 1998).

b. Resource-Based View (RBV) (Barney, 1991) – The RBV posits that a firm's sustainable competitive advantage is derived from unique resources and capabilities that are valuable, rare, inimitable, and non-substitutable. Networking creates intangible assets like knowledge, reputation, and collaboration that enhance start-ups' internal capacities and innovation. Through strong external relationships, start-ups can acquire complementary resources that support long-term growth.

Integrating both theories, this study proposes that networking strategies provide both social capital and strategic resources necessary for start-up survival and growth.

Empirical Review

Prior studies have established a positive link between networking and business performance. For example, Martinez and Aldrich (2011) found that balanced network structures foster innovation and adaptability among entrepreneurs. In a study of Jordanian start-ups, Albourini (2019) revealed that networking behaviours significantly predict venture success. Similarly, Zhou et al. (2007) discovered that social networks mediate the relationship between internationalization and firm performance among SMEs. In Africa, Muathe and Otieno (2023) demonstrated that networking services and incubation programs accelerate the growth of new ventures. However, few studies have explored this relationship in Nigeria, particularly in the South East, creating a contextual gap that this study addresses.

Summary of the Literature Review

From the reviewed literature, networking strategies emerge as a critical factor influencing start-up growth. However, there remains a gap in understanding how specific networking practices impact business expansion and sustainability within Nigeria's entrepreneurial ecosystem. This study fills that gap by empirically analyzing the influence of networking strategies on the growth trajectory of start-ups in Anambra State.

3. Methodology

This research work made use of descriptive statistics. Percentages, mean and standard deviation were used to analyze the responses. A question item is accepted if it has an average of 2.5 or above.

Study Area

This study focuses on start-ups originating from Anambra State, Nigeria, which was established on August 27, 1991, and is home to an estimated population of around 5,084,195 residents, making it one of Nigeria's most populous states. The economic activities within Anambra State are primarily centered around agriculture and commerce, with the region being rich in minerals such as gypsum, kaolin, bauxite, iron ore, lead, natural gas, and crude oil. The state boasts a variety of industries, including breweries, textiles, tourism, and soft drink bottling, along with a thriving market for locally crafted wood and metal sculptures.

Anambra State benefits from a favourable economic environment marked by ample skilled labour, strong entrepreneurial spirit, easy access to capital, and abundant natural resources. The state's capital territory, Awka, known for its historical blacksmithing tradition, spans across six Local Government Areas and covers a land area of 400 square kilometres. Notable cities like Onitsha and Nnewi play crucial roles in trade and industry within the state. Onitsha is renowned for having the largest market in West Africa, fostering robust trade relationships locally and internationally, while Nnewi has emerged as a key hub for automobile spare parts and industrial growth.

The dominant language in Anambra State is Igbo, with English being widely spoken owing to the early influence of Missionary Schools and traders from the Royal Niger Company. Additionally, a significant portion of the population communicates in pidgin, a blend of the native Igbo dialect and English, likely originating from the need for effective trade communication with European visitors.

Data Collection

The data for this research work were collected from three locations in Anambra State (Nnewi, Onitsha and Awka), Nigeria. A questionnaire was used for the research work. A total of four hundred and forty (440) questionnaires were shared, but only three hundred and seventy-four (374) were successfully returned. This shows a response rate of 85.00% which was considered high enough for the research work. The distribution of the returned questionnaires as shown in Table 1, shows that of the eighty (80) shared in Awka, one hundred and thirty-five (135) shared in Nnewi, and Two hundred and twenty-five shared in Onitsha, only Seventy-three (73) were returned from Awka, one hundred and fifteen (115) from Nnewi and One hundred and eighty-six (186) from Onitsha. Only the Chief Executive Officer (CEO) or Directors were chosen per start-up. The start-ups considered are in the areas of Cosmetics, Information Technology (IT), Marketing, Agriculture, and General Services. The CEO/Directors are between the ages of 20 and 70.

A well-structured five-point Likert scale questionnaire was used in the collection of data. The questionnaire was validated by experts in measurement and Evaluation. A pilot survey was conducted to further validate the instrument. A Cronbach's Alpha of 0.764 was obtained for the entire instrument.

Table 1: The number of distributed and returned questionnaires by location

Location	Administered Questionnaires	Returned Questionnaires	Response rate (%)
Awka	80	73	91.25
Nnewi	135	115	85.19
Onitsha	225	186	82.67
	440	374	85

Source: Field work (2024)

The data in Table 1 shows that the response rate was 85.00% which was considered high enough for the research.

4. Results and Discussion

The results of the analysis are presented in Table 2. The analysis was done using SPSS version 25. The items were ranked in order of descending means.

Table 2: Mean and Standard Deviation of Question Items

S/N	Item Description	Mean	Std. Deviation	Remarks
1	Facilitating Access to Resources	4.13	0.902	Accepted
2	Facilitating Access to Knowledge	4.11	0.957	Accepted
3	Facilitating Access to Opportunities	4.09	0.957	Accepted
4	Enhancing Startups Visibility	4.06	0.945	Accepted
5	Enhancing startups' Credibility/trust	4.05	0.939	Accepted
6	Enhancing startups reputations	4.02	0.966	Accepted

7	Enhancing startups' collaborations/partnerships	3.98	0.950	Accepted
8	Increase market recognition	3.95	0.926	Accepted
9	Enhancing startups growth	3.90	0.962	Accepted
10	Lead to Greater insight into the business	3.88	0.959	Accepted
11	Facilitating Access to valuable advice for start-up growth	3.85	0.955	Accepted
12	Help in getting updates and feedback on Start-up operations	3.82	0.949	Accepted
13	Help the startup navigate through challenges	3,82	0.942	Accepted
14	Help the startup in identifying new markets	3.81	0.948	Accepted
15	Help the startup in identifying new pathways	3.79	0.962	Accepted
16	Help the startup in identifying new technologies	3.47	0.960	Accepted
17	Help the startup identify new businesses	3.37	0.935	Accepted
18	Help the startup in identifying new industrial trends	3.34	0.950	Accepted
19	Help the startup in identifying new market demands	3.31	0.957	Accepted
20	Help the startup in identifying new competitive landscapes	3.29	0.963	Accepted
21	Help the startup identify greater opportunities for funding	3.23	0.973	Accepted
22	Enhancing startups' chances of success	3.15	0.953	Accepted
23	Enhancing relationships that create new connections	3.12	0.990	Accepted
24	Enhances start-ups' exchange of ideas	3.08	0.940	Accepted

Source: Field work (2024)

Descriptive Results

The responses to the questionnaire results presented in Table 2, showed that the first three networking effects on startup which influences the trajectory of their growth (mean ± Standard deviation in parenthesis) are "Facilitating Access to Resources" (4.13 ± 0.902), "Facilitating Access to Knowledge" (4.11 ± 0.957), which is in line with the submissions of Almeida and Kogut (1997), Narula (2004) and Thorpe et al (2005) and "Facilitating Access to Opportunities" (4.09 ± 0.957). The findings also revealed that "Enhancing startups' Visibility" (4.06 ± 0.945), "Enhancing startups' Credibility/trust" (4.05 ± 0.939) and "Enhancing startups' reputations" (4.02 ± 0.966) are other factors that influence the growth of startups.

The results also showed that "Enhancing startups collaborations/partnership" (3.98 ± 0.950) is an influencing factor, as supported by the view of Spurk et al. (2015) and Kogut (2000). Market recognition was also accepted as a factor that greatly influences the growth trajectory of startups in the study area, with "Increase market recognition" having a mean ± standard deviation of (3.95 ± 0.926). Thorpe et al (2005), Minhazur et al (2021) and Muathe and Otieno (2023) observed that networking can enhance the growth of startups; these views were also supported by the findings of this research work, "Enhancing startups' growth" (3.90 ± 0.962). The item "Lead to Greater insight into the business" (3.88 ± 0.959) was also accepted as an influencing factor, which was supported by the views of Vidhya et al. (2023), Rane (2023), Kibria et al. (2018), and Puntoni et al. (2021).

"Facilitating Access to valuable advice for start-up growth" (3.85 ± 0.955) was considered an influencing factor of networking. This is in agreement with the views of Johannisson et al (1994) and Huggins and Thompson (2015), who observed that the Networks provide advice to problem-solving as well as basic information on startups. Also collaborating on this point is Freeman (1999), who observed that through networking, startups gain access to and obtain information and advice that are necessary for their growth. Another factor is "Help in getting updates and feedback on Start-up operations" with a mean of 3.82 ± standard deviation of 0.949.

Olorunyomi et al. (2024), Salmela, et al. (2022), and Azra, (2023) supported the finding that network "Help startup in navigating through challenges" (3,82 ± 0.942) while Simon et al (2007), and Staunt et al (1999) supported the findings that network "Help startup in identifying new markets" (3.81 + 0.948). This research work also identifies the following as influencing factors of networking on startup growth. They are (i) "Help startup in identifying new pathways" (3.79 ± 0.962), (ii) "Help startup in identifying new technologies" (3.47 ± 0.960), which was the views of Vidhya, et al. (2023), Rane, (2023), Kibria et al. (2018), and Puntoni, et al. (2021) (iii) "Help startup in identifying new market demands" (3.31 ± 0.957), (iv) "Help startup in identifying new competitive landscapes" (3.29 ± 0.963), (v) "Help startup in identifying greater opportunity for funding" (3.23 ± 0.973), (vi) "Enhancing startups chances of success" (3.15 ±0.953), (vii) "Enhancing relationships that create new connections" (3.12 ± 0.990),

Other factors are "Help startup in identifying new businesses" (3.37 ± 0.935), which was supported by the views of Minhazur et al (2021) and Zhou, Wu, and Luo (2007) and "Help startup in identifying new industrial trends" (3.34 ± 0.950) which had the support of the views of Minhazur et al (2021). The works of Kogut (2000) emphasized that through networking, startups generate ideas that guide them in handling their problem. This is in line with the findings of this research work, "Enhances start-ups exchange of ideas" (3.08 ± 0.940), Minhazur et al (2021), Kogut (2000), Zhou, Wu, and Luo (2007).

Inferential Statistical Analysis

Table 3: Correlation Analysis between Networking Strategies and Start-up Growth

Variables	Mean	SD	r	p-value
Networking Strategies Vs Start-up Growth	3.89	0.94	0.684	0.000

Table 4: Regression Analysis Summary

Model	R	R^2	F-Statistic	Sig.
1	0.684	0.468	324.18	0.000

To further validate the descriptive findings, Pearson correlation and linear regression analyses were conducted to determine the strength and direction of the relationship between networking strategies and start-up growth. The correlation coefficient ($r = 0.684$, $p < 0.01$) shows a strong, positive, and statistically significant relationship between networking strategies and start-up growth. Regression results indicate that networking strategies explain approximately 46.8% of the variation in start-up growth ($R^2 = 0.468$). The coefficient for networking ($\beta = 0.652$, $p < 0.01$) shows a significant positive effect, implying that effective networking strategies substantially enhance growth.

Discussion of Findings

The inferential results provide empirical evidence supporting the theoretical assumptions of Social Capital Theory and the Resource-Based View. The findings suggest that start-ups that invest in networking activities through mentorship, professional associations, and strategic partnerships achieve greater visibility, collaboration, and market penetration. Overall, the analysis demonstrates that networking is a strategic instrument that influences both the short-term and long-term growth of start-ups.

5. Conclusion and Policy Implications

Conclusion

This study concludes that networking strategies have a significant and positive influence on the growth trajectory of start-ups in Anambra State, Nigeria. By facilitating access to resources, knowledge, and market opportunities, networking enhances visibility, innovation, and competitiveness. Start-ups that deliberately engage in structured networking activities are more likely to achieve sustainable growth and improved market performance.

Theoretical Contribution

This study contributes to entrepreneurship literature by providing empirical validation of the role of networking as a determinant of start-up growth in an emerging economy. It enriches the theoretical discourse on how social capital and resource-based perspectives explain firm performance within the context of small business ecosystems in developing countries.

Practical and Policy Implications

- Entrepreneurs should invest in both online and offline networking to strengthen access to information and collaboration.
- Incubators and accelerators should integrate mentorship and networking programs into their support frameworks.

- Policymakers should promote public–private partnerships, organize regional networking platforms, and provide incentives for collaborative entrepreneurship.
- Entrepreneurship programs should emphasize the role of strategic networking as a growth mechanism.

Recommendations for Future Research

Future studies may include a longitudinal design to assess how networking strategies influence firm performance over time or extend the model to other regions in Nigeria to enhance generalizability.

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