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About the Department of Governance and Development Studies (GaDS) and PJGD

Department of Governance and Development Studies (GaDS) is one of the pioneer departments of Jimma University established in September 2007 and functioning as a constituent unit of the College of Law and Governance since September 2014. Since its establishment, the Department of GaDS is playing a vital role in the transformation of society and empowering the government institutions by producing professionals in the area of development and governance. Currently, the Master Program of GaDS has three specializations: (i) Governance and Development; (ii) Development Management; (iii) Peace and Conflict Studies whereas two more specializations (Gender Studies and Federal Studies) yet to be introduced.

The Post-Graduate Program of the Department clearly states its vision as “The Master of Arts Program in Governance and Development Studies (GaDS) institutionalizes a dynamic and strategic vision to provide an interdisciplinary, advanced, research-based and practical education in contemporary issues of national and international governance and development”. This stated vision at the same time echoes the vision of the Jimma University which “aspires to be one of the premier universities in Africa and renowned in the world by 2025”.

It is in pursuance of these stated visions of GaDS and Jimma University, the Center for PanAfrican Journal of Governance and Development (PJGD) is established to offer a platform of expression of new scientific inquiries to all intellectuals/academicians/scholars of the world in general and Africa & Ethiopia, in particular, to reflect on how governance and development can be promoted, strengthened and consolidated. As the nature of the journal is multi-, inter-, and trans-disciplinary, the scope of the journal ranges from the disciplines of political science, governance, development, leadership, national and international law, globalization, human rights, economics, environmental science, public policy, international relations, international organizations, gender, peace and conflict management, international political economy, multiculturalism, civil society, and related areas.

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The Tragedy of the African National Congress (ANC) and its Cadre Deployment Policy: Ramifications for Municipal Stability, Corruption and Service Delivery

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Abstract

The much-anticipated shift from apartheid to democratic rule in 1994 brought much jubilation in Africa and globally. South Africa had entered a terrain where a democratically elected party governed it in the African National Congress (ANC). Looking to alter the apartheid policies of the erstwhile National Party (NP), the ANC came into power with no formal experience of governing a state. However, since Nelson Mandela to the current Ramaphosa administration has made some strides in development and economic growth blueprints in South Africa's relatively young 28-year democratic history. As a form of government closer to the people, municipalities are seen as a fundamental area of government besides others, including poverty alleviation, employment creation, and service delivery. However, in the past two decades, the ANC has taken center stage in its cadre deployment policy, resulting in an upsurge in corruption, lack of service delivery, poor performance, and a relative decline in its hegemonic political power. This article examines the link between cadre deployment, municipal stability, corruption, and service delivery. The article shows that cadre deployment has not benefited individuals at the grass-root level because of incompetent individuals, lack of qualifications, corruption, tender greed, comrade beneficiary, and lack of managerial vision at the local government level.

Keywords: *ANC, Local Government, Service Delivery, Corruption, Cadre Deployment*

Introduction

The democratic transition from apartheid to democracy was on all levels an overwhelming task for not on South Africa, but its regional neighbors, Africa at large, and the international community taking into consideration the destabilization policies of the apartheid government. However, the democratic South African government inherited a racially skewed public administration at a time when many black individuals comprised the majority of the public servants in lower positions. Hence, this shift became a daunting task for the Nelson Mandela administration. Immense socio-economic and political challenges because of apartheid were significant and would not be going to address in a short period. In the words of Shava and Chamisa (2018), this administration faced a difficult task at the three-administration levels: national, provincial, and local.

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Apart from rectifying the imbalances of the erstwhile apartheid regime, the ruling African National Congress (ANC) also introduced its cadre deployment policy that advocated for party loyalists to not only get employment but occupy senior government positions in the public sector (see Twala, 2014). From a global perspective, particularly in Africa, cadre deployment is a dominant phenomenon administered by various ruling political parties. Nevertheless, from an Afrocentric perspective, this phenomenon is believed to induce a mediocre institutional quality or to cause poor execution of policies by the state. Numerous agencies, writers, and researchers with the notion of providing solutions and strategies to combat it have examined cadre deployment in the South African public sector; hence, the political discussion on corruption and municipal[*] service delivery mandates remain relevant in today's academic discourse.

This article ponders the driving forces of the ANC and its cadre deployment policy in the public sector by drawing insights into these implications for municipal stability and service delivery. Referring to the principal-agent and collective theories and a qualitative research approach supplemented by secondary data, this article tries to show that cadre deployment has yet to benefit people at the grass-root level and in municipalities[†]. However, greed, party loyalty, and corruption have led to poor performance, maladministration, and service delivery protests driven by unqualified individuals, lack of Batho Pele[‡] oversights, and incompetence of these cadres lucky enough to be given these positions.

Literature Review

From Apartheid to Democracy: The ANC and Inheriting a Skewed Public Service Post-1994

South Africa's shift from apartheid to democracy is, from a global viewpoint, one of the most pivotal political events of post-cold war era. This widely respected shift was viewed with high

[†] A municipality may be conceptualized as that part of government that manifests at the grass root level and a vital part of governmental relationships and organizational systems. In South Africa, municipalities are grouped into three categories:

i) Category A municipalities (metropolitan municipalities) such as eThekwini
ii) Category B municipalities such as Polokwane Local municipality and
iii) Category C municipalities such as Capricorn district municipality.

[‡] Batho Pele Means "People First". The Batho Pele White Paper is the South African National Government's White Paper for Transforming Public Service Delivery. It is all about giving good customer service to the users of government services. All public servants are required to practice Batho Pele. There are 8 principles or guidelines for Batho Pele in the White Paper. They are: Consultation, Service Standards, Courtesy, Access Information, Openness and Transparency, Dealing with complaints, Giving Best Value.

hopes, particularly for the advancement of South Africa and its people (see Mlambo, 2020). South Africa's transition is a well-known phenomenon. After years of violence and sanctions, the ANC and other liberal movements were unbanned in February 1990. After the first-ever general elections in April 1994, the ANC came into power, and Nelson Mandela was sworn in as the country's president. A massive challenge for the Mandela administration was to undo the apartheid legacies of poverty, inequality, and racial segregation and create a single, efficient public service that ought to deliver the necessary basic needs to all citizens. To adhere to such, the government passed numerous policies to stimulate societal transformation and eradicate all aspects of discrimination policies from the statute book (Connolly, 2013).

Sebake and Sebola (2014) submit that since the transition from apartheid to democratic rule, the ANC believed that the cadre deployment policy strategy should directly relate to the National Democratic Tasks as set out in the Strategy and Tactics document. This was to give space to a loyalist who would then create space for the inclusion of the political ideology of the ANC; however, like many other policies, the cadre deployment has had its negative significance. It has created not only room for corruption but also nepotism, favoritism, and lack of service delivery mandates. When the ANC came into power, it inherited a racially skewed public service in which about 95 percent of the 3239 civil servants were majority whites and blacks only made up 0.6 percent; and they made up the majority of public servants in the lower ranks. Hence, this transition was a daunting task for the newly elected Mandela administration. It had to merge the many administrations of the central government and numerous homelands into one coherent, extended administration system and, at the same time, came up with many policies geared toward rectifying the imbalances of the past (Franks, 2014).

With the notion to alma gate all these and other factors, an effective restructuring took place in which a three-sphere system (national, provincial, and local government) was formed, incorporating all previous administrations and rationalizing the previously fragmented local governments. The 1996 constitution provided a robust idea of the kind of public service management that was anticipated and included:

i) Professionalism, impartially and excellence
ii) Accountability and Transparency
iii) Participatory policymaking

iv) Efficiency, effectiveness and equity and

v) A developmental and service orientation

However, as per the apartheid regime-run government, the public service has been overwhelmed by political loopholes as many policies have been misused for their ideological interests as well as next of kin and comrades. Incompetent line managers began to misuse their terms in office and hire less competent allies to safeguard their position. While the ANC government came into power as a movement of liberation, it soon had to swiftly transform itself into a ruling political party.

On the concept of Cadre Deployment: Unpacking its Afrocentric meaning with particular focus on Democratic South Africa

Masuku and Jili (2019) submit that political connections have been seen as very significant aspects that influence the ways and norms in which public institutions perform and this is particularly true for post-democratic South Africa. Mchunu (2018), in his assessment of party loyalty in South Africa, noted that from 1994, the deployment of ANC cadres into vital positions in government became common and was used to accelerate the process of government transformation. The concept of cadre deployment may be viewed as the appointment by a government governing party of a loyalist member(s) in an organization and bringing that institution under the party's control rather than the state.

It pertains to an individual or individuals who are trained to function in a particular political or business segment but can be deployed to serve anywhere else if the party decides to do so, irrespective of their level of qualification, skills, and competence. By viewing it from an economic angle, cadre deployment is patronage dispensed to individuals, companies, and agencies by the government governing policy, albeit not on merit but on the basis that they enjoy a degree of political connection to the governing party. The mass challenges of apartheid driven by the National Party (NP) government confronted the ANC with a plethora of issues. Similarly, and particularly to the ANC, a fundamental prerequisite for its success was the existence of a robust revolutionary organization. The strength of this revolutionary organization lay not only in numbers but also primarily in the quality of its cadres. Ndedi and Kok (2017) noted that the cadre policy of an organization is determined by both short and long-term goals. From an apartheid perspective, the long-term goal was to overthrow the apartheid government and moving forward, establish a non-racial and democratic South Africa.

The ANC believed that its cadre deployment policy would somehow safeguard the new government from sabotage by opposition parties. The best way to neutralize this imminent menace was to install loyal party members who could at least be trusted politically. Thebe (2017) opines that apart from poor service delivery mandates, cadre deployment has produced relatively inexperienced and uneducated public servants and leaders over the years, which has given political leaders massive dominance after failing to hold public office. This brings service delivery protests because of the lack of delivery of services as promised to communities. As already alluded to, the constitution, especially sections 40(1) and (2) establishes the three spheres (national, provincial, and local government) within certain parameters for intergovernmental relations. Of importance, here are municipalities that are established under section 152 of the constitution to offer democratic and accountable government for local communities.

This pertains to ensuring the provision of basic services with the notion of promoting economic and social development. In contrast, these political deployments need proper political education and training to maintain the significance of human resource management, financial administration, and management and analytical skills. Over South Africa's young democratic history, the researcher argues that municipal hindrances are not limited to leadership, accountability, service delivery, and budgets; however, these are also closely driven by cadre deployments. The concept of service delivery is linked to the government's role to satisfy its clients (in this context, members of the public) through the provision of goods and quality services.

In South Africa as in other countries continentally and globally, service delivery is a constitutional mandate and should be fulfilled without bias and provided in a way that is impartial, fair, and without discrimination. Since 1994, this has yet to prevail as efficiently as expected by the government in power. This has emanated from poor leadership and management by those in power. Today, there are many South African communities that still lack basic shelter, proper sanitation, and electricity (Magidimisha & Chipungu, 2019). While these are often spearheaded by poor leadership, cadre deployment at the local level has meant that those in the office need more skills and education to render services to the people. Some mechanisms have been implemented to address the effects of cadre deployment in South Africa to improve performance and service delivery at the local government level. Some of these include the

Government-Wide Monitoring and Evaluation system, single public service, Public Service Amendment Bill, African Peer Review Mechanism Program of Action, Provincial Growth and Development Strategies, and Integrated Development Plans. These were established to improve the performance of public servants, which would, in turn, improve service provision to the public. However, while these were seen to re-alter the paradigm shift of the public service, they have not sufficiently done what they were intended to do. Poor oversight mechanisms and monitoring and evaluation have made individuals find many loopholes to alter what these were supposed to achieve.

The Nexus between Cadre Deployment and Municipal Ineffectiveness

De Jager and Steenkamp (2016) aver that the early elites of the ANC embraced values of individual accountability, ethics, and a sense of social consciousness. However, modern ANC elites seem to be leading through a different set of principles. This stems from the increased rates of corruption, and as Desai (2018) noted, political trust is an essential factor for a healthy democratic rule, and without such, any state will find the going tough. Under the administration of Mandela and Thabo Mbeki, the ANC elites were focused on how to build a democratic state robustly and firmly articulated most values laid out in the country's constitution, that of human dignity, the achievement of equality, the advancement of human rights, non-racialism and non-sexism. Nevertheless, the ANC cadres no longer see these sentiments as a policy statement.

According to Kondlo (2017), the anticipated transition from apartheid to democracy forms an important backdrop in understanding South Africa's political landscape, and this transition (because of many socio-economic ills) continues to be the center of debates. The local government sphere in South Africa has come a long way from the time when there were large numbers of racially segregated municipalities. In 2000, more than 800 municipalities were merged, and such municipalities are scattered all over the country. Their role is focused on growing local economies and maintaining the provision of basic municipal services. Many municipalities in South Africa are facing serious challenges, including debt and the inability to pay their bills. Despite some achievements attained, there are still many service delivery issues and socio-economic development challenges, especially in rural-based municipalities. Municipal development duties, as enshrined in the constitution under section 152(a), require that:

"A municipality must structure and manage its administration and budgeting and planning process to give priority to the basic needs of the community, and to promote the social and economic development of the community and participate in provincial and national development programs."

Most municipalities in South Africa have been criticized for their poor administration; corruption, fraud, and cadre deployment remain a huge challenge. Mamokhere (2019) puts to the fore other reasons why service delivery has become an issue in most municipalities, these are:

i) Dissatisfaction with service delivery
ii) Unemployment and poverty
iii) Corruption and nepotism
iv) Unfulfilled promises
v) Lack of access to information and
vi) Lack of participatory democracy

Drawing from the preceding, many municipalities are prone to such issues. Thus, many residents feel as if their voices are not taken into consideration and are never consulted nor informed of municipal and service delivery issues. Skills shortages, inadequate infrastructure planning, maintenance, and investment have also driven this. However, it must also be noted that rural municipalities cannot equally compete with cities with a high-income tax base to stimulate and entice investments. In the local government sphere, political leadership ought to realize that service delivery is essential, and any dishonesty and incompetence in this regard lead to poor citizen confidence (Mantzaris, 2014).

Manyaka and Nkuna (2014) admit that corruption is very harmful in developing countries such as South Africa because these countries possess fewer resources and need to utilize such resources most effectively. The consequences of corruption are drawn from spheres that include political and social. In terms of the former, corruption may lead to political instability as unrest may occur driven by individuals who have had enough of corruption. From a social perspective, corruption gives individuals the opportunity to loot state resources for self-enrichment (see Mlambo et al., 2019). This is notwithstanding that South Africa has some of the continent's best anti-corruption agencies. These include but are not limited to the National Prosecuting Authority

(NPA), the Anti-Corruption Task Team (ACTT), the Asset Forfeiture Unit (AFU), the Public Protector, the South Africa Police Service (SAPS), the South African Revenue Service (SARS), Independent Police Investigative Directorate (IPID), the Financial Intelligence Centre (FIC), the Directorate for Priority Crime Investigations (DPCI) and the Auditor General of South Africa (Mlambo, 2019). While these may seem robust and efficient, at times, they have and continuously fail to bring corrupt public servants (especially those in high government positions) to book and prosecute them.

According to Qobo (2019), the local government sphere has been a causality of the party's interference in resource allocation in the state, and yearly, the Auditor-General paints a dark picture of local government driven by irregular wastage, corruption, and cadre deployment is one channel through which the party-state relationships is blurred. Because of this situation, Brooks (2004) is of the view that perhaps this is driven by the implications of a dominant party system, in this case, the ANC in South Africa. In this vein, she submits that in a prospect where a particular party dominates the political arena and faces the account minimal prospect of electoral defeat, concerns rise about the possibility of declining government response to public opinion and accountability. Indeed, and in support of the views raised by this scholar, any ruling party will tend to lower its gear if it is of the view that whatever happens, it still enjoys majority support from citizens. While this is true, particularly from an African context, it does not account for good governance and putting the needs of the populace first before that of the party. In essence, it gives room for complacency and provides the needed services to the public.

Theoretical Framework

A theoretical framework aims to detect the line of review and methodology that is used to answer it. Thus, the theoretical framework of research narrates the ethical basis on which the research takes place and forms the link between the theoretical aspects and practical mechanism of the undertaken investigation (Ennis, 1999; Ocholla & Le Rouj, 2011). Cadre deployment and corruption are complex phenomena, and no one theory explains everything. However, several theories assist in further constructing this phenomenon; two of the most prominent ones in literature are the principal-agent and collective theories.

Principal Agent-Theory

Over the years, most literature has focused on the theories underpinning the numerous methodologies for tackling corruption emphasizing that a robust understanding of this may lead to better policy designs and solutions (Schwertheim, 2017; Marquette & Peiffer, 2018). According to Mitchell (2020), the Principal Agent-Theory (PAT) approaches corruption from two lenses, the rational choice perspective as well as an economic standpoint, entailing that deliberation of personal gain plays a pivotal role in this. The theory gained prominence in the 1970s among economists and before being adopted in the field of International Relations and Political Science. This theory is based on two key elements, the principal (government employees) and the agent, individuals, or groups that the principal monitors.

The theory has been dominant to scholars writing about corruption who are of the view that corruption takes place when information and preference asymmetry among principals and agents offers narratives for agents to engage in corruption. Generally, corruption occurs when principals cannot sufficiently monitor agents and when the goals and visions of the two are not aligned (see Walton and Jones, 2017). The PAT is of the view that agents (public officials) assist to protect the interests of the principal (either public, parliament, or supervisors). However, in reality, the interests of the agents often diverge from the interests of the principal. In this instance, an agency problem arises where the agents choose to engage in corrupt activities to further their interests and to detriment of the interest of the principal.

In the modern era, anti-corruption literature and policy have been largely influenced by the principal. Political elites are, in most cases, tasked with the role of principal, monitoring the actions of bureaucrats or agents as a means of holding them accountable. Nevertheless, due to a lack of logistical and oversight mechanisms, principals may have and/or need to improve their knowledge about the agents. Similarly, corruption may occur when rationally-minded bureaucrats use their discretion over resources to extract rents when such opportunities arise.

Collective Action Theory

While the PAT has been used for decades to draw a nuanced appraisal of corruption, in recent years, another prominent theory that has surfaced is the Collective Action Theory (CAT). This theory goes beyond traditional PAT and emphasizes the significance of elements such as trust and how individuals perceive the behaviors of others. Hence, corruption is regarded as a collective problem as individuals rationalize their behavior based on the perception of what others may do in the same situation.

Thus, when corruption becomes a social norm, everyone sees it as the right thing to do, albeit being aware of the consequences. In the CAT, the motivation behind corrupt behavior is an individual putting his or her interest first. An alternative framework that may be utilized to understand corruption is by framing it as a CAT. In general, the CAT is the idea that when a group of individuals shares a common vision, achieving this vision becomes challenging due to members' conflicting interests (Mitchell, 2020). These two theoretical settings assisted in the logical prognosis of the article. This is because firstly, they inform the nexus of corruption between the principal and the agent, and secondly; they provide in part some nuanced understanding of why conflicting interests arise in corruption-related schemes.

Methodology

Methodology pertains to the methods, research design, and procedures used in gathering data. To exemplify this, respondents, data gathering, data analysis, and instruments are part of the broad methodological fields (Kivunja & Kuyini, 2017). The methodology used in this article was qualitative. The collected data was sourced from relevant sources and analyzed contextually without necessarily involving any quantitative techniques. According to Creswell (2003), researchers undertaking qualitative studies aim to gather a strong viewpoint on human behavior and its rationale. This method is important in delivering on the relationship and arrangements between dynamics or the background in which the action happens.

From the preceding data retrieved and analyzed from secondary sources, the researcher exploited relevant published works from books, chapters in books, journals, newspapers, and published and unpublished articles such as dissertations and theses together with credible and reliable online sources of applicable organizations dealing with and/or monitoring the topic under investigation.

The ANC and Re-Thinking the Cadre Deployment Policy: Possible Recommendations

Post-1994, the issue of cadre deployment in the South African context has been discussed widely in literature, policy documents, and the media, together with solutions to rectify this. Similarly, a plethora of recommendations has been put to the fore by scholars, policymakers, and opposition parties to come up with robust policies to curb this problem. This article adds to such literature by outlining other possible recommendations. What must be made clear is that individuals' attitudes are shaped by various indicators, including but not limited to corruption and accountability (see Mlambo, 2019) and the performance of their entrusted government.

To further carry out local development plans and enhance better service delivery blueprints at the local level, political leaders out to be reactive to the desires of the citizens. No matter the years as loyal members, Cadres should be hired based on their qualifications and merit, not because one is a loyal member. Being a loyal member and not possessing the required and sufficient know-how has proved detrimental for most ANC-run municipalities post the Mandela administration, with some even going under administration. It is somewhat ironic that in its 5th National Policy Conference held in 2017, the ANC itself was of the view that a robust initiative should be paid to the quality of cadres at both the political and administrative levels from their education, academic qualifications, and ethical attributes. However, even before and past the conference, there is little evidence that this is given strong attention, as many cadres in various departments hold high positions who are unqualified.

The conference also contributed to the fact that the ANC faces internal politics that will contribute to its declining fortunes; these include corruption, money politics, and poor performance in government that undermines its image in the broader public. However, the deployment of cadres may be an acceptable norm if these individuals possess the necessary skills suitable for their position. There needs to be more than the concept of loyalty in itself, but the issue of education and experience should be considered because of poor performance. Unqualified, incompetent, and unprofessional civil servants contribute significantly to poor, bad, and incompetent governance. If the ANC is to regain the people's trust (which seems to be dwindling), it should get back to the drawing board and revisit its strategies of cadre deployment and fighting corruption.

The weak rule of law (mainly for political elites) and unpredictable state institutions are part of the developing context, and societal changes may add to the challenges of governing good governance. There is also a need to implement more robust and well-monitoring and evaluation government institutions that should act as pivotal watchdogs in all three spheres of government.

This can also be achieved by putting more resources into existing ones and creating new anti-corruption agencies that are protected from political interference.

Qobo (2019) noted that a successful transition from corrupt societies to significantly less corrupt systems has accrued in countries such as Georgia, Denmark, China, Singapore, Sweden, and the United States. However, some of these countries (unlike Africa) are relatively stable and have more robust institutions to fight corruption, which is well monitored. In the case of Africa and South Africa in particular, corruption has been an ever-increasing trend often seen in the yearly statistics released by Transparency International. Much of the challenges witnessed at the local government level in South Africa today have roots in the overlap between the party and the state and have created conditions for what Qobo calls large-scale corruption and the weakening of vital institutions together with the under-delivery of socio-economic commitments. The rule of law will remain with a loophole unless competent individuals create, strengthen, and resource such institutions.

This has increased the social discontent of loyalists of the ANC to care more about its future than the many social ills it has to address. If it seeks a more fruitful change in the millions of individuals suffering from basic service delivery issues, it will need to make major reforms to uproot corruption and its cadre deployment policy, and these will have to take place from the national to the provincial level. This is because wherever there is corruption, accountability and transparency disappear, which is common in most municipalities.

The National Development Plan (NDP) vision 2030, a vital blueprint document implemented in 2013, seeks to serve as a road map plan for South Africa, among other things, to eliminate poverty and reduce inequality. It also identifies critical challenges that should be addressed in the three spheres of government that are:

- High unemployment rates
- Poor quality of school education for black people
- Poorly located infrastructure which is further inadequate and unmaintained
- Special divides that weaken inclusive development
- Uneven and poor quality of public service
- High levels of corruption and
- South Africa’s divided society.

The preceding further shows that the government itself is aware of the challenges affecting the public sector, and particularly from a local government point of view, corruption and poor quality of service are rife. Therefore, the ANC ought to demonstrate in actual practice its commitment to fast-tracking fundamental transformation by correcting its flaws and declining public image.

This has further eroded the Batho Pele (People First) principles of good governance, an initiative requiring public servants to be more service-oriented, strive for excellence in service delivery, and commit to continuous service delivery. To robustly ensure that both the effective and efficient delivery of public services, especially in local government, are vastly improved, the ANC government will have to take note of the most pressing challenges and address them in a more coordinated and proactive manner, particularly paying attention to macro goals in a manner where most citizens benefit. Again, there should be a shift from government to cooperative governance. The latter is a relatively new term that emerged in the 1990s. Succinctly, it outlines that power exists both inside and outside formal structures of government and that the government cannot do it all alone. The relationship between the government, the private sector, and civil society is of utmost importance (Nealer, 2017; Mlambo, 2020).

Conclusion

This article has explained the drivers of cadre deployment and corruption in South Africa and the local government post-1994. It shows that the deployment of individuals loyal to a party has brought about corruption and derailed service delivery at the local government level. The article argues that the issue of cadre deployment has ruined the capacity of municipalities to function better and offer better service delivery. Similarly, the increasing corruption levels at municipalities under the ruling ANC have also hampered the ability of these municipalities to function, and this has declined the standard in their performance management driven by incompetent individuals at the helm.

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Government Debt Sustainability and Investments in Nigeria: Trends and Risk Thresholds amidst Macroeconomic Swings

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Abstract

The core idea behind government debt is to fund fiscal deficit, which is anticipated to drive economic investments. To a larger extent, this is not the case, as evidenced in the Nigerian context, where debt has risen so high with investment levels declining, thus questioning the government's ability to manage and sustain its debt to pursue vital investment needs. This study aimed to investigate the threshold effect of debt sustainability on investments amidst macroeconomic swings from 1981 to 2020. In this regard, the threshold autoregressive regression (TAR) was used because it gave information on the optimal threshold of debt sustainability that would attract investments. Also, the Granger causality test was carried out to show the direction of causality among the variables. This paper concentrated on debt service to revenue and total debt stock to GDP as debt sustainability measures while investment was decomposed into public, private, and foreign investments. The paper yields that, based on the multivariate TAR analyses, the main threshold variables, that is, debt service to revenue and total debt stock to GDP, had a non-linear relationship with public, private, and foreign direct investments amidst changes in macroeconomic variables such as exchange rate, inflation, and monetary policy rate. The threshold coefficient of debt service to revenue indicated that public and foreign direct investments declined during low thresholds while private investment increased. However, the opposite prevailed when debt service to revenue exceeded the threshold values. However, the Granger causality test showed that debt service to revenue Granger caused total debt stock to GDP and exchange rate Granger caused debt service to revenue ratio, implying that exchange rate swings could affect the government's ability to service debt which in turn explains the non-linear relationship between debt sustainability and investments. Hence, it was concluded that Nigeria's lack of debt sustainability was associated with revenue generation, which explains why the models did not follow a linear path.

Keywords: *Debt Sustainability, Investments, Macro Economy, Threshold Analysis, Nigeria*

Introduction

In periods of financial crisis and low resource availability, governments often rely on debt by borrowing from more prosperous countries or international financial institutions. These borrowings empower countries to fund development projects and programs – but, taken too far, the debt repayment burden can "submerge" a country's revenue which could lead to default and

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capital flight (IMF, 2021). Even the COVID-19 pandemic has aggravated the problem as many countries seek to lessen the health and economic consequences of the crisis by further increasing public health expenditures in the face of declining revenue. The simultaneous rise in expenditures and the decline in revenue generation have heightened the need for debt, raising the tension between attaining crucial development goals and managing debt vulnerabilities in many developing countries (Yussuf & Mohd, 2021). In the case of Nigeria, despite being a frontrunner economy in Africa, factors like low domestic production, shrinking revenue, and rising expenditures have triggered economic problems induced by the budget deficit and over-indebtedness.

From a theoretical standpoint, Krugman (1989) states that over-indebtedness arises when debtor countries can no longer meet their debt obligations. The result is that the expected return from investments will be insufficient to enhance economic prosperity to the extent that planned government spending on debt service will weaken investments and reduce revenue generation through taxes (Mugumisi, 2021). However, rational expectations of economic players can challenge the theory of over-indebtedness because economic agents anticipating a future rise in tax rates may decrease their consumption (Omotosho *et al.*, 2016). Furthermore, with the possible tax hikes, savings that are expected to drive domestic investments are eroded, leading to macroeconomic instability, which in turn discourages foreign investments (Uremadu & Onyele, 2019). Hence, it is believed that debt must be based on a maximum threshold beyond which additional debt would crowd out investments.

Adebayo *et al.* (2021) argued that debt denominated in foreign currencies exposes the debtor country to a greater debt burden due to currency depreciation as the rising interest rate spread on hard currency debt amplifies the crowding-out effect. With higher exposure to foreign currency, countries that hold more dollar or foreign currency-denominated debt would be faced with the risk of financial crisis since currency swings could result in a default. It implies that if highly indebted countries should experience a budget deficit, the perception of potential macroeconomic instability would increase, and unstainable levels of debt would be reached. In fact, the global financial crisis has shown that the unsustainability of national debt could be self-reinforcing as over-indebtedness forces an upward trend in interest rates, causing difficulty for the government to service the debt (Fasoranti *et al.*, 2019).

The Debt Management Office (DMO) of Nigeria recognizes the need to ensure that the public debt remains sustainable in the medium to long-term by carrying out a Debt Sustainability Analysis (DSA) in the medium to long-term, which aligns with the macroeconomic framework, to ascertain the current and future levels of debt, as well as its capacity to meet obligations of debt service as and when due without compromising growth and development (DMO, 2019). According to the DMO, Nigeria conducts Debt Sustainability Analysis (DSA) yearly. The DSA is an exercise that assesses the risk associated with debt distress. The framework of the DSA gives an objective evaluation of debt sustainability under a specified macroeconomic context that delineates a country's monetary and fiscal stance under some assumptions and conditions. This exercise ensures that Nigeria's aggregate public debt portfolio is subjected to proper quantitative and qualitative analysis by appraising its capacity to repay its debt obligations, to evaluate its debt sustainability.

The significance of this paper lies in determining the optimal threshold of debt that would enhance investments in the face of the macroeconomic situation of Nigeria. Additionally, the study would reach conclusions and advance recommendations that would profit economic decision-makers in policy development and drive strategies that would contribute to overall economic development. Amidst the investigations of debt sustainability, the study attempts to ascertain the optimal level (threshold) of public debt that is sustainable towards the enhancement of public investments. The rest of the paper is thematically arranged into three sections. The following section presents the conceptual, theoretical, and empirical issues in an attempt to integrate the dynamism of the subject into the discourse. This is followed by a literature survey and exploring the substantive issue. The last section concludes the paper.

Statement of the Problem

Although Nigeria's debt to GDP ratio seems to be ideal – 18.23% as of 2020 – the debate regarding the adequacy or inadequacy of the debt sustainability framework of the World Bank and IMF that is mostly used in the assessment has been a challenge (Guzman, 2018). Part of the problem is associated with the fact that debt to GDP reveals incomplete information and hence should not be the sole yardstick for ascertaining sustainability. For example, there are changes in the debt-to-GDP ratio when the GDP level increases due to rebasing while the revenue used to repay the debt remains constant (Chowdhury & Islam, 2012). Moreover, other varying factors that determine the dynamics of debt, such as fluctuations in exchange rate exposures, inflation and interest rates, economic growth, and current account and fiscal deficits, affect the country's capacity to carry or sustain debt over and above the debt to GDP criterion. Similarly, according to Jensen (2021), there exist other financial risks such as maturity mismatch (that is, using short-term borrowings to fund long-term projects with long maturity periods over which little or no revenue is generated to service the debt) as well as currency mismatch (accumulating debt in foreign currency while revenue is `denominated in domestic currency yet debt repayment happens in hard currency). Hence, other measures, such as debt service (% of revenue), have been used in determining the level of public debt sustainability (DMO, 2019).

While there is no universal threshold from which the negative impact of government debt is evident, studies such as Knapkova *et al.* (2019); Belguith & Omrane (2019) proclaimed that the threshold varies in different countries. On the other side, Pescatori *et al.* (2014) argued that there is no evidence of a particular debt threshold that would divide the amount of public debt into “good” and “bad", the one which should exert a positive or negative impact on investment growth. Similarly, Baum *et al.* (2012) indicated that the short-term impact of the debt is positive, but it falls almost to zero and loses significance if the debt overhang exceeds 67% in the Euro area. Goedl & Zwick (2018) found that Austrian fiscal policy is consistent with a stable long-run distribution of the debt-GDP ratio with a value close to the 60% threshold. Thus, the reason for applying the threshold analysis in this study is to unravel the level of government debt that would be “good” or “bad” for diverse investment categories in the Nigerian economy, which is the methodological gap this study aims to fill.

Given the speedy rise in debt accumulation in Nigeria, Aliu *et al.* (2021), Chukwu *et al.* (2021), and Ogunjimi (2019) discussed the association between debt sustainability and public investments; however, empirical works using the threshold regression technique are scanty. Again, the studies reviewed did not compare the threshold effect of government debt on private, public, and foreign investments, a gap this study aims to cover. As such, this study attempts to answer whether Nigeria's public debt is sustainable using a well-established empirical method, namely the threshold analysis. This study investigates whether Nigeria's debt is empirically sustainable in the milieu of rising investment needs.

Objectives of the Paper

The broad objective of this paper is to present the threshold effects of debt sustainability on investments in the face of macroeconomic swings in Nigeria using time series data from 1981 to 2020. To achieve this, the following specific objectives guided the study:

a. To ascertain the optimal threshold effect of debt overhang (total debt to GDP ratio) on public, private, and foreign investments in Nigeria.
b. To specify the optimal threshold effect of debt sustainability capacity (total debt service to total revenue) on public, private, and foreign investments in Nigeria.
c. To indicate the effect of macroeconomic variables on public, private, and foreign investments in Nigeria.

Literature Review

Theoretical Exposition: Over Indebtedness

There are various theories on government debt. Among the most important is that of Barro (1978), which reveals the total neutrality of the debt in the macroeconomic environment. This theory, however, is linked to 19th-century English economist Ricardo, hence its designation by the phrase ‘Ricardian equivalence’. The Ricardian equivalence hypothesized the rationality of economic agents and showed that a policy of budget or fiscal deficit, funded by debt, had no effect on investment activities insofar as agents are no longer susceptible to ‘fiscal illusion’ (which occurs when government revenues are not completely transparent or are not fully perceived by taxpayers; then the cost of government is seen to be less than it actually is). The investors make perfect anticipations and will incorporate this change into their decision. Consequently, they will expect an increase in future taxes intended to repay the initial debt. In anticipation of these future withdrawals, they will rapidly build up savings equivalent to the total government debt, thus compromising the fiscal stimulus policy.

Over-indebtedness is defined by Krugman (1988) as an inverse relationship between debts denominated in foreign currencies and investment. In this situation, over-indebtedness arises when indebted countries can no longer meet their burdens. An optimal debt level must be specified to ensure efficient debt sustainability (Stiglitz, 2016). In other words, a very high debt level no longer favors investment. The high level of debt indicates a rise in future tax rates. As these rates are highly reliant on the level of investment, these new taxes would likely create distortions in investment. The immediate consequence is that the expected return from productive investments will be insignificant for economic sustainability, to the extent that spending on debt service will weaken foreign and domestic investments (Ndoricimpa, 2020).

If economic agents realize rational expectations, this theory of over-indebtedness can be challenged. However, they instead anticipate a future tax increase which reduces their consumption and could negatively impact the macroeconomic environment. Furthermore, there is no longer any need to prove the nexus between savings and investments as a high debt level with possible increases in tax rates can erode savings which in turn will negatively affect economic growth by causing a paucity of investible funds, hike in interest rates, increase in inflation due to low output and exchange rate depreciation arising from the decline in the purchasing power of money in the indebted country (Knapkova *et al.*, 2019; Dawood *et al.*, 2017). The theory of over-indebtedness assumes, as mentioned above, that there must be a maximum threshold beyond which any increase in public debt would cause a negative influence on the macroeconomic space.

Fiscal Stance and Debt Profile of Nigeria

Table 1 shows the periodic growth rate of SSA and Nigeria's total debt for the periods 1981 – 1990, 1991 -2000, 2001 – 2010, and 2011 – 2020. It can be observed that for the first period (1981 – 1990), the average growth rate of public debt in Nigeria exceeded that of low-income SSA countries. In the following period (1991 -2000), the average growth rate of the low-income SSA countries and Nigeria dropped to 1.70% and -0.41% due to the debt forgiveness granted to highly indebted countries, of which 31 were from Africa and 10 from SSA including Nigeria. In the third period (2001 – 2010), the average growth rate of Nigeria’s debt declined to -12.97% while that of SSA increased to 3.43%. For the fourth period, the increase in debt by 10.02% and 11.73% shows that Nigeria appears to have incurred more debt than the entire low-income countries in SSA despite its large economy and natural resource endowment.

Table 1: Debt profile of low-income SSA countries compared to Nigeria

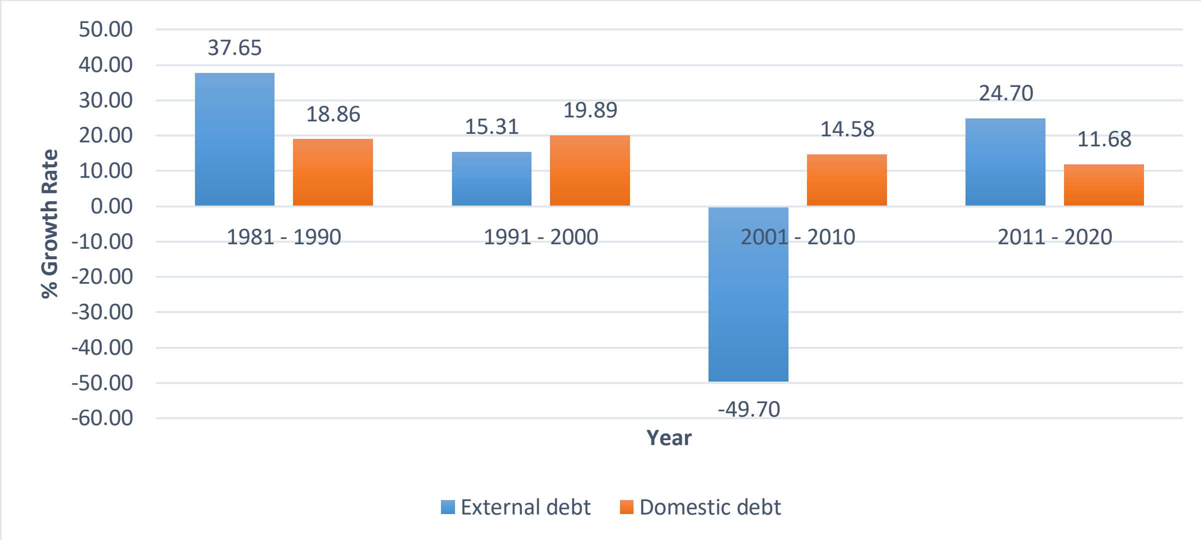
Period	**SSA's debt status**	**Nigeria's debt status**
1981 - 1990	9.76%	10.59%
1991 - 2000	1.70%	-0.41%
2001 - 2010	3.43%	-12.97%
2011 - 2020	10.02%	11.73%

Source: https://www.worldbank.org/en/programs/debt-statistics/ids/products

The origin of Nigeria's debt problem is tied to the collapse of the global oil price in 1981 and the persistent volatilities in the international oil market coupled with domestic lapses (Abbas & Christensen, 2010). Despite the series of refinancing and rescheduling, especially by foreign creditors, either members of the London Club (banks), Paris Club (governments), or independent creditors, Nigeria's indebtedness kept increasing over time. Even the government proposes to obtain ₦5.012 trillion to fund its fiscal gap in 2022, complicating Nigeria's debt situation, which is rapidly becoming unwieldy (Izuaka, 2021).

In 2005, the country's debt, mostly borrowed from the Paris Club creditors, stood at about $30 billion. After negotiations, the Paris Club announced a final agreement for debt relief worth $18 billion (most of which was registered as aid), and $12 billion was repaid by Nigeria in 2006 (Muhammad & Taofik, 2018). Unfortunately, the relief was short-lived as the country's external debt increased significantly between 2010 and 2020, with increases in debt service costs ranging from 11.19% and 39.42 % between 2010 and 2020 (CBN, 2020). The country is seen to be at a high risk of debt distress, especially between 2015 and 2020. Accumulated debt coupled with rising needs for public investments, including financing of strategic infrastructure amidst a low tax base, constitutes a severe challenge. As a result, budgetary allocation to enhance public investments has been a major problem facing Nigeria.

Figure 1: Growth rate (%) of external and domestic debt



Source: Central Bank of Nigeria (CBN) Statistical Bulletin (2020)

Figure 1 reveals that Nigeria's debt profile, especially foreign debt, has been increasing even after the debt relief granted by the Paris Club in 2005. The rising debt profile has attracted a huge cost of servicing, indicating that a large proportion of the country's revenue has been committed to debt servicing instead of productive investments that would ensure economic growth. This situation often drives the government to increase the tax rates, which in turn raises the tax burden on investors, leading to macroeconomic instability as investors (both domestic and foreign) resort to diverting their investments to less indebted countries with less macroeconomic economic swings, a process known as capital flight (Onyele & Nwokocha, 2016). The decline in the growth rate of external debt recorded between 2001 to 2010 was due to the debt relief of $18 billion granted to Nigeria by the Paris Club in 2005 (Muhammad & Taofik, 2018).

Table 2: Average growth rate (%) of total revenue and debt service

Period	**Revenue (₦'billion)**	**% change in revenue**	**Debt service (₦'billion)**	**% change in debt service**
1981-1990	27.91	--	5.79	--
1991-2000	557.15	94.99	56.51	89.75
2001-2010	4771.40	88.32	297.09	80.98
2011-2020	9069.14	47.39	1516.75	80.41

Source: Central Bank of Nigeria (CBN) Statistical Bulletin (2020)

The declining revenue generation depicted in Table 2 has been due to the over-reliance on oil revenue. This calls for proper economic diversification that would create other revenue sources capable of financing the country's investment needs and reducing the incidence of over-borrowing in the future. As such, concerns have been raised about why Nigeria has continually accumulated much debt while having its natural resource endowment and economic size. This unusual situation can be explained by the incessant fluctuations in oil prices, a product on which the Nigerian economy is based. A report from the Organization of Petroleum Exporting Countries (OPEC) shows that crude oil prices have been continually declining over the world market from 134 USD per barrel between 2008 and 2009 to 41.47 USD per barrel in 2020 (OPEC, 2021). However, government revenue in Nigeria comes from two major sources: oil and non-oil, but the former has contributed the largest over the years. On the other hand, tax collection statistics show that Nigeria needs to catch up with many countries, as less than 30% of the workforce pays taxes (Osemeke, 2020). It explains why government revenue is rapidly declining while the cost of debt servicing is persistently rising (Izuaka, 2021).

Table 3: Disaggregated government revenue

Period	Oil (₦'billion)	Non-oil (₦'billion)	Total (₦'billion)
1981-1990	20.08	7.83	27.91
1991-2000	435.96	121.19	556.19
2001-2010	3,799.90	971.51	4,771.41
2011-2020	5,695.67	3,373.47	9,069.14

Source: Central Bank of Nigeria (CBN) Statistical Bulletin (2020)

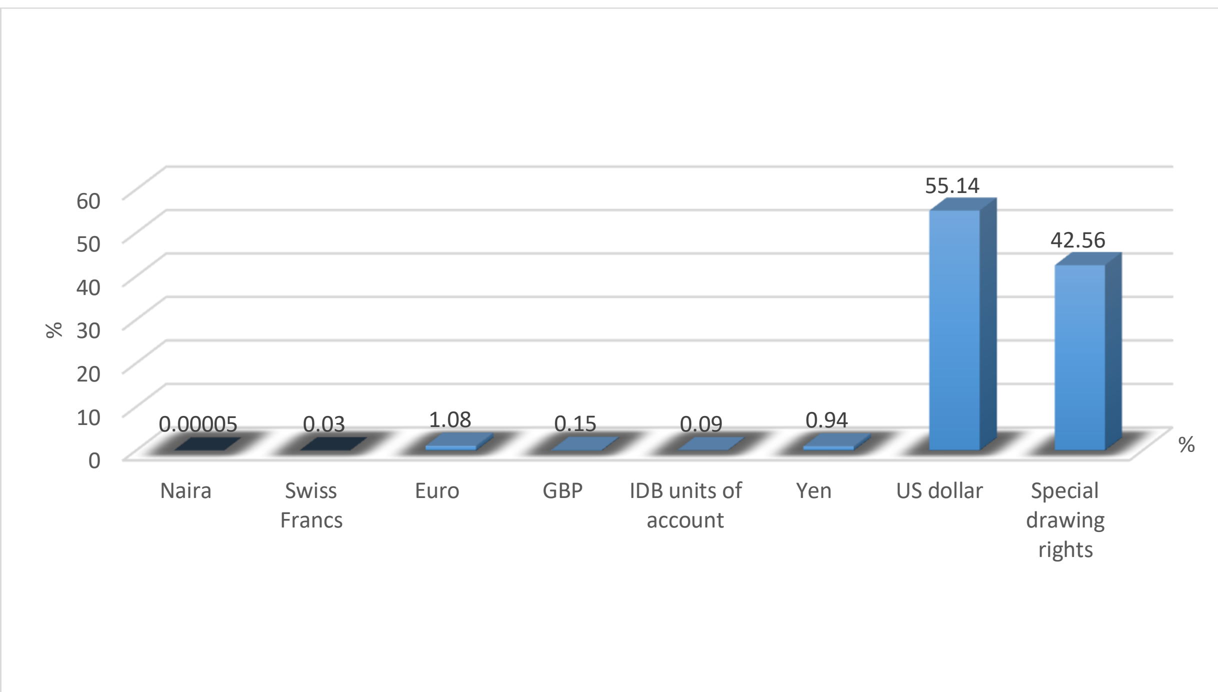
Irrefutably, Nigeria's economic attractiveness depends on the global oil market. Table 3 indicates that oil revenue has been higher than non-oil revenue, implying that Nigeria has not fully explored other sources of revenue generation to back up its economy, and worst of it all, recent efforts towards economic diversification is yet to yield a reasonable result as large importation of food and other foreign products are still ongoing, leading to unfavorable trade balance and the need for more borrowings to fund future investments.

Macroeconomic Swings in Nigeria

Adopting the Structural Adjustment Program (SAP) in 1986 triggered demand for foreign debt. Foremost, Nigeria's debt portfolio has high exposure to exchange rate risk due to the large proportion of foreign debt (Aderemi *et al.*, 2020). On the other hand, when the government accumulates debt from the local market (domestic debt), there would be excess demand for funds which raises the real interest rates and calls for monetary policy adjustments.

Figure 2 shows that the currency composition of Nigeria's external debt is mainly foreign currencies (especially the US dollar) and the Special Drawing Rights (SDR), which is a dollar-denominated international reserve asset created by the IMF to supplement its member countries' official reserve (DMO, 2020). This means that the Federal Government debt is exposed to exchange rate risk. According to the DMO, Government's total debt portfolio before 2016 had minimal exposure to foreign exchange risk due to the relatively high proportion of domestic currency debt in the portfolio at about 80%. However, continuous borrowing from different foreign sources in recent years could cause exchange rate risk due to currency mismatch, leading to macroeconomic downturns that could hinder future economic output and revenue generation (see, Kouladoum, 2018).

Figure 2: Currency composition (%) of Nigeria's debt

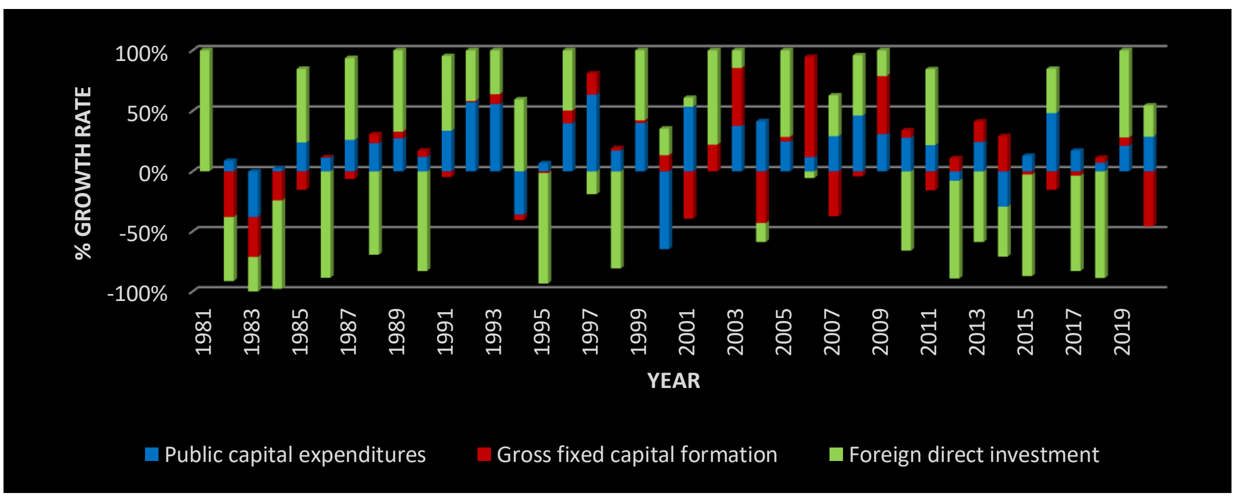


Source: Debt Management Office (DMO) of Nigeria, (2020)

Investment Climate of Nigeria

Investors in Nigeria are facing a challenging business environment. According to the Doing Business Report (2020), Nigeria ranks close to the bottom in "ease of doing business" (131 out of 189 countries), indicating the existence of core hindrances. The investment climate encompasses those attributes such as macroeconomic factors that influence the financial return on economic activities. Hence, a non-conducive investment climate would likely discourage the private sector from investing in both physical and human capital, leading to low productivity. According to the International Cooperative Alliance (ICA), the three most prominent constraints to doing business are lack of access to finance, electricity, and transport. Investment climate constraints such as macroeconomic and political instability significantly add to the cost of doing business in Nigeria (Guarco, 2021). Figure 3 looks at Nigeria's annual growth rate of key investment components.

Figure 3: Investment Profile of Nigeria



Source: Central Bank of Nigeria Statistical Bulletin (2020)

Empirical Review

The empirical frontier of the debt-investment relationship has improved in recent years. The foremost reason behind this development is the computation of debt sustainability and the optimal threshold. For example, debt sustainability measures such as total debt (% of revenue), total debt (% of GDP), and external debt (% of export earnings) all point to a country's ability to service its debt (DMO, 2019). The second motivation for the recent empirical development is the advances in econometric methods, such as the threshold regression used to estimate the optimal level of debt sustainability. From the review of empirical studies, the following were observed:

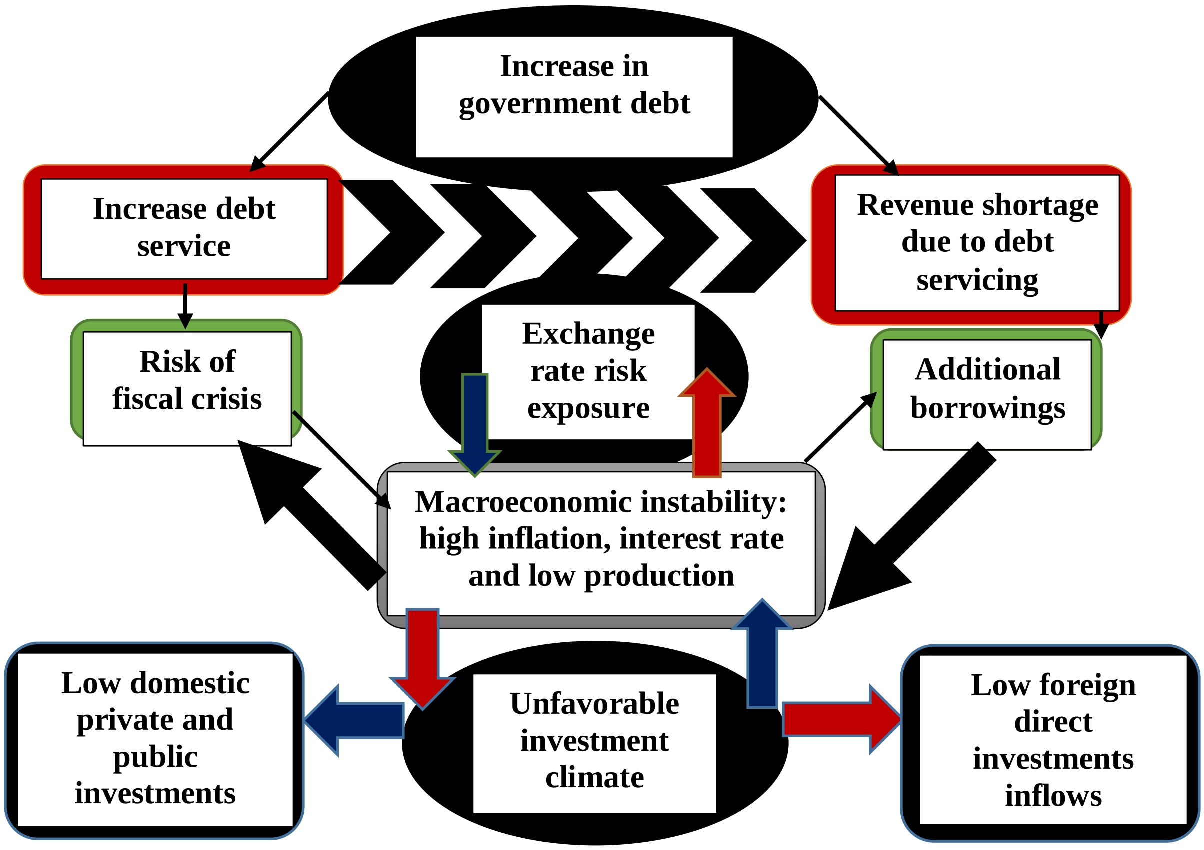
1. The econometric models are built on three theoretical perspectives.
    a) The first group investigated the threshold effects of public debt sustainability on investments (Omotor, 2021; Ramu, 2021; Pokou, 2020; Akinlo, 2021; Ndoricimpa, 2020; Fasoranti *et al.*, 2019; Khanfir, 2019; Knapkova *et al.*, 2019; Belguith & Omrane, 2019; Goedl & Zwick, 2018; Beqiraj *et al.*, 2018; Culling, 2017; Omotosho *et al.*, 2016; Pescatori *et al.*, 2014; Baum *et al.*, 2012).
    b) The second group estimated the crowding-out/crowding-in effects of debt on investments (Aliu *et al.*, 2021; Chukwu *et al.*, 2021; Mugumisi, 2021; Anoke *et al.*, 2021; Kia, 2020; Ogunjimi, 2019; Kasele *et al.*, 2019; Mabula & Mutasa, 2019; Omodero, 2019; Thilanka & Ranjith, 2018; Oche *et al.*, 2016; Kamundia *et al.*, 2015).
    c) The third strand of studies examined the relationship between debt and economic performance based on the debt overhang theory (Yussuf & Mohd, 2021; Onyele & Nwadike, 2021; Nzeh, 2020; Al-Dughme, 2019; Jilenga *et al.*, 2016).
2. Non-methodological reasons for the lack of a common consensus are variations in the macroeconomic policies of various countries. Ndoricimpa (2020) showed that no single threshold applies to all countries. Thilanka & Ranjith (2018) demonstrated that the threshold effect of public debt varies among countries.
3. The authors of this paper did not come across any empirical study that investigated the threshold effects of government debt on disaggregated investments (public, private, and foreign investments) amidst macroeconomic swings in Nigeria. However, in some studies, the effects of debt on private and public investments were estimated, but the aspect of FDI is scanty (Anoke *et al.*, 2021; Chukwu *et al.*, 2021; Omodero, 2019; Ogunjimi, 2019).

Conceptual Framework

The first viewpoint in the literature stresses that, in the nascent stages of national development, resource-scarce countries require borrowing to finance economic development. The second view states that a rise in the debt burden could exert a crowding-out effect on public investment capital which could be transmitted to private and foreign investments. In situations where it is complex to reduce current expenditure or to increase taxes, capital expenditures may be reviewed downwards, and domestic production falls below debt service capacity, a process known as debt overhang (IMF, 2020). Consequently, a direct effect occurs by a decrease in aggregate investments, especially in developing economies where public investment is a crucial part of aggregate investments. In contrast, an indirect effect occurs due to the complementarity that may arise between private and public investments (Sunday *et al.*, 2018). In debt sustainability analysis, liquidity and solvency debt measures are usually applied. Solvency risk focuses on the overall viability and ability of a country's economic size to accommodate and cover debt obligations – measured total debt to GDP ratio relative to a specified limit (threshold). On the other hand, liquidity risk reflects a country's capacity to meet and manage debt service obligations satisfactorily – measured as debt service cost (% of revenue and/or % of export earnings). These two categories of risks may not be congruent in all cases – a country could be distressed in one aspect but free in the other (Were & Mollel, 2020). Hence, it is paramount to consider these debt ratios along with macroeconomic dynamics that could ascertain the actual investment position in the medium to long term (World Bank, 2019).

Evidence shows that macroeconomic imbalances directly result in debt crises (Knapkova *et al.*, 2019; Dawood *et al.*, 2017). For this purpose, Omotor (2021), along with Sinha, Arora & Bansal (2011), pointed out that the impact of macroeconomic indicators is different in countries with different levels of economic development. There are differences, for example, in the effects of FDI, which has a greater impact on the indebtedness of the countries that belong to the middle-income group of countries compared to high-income countries. The second difference is that inflation and interest rates are important indicators for middle-income countries but not high-income countries (Akitoby *et al.*, 2017; Reinhart & Rogoff, 2010). The high variability of any change in interest rates or inflation thus has a significant impact on government borrowing costs. It has been reported that the variability of interest rates and inflation weakens the purchasing power of money and therefore causes exchange rate depreciations in an indebted country because more domestic currency would be required to service debt denominated in foreign currencies. These macroeconomic imbalances hinder the potency of debt, leading to debt crises, low investments, and low economic growth (Onyele & Nwadike, 2021).

Figure 4: Conceptual Framework



Research Methodology

Investment (domestic public, private, and foreign direct investments) was used as the dependent variable. Public investment (PBI) is measured by total government capital expenditure (% of GDP), private investment (PRI) is measured by gross fixed capital formation (% of GDP) and foreign direct investment (FD) is measured by total FDI net inflow (% of GDP). Debt sustainability is divided into debt liquidity (debt service to revenue ratio) and solvency (total debt stock to GDP ratio), and macroeconomic variables (exchange rate, inflation rate, and monetary policy rate) as the explanatory variables. Theoretically, macroeconomic variables are key determinants of investments that inform their inclusion in the empirical model. Data spanning from 1981 to 2020 were sourced from the Central Bank of Nigeria (CBN) and World

Development Indicators (WDI). With these datasets, threshold estimation was carried out to show Nigeria's optimal level of public debt sustainability.

Based on the crowding-out effect theory, this paper adopted the model specified in the empirical work of Ogunjimi (2019) as specified in equations 1 to 3:

$LPRINV_t = \beta_0 + \beta_1 LEXDBT_t + \beta_2 LDMDBT_t + \beta_3 LRGDP_t + \beta_4 INT_t + \varepsilon_t$ Eq. (1)

$LPUINV_t = \beta_0 + \beta_1 LEXDBT_t + \beta_2 LDMDBT_t + \beta_3 LRGDP_t + \beta_4 INT_t + \varepsilon_t$ Eq. (2)

$LFDI_t = \beta_0 + \beta_1 LEXDBT_t + \beta_2 LDMDBT_t + \beta_3 LRGDP_t + \beta_4 INT_t + \varepsilon_t$ Eq. (3)

LPRINV = Log of Private Investment

LPUINV = Log of Public Investment

LFDI = Log of Foreign Direct Investment Net Inflow

LEXDBT = Log of External Debt

LDMDBT = Log of Domestic Debt

LRGDP = Log of Real Gross Domestic Product

INT = Interest Rate (Monetary Policy Rate)

ε_t = White noise stochastic error term

The models applied in Ogunjimi's (2019) work were modified by taking debt sustainability measures such as debt service to revenue and total debt to GDP ratios to replace LEXDBT and LDMDBT. Hence, in this study, the following models are estimated for the threshold effect of debt sustainability on investments (public, private, and foreign direct investments):

$PBI_t = \beta_0 + \beta_1 DBS\_REV_t + \beta_2 EXR_t + \beta_3 INF_t + \beta_4 MPR_t + \mu_t$ Eq. (4a)

$PBI_t = \beta_0 + \beta_1 TDB\_GDP_t + \beta_2 EXR_t + \beta_3 INF_t + \beta_4 MPR_t + \mu_t$ Eq. (4b)

$PRI_t = \beta_0 + \beta_1 DBS\_REV_t + \beta_2 EXR_t + \beta_3 INF_t + \beta_4 MPR_t + \mu_t$ Eq. (5a)

$PRI_t = \beta_0 + \beta_1 TDB\_GDP_t + \beta_2 EXR_t + \beta_3 INF_t + \beta_4 MPR_t + \mu_t$ Eq. (5b)

$FDI_t = \beta_0 + DBS\_REV_t + \beta_2 EXR_t + \beta_3 INF_t + \beta_4 MPR_t + \mu_t$ Eq. (6a)

$FDI_t = \beta_0 + \beta_1 TDB\_GDP_t + \beta_2 EXR_t + \beta_3 INF_t + \beta_4 MPR_t + \mu_t$ Eq. (6b)

where, β_0 is the constant, β_1, β_2, β_3 andβ_4 denotes the coefficient parameters of the explanatory variables. The dependent variables are public investment (PBI), private investment (PRI) and foreign direct investment (FDI). DBS_REV denotes debt service (% of revenue), while TDB_GDP is total debt stock (% of GDP). Macroeconomic factors such as exchange rate, inflation rate, and monetary policy rate are represented by EXR, INF, and MPR, respectively where μ_t is the error term.

To establish a threshold model between debt sustainability and investments in Nigeria, the following threshold least squares were considered:

$$I_t = \gamma_t(S_t \leq S^*) + \gamma_t(S_t > S^*) + \lambda_{1t}X_{1t}(S_t \leq S^*) + \lambda_{2t}X_{2t}(S_t > S^*) + \lambda_{3t}X_{1t}(S_t \leq S^*) + \lambda_{4t}X_{1t}(S_t > S^*) + \zeta \qquad \text{Eq. (7)}$$

Where I_t represents the dependent variables (i.e., public, private, and foreign investments), X_{it} is a matrix of controls, S_t is the debt sustainability measures (DBS_REV and TDB_GDP), and $S^*$is the debt sustainability threshold; thus, $S_t \leq S^*$ is an indicator function.

From the models, debt sustainability can be interpreted as the result of the interaction between deficit financing and the macroeconomic environment (Were & Mollel, 2020). To prevent over-indebtedness, policymakers usually respond to the dynamic conditions of macroeconomic factors (Aderemi *et al.*, 2020). As such, public debt levels can be low, but if the macroeconomic variables are not prudently managed, more debt would be accumulated, leading to sustainability challenges and low investments (IMF, 2014).

Table 4: Description of model variables and data sources

Dependent variables			
Variable	**Measurement**	**Source**	**Description**
Public investment (PBI)	Total capital expenditure (% of GDP)	CBN (2020)	This variable is used to measure public investments as it captures the contribution of government capital expenditure to GDP.
Private investment (PRI)	Gross fixed capital formation (% of GDP)	CBN (2020)	This ratio indicates how much aggregate factor income is ploughed back into fixed assets.
Foreign direct investment (FDI)	Foreign direct investment (% of GDP)	WDI (2020)	This assesses investment integration with the global economy. A rate of 5 – 6% is recommended.
Independent variables {debt sustainability}:			
Liquidity risk	Debt service (% of revenue) (DBS_REV)	CBN (2020)	This variable denotes liquidity risk which reflects a country's ability to meet its debt repayment from the generated revenue. It ranges between 28% -30% (IMF, 2020).

Solvency risk	Total debt (% of GDP) (TDB_GDP)	CBN (2020)	This variable focuses on solvency risk which implies the ability of a country's GDP to cover debt obligations. The ratio should be below 60% (Jensen, 2021).
Independent variables {macroeconomic variables}:			
Exchange rate (EXR)	Naira – Dollar rate	CBN (2020)	Fluctuations in exchange rate stimulate or dampen investments by affecting demand in both the export and domestic markets.
Inflation rate (INF)	Annual % change in the consumer price index	CBN (2020)	Uncontrolled inflation poses a threat to investors because it erodes investment returns.
Monetary policy rate (MPR)	CBN monetary policy rate	CBN (2020)	Directly, MPR impacts investment through interest rates, its indirect impact is seen through expectations of future inflation.

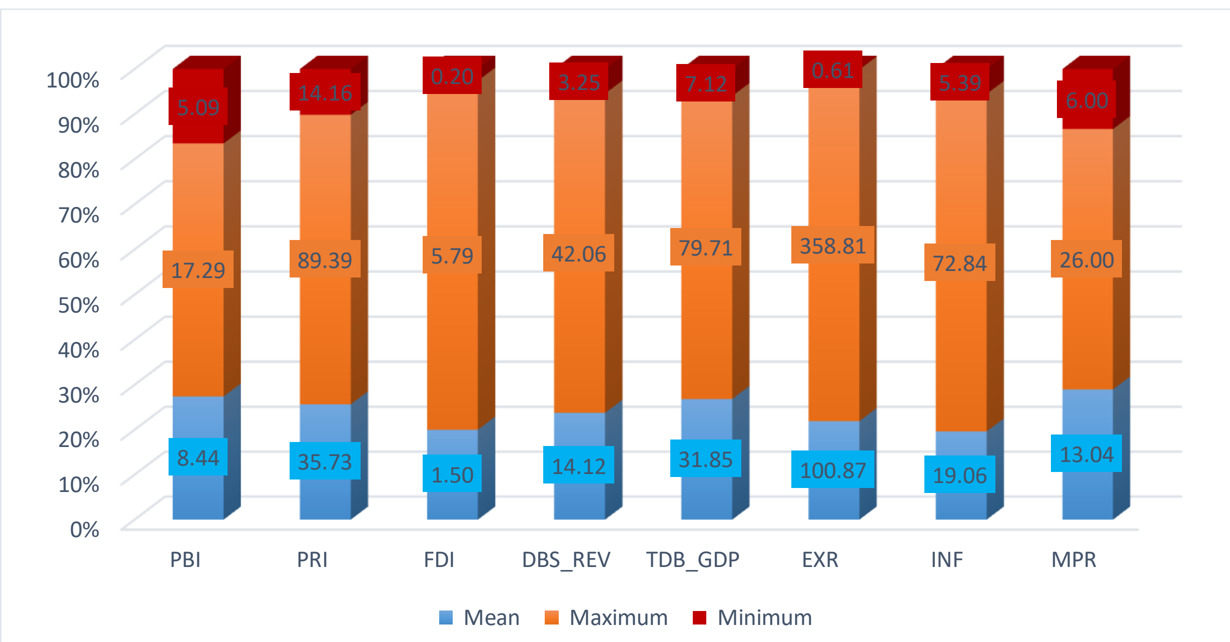
Source: Authors' compilation

Findings and Discussion

Descriptive Analysis of Data

The descriptive analysis shows the basic properties of the data used for the time series analysis (see appendix for the data). The results of the descriptive analysis are displayed in Figure 5.

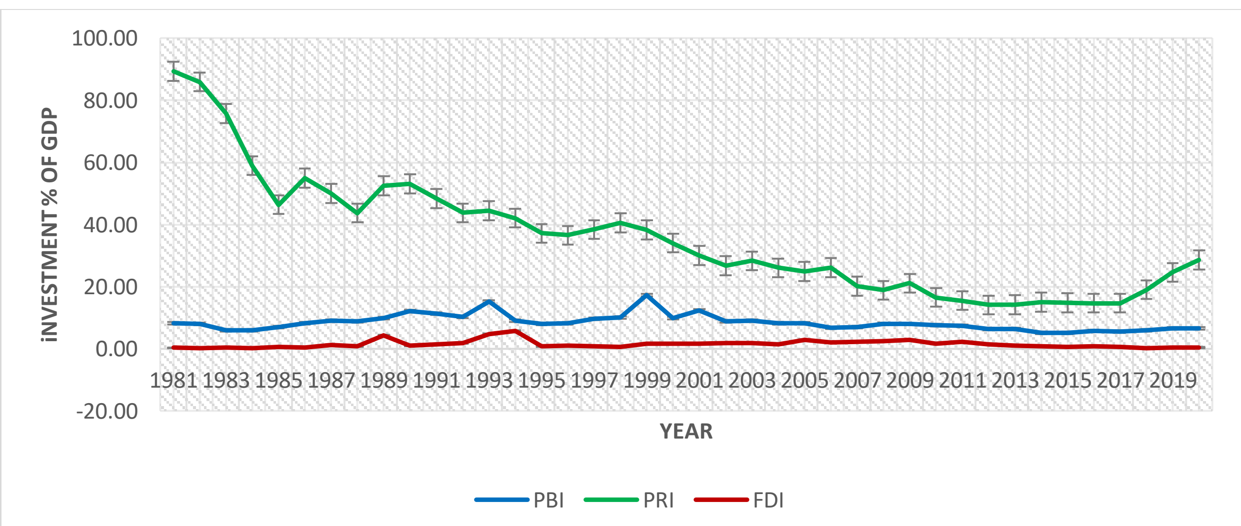
Figure 5: Descriptive Statistic



Source: Own computation (2021)

The mean values of the various categories of investments, PBI (8.44%), PRI (35.73%), and FDI (1.50%), suggest that investment in Nigeria is generally dismal, especially FDI. The minimum and maximum values show that PBI ranged from 5.09% to 17.29%, PRI ranged from 14.16% to 89.39%, while FDI ranged from 0.20% to 5.79%. Looking at the descriptive analysis, it was observed that though the components of investment recorded some periods of increase, however; the mean values suggest that their performance over the period (1981 to 2020) was low. Apart from the unstable macroeconomic cited, corruption and insecurity are serious hindrances to the country's investment opportunities and are often cited by foreign and domestic investors as a significant obstacle to doing business. Insecurity includes the ongoing religious tensions, terrorism, and ethnic tensions, military in politics, corruption, and (civil) war experienced in Nigeria over the last decades (Danjuma, 2021). The impact of the Covid-19 pandemic played a part, with many businesses across the globe practically shut down for months. The fall in domestic private investments could imply that Nigerian investors are relocating to other countries for safety, while the fall in FDI means that overseas companies setting up in Nigeria has drastically reduced. Figure 6 presents the diagrammatical representation of the time series data associated with the various investments.

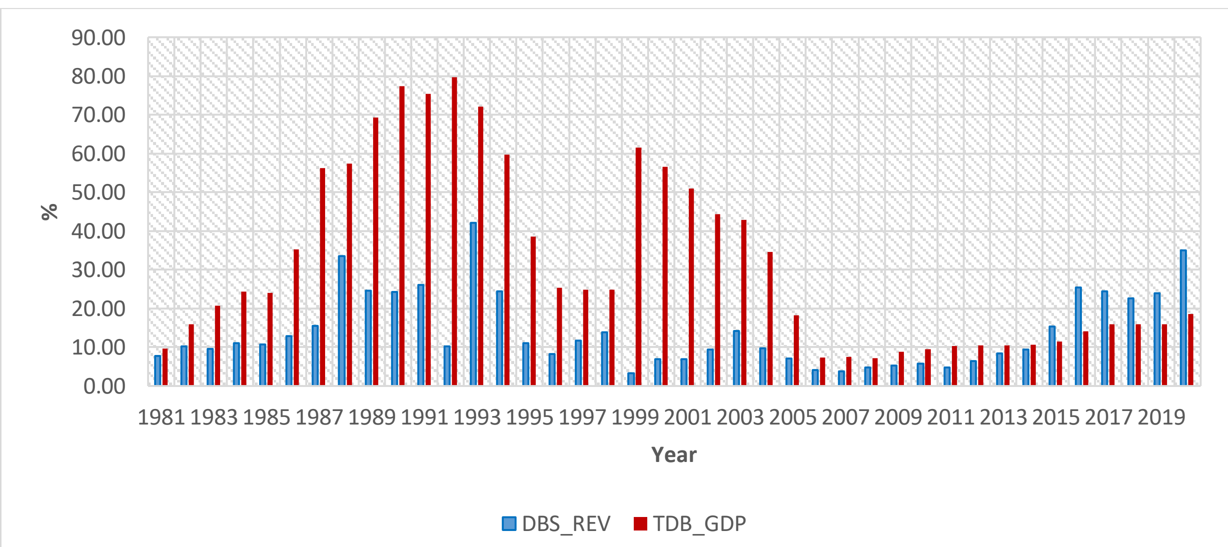
Figure 6: Time plot of investments



Source: Computed by authors using data from the Central Bank of Nigeria Statistical Bulletin (2020) and World Development Indicators

As earlier stated in the introductory section of this paper, Nigeria's debt profile has been rising rapidly even after the debt relief of 2005, while its revenue generation capacity has been shrinking alongside its GDP, as shown by the mean values of DBS_REV (14.12%) and TDB_GDP (31.85%). This is evident in the countries' debt service to revenue ratio and total debt to GDP ratio, has been largely below the globally recommended threshold of 28% to 30% and 60%, respectively, for indebted developing countries like Nigeria, as shown by the mean values (Onyele & Nwadike, 2021). The minimum and maximum values for DBS_REV indicate values ranging from 3.25% to 42.06%, indicating the rising cost of debt servicing and low revenue. TDB_GDP shows value ranging from 7.12% to 79.71%, implying that Nigeria's GDP could not cover the value of its total debt, that is, Nigeria's production value was less than its debt stock. The trend of DBS_REV and TDB_GDP is plausibly due to the fact that Nigeria is highly indebted but has been unable to repay its debt due to low revenue generation and a poor macroeconomic environment that has undermined investments requisite for revenue generation. The time plot of the government debt series is plotted in Figure 7.

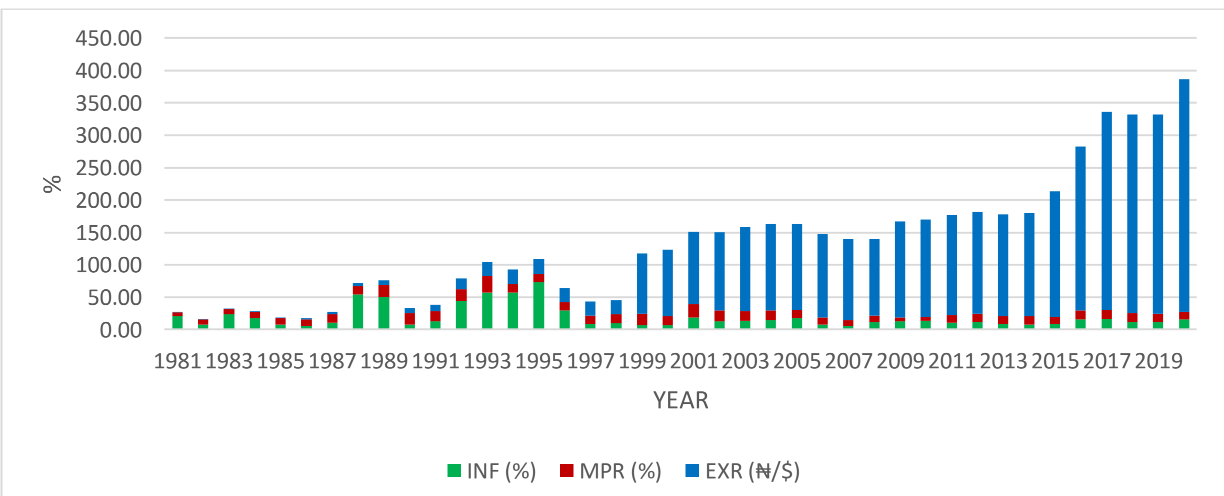
Figure 7: Time Plot of Government Debt



Source: Computed by authors using data from the Central Bank of Nigeria Statistical Bulletin (2020)

The descriptive analysis also indicates a worsening macroeconomic environment as the Nigerian economy is failing to sustain its growth and stable momentum experienced in the mid-1980s. The descriptive analysis buttresses this point by showing an average (mean) EXR (₦100.87/$1) with values ranging from ₦0.61/$1 to ₦358.81/$1, indicating substantial currency depreciation in Nigeria. The high exchange rate between the naira and the US dollar has been attributed to the fact that Nigeria is an import-dependent economy coupled with the fact that the oil sector, which happens to be the mainstay of the economy, remains stuck in negative territory due to oil price volatility (OPEC, 2021). Also, inflation (INF) hit the double digits at 19.06% on average with a series that ranged between 5.39% and 72.84%, implying that the Nigerian macro economy has been experiencing high price levels, which has been adduced to a disruption in the supply of food products, the rising cost of fuel, high import costs, unstable exchange rate and a general increase in production costs (Aigheyisi, 2018). To contain the surge in EXR and INF, the Central Bank would often adjust the monetary policy rate (MPR) either upwards or downwards. The MPR averaged 13.04%, which values ranging from 6.00% to 26.00%, showing that the lending rate would also rise higher since the MPR is the rate the commercial banks borrow from the Central Bank, which could further worsen the macroeconomic situation. The annual trend of the aforementioned macroeconomic variables is displayed in Figure 8.

Figure 8: Trend of macroeconomic variables



Source: Computed by authors using data from the Central Bank of Nigeria Statistical Bulletin (2020)

Econometric Results

Before the econometric analysis, the unit root test was done to find out the stationarity of the variables, and a check for cointegration test was carried out to ascertain the existence of a long-run relationship among the model variables.

Unit Root Test Results

Testing for unit root is crucial in determining the integration order of the variables and circumventing the potential of spurious regression. Augmented Dickey-Fuller (ADF) unit root test is the popularly used stationary test but may need to be more reliable in detecting structural breaks. Structural breaks could occur due to recession, policy change, pandemic, and others, affecting the stationarity of time series data. So, unit root tests without looking into structural breaks could erroneously reject the stationarity of data. To address the limitations of the standard ADF test, the Zivot-Andrews (1992) unit-root test was conducted to take cognizance of possible endogenous structural breaks to ascertain the robustness of the stationarity results. Also, a modified approach in which the data series has been transformed by a generalized least-squares regression known as the Dickey-Fuller generalized least squares (DF-GLS) de-trending test was carried out.

Table 5: Unit-root test results

Variables	DF-GLS t-Statistic		Zivot-Andrews t-Statistic		Break Date	Order of Integration
	I(0)	I(1)	I(0)	I(1)		
PBI	-2.1803	-10.259	-5.0126	-	1988	Level, I(0)
PRI	-1.967	-5.383	-3.711	-7.328	1985	First difference, I(1)
FDI	-3.733	-	-4.886	-	1988	Level, I(0)
DBS_REV	-2.615	-8.608	-3.921	-9.905	1995	First difference, I(1)
TDB_GDP	-2.170	-4.333	-6.353	-	1999	Level, I(0)
EXR	-0.753	-4.829	-3.286	-5.602	2014	First difference, I(1)
INF	-3.200	-	-6.230	-	2003	Level, I(0)
MPR	-2.912	-8.725	-4.292	-10.404	1993	First difference, I(1)
Test critical values:	1% level	-3.770	1% level	-5.347		
	5% level	-3.190	5% level	-4.860		

Source: Own computation (2021)

In both DF-GLS and Zivot-Andrews tests, the null hypothesis is that the data series contain unit root (non-stationary) against the alternative hypothesis of a stationary process. As can be observed in Table 5, both approaches to unit root testing indicate that the order of integration for the variables is different. PBI, FDI, TDB_GDP, and INF are stationary at levels, while the rest of the variables attained stationarity after their first differences. It should be noted that the test rejects the null hypothesis of non-stationarity if the test statistic values are more significant than the critical values at a 5% level of significance.

Looking at the break date, structural breaks in investments (PBI, PRI, and FDI) took place between 1985 and 1988, which happens to be the window of the Structural Adjustment Program (SAP). The structural break for DBS_REV took place in 1995 plausibly due to the fiscal austerity measures that lasted from the 1980s to the late-1990s coupled with the institution of a controlled exchange rate regime in 1994, which was reestablished under the foreign exchange decree of 1995, indicating that changes in macroeconomic policies could affect debt sustainability (Ogunlana, 2016). The break date of TDB_GDP could be attributed to the transition from a military to a democratic regime in 1999, showing that the system of governance could affect the government's ability to sustain its debt (Muhammad & Taofik, 2018; Dinneya, 2006). The break date of the exchange rate (EXR) could be associated with the depreciation that occurred in 2014 due to the scarcity of dollars in the market, which was further oscillated by banks' refusal to sell dollars to Bureau De Change (BDCs) operators (Omoh, 2014). The break date for inflation (INF) was observed in 2003, probably due to the decline in oil prices and high import costs (Chukwuogor & Ndu, 2018). The 1993 break date for the monetary policy rate (MPR) could be attributed to the later part of the austerity measure aimed at reducing inflation and easing pressure on the external sector and balance of payment.

Cointegration Test

Following that, the model variables are found to be integrated in a different order; the Pesaran, Shin & Smith (2001) bounds test is employed for the cointegration test to ascertain the presence of a long-run cointegrating relationship among the variables. The bounds testing method assumes a null hypothesis of no cointegration that can be rejected if the F-statistic exceeds the upper bound, I(1) critical value at 5% level and vice versa if the F-statistic falls below the lower bound critical value, I(0). Table 6 presents the Pesaran *et al.* (2001) bounds test results for cointegration.

Table 6: Bounds test for cointegration

	Model with PBI	Model with PRI	Model with FDI
DBS_REV, EXR, INF and MPR			
F-statistic:	3.675	5.173	3.860
Critical values:	Lower bound {2.56} Upper bound {3.49}	Lower bound {2.56} Upper bound {3.49}	Lower bound {2.56} Upper bound {3.49}
Wald test (P-value)	262.690 {0.000}***	46.360 {0.000}***	19.164 {0.000}***
TDB_GDP, EXR, INF and MPR			
F-statistic:	8.918	4.273	
Critical values:	Lower bound {2.56} Upper bound {3.49}	Lower bound {2.56} Upper bound {3.49}	Lower bound {2.56} Upper bound {3.49}
Wald test (P-value)	16.731 {0.000}***	61.138 {0.000}***	5.414 {0.000}***

Source: Own computation (2021)

Table 6 indicates that the bounds test is conclusive and shows the existence of cointegration as the F-statistic exceeds the critical values of the lower and upper bounds at a 5% significance level. Besides, the Wald test was performed to ascertain whether the long-run estimates are statistically significant, confirming the presence of a long-run cointegrating association in all the models at a 1% significance level.

Threshold auto-regressive (TAR) model

As earlier defined, debt sustainability deals with a country's ability to maintain adequate liquidity and solvency thresholds to ensure efficient debt servicing and carriage within the economy. By debt liquidity, it is implied that the government generates adequate revenue for debt servicing, while debt solvency means that the indebted economy has the necessary investment outlets to accommodate the borrowed funds (DMO, 2019). As such, undertaking a threshold analysis for debt service (% of revenue) and total debt stock (% of GDP) is important.

Before embarking on the threshold analysis, a test for the presence of significant debt threshold effects was carried out using the Bai & Perron (1998) testing approach.

Table 7: Threshold test

Threshold test	**Scaled F-statistic**			
	DBS_REV	**TDB_GDP**	**Critical value**	**Remark**
Equation 4: PBI	**A**	**B**		
H_O: no threshold H_1: one threshold	24.787*	18.663*	11.47	Nonlinear relationship
H_O: one threshold H_1: two threshold	1.255	17.441*	12.95	
Equation 5: PRI	**A**	**B**		
H_O: no threshold H_1: one threshold	12.014	25.489*	11.47	Nonlinear relationship
H_O: one threshold H_1: two threshold	-	-	12.95	
Equation 6: FDI	**A**	**B**		
H_O: no threshold H_1: one threshold	15.588*	15.383*	11.47	Nonlinear relationship
H_O: one threshold H_1: two threshold	4.339	15.905*	12.95	

Source: Own computation (2021)

As reported in Table 7, the null hypothesis of no threshold (linear model) is rejected in favor of one threshold of DBS_REV in the case of equation 4(a), while the null hypothesis of one threshold (two-regime) of TDB_GDP was rejected in favor of two thresholds for equation 4(b). Further, in equation 5(a), the null hypothesis of no threshold of DBS_REV was accepted, while the alternative of one threshold of TDB_GDP was accepted for equation 5(b). In equation 6(a), the null hypothesis of no threshold was rejected in favor of the alternative hypothesis of a single threshold of DBS_REV, while in equation 6(b), the alternative hypothesis of two thresholds for TDB_GDP was accepted. In summary, the threshold test results indicate the existence of varying threshold values (two-regime model) for different investment categories in the analysis except for equation 5(a), where no threshold was found for DBS_REV. The outcome shows evidence of a threshold relationship (non-linear) between debt sustainability (DBS_REV and TDB_GDP) and investments (PBI, PRI, and FDI) since their respective F-statistic values are lower than the Bai-Perron critical Following the presence of significant non-linear relationships across the model, the TAR model ascertained the effects of debt on investments below and above the threshold values.

TAR Model for DBS_REV and Investments

Considering the case of DBS_REV as a threshold variable in Table 8, the results from the TAR model indicate that the optimal threshold of the DBS_REV ratio was not consistent for PBI, PRI and FDI. However, the varying signs of the coefficients below and above the threshold value indicate that the relationship between DBS_REV and the three investment categories (PBI, PRI, and FDI) followed a non-linear path throughout the study. The nonlinearity shows that investment changes do not directly affect variations in the DBS_REV ratio.

Table 8: TAR model result for DBS_REV and investments

	PBI	**PRI**	**FDI**
Threshold (T):			
First regime	8.206	10.913	11.760
Threshold variable			
DBS_REV < T	-0.463{0.096}*	3.016{0.045}**	-0.353{0.000}***
DBS_REV > T	0.072{0.036}**	-1.975{0.178}	0.006{0.874}
Non-threshold variables:			
EXR	-0.014{0.000}**	-0.155{0.000}***	-0.002{0.389}
INF	-0.027{0.085}*	-0.207{0.237}	0.036{0.006}***
MPR	0.448{0.000}***	-1.339{0.027}**	-0.141{0.000}***
R-squared	0.785	0.678	0.612
Adj. R-squared	0.745	0.594	0.523
F-statistic	20.030{0.000}***	8.141{0.000}***	5.774{0.000}***
Model diagnostics:			
Serial Correlation	1.26896{0.3031}	1.92058{0.1021}	0.04242{0.9585}
Heteroskedasticity	1.42790{0.3661}	1.31377{0.2840}	0.24726{0.3097}
Jarque-Bera test	4.35655{0.1132}	4.84070{0.0889}	1.93753{0.5930}
CUSUM test	Stable	Stable	Stable

Source: Own computation (2021)

Specifically, it was found that below each threshold, DBS_REV have a diminishing effect on public investment (PBI) and foreign direct investment (FDI), while its impact on private investment (PRI) was found to be positive. Also, the effect of DBS_REV below the threshold value was significant for PRI and FDI but insignificant for PBI, while it was only significant for PBI above the threshold value. The reason for the negative and significant effect of DBS_REV below the threshold could be that a liquidity crisis has trapped the Nigerian government, hence is not generating adequate revenue to clear outstanding debt, which has lowered public investment and discouraged foreign investors due to the fear that government would increase taxes to service the outstanding debt. This negates the assumption that public debt will only distort investments when exceeding the debt threshold. As such, there needs to be evidence to support the presence of debt sustainability in Nigeria, even below the threshold values, as investments are being crowded out. The coefficients of the threshold variables indicate a non-linear relationship between DBS_REV and investments (PBI, PRI, and FDI).

Regardless of the level of DBS_REV, the exchange rate (EXR) harms PBI, PRI, and FDI but is significant for PBI and PRI. The inflation rate (INF) harms PBI and PRI and positively and significantly affects FDI. It was also found that despite the level of DBS_REV, the monetary policy rate (MPR) had a significant effect on PBI, PRI, and FDI. This shows that the effect of DBS_REV is transmitted to different classes of investments through its effects on macroeconomic variables. This is because high debt servicing brings about revenue losses and low public expenditure, hence low productivity, high inflation rate, exchange rate depreciation, and high-interest rates, which automatically distort investments.

Consequently, with insufficient revenue generation and the need for debt servicing in the face of macroeconomic instability, investments are persistently undermined, leading to further borrowing (over-indebtedness) as supported by the endogenous growth theory (Knapkova *et al.*, 2019; Dawood *et al.*, 2017). The coefficient of multiple determination (Adj. R-squared) shows that the collective effects of DBS_REV and macroeconomic variables (EXR, INF, and MPR) explained approximately 75%, 59%, and 52% of the total variations in PBI, PRI, and FDI, respectively while the F-statistic signifies that this collective effect is statistically significant. Again, the diagnostic test results show that the models have an insignificant problem of serial correlation and heteroskedasticity, and the residuals are normally distributed.

TAR Model for TDB_GDP and Investments

The results of the TAR model for TDB_GDP and investments are reported in Table 9. The threshold values, TDB_GDP, exerted positive and significant effects on PBI and PRI but negative and insignificant for FDI. When the TDB_GDP exceeds the threshold value for the first regime, PBI is positively and significantly affected, while PRI is negatively and insignificantly affected, and FDI is positive, but the effect is statistically insignificant. During the second regime, both PBI and FDI were significantly and negatively affected when the TDB_GDP exceeded the threshold of approximately 62% and 60%, respectively. These findings imply varying thresholds for different investment categories. Also, the varying estimated coefficients of the threshold variable (TDB_GDP) imply a non-linear relationship; that is, an increase in TDB_GDP will not result in corresponding investments.

Table 9: TAR model result for TDB_GDP and investments

	PBI	**PRI**	**FDI**
Threshold (T):			
First regime	10.234	24.091	10.500
Second regime	61.510	--	59.724
Third regime	61.510	--	59.724
Threshold variable			
TDB_GDP < T	0.292{0.000}***	3.123{0.000}***	-0.300{0.197}
TDB_GDP ≥ T	0.047{0.008}***	-0.252{0.113}	0.001{0.923}
TDB_GDP > T	-0.295{0.000}***	-	-0.141{0.003}***
Non-threshold variables:			
EXR	-0.007{0.005}***	-0.164{0.000}***	-0.000{0.945}
INF	-0.033{0.009}***	-0.083{0.475}	0.019{0.044}**
MPR	0.372{0.000}***	-1.202{0.104}	0.116{0.048}**
R-squared	0.860	0.752	0.666
Adj. R-squared	0.824	0.707	0.579
F-statistic	23.769{0.000}***	16.707{0.000}***	7.714{0.000}***
Model diagnostics:			
Serial Correlation	1.370{0.270}	1.867{0.172}	0.311{0.735}
Heteroskedasticity	1.428{0.366}	1.764{0.137}	2.141{0.062}
Jarque-Bera test	4.766{0.092}	2.143{0.343}	2.825{0.244}
CUSUM test	Stable	Stable	Stable

Source: Own computation (2021)

From the coefficients of the non-threshold variables, it was found that irrespective of the level of the TDB_GDP ratio, the exchange rate (EXR) had a negative effect across the investment categories but did not exert a significant effect on FDI. Inflation (INF), on the other hand, exerted a negative effect on PBI and PRI and a positive effect on FDI, with its effects on PBI and FDI being significant. Monetary policy rate (MPR) had a positive and significant effect on PBI and FDI, while INF exerted a negative and insignificant effect on PRI.

Based on the coefficient of multiple determination (denoted by Adj. R-squared) indicates that the total variations in PBI, PRI, and FDI accounted by TDB_GDP and macroeconomic variables (EXR, INF, and MPR) were approximately 82%, 71%, and 58%, respectively. The F-statistic confirms that the collective effects of the threshold variable and macroeconomic variables are statistically significant. The diagnostic test confirms the models' absence of serious serial correlation, heteroskedasticity, and distribution problems.

Granger Causality

The study went further to test the direction of the relationship existing among the variables. The Granger causality test in Table 10 below indicates that causality flowed from DBS_REV to TDB_GDP, not the other way round. This implies that the major problem facing Nigeria is that of lack of revenue (high liquidity risk) to adequately service outstanding debt, thus affecting the country's capacity to accommodate further borrowing (solvency risk), thus, causing unsustainable debt regimes that have pushed the country into the debt trap. It was also found that TDB_GDP Granger caused all the categories of investments considered in the study. On the other hand, a one-way causal flow was found from EXR to DBS_REV and TDB_GDP, indicating that the exchange rate could influence debt sustainability.

Table 10: Granger causality test

Direction of causality	Obs	F-Statistic	Prob.
DBS_REV does not Granger Cause PBI	38	4.143	0.031
PBI does not Granger Cause DBS_REV		1.353	0.273
TDB_GDP does not Granger Cause PBI	38	1.143	0.331
PBI does not Granger Cause TDB_GDP		0.286	0.753
FDI does not Granger Cause PRI	38	0.510	0.605
PRI does not Granger Cause FDI		0.375	0.690
DBS_REV does not Granger Cause PRI	38	3.944	0.027
PRI does not Granger Cause DBS_REV		0.048	0.953
TDB_GDP does not Granger Cause PRI	38	5.033	0.007
PRI does not Granger Cause TDB_GDP		2.793	0.076
DBS_REV does not Granger Cause FDI	38	3.741	0.034

FDI does not Granger Cause DBS_REV		3.776	0.033
TDB_GDP does not Granger Cause FDI	38	3.775	0.033
FDI does not Granger Cause TDB_GDP		2.503	0.097
TDB_GDP does not Granger Cause DBS_REV	38	2.621	0.088
DBS_REV does not Granger Cause TDB_GDP		4.753	0.015
EXR does not Granger Cause DBS_REV	38	4.423	0.028
DBS_REV does not Granger Cause EXR		0.543	0.586
INF does not Granger Cause DBS_REV	38	1.032	0.368
DBS_REV does not Granger Cause INF		3.901	0.041
MPR does not Granger Cause DBS_REV	38	1.873	0.170
DBS_REV does not Granger Cause MPR		0.983	0.385
EXR does not Granger Cause TDB_GDP	38	3.989	0.033
TDB_GDP does not Granger Cause EXR		0.209	0.813
INF does not Granger Cause TDB_GDP	38	0.249	0.781
TDB_GDP does not Granger Cause INF		5.532	0.009
MPR does not Granger Cause TDB_GDP	38	0.924	0.407
TDB_GDP does not Granger Cause MPR		4.753	0.015

Source: Own computation (2021)

Conclusion

This paper analyzed the threshold effects of debt sustainability on Nigeria's investment profile amidst macroeconomic swings. Based on the trend analysis, the study found evidence of over-indebtedness, macroeconomic swings, low investments, and lack of debt sustainability in Nigeria. The study showed that the measures of debt sustainability, that is, debt service (% of revenue) and total debt (% of GDP), have a non-linear relationship with public, private, and foreign investments in Nigeria, even in the face of macroeconomic fluctuations, meaning that an increase in government borrowing reduced investments. This implies that Nigeria's increasing debt profile could have been more favorable, suggesting poor debt sustainability measures. This is why it would be rational to peg borrowing within a reasonable limit that can be serviced with the revenue-generating capacity of the government.

In determining the threshold effect of debt on investments, it was generally indicated that public, private, and foreign investments respond differently at various threshold levels. This reveals that there is no generally applicable optimal level of debt in Nigeria and that debt optimality depends on the indebted country's macroeconomic characteristics and the government's fiscal behavior. Since a causal flow emanated from DBS_REV to TDB_GDP, it is concluded that debt sustainability is hinged on the government's ability to service debt from its revenue. It means that the government focuses on an optimal threshold for debt service (% revenue) rather than just measuring its debt sustainability with the total debt stock (% of GDP). As such, the Nigerian government should deepen economic diversification, reduce its reliance on oil revenue, produce more for exports, and maintain the debt service (% of revenue) between 8% and 12%, strengthening the economy and encouraging growth in investments.

Again, it is observed that exchange rate Granger caused debt service (% of revenue), implying that the lack of debt sustainability could be transmitted through exchange rate fluctuations. This is because Nigeria largely borrows in hard currencies and has yet to generate adequate foreign exchange rate revenue to repay these debts, probably due to the fluctuations in the global oil market on which its economy depends. Consequently, the Nigerian government should focus on macroeconomic stabilization by ensuring that domestic production is enhanced to increase export earnings to service the outstanding debt and avert the exchange rate risk inherent in public debt since Nigeria's debt is largely denominated in foreign currencies.

Future Scope of Research

The findings from this research suggest there is much room for further studies. While there exists an empirical link between government debt, macroeconomic factors, and investments of various types, yet, there still needs to be more knowledge to support the intermediating roles of various macroeconomic variables in Nigeria. Future analysis along these and similar lines appears to be a promising avenue for further research.

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Appendix

Data used for the time series analysis

YEAR	PBI	PRI	FDI	DBS_REV	TDB_GDP	EXR	INF	MPR
1981	8.19	89.39	0.33	7.73	9.71	0.61	20.81	6.00
1982	8.00	85.94	0.30	10.21	15.99	0.67	7.70	8.00
1983	6.07	75.76	0.38	9.58	20.66	0.72	23.21	8.00
1984	5.99	58.96	0.26	10.98	24.41	0.76	17.82	10.00
1985	6.94	46.40	0.66	10.67	24.09	0.89	7.44	10.00
1986	8.19	54.95	0.35	12.95	35.28	2.02	5.72	10.00

1987	9.00	50.05	1.16	15.48	56.23	4.02	11.29	12.75
1988	8.79	43.75	0.76	33.48	57.34	4.54	54.51	12.75
1989	9.89	52.49	4.28	24.64	69.29	7.39	50.47	18.50
1990	12.18	53.12	1.09	24.28	77.37	8.04	7.36	18.50
1991	11.28	48.40	1.45	26.16	75.36	9.91	13.01	15.50
1992	10.24	43.77	1.88	10.19	79.71	17.30	44.59	17.50
1993	15.21	44.48	4.85	42.06	72.14	22.05	57.17	26.00
1994	9.10	42.07	5.79	24.47	59.72	21.89	57.03	13.50
1995	8.02	37.21	0.76	11.10	38.53	21.89	72.84	13.50
1996	8.25	36.58	0.98	8.21	25.39	21.89	29.27	13.50
1997	9.69	38.42	0.86	11.76	24.84	21.89	8.53	13.50
1998	10.14	40.55	0.55	13.89	24.85	21.89	10.00	13.50
1999	17.29	38.28	1.69	3.25	61.51	92.69	6.62	18.00
2000	9.93	34.05	1.64	6.87	56.57	102.11	6.93	14.00
2001	12.36	30.04	1.61	6.96	50.92	111.94	18.87	20.50
2002	8.85	26.77	1.96	9.46	44.33	120.97	12.88	16.50
2003	9.04	28.37	1.91	14.12	42.84	129.36	14.03	15.00
2004	8.30	26.06	1.37	9.76	34.54	133.50	15.00	15.00
2005	8.30	24.97	2.83	7.10	18.26	132.15	17.86	13.00
2006	6.71	26.17	2.06	4.18	7.26	128.65	8.23	10.00
2007	7.07	20.18	2.19	3.73	7.52	125.83	5.39	9.50
2008	8.11	18.86	2.43	4.85	7.12	118.57	11.58	9.75
2009	7.94	21.12	2.93	5.20	8.79	148.88	12.55	6.00
2010	7.56	16.56	1.67	5.69	9.45	150.30	13.72	6.25
2011	7.40	15.53	2.18	4.74	10.23	153.86	10.84	12.00
2012	6.34	14.16	1.55	6.38	10.42	157.50	12.22	12.00
2013	6.40	14.17	1.09	8.48	10.50	157.31	8.48	12.00
2014	5.09	15.08	0.86	9.35	10.58	158.55	8.06	13.00
2015	5.24	14.83	0.63	15.34	11.50	193.28	9.01	11.00
2016	5.71	14.72	0.85	25.39	14.17	253.49	15.68	14.00
2017	5.62	14.72	0.64	24.50	15.99	305.79	16.52	14.00
2018	6.05	19.02	0.20	22.63	15.91	306.08	12.09	14.00
2019	6.67	24.63	0.51	23.91	16.00	306.92	11.40	13.50
2020	6.59	28.65	0.38	35.10	18.63	358.81	15.75	11.50

Source: Central Bank of Nigeria Statistical Bulletin (2020) and World Development Indicators

Effect of Human Factors on Road Traffic Accidents (RTAs): The Case of Hawassa City, SNRS, Ethiopia

Siquarie Shudda Dangisso*

Abstract

This paper discusses the effects of human factors on RTAs in Hawassa city. The research intended to attain two specific objectives - first, to examine the human errors that obstruct road traffic safety, and second, to the significant human factors contributing to road traffic accidents (RTAs). The research has used qualitative and quantitative approaches to provide a variety of perspectives that can be studied. Simple descriptive analyses (mean, standard deviation, and percentage) using tables, graphs, and figures were conducted to analyze human factors' effect on road traffic accidents (RTAs) in the study area. Road traffic safety and improper utility and road use are considered factors affecting road traffic safety. The statistical analysis and result revealed that independent variables (speedy driving, drunken driving, distracted driving, road users neglecting) have a moderate correlation. However, they have a moderate, strong, and very strong relationship to the dependent variable, i.e., road traffic safety. In order to identify the main human factor contributing to road traffic accidents (RTAs), an analysis carried out by multiple linear regression analysis discovered four factors (independent variables) that significantly increase the risk of road traffic accidents (RTAs). Therefore, human factors have been identified to account for the occurrence of road traffic accidents (RTAs).

Keywords: *Effects of Human Factors, Road Traffic Accidents, Drunken & Distracted Driving, Negligence, Hawassa, Ethiopia*

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Introduction

Although transportation refers to the supply system enabling people and goods to move or be moved, it entails road traffic crashes that include life and property loss behind its goal causing RTA (Martin, 2015; World Health Organization (WHO, 2018). Likewise, Road Traffic Accident (RTA) is an enormous problem in Ethiopia, particularly in Hawassa city, Sidama, Ethiopia. RTA is rampant and seems out of control by concurrent road traffic management and systems regulation. However, the city is an emerging tourist and business center, and domestic visitors' death tolls are bitter from time to time. Existing condition tips the main problem is human performance-related causes, i.e., over-speed, drunken driving, distracted driving, and neglecting the traffic law. Therefore, it requires direct whereabouts in order to control the mounting Road Traffic Accident (RTA) problem. So, the researcher was motivated to examine RTAs about

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human factors contributing to traffic crash occurrences. Research findings are expected to improve the capacity to manage the human factors affecting traffic safety in the study area.

Hawassa city, the capital of the newly emerged Sidama region, contributes to much of the misery of RTAs in the country. As an effect, RTA in Hawassa city is a cause of significant losses of human and economic resources. Eventually, the most shocking and terrible effects are deaths involving pedestrians and children. Thus, appropriate and targeted action is needed most immediately. The rising cases of accidents need to be investigated to obtain scientific evidence to improve road traffic safety. The main intention of the study was to explore the causes and factors responsible for the accidents, particularly to identify the share of human faults.

Road transportation provides benefits both to society and to individuals by facilitating the movement of people and goods. Likewise, it enables increased access to economic and social activities, which, in turn, have direct and indirect positive impacts. However, road transportation has also placed a considerable burden on people's lives in the form of RTAs (WHO, 2020).

Global Trends on RTA

RTAs are global health and socio-economic development problem and the leading cause of death for all age groups. Deaths due to RTAs are predicted to become the fifth-leading cause of death by 2030 (WHO, 2020). Therefore, more than 1.35 million people die yearly, and Between 20 and 50 million more people suffer non-fatal injuries, with many incurring a disability due to their injury (WHO, 2020). About 50 million people are injured or disabled as a result of road traffic crashes. It makes a loss of 518 billion US dollars in the property (Abaynew, 2020).

In addition, reports pointed out that 90% of road traffic deaths occur in developing countries. Low and middle-income countries account for only 20% of vehicles while comprising a mean of 80% of causalities. Comparing the result shows that Africa is the highest death rate ranked continent by road traffic injury. Africa remains the least motorized region and suffers the highest rates of road traffic crashes, with death rates of 24 per 100000 population involving vulnerable road users such as pedestrians, cyclists, and motorcyclists (*ibid)*.

When lookout to across Africa, road transport systems are a vital facilitator for economic growth, but, as is the case around the world, the safety of those systems is letting the continent down. The World Health Organization projects a 50% per capita increase in road trauma in Sub-Saharan

Africa by 2030. Road safety is a major development issue in Africa; therefore, a collective responsibility to advance institutional, policy, and investment reforms to address the very crucial issue (WHO, 2020).

RTA Trends in Ethiopia

Ethiopia aims to become a middle-income country, and the development of the road transport system will play a vital role in this. However, recent experience shows that its road transport systems cannot safely cope with its 1 million vehicles. New trends and approaches to managing safety on our roads are needed. These new approaches address the institutional road safety management functions that will shape effective interventions that improve the safety of all Ethiopians who depend on and use our roads (Minister of Transport (MoT), 2020).

Ethiopia has major road safety complications. Local reports indicate that more than three thousand Ethiopians die, and ten thousand people are injured because of road traffic accidents yearly (Amdeslasie *et al*., 2016). According to the MoT (2020), an annual increase in the 10-15 percent motor vehicle fleet increases upward pressure on road trauma suffered in Ethiopia. According to WHO (2020) report, Ethiopia is considered one of the most vulnerable countries where the RTAs kill and injure many road users in day-to-day activities. Thus, RTAs are a critical injury that causes disabilities and death in Ethiopia, which could need due investigation.

According to the WHO (2018) explanations, RTAs death in Ethiopia reached 29,386 or 4.18 percent of total deaths. The death rate is 36.78 per 100,000 population, ranks Ethiopia 24th in the world, thereby 13 people die every day due to traffic accidents.

Similarly, the finding in the workshop, organized in coordination with the United Economic Commission for Africa Development Bank, discloses that 4,133 people died by RTAs in 2020. Besides RTAs have been one of the causes of death; with about 1.2 million vehicles and a population of 110 million, Ethiopia has one of the world's largest accidents-to vehicles ratio (New Business Ethiopia, 2020).

Acquiescent to the MoT (2020), the number of fatalities due to RTA continued to increase in the country. Analyzing the trend of traffic accidents over the past five years, the number of serious injuries has increased by an average of 13.7 percent per year. As a result, the number RTAs increased from 6,484 in 2014/15 to 6,929 in 2019/20. On the other hand, the number of people killed in road accidents increased from 3,495 in 2014/15 to 4,133 in 2019/20, an average increase of 3% per year.

In terms of international performance, 6.4 deaths per 10,000 vehicles in 2016, and a similar period, our county's performance was 61.4 (Transport Authority, 2018). Also, an unpublished official report of MoT (2020) revealed that in the country, 3299 people were killed, 5524 were heavily injured, and 4391 were the victim of light injuries. Consequently, 736.9 million ETB properties were damaged.

Likewise, the leading causes of traffic accidents in the country are the drivers' incompetence and misconduct. The main reason for this is that the driver training and certification process is in a state of high inefficiency and quality trouble, which is mainly because most training institutions (60%) are not qualified to provide standard service (Transport Authority, 2018)

RTA Trends in Sidama National Region

According to the Sidama Regional Transport and Road Development Bureau (SRTRDB, 2021) bureau official report expressions, the RTAs situation is worsening. In 2021 registered death by RTAs was 170, which is a 142 percent increase compared with the same time registered report in 2020. Injuries by RTAs were 246 (184 were heavy) increased by 174 percent compared to 2020.

The property loss was 6 million Ethiopian Birr (ETB), increasing 110 percent from last year. Due to lockdowns and restrictions on transport movements in the country as well as globally because of the COVID-19 virus phenomenon, as a result, the RTAs were reduced significantly, even internationally. However, in the Sidama region, RTAs increased out of anticipation.

This data shows, in the region, a limited focus exists on the effectiveness of prevention efforts for road traffic injury. Moreover, it may lead to an emphasis on interventions for road users who are at high risk. Addressing the human factors on the RTAs and interventions related to road users in an integrated manner, allowing for more effective prevention measures that have been appropriate and effective in several settings, needs to be considered, whereas in some cases, facilitating road safety improvements where further progress had proved challenging.

RTA Trends in Hawassa City

Hawassa city has been facing challenges in alleviating the RTAs. The road traffic crashes that were reported to the police for the year ending 2018 confirmed 30 people's death and 114 people's injuries (31 are serious injuries). In addition, 1.7 million ETB estimated property damaged (Finance and Economy Development Department (FEDD), 2018).

The suffering from RTAs in all directions has become familiar in the city. Recent reports have shown an increase in the number of RTAs in Hawassa city. According to the official report of Sidama National Region Government (SNRG) Transport and Road Development Bureau, in the last eight months (2020/2021), 101 RTAs have been registered. As a result, 30 people were killed and 95 injured in car and motorbike accidents. Among the victims, 60 people are reported heavily injured, and due to a road traffic crash, 1 million ETB were bankrupted.

The worst face of the problem is that traffic injury encompasses deaths involving pedestrians and children. According to the city police department RTAs data record from 2018 up to 2021, 634 traffic accidents were registered. Thereby, 164 people were killed, 433 people were injured (333 persons with serious injury), and 3.7 million ETB property was destroyed.

In another way, the number of road fatalities fell significantly during the half of 2020 generally because of a state emergency and strict containment measures aimed at reducing the spread of the COVID-19 virus in 2020 since the endemic was announced; however, in the Hawassa city, it went inversely.

The researcher observed a rising frequency of RTA in the study area. Therefore, Hawassa city's number of road traffic fatalities has not dropped but somewhat increased. In addition to that, the magnitude of road traffic injuries in the city is mainly obtained from police records, and the sources may be affected by underreporting of the cases. The existing systems to collect data on RTAs fatality, injury, and related road safety problems may be challenging to record and scale the problem.

Statement of the Problem

The RTA remains the leading cause of death and disability by injury and an immense cause of devastating property. Over a million people die yearly on the roads, and ten million suffer non-fatal injuries. Almost the fatalities on the roads occur in low-income and middle-income countries, which have only 48% of the world's vehicles. Half those who die in RTA are collectively vulnerable road users (WHO, 2020). The data conveys that the road traffic accident occurrence derived prominently from misuse of transport facilities.

Ethiopia is a country of people who have long struggled for poverty reduction and the security of other basic needs. Nowadays, it faces another challenge: road traffic mortality and morbidity from RTAs. Therefore, road traffic deaths and injuries have emerged as the country's leading social and economic challenges. The effect of road transport accidents on the socio-economic aspects is even worse (MoT, 2020).

Although different factors may be involved in RTA events, the primary factors are classified into human and environmental, out of which human factors are much more responsible for many accidents (WHO, 2018). According to Abaynew (2020), RTA is found to be an emerging man-made injury that has been taking many lives per day, especially in developing countries. Therefore, it depicts that the gaps remain to be investigated for the human safety of all road users. In addition, speed control, the enforcement of drunken driving, distracting driving, and improvements in safety devices are all interventions that should be tested for effectiveness of the intervention.

The researcher believed that human factors are the most prominent contributing factors to RTAs. Human factors (road users' errors) include all the drivers' and pedestrians' related factors. Consequently, many injuries and deaths on the road are highly human-related factors (WHO, 2018).

Hawassa city is the capital of the newly emerged Sidama region, proportionally contributing to much misery of RTAs in the country. Hawassa City Administration (HCA) is investing in road construction and related infrastructures aiming at access to mobility and transportation in the city; notwithstanding RTAs remain one of precarious problems. In half of the year (2020-2021), 101 road traffic accidents were registered by the City Administration. According to the report, 30 people were killed, more than 90 persons were injured, and 60 people reported severe injury (this includes traffic police and transport safety experts) from car and motorbike accidents. One million birr property was devastated in Hawassa city by this half of the year.

As an effect, RTA in Hawassa city is a cause of significant losses of human and economic resources. Eventually, the most shocking and terrible effects are deaths involving pedestrians and children. On the other hand, people are disabled or injured due to road traffic accidents; as a result, they struggle to cope with the long-term consequences. Likewise, pedestrians account for the highest proportion of road fatalities in Hawassa city.

The rising challenge wants to obtain scientific evidence to improve road safety. Thus, appropriate and targeted action is needed most immediately. The main intention of the study was to know the causes and factors responsible for the accidents, particularly to identify the share of human faults.

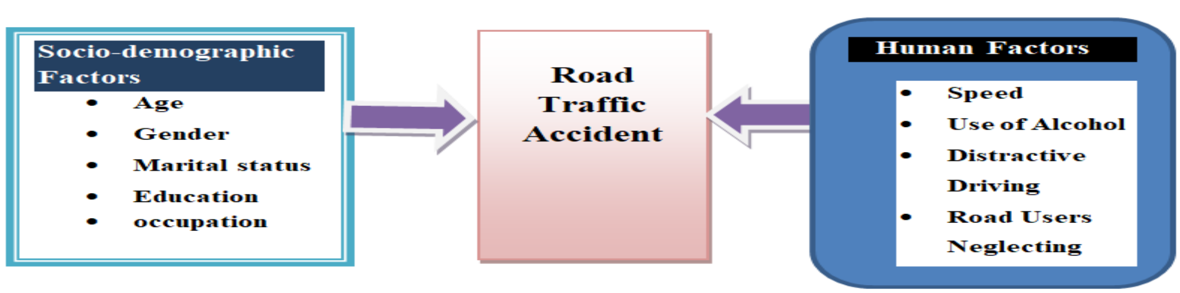
However, many pieces of research carried out by different scholars worldwide, either domestic, discovered the impacts of RTA on the economy and social and health problems in general. Therefore, it is limited to identify the human factors contributing to RTAs and the improper road users that entail traffic crushes, particularly in Hawassa city regarding RTAs.

Thus, the study's primary objective is to examine the human factors in road traffic accidents in Hawassa city. The study aims to evaluate the hypothesis that human factors can predict road accidents. Human factors considering the risk factors, this research work provided evidence of possible effective intervention. Finally, it is to derive-up with applicable recommendations to enhance the enforcement of road safety laws to improve and sustain.

Conceptual Framework

To assess human factors contributing to RTAs in Hawassa city, Sidama, Ethiopia, have been considered in a conceptual framework; the independent variables (drivers, road users, and socio-economic factors) are as follows:

Figure 1: ***Conceptual Framework of Human Factors Affecting RTAs***



Source: Researcher Own Sketch (2021)

Materials and Methods

Research Design

The study has applied a cross-sectional research design to obtain pertinent information concerning the recent experience of human factors that affect road traffic. The qualitative and quantitative approaches analyze primary and secondary data sources.

Sampling Frame

The target group for the study was the Regional Police Commission and the Transport and Road Development Bureau. The sample frame for the research was the list of Road Traffic Police Commission and Transport and Road Development Bureau as well as the City Administration Police Department and Transport and Road Development Department officers and supportive staff, respectively. The police department listed data shows 8 traffic police officers were from the Regional Police Commission and 120 traffic police were from the City administration in 2020. According to Hawassa City Transport and Road Development Department data, 86 transport experts in the City Administration and 90 workers in the Regional Transport Bureau work collaboratively and under supportive supervision.

The target group is selected because they are policymakers (regional structure), regulators, experts, and drivers while they are pedestrians. Therefore, they are considered to give appropriate information and are supposed to affect or be affected by a road traffic accident in relation to human factors.

Sampling Procedures and Techniques

To carry out this study researcher selected a population from the Sidama Region purposely. The researcher selected Hawassa city out of other cities purposely from the newly emerged Sidama region. The study area was selected because of the researcher's familiarity and good knowledge of the areas to achieve the study's objective. Hence, the study population was sampled from all employees of traffic police and transport officers living in the study area. The sample unit of this study was employees within the two sectors.

In order to select the representative sample respondents in the study area, a multi-stage random sampling technique was applied. Hence, it is intended to select two Bureaus out of the 18

Bureaus - the Hawassa Policy Office and Hawassa Transport and Road Development Department were selected to determine the effect of human factors on road traffic accidents.

In the second stage, the participants were employees of respected offices selected using a systematic random sampling technique from each bureau's list. In such a design, the selection process starts by picking some random point in the list, and then every 9th element was selected until the desired number was secured.

Sample Size Determination for Traffic and Transport officers

The researcher also used the list of road traffic police, transport officers, and workers in Hawassa city. According to Hawassa City Transport and Road Development Office data, there were 128 police and 176 transport officers and workers in 2020. In addition, the purposive interview was conducted to identify the human error in RTAs. The purposive interview focused on drivers, passengers, and pedestrians.

In order to determine the representative sample sizes for the total target population of this study, the researcher used the formula developed by Yamane (1967). According to Yamane, it has a confidence level of 95% with a sampling error of 5%; the sample size "n" was determined as follows:

$$n = \frac{N}{1 + N(0.05)^2}$$

$$n = \frac{304}{1 + 304(0.05)^2} \qquad \mathrm{n} = 173$$

Where "n" is the sample size, "N" is the total population, and "e" is the level of precision. Accordingly, the total sample size for this study is 173. In the case of this study, a total of 173 respondents were selected from two sectors by systematic sampling technique. For equal representation, the sample size was distributed by using the population proportion sample (PPS) formula (Kothari, 2004).

Therefore, the sample size proportion calculation is as follows:

n1= (p1*n)/N

Where,

n1= sample of proportion

P1= is the population of the sample area

n= is the sample size

N= is the total population of officers in the two structures.

Table 1: ***Sample Size Distribution***

N0	structure	Bureau	Employees		Sample size (n=173)	
			Male	Female	Male	Female
1	Sidama Region	Police Commission	8	0	5	0
		Transport Bureau	52	38	30	21
2	Hawassa city	Police Department	63	57	36	33
		Transport Department	51	35	29	20
	Total		174	130	100	74

Sources and Data Collection Methods

The primary data was collected using the instruments of questionnaires and key informant interviews. Secondary data were gathered from published and unpublished data sources. The unpublished data sources were research works, public/private individuals, and organizations.

Research Design and Tools of Analysis

Qualitative and Quantitative Approach

A combination of qualitative and quantitative approaches was used in the research to provide a variety of perspectives. Both analyses were applied to determine all independent and dependent factors related to the accident occurrence. Based on a more detailed understanding of the background of the human factor through interviews, it helped to categorize the causes of traffic accidents focusing on the failure of the human factor.

Reliability and Validity

Reliability

Reliability is defined as being fundamentally concerned with issues of consistency of measures (Bryman & Bell, 2003). Three prominent factors are related to whether a measure is reliable: stability, internal reliability, and inter-observer consistency. Bryman and Bell (2003) suggested that in a multiple-item measure, each answer to each question is aggregated to form an overall score; we need to ensure that all our indicators are related. In this study, internal reliability was considered. It can be tested using Cronbach's alpha method. A result of 0.7 and above implies an acceptable internal reliability level, as Hair *et al.* (2003) suggested.

Validity

Validity is defined as how much any measuring instrument measures what it is intended to measure. Validity refers to the issue of whether an indicator (or set of indicators) that is devised to gauge a concept really measures the concept or not. Bryman and Bell (2003) also suggested that the important issues of measurement validity relate to whether a measure of concepts really measures concept. Several ways of establishing validity are face validity; concurrent validity; predictive validity; construct, and convergent (Bryman & Bell, 2003). In this research, construct validity has been used. Correlation analysis between the variables was performed for construct validity in terms of the discriminate validity test.

Validity tests were conducted to select and assess the final items of the construct that were finally used for statistical testing. The content validity of the instrument for the present study was ensured as items were identified from an extensive review of related literature and reviewed by professionals and academicians. Pilot tests were then conducted for the instrument similar to the population for the study. The purpose of the pre-testing was to refine the questionnaire and assess the validity of the measures.

Descriptive Analysis

The results of the survey were analyzed using descriptive statistics. There are many basic techniques for analyzing quantitative data. In this study, the researcher chose the software of SPSS to analyze the exploratory factors. It is easy for the research to operate. SPSS for Windows is the most widely used computer software for analyzing quantitative data for social scientists. Simple descriptive analyses (mean, standard deviation, percentage) were carried out to analyze the effect of human factors on RTA in the study area. Data presentation was conducted along with figures and graphs to compare various RTA indicators in the study area. The researcher also used inferential statistics using correlation to associate the socio-demographic and human factors on RTA, such as age, sex, educational attainment, speed, use of alcohol, distractive driving, and road users' neglect.

Given the scales of items for a construct, Cronbach's alpha was calculated to assess the reliability of those items. For constructs with alpha under a certain threshold (0.7 in this report), items within each construct were checked in order to ensure that the items had high correlations.

After reliability was confirmed, the summated averages of the items in each construct were studied further. The correlation matrix was calculated to show the pair-wise correlations between constructs, which provided valuable but limited information about hypotheses testing.

Inferential Statistics

The Relationship between Human Factors and RTA

The statistical analysis used correlation coefficients explaining the relationship between the human factors and RTA. As Bereon L.K. (2004), the correlation coefficient is one of the statistical tools used in analyzing data. It was used in measuring the strength of the relationship between two variables - dependent variable, RTA, and the independent variable, human factors.

Diagnostic Tests for Model

Before fitting the selected variables into the multiple linear regression models, it was necessary to test for model assumptions. According to Gujarati (2004), to make proper statistical inferences, model diagnostic tests need to be carried out to prove the assumptions and make appropriate statistical inferences. Therefore, the five basic assumptions of a multiple linear regression model are briefly discussed below:

Normality

The assumption postulates that the disturbance terms are normally distributed. A normal distribution is symmetric about its mean, while skewed distribution would not be symmetric. When this assumption does not hold, we cannot use the simple t and F tests for significance. According to Gujarati (2004), if the residuals are normally distributed, the Shapiro-Wilk test statistic would not be significant, and the disturbance is said to be normally distributed. However, the current study's normality assumption was checked visually using a histogram. If the histogram is bell-shaped, infer that the residual (disturbance or errors) are normally distributed or that the assumption usually distributed error term is not violated.

Linearity

The assumption of linearity states that the degree to which the change in the dependent variable is related to the independent variables changes. Plots of the regression residuals through SPSS software were used to determine whether the relationship between the dependent variable (RTA) and the independent variables (speed, use of alcohol, distractive driving, and road users neglecting) are linear.

Multicollinearity

According to Gujarati (2003), multicollinearity is a situation where it becomes difficult to identify the independent variable's separate effect on the dependent variable because of the existing strong relationship. In other words, multicollinearity is a situation where explanatory variables are highly correlated. Therefore, for the current study, VIF and tolerance were used to test the existence of multicollinearity. As a rule of thumb, if the VIF is greater than ten and tolerance is less than 1, the variable is said to be highly collinear (Gujarati, 2003).

Results and Statistical Analysis

Background Characteristics of Respondents

Analyzing the background characteristics of the respondent's sex, age, educational level, job title, and work experience are important to understand their profile included in the study. The results are presented as follows.

Table 2: ***Demographic Characteristics of Sample Respondents***

Variables	**Categories**	**Frequency(n)**	**Percent (%)**
Sex	Male	99	57.2
	Female	74	42.8
	Total	173	100

Age	25-34	46	26.6
	35-44	115	66.5
	45-54	12	6.9
	Total	173	100

Source: Own survey data, 2021

As presented in Table 2, among 173 respondents, the majority (57.2%) of sampled respondents were male. On the other hand, female sampled respondents accounted for 42.8%. This indicates that the number of male respondents exceeds their female counterparts.

The age of sampled respondents was one of the demographic variables; the majority (65.5%) was aged 35-44, and 26.6% were found in the 25-34 age categories. The remaining 6.9% were in the 45-54 age categories. This indicates that most sampled respondents were in the active age group.

Table 3: ***Socio-Economic Characteristics of Sample Respondents***

Variables	**Categories**	**Frequency(n)**	**Percent (%)**
Education level	1-8	7	4.0
	9-12	12	6.9
	Certificate	34	19.7
	Diploma	19	11.0
	Degree and above	101	58.4
	Total	173	100
Job title	Traffic police(officer)	31	17.9
	Transport expert	76	43.9
	Transport process owner	25	14.5
	Traffic police inspector	41	23.7
	Total	173	100
Work experience	6-10	62	35.8
	11-15	89	51.4
	16-20	12	6.9
	21-25	10	5.8
	Total	173	100

Source: Own survey, 2021

The study result indicated that most respondents were degree and above holders. The results in Table 3 indicated that 58.4% of respondents had a degree and above, 19.7% had a certificate, and 11% had a diploma. The rest, 6.9% and 4% of respondents, attended up to grades 9-12 and 1-8, respectively.

In line with the job title, 43.9% of sampled respondents engaged in transport experts, followed by transport process owners and leaders. The remaining 23.7% and 17.9% of the respondents were traffic police inspectors and traffic police (officers), respectively.

Regarding the work experience of sampled respondents, the result presented in Table 3 indicated that 51.4% of sampled respondents had regulated for 11 to 15 years, the next group consisted of 35.8% who had served for 6 to 10 years, 6.9% of the respondents stated that they served for 16-20 years, and the last 5.8% of the sample served as per the regulation and driven for 21-25 years. This indicates that sampled respondents had experience in their work and familiarity with road traffic accidents.

Descriptive Summary of Study Variables

Under this topic, the questions collected using *Likert* scale items were analyzed. To make the analysis easy, the researcher used Al-Sayaad, Rabea, and Samrah's (2006) proposed techniques of mean score ranges and summarized in Table 4 as follows:

Table 4: ***Mean Score Range for Five Scale Likert's Response***

Mean	**Response**
1.00 - 1.80	Strongly Disagree
1.81 - 2.60	Disagree
2.61 - 3.40	Neutral
3.41 - 4.20	Agree
4.21 - 5.00	Strongly Agree

Source: Al-Sayaad *et al.* (2006)

As seen from Table 4, the ranges of values were presented as *disagreeing* if the mean score is between 1.00 and 2.60, *neutral* if the mean score is between 2.61 and 3.40, and *agree* if the mean score is above 3.41. Based on these classifications the interpretations of all *Likert* scale items such as speedy driving, drunken driving, distracting driving, road users' neglecting, and road traffic accidents were presented as follows:

Table 5: ***Descriptive Statistics***

Items	N	Mean	Std. Deviation
Speedy Driving Variables			
Drivers use over-speeding while driving.	173	3.66	1.113
Drivers did not respect the speed limit of the city.	173	3.53	1.203
Drivers did not use the appropriate speed based on their category of vehicles.	173	3.69	1.159
Drivers increase their speed without considering the traffic movement.	173	3.87	1.189
Drivers drive at high speed in adverse road weather conditions.	173	4.22	.945
Drunken driving Variables			
Drivers use alcohol while driving.	173	3.82	1.088
Drivers use psychoactive substances/ drugs while driving.	173	4.39	.980
driving errors while impaired by alcohol or drugs	173	4.09	1.148
Drivers fail to abide by the law prohibits while drunk-driving	173	3.92	1.464
Distractive Driving			
Drivers use a mobile phones while driving.	173	3.88	1.240
Drivers did not obey traffic control devices to ensure the safety of others.	173	4.01	1.296
Drivers drive without keeping a safe distance from other vehicles	173	3.58	1.514
Drivers drive without showing warning signals such as stop, give way, etc.	173	4.01	1.349
Drivers did not use seatbelts and safety devices.	173	3.34	1.495
Road Users			
Drivers' negligence toward pedestrians crossing or walking on the side of the road	173	3.48	1.242
People use walking along the streets relative to the oncoming vehicle.	173	3.88	1.063
People do not give way/priority to vehicles as required by law.	173	3.66	1.138
Pedestrians walk on the vehicle way.	173	3.77	1.178
Pedestrians' negligence for care and traffic law.	173	3.50	1.425

Source: Survey data, 2021

As summarized in Table 5, the overall mean or average value of speedy driving is 3.79, with a standard deviation of 0.458. This showed that the mean value is greater than 3.4, which relied on the agreement level based on Al-Sayaad *et al*. (2006) proposed techniques of mean score ranges for five-point Likert scale questions. Therefore, the sampled respondents in the study area agreed that drivers use high speeds beyond their limit. As a computed result, the vehicle speed is a significant determinant of RTAs risk. The risk could determine both for the occupants of vehicles in crashes and for pedestrians struck by vehicles. However, speed control is one of the more readily controllable factors affecting pedestrian injury in the city. The focus group participant also confirmed that speedy driving is the leading cause of road traffic crashes.

As presented concerning drivers, the result implied that most sampled respondents agreed that drivers use over- speeding while driving. In line with this, drivers did not respect the city's speed limit as the traffic law prescribes. In addition, the presented result inferred that drivers needed to use the appropriate speed based on their category of vehicles. Concerning the result, it indicated that drivers increase their speed without considering the traffic movement, driving at high speed in adverse road weather conditions.

As presented in Table 5, the overall average value of drunken driving is 4.05, with a standard deviation of 0.552. This showed that the mean value is greater than 3.4, which relied on the agreement level based on Al-Sayaad *et al*. (2006) proposed techniques of mean score ranges for five-point Likert scale questions. Therefore, the sampled respondents in the study area agreed that drivers usually drive under the influence of alcohol or other drugs to a level that renders the driver incapable of operating a vehicle safely.

The result implies that efforts to combat drinking and driving have been a cornerstone of road safety in the city. The computed evidence indicates that it should be a priority in the city to combat the growing RTA. It can be inferred that almost all indicated high rates of alcohol involvement regarding the extent of drinking and driving on their roads. In addition, it depicts that the drivers use psychoactive substances/drugs while driving. As a result, the mean value of driving errors while impaired by alcohol or drugs is very high. These make drivers negatively motivated to drive at high speed in adverse road weather conditions and inappropriate speed, neglecting the traffic law, which exposes the vehicle to collide with other vehicles or objects. Because of impairment with alcohol, drivers lose their consciousness and fail to abide by the law prohibiting while drunk-driving in Hawassa city.

The results of Table 5 indicate that the overall average value of distracted driving is 3.71, with a standard deviation of 0.582. This showed that the mean value is more significant than 3.4, which relied on agreement level based on Al-Sayaad *et al*. (2006) proposed techniques of mean score ranges for five-point Likert scale questions. Therefore, the sampled respondents in the study area believed that drivers engaging in other activities distract the driver's attention away from the road without considering the safety of the driver, passengers, pedestrians, and people in other vehicles.

National Highway Traffic Administration (NHTSA, 2020) verified that thousands of people are killed and estimated that additional millions are injured in motor vehicle crashes involving distracted drivers. The result also indicates an average value of 3.71, meaning that most of the accidents are caused due to drivers' operating mistakes. Drivers involved in fatal crashes were reported as distracted at the time of the crashes.

As presented in Table 5, the overall average value of road users neglecting is 3.70 with a standard deviation of 0.553. This showed that the mean value is more significant than 3.4, which relied on agreement level based on Al-Sayaad *et al*. (2006) proposed techniques of mean score ranges for five-point Likert scale questions. This means many lose their lives as they would on any given day to their various activities like school, work, places of worship, and others. This result presents data on the number of pedestrians relinquished and abducted for death in road traffic crashes in Hawassa city due to defiance of traffic law.

It also presents the perception and information on the demographic and socio-economic characteristics of people exposed to injury or lost their lives as pedestrians and the costs of pedestrian road traffic crashes in the study area. It is mainly because of exposure by negligence, either inappropriate facilities for road users or loss of self-safer responsibility in keeping traffic regulations. It also infers that road users need to be on the safe side because of neglecting traffic rules and regulations. On the other hand, it persuades that the critical risk factors for pedestrian injury are driver’s acts on speed, alcohol, lack of road infrastructure, and inadequate visibility of pedestrians on roads.

As the result of computed analysis, pedestrians and road users are the most reckless road system users in Hawassa city. That is because they are not subject to any accrediting procedure. They are under few legal restrictions. On the other hand, the issue is more complicated because road users' behavior is more unpredictable in determining traffic rules' observation, and they are most commonly involved in accidents. They can be categorized as children, including street children, older people, those with high blood alcohol levels or wrathful, and people with a mental disorders.

The computed result revealed that one of the significant and unleashed factors is that people use walking along the streets relative to oncoming vehicles in Hawassa city, and people need to give way/priority to vehicles as required by law. In addition, the analysis verified that pedestrians walk on vehicle ways or pedestrian negligence for care and traffic law in Hawassa city.

Table 6: ***Descriptive Statistics***

Road Traffic Accidents	N	Mean	Std. Deviation
In the city, RTA claimed the destruction of property.	173	4.32	1.200
In the city, RTA claimed injuries.	173	4.01	1.358
In the city, RTA claimed the lives of people.	173	3.34	1.507
In the city, RTA is increasing from time to time.	173	3.47	1.246

Source: Survey data, 2021

Table 6 indicates that the overall average value of road traffic accidents is 3.78, with a standard deviation of 0.437. This showed that the mean value is more significant than 3.4, which relied on agreement level based on Al-Sayaad *et al.* (2006) proposed techniques of mean score ranges for five-point Likert scale questions. The result implies that the majority of sampled respondents agreed that in the city, RTA is increasing from time to time, claimed to have caused the destruction of property, caused injuries, and taken people's lives. This result verified the reported evidence from the study area that property damage accounts for 195% per year (SRTRDB, 2021). The computed result ensured that the most RTA effect on Hawassa city property loss, followed by injuries, resulted from RTA. The presented data showed that RTA is occasionally increasing, destructing the socio-economy life of victims and their families.

Inferential Analysis

Correlation Analysis

In this section, the independent variables (speedy driving, drunken driving, distracting driving, road users' neglect, and road traffic accident) were analyzed one by one using correlation analysis in order to identify their individual relationship with the dependent variable (road traffic accident). The possible values of correlation coefficients range from –1 (a perfect negative relationship) to +1 (a perfect positive relationship) or a direct relationship between two variables. A value of 0 indicates no linear relationship between the two variables (Kothari, 2004). To know the strength and type of correlation between dependent and independent variables, Table 7 is set as a rule of thumb for the discussion of variables.

Table 7: ***Rule of Thumb for the Strength of Correlation of Coefficient***

Range of Coefficient	**Description of Strength**
±.81 to ±1.00	Very strong
±.61 to ± .80	Strong
±.41 to ±.60	Moderate
±.21 to ±.40	Weak
±.00 to ±.20	None

Source: Bhattacherjee (2012)

Table 7 shows the individual relationship between a road traffic accident and human-related factors considered in the study, such as speedy driving, drunken driving, distracted driving, road users' neglect, and road traffic accident.

Table 8: ***Correlation Analysis Result***

		Speedy driving	Drunken driving	Distracted driving	Road users' neglect	Road traffic accident
Speedy driving	r	1				
	n	173				
Drunken driving	r	.554**	1			
	Sig.	.000				
	n	173	173			
Distracted driving	r	.507**	.534**	1		
	Sig.	.000	.000			
	n	173	173	173		
Road users neglecting	r	.460**	.429**	.506**	1	
	Sig.	.000	.000	.000		
	n	173	173	173	173	
Road traffic accident	r	.632**	.620**	.843**	.575**	1
	Sig.	.000	.000	.000	.000	
	n	173	173	173	173	173

Correlation is significant at the 0.01 level **Source: SPSS output, 2021

Table 8 presents the correlation analysis showing that speedy driving has a positive and statistically significant association with road traffic accidents ($r = 0.632$, $p<0.01$). This indicates that speed driving is strongly associated with road traffic accidents. Likewise, drunken driving has a positive and statistically significant relationship with road traffic accidents ($r = 0.620$, $p<0.01$). Similarly, distracted driving has a positive and statistically significant relationship with road traffic accidents ($r = 0.843$, $p<0.01$). Finally, the results of the correlation analysis showed that road users' neglect has a positive and statistically significant relationship with road traffic accidents ($r = 0.575$, $p<0.01$). Based on Bhattacharjee's (2012) rule of thumb, the result implies that independent variables have a moderate correlation to each other; however, they have a moderate, strong, and very strong relationship to the dependent variable.

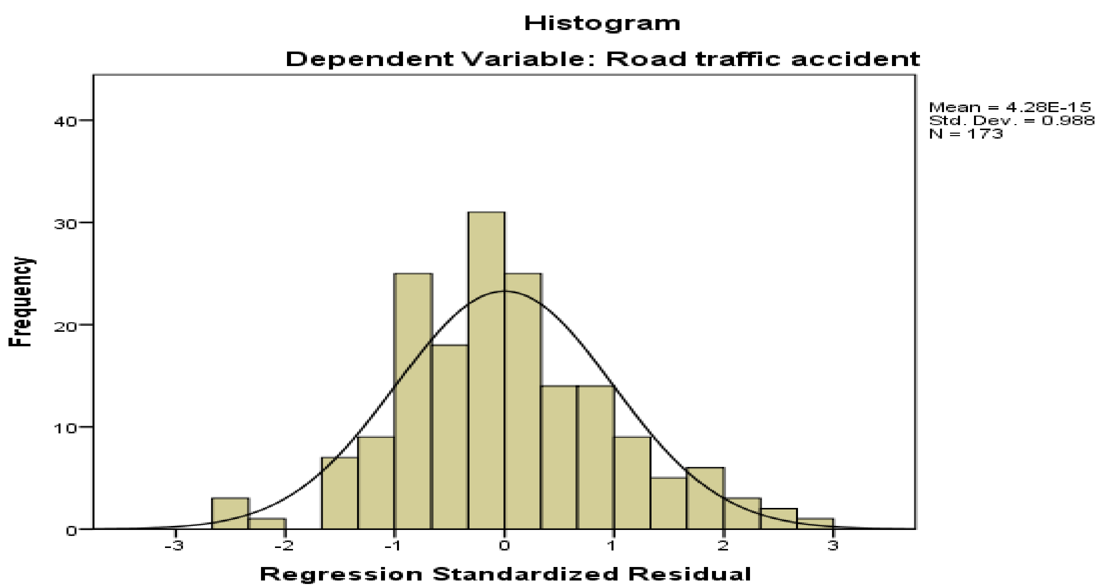
Regression Analysis

In this study, multiple linear regression analysis is applied since it facilitates the evaluation of the level of effect that multiple independent variables that cause a particular dependent variable. Before applying regression analysis to test the effect of human-related factors on road traffic accidents, normality, linearity, and multicollinearity tests are made to identify misspecification of data, if any, to fulfill research quality as follows:

Normality Test

The important diagnostic test conducted in this paper is the normality assumption. The normality assumption is that the mean of the residual is zero. Therefore, the researcher used a graphical method to test the normality of the data. The histogram result is presented as follows:

Figure 2: Frequency Distribution of Standardized Residual



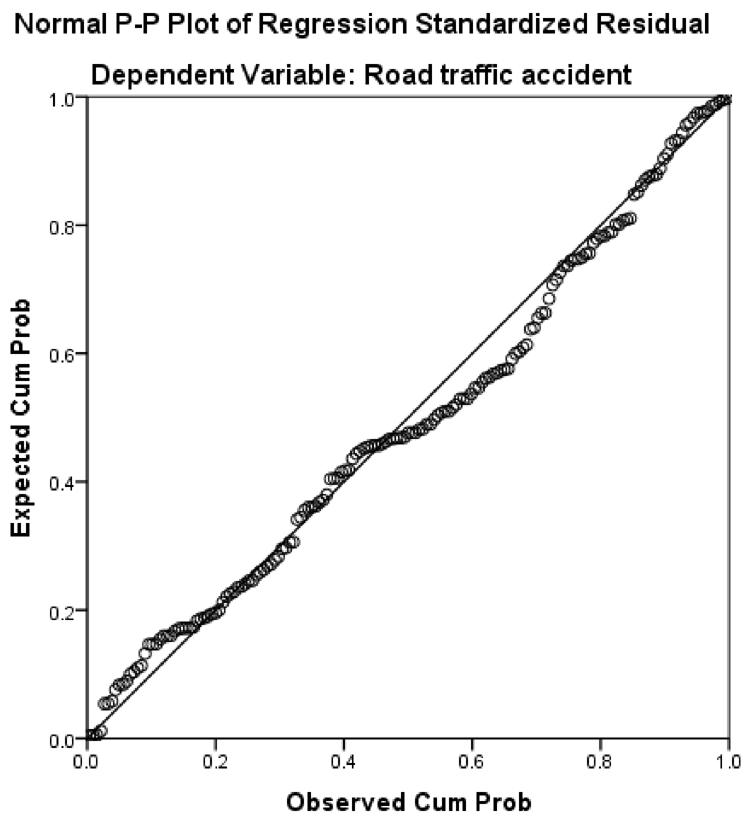
Source: Model Output, 2021

Figure 2 shows that the distribution is a standard curve, indicating that the data confirms the normality assumption. That means the residuals are normally distributed around its mean of zero and become bell-shaped. Thus, no violations of the assumption of normally distributed error terms.

Linearity Test

Linearity refers to the degree to which the change in the dependent variable is related to the change in the independent variables. Therefore, the results of the linearity test are presented in Figure 3.

Figure 3: ***The Linearity Test of Standardized Residual***



Source: Model Output, 2021

To determine whether the relationship between the dependent and independent variables is linear, plots of the regression residuals through SPSS software were used. The scatter plot of residuals shows no significant difference in the spread of the residuals, as seen from left to right in Figure 3. This result suggests that the predicted relationship is linear. Similarly, the figure shows the distribution of residuals around its mean of zero. Hence the linearity assumption is fulfilled as required based on the above figure. Therefore, it is possible to conclude that the researcher's inferences about the population parameter from the sample are valid.

Multicollinearity Test

Under this section, multicollinearity tests were checked using the variance inflation factor (VIF) and tolerance in Table 9.

Table 9: ***Multicollinearity Assumption***

	Collinearity Statistics	
Independent variables	**Tolerance**	**VIF**
Speedy driving	.603	1.658
Drunken driving	.598	1.673
Distracted driving	.592	1.690
Road users neglecting	.677	1.477

Source: Model Output, 2021

Collinearity statistics is associated with the extent of correlation between independent variables. Suppose there is a high correlation between two independent variables. In that case, the regression model assumes redundancy of one of these variables that the significance of it becomes too low and its coefficient also be negatively affected. The problem is checked by Tolerance and Variance Inflation Factor (VIF). A tolerance of >.10 and a VIF of < 10 are considered good enough to minimize the effect of multicollinearity (Miller & Whicker, 1999). Thus, the result implies that the regression model is unaffected by the higher correlation between two independent variables.

Table 10: ***Results of Regression Analysis Model Summary***

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.889	.790	.785	.20250

a. Predictors: (Constant), Road users neglecting, Drunken driving, Speedy driving, Distracted driving

b. Dependent Variable: Road traffic accident **Source:** Model Output, 2021

According to the model summary of multiple linear regression analysis, the R-value of the model as per Table 10 was 0.889, which shows the highest degree of relationship between independent and dependent variables. The R^2 value of the regression model was 0.785, indicating that 78.5% of the variance in road traffic accidents in Hawassa city was accounted for by speedy driving, drunken driving, distracted driving, road users' neglect, and road traffic accident. The remaining 21.5% of the variance in road traffic accidents in Hawassa city was accounted for by other variables not included in the study.

Table 11: ***Results of ANOVA Output***

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	25.903	4	6.476	157.919	.000
	Residual	6.889	168	.041		
	Total	32.792	172			

Source: Model Output, 2021

The ANOVA (Table 11) indicated that the multiple regression model is statistically significant or insignificant. Because R^2 is not a statistical significance test (it only measures explained variation in Y from the predictor Xs), the F-test is used to test whether or not R^2 could have occurred by chance alone. The results of the output found in the ANOVA table show that the model is statistically significant when speedy driving, drunken driving, distracted driving, road users' neglect, and road traffic accident are included ($F=157.919$, $p<0.001$). Therefore, the overall equation is found to be statistically significant.

Table 12: ***Results of Multiple Linear Regression Analysis***

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	SE	Beta		
1	(Constant)	.603	.144		4.175	.000
	Speedy driving	.182	.043	.191	4.190	.000
	Drunken driving	.108	.036	.137	2.997	.003
	Distracted driving	.460	.034	.614	13.347	.000
	Road users neglecting	.093	.034	.117	2.727	.007

Note: B= Regression coefficient (Estimate), Std. Error = Standard Error, Dependent variable = Road traffic accident **Source:** Model Output, 2021

Based on Table 12, using "β" (unstandardized) coefficients, the regression equation of the research model becomes in the form indicated as follows.

Road traffic accident = 0.603 + 0.182* Speedy driving + 0.108* Drunken driving + 0.460* Distracted driving + 0.093*Road users neglect + e. Four variables were included in the model, and all predictors have found to have a significant effect on the road traffic accident in Hawassa city. These variables are speedy driving, drunken driving, distracted driving, neglect of road users, and road traffic accidents. The regression equation is interpreted in the following paragraphs.

According to Table 12, speedy driving has a positive and significant effect on road traffic accidents in Hawassa city. The results of the regression coefficient ($\beta = 0.182, p < 0.01$) indicate that a one-unit increase in speedy driving brings a 0.182-unit increase in road traffic accidents in Hawassa city. This indicates that speedy driving increases road traffic accidents. In corresponding to this finding, WHO (2018) verified an accepted principle that every 1% increase in mean speed produces a 4% increase in the fatal crash risk.

In connection to drunken driving, Table 12 shows that drunken driving positively and significantly affects road traffic accidents in Hawassa city. The results of the beta coefficient and p-value ($\beta = 0.108, p < 0.01$) indicate that drunken driving increases road traffic accidents by 0.108-unit due to a one-unit increase in drunken driving.

Alcohol consumption results in impairment, which increases the likelihood of a crash. Because it produces poor judgment, increased reaction time, and lowers vigilance and visual acuity. Therefore, impairment by alcohol is an important factor influencing both the risk of a road traffic crash as well as the severity and outcome of injuries that result from it.

Table 12 shows that distracted driving positively and significantly affects road traffic accidents in Hawassa city. Additionally, the result of the beta coefficient indicates that a one-unit increase in distracted driving leads to a 0.460-unit increase in road traffic accident $\beta = 0.460, p < 0.01$) s. The findings of Lipovack and others (2017) also approved that distracting driving is a growing risk factor linked to severe adverse outcomes. Driver's reaction times have also been shown to be 50% slower with mobile phone use than without. The interviewee and focus group participants also confirmed that drivers use mobile phones while driving and talk with passengers, which may affect their caution.

As Table 12 shows, road users' neglect positively and significantly affects road traffic accidents in Hawassa city. The results of the beta coefficient ($\beta = 0.093, p < 0.001$) indicate that a one-unit increase in road users' neglecting leads to a 0.093 unit increase in road traffic accidents.

Hypothesis Testing

The hypotheses proposed in this study concerning the effect of human factors on road traffic accidents in Hawassa city were analyzed in this section. The hypothesis is accepted or rejected based on the understanding obtained from the coefficient table. Accordingly, the hypotheses proposed in this thesis are analyzed as follows:

Table 13: ***Results of Hypothesis Test***

Hypothesis	**Statement**	**Result**
1	**H_1**: Speedy driving has a significant effect on road traffic accidents.	Accepted
2	**H_2**: Drunken driving has a significant effect on road traffic accidents.	Accepted
3	**H_3**: Distracted driving has a significant effect on road traffic accidents.	Accepted
4	**H_4:** Road users' neglect has a significant effect on road traffic accident	Accepted

Source: Own survey, 2021

Summary

The study's major finding related to the research objectives is summarized with the help of the findings computed in the study. The study's main objective was to examine human factors' effects on RTAs in Hawassa city. Under the main objective, the research intended to attain two specific objectives. They are investigating the human road interactions that contribute to the occurrence of RTAs and identifying the major human factors that contribute to the occurrence of RTAs.

This research has used a cross-sectional research design to obtain pertinent information concerning the recent experience of human factors that affect road traffic accidents. A combination of the qualitative and quantitative approaches is used in the research to provide a variety of perspectives that can be studied. Simple descriptive analyses (mean, standard deviation, and others) were carried out to analyze the effect of human factors on RTAs in the study area. The researcher also used inferential statistics and multiple linear regression analysis to evaluate the level of effect that multiple independent variables cause a particular dependent variable. The human road interactions that contribute to the occurrence of RTAs in Hawassa City are discussed as follows.

The study considers the interactions such as speedy driving, drunken driving, distracted driving, neglect of road users, and road traffic accidents. The correlation analysis shows that speedy driving has a positive and statistically significant association with road traffic accidents ($r = 0.632$, $p<0.01$). This indicates that speed driving has a strong association with road traffic accidents. Likewise, drunken driving has a positive and statistically significant relationship with road traffic accidents ($r = 0.620$, $p<0.01$). Likewise, distracted driving has a positive and statistically significant relationship with road traffic accidents ($r = 0.843$, $p<0.01$). Finally, the results of the correlation analysis showed that road users' neglect has a positive and statistically significant relationship with road traffic accidents ($r = 0.575$, $p<0.01$). The result implied that independent variables have a moderate correlation to each other but have a moderate, strong, and very strong relationship with the dependent variable.

In order to identify the main human factor contributing to RTAs in Hawassa city, an analysis carried out by multiple logistic regression analysis revealed four factors that significantly increase the risk of RTA in Hawassa city. The study explored that human factors are sufficiently considered in road traffic safety systems. Human factors that speedy driving, drunken driving, distracted driving, and road users' neglect have been identified to account for the occurrence of RTAs in Hawassa city. Additionally, understanding how human factors are incorporated into road safety systems would help reduce the most significant contributing factor to RTAs.

Speedy driving positively and significantly affects road traffic accidents in Hawassa city. The regression coefficient $\beta = 0.182, p < 0.01)$ indicates that a one-unit increase in speedy driving brings a 0.182 unit increase in road traffic accidents in Hawassa city. Using exceeded speed can affect other road users. The pedestrian may mistakenly assume it is safe to cross the road, attempt to do so, and get struck by the vehicle.

This finding indicates that exceeding the limit speed increases RTA risk. It can be concluded that speeds greater than the set speed by the traffic law do compromise safety. The effect on crash risk comes mainly from the relationship between speed and stopping distance. The higher the speed of a vehicle, the shorter the time a driver has to stop and avoid a crash, including hitting a pedestrian.

In connection to drunken driving, it has a positive and significant effect on road traffic accidents in Hawassa city. The results of the beta coefficient and p-value ($\beta = 0.108, p < 0.01$) .indicates that drunken driving increases road traffic accidents by 0.108 unit due to a one-unit increase in drunken driving.

The finding shows that distracted driving positively and significantly affects road traffic accidents in Hawassa city. Additionally, the result of the beta coefficient indicates that a one-unit increase in distracted driving leads to a 0.460-unit increase in road traffic accidents $(\beta = 0.460, p < 0.01)$.

On the other hand, road users' neglect has a positive and significant effect on road traffic accidents in Hawassa city. The results of the beta coefficient ($\beta = 0.093, p < 0.001$) indicate that a one-unit increase in road users' neglect leads to a 0.093-unit increase in road traffic accidents.

Four variables were included in the model, and all predictors have significantly affected road traffic accidents in Hawassa city. These variables are speedy driving, drunken driving, distracted driving, and road users' neglect. According to the model summary of multiple linear regression analysis (the R-value) is 0.889. This shows the highest degree of relationship between independent and dependent variables. The R^2 value of the regression model was 0.785, indicating that 78.5% of the variance in road traffic accidents in Hawassa city was accounted for by speedy driving, drunken driving, distracted driving, road users' neglect, and road traffic accident.

Therefore, the effects of human error are found to be most significant (78.5%) compared to defects in vehicles, road design, road conditions, and weather conditions. The remaining 21.5% of the variance in road traffic accidents in Hawassa city was accounted for by other variables not included in the study. The theoretical underpinnings supported that human errors directly cause an accident resulting in injury or loss. Events that are or were caused by consistent human error lead to an accident.

Conclusion

This study analyzes typical human risk factors contributing to traffic accident occurrence in Hawassa city. RTA analysis provides a comprehensive view of the factors mean speed, drunken driving, distractive driving, and pedestrians or road users' neglect involved in an accident.

Reducing risk through speed management requires a good understanding of road functions. Speed limiting is very crucial in this concern. Therefore, technological and mechanical speed breakers must be part of the solution. Driver performance and driver behavior are also the most significant challenges to improving road safety. Therefore, this must be part of the curriculum when training is provided to issue driving licenses. Accessing proper infrastructure is equal to developing appropriate human resources and needs in-depth knowledge and information about bringing change. Likewise, increased enforcement of traffic laws and restrictions needs to be improved to minimize RTA. It is also necessary to deal with pedestrian behavior as a preventive measure and review existing infrastructure to combat the effects of RTA. Based on this result, it can infer that improper pedestrians and other road users form the most critical safety factor in the highway and streets of Hawassa city.

The factor of human error is found to be the most significant (78.5%) compared to defects in vehicles, roads, or weather conditions, similar to other studies like Pradeep Kumar (2020). The study pointed out apparent gaps in maintaining the restriction on exceeded speedy driving, impaired with alcohol and psychoactive substance while driving, distracted driving, and road user negligence are bases for increased RTAs which could result in crashes, injuries, and mortality while entailing property damages. The problems can be categorized as behavioral or measly aptitudes to respect traffic laws and inappropriate infrastructures (roadway) (WHO, 2018).

Recommendations

Based on the research findings, the researcher recommends targeted actions and increased awareness of the people to achieve behavioral change and restricted control of traffic law, in addition to appropriate infrastructure and development of human resources to tackle the RTAs' lifting-up challenges. Based on the key associated risk factors of RTAs, there is a need for developing, designing, and implementing comprehensive measures to improve road traffic safety. Thus, the study pointed out sustainable solutions to improve the traffic situation in Hawassa city. The solutions as per identified problems are advocated as follows:

- Infrastructure facilities and traffic control mechanisms that separate pedestrians from motor vehicles and enable pedestrians to cross roads safely are essential to ensure pedestrian safety, complementing vehicle speed and road system management.
- The resilient intervention efforts need existing public awareness to improve the traffic situation, engage public participation, and intensify legal and educational activities, including curriculum revision.
- Furthermore, an entire field of traffic system engineering should be committed to speed control through laws, enforcement, education, and speed breakers. This might include roadside surveys using an alcohol tester, speed limiter, and Global Positioning System (GPS) technology.
- Identify and assess policies, institutional settings, and capacity building relating to road safety management and review existing regulations, manuals, and directives that could curb the current situation of RTAs. Strengthening and projecting transport modernization and ICT solution system were suggested for better safety enhancement.

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Practices and Challenges of Good Governance Packages in Bule Hora Town Water Supply, West Guji Zone, Ethiopia

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Abstract

The issue of good governance has become a concern of scholars across the world. Developing countries like Ethiopia are affected by the challenges of good governance because of weak mitigation mechanisms. Specifically, the issues of water governance have gotten the attention of scholars recently. This research scrutinizes the Bule Hora town's status of water and the practices and challenges of good governance in the water supply. The study employed both qualitative and quantitative methods. A researcher selected a sample of 99 participants from Bule Hora town households through a systematic random sampling technique. Findings show that the Bule Hora town's water coverage is 53.3%. The inefficiency of labor and ineffectiveness of the office to supply sufficient water challenge the town's water supply good governance. Moreover, the participation of the community in water governance could be higher besides problems of electric fluctuation, shortage of skilled workforce and manager rotation, financial constraints, and political interference in the water governance activity affecting the water provision of the town. It concluded that the level of effectiveness could be higher because Bule Hora town cannot supply pure water for residents with minimum cost, effort, and time. It recommends that the town diversify the water sources to increase the inhabitants' effective and efficient water supply. Further, the town needs to raise the participation of residents in water governance and activity.

Keywords: *Practices, Challenge, Good governance, Water supply, Bule Hora, Ethiopia*

Introduction

The term governance is an elusive term. For this reason, it is a multifaceted concept (Santiso, 2001; Rogers & Hall, 2003). It is the exercise of economic, political, and administrative authority to manage country affairs at all levels (APRM & AGA (2019). It is also related to the role of national, sub-national, and transnational authorities, companies, and non-profit organizations in tackling wicked issues in the policymaking and implementation process (Ysa *et al.*, 2014). It implements socially acceptable resource allocation effectively, thus an intensely political activity (Rogers & Hall, 2003). Sharma (2007) explains that countries have the responsibility to improve governance. World Wide Governance measured governance using six dimensions: voice and accountability, political stability and absence of violence/terrorism, government effectiveness,

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regulatory quality, maintenance law, and control of corruption (Kaufmann *et al.*, 2009; Kaufmann *et al.*, 2011). The six new aggregate measures capturing various governance dimensions provide evidence of a causal relationship between better governance to better development outcomes (Kaufmann *et al.*, 1999). However, the governance challenges are political market imperfections, policy incoherencies, levels of performance oversight or monitoring, challenges for collective action, and moral hazard (Jones *et al.*, 2014).

Nowadays, good governance has attracted the attention of many scholars. Good governance means different things to different organizations and actors within these organizations (Gisselquist, 2012; Grindle, 2010; Holmberg *et al.*, 2009; Wani, 2014). The agenda of good governance has grown longer over time (Grindle, 2004). It correlated with the potential to deliver significant improvements in living standards (Sharma, 2007). Consequently, international organizations such as the World Bank and the United Nations have emphasized the importance of good governance and sound institutions from a development perspective (Holmberg *et al.*, 2009). For donor institutions such as World Bank and IMF, good governance encompasses democracy and representation, human rights, the rule of law, efficient and effective public management, transparency, and accountability, developmental objectives, and a particular variety of economic and political institutions (Gisselquist, 2012). It allowed international agencies to discuss and engage more in politics (Grindle, 2010). Building and strengthening these institutional endowments is a precondition for good governance (Sharma, 2007).

Favoring a good governance agenda *vis-à-vis* development was popular in international development discourses in the post-World War II era. In developing nations, economic boost relies on effective good governance practice indicators (Peters & Pierre, 2012). Good governance is the best mechanism to enhance economic, political, and social development in developing countries. It helps to address the voice of the poorest; and accommodates the need and interests of the vulnerable groups in the decision-making process over the distribution of development resources (Kaufmann & Kraay, 2007). However, the argument revolves around the point that good governance is a necessary precondition for economic development; and without it, developing nations cannot reduce poverty (Khan, 2007; Uddin, 2019).

The African Union aims to promote democracy and good governance among its member states (APRM & AGA, 2019). African countries, measured by the world governance indicators, have a low performance of good governance; and this, in turn, resulted in stifling their development. Based on an African governance survey conducted by the Economic Commission for Africa (ECA) for 40 African countries from 2010 to 2013, Ethiopia's performance in accountability, transparency, law, efficiency, and effectiveness indices of good governance has fallen compared to that of other African countries (IIAG, 2013). Ethiopian governance scored 47.6%, considering safety and law, participation and human rights, sustainable economic opportunity, and human development (IIAG, 2013). This score is below half, which shows Ethiopian governance is the least compared to other African countries.

Water governance refers to the range of political, social, economic, and administrative systems in place to develop and manage water resources and the delivery of water services at different levels of society (Global Water Partnership, 2002 in Rogers & Hall, 2003). Basic principles such as open and transparent, inclusive and communicative, coherent and integrative, equitable and ethical, responsive and sustainable, and efficient and accountable are the core elements of managing effective water governance (Adelana, 2016; Rogers & Hall, 2003). The public sector provides over 90% of domestic water and wastewater services worldwide (Rogers & Hall, 2003). A range of public, private, and non-profit providers afford water (Jones *et al.*, 2014). However, the water supply does not share the qualities of the pure public good. Local authorities may lack sufficient power, resources, and incentives to effectively coordinate the different agencies and providers involved in supplying water. Water is a particularly politically salient resource, and there may be pressure on local politicians to protect access to water in a city. Also, the poorest households do not get water due to the cost of water services. Nevertheless, the proximity and quality of services in urban may be better than in rural areas (Jones *et al.*, 2014).

The main factors that challenge water resources management in Sub-Saharan Africa are the rapid urbanizing of cities, city development, urban infrastructure and implications on groundwater, and the hydro-geological setting of selected cities (Adelana, 2016). How to afford enough water to support the city's development is always a challenge. In Ethiopia, the practice of good governance in the provision of service delivery was poor (Nega *et al.*, 2020). The 1995 Ethiopian Constitution introduced the basic principles of good governance. However, the achievements made so far and the performance in good governance remained unsatisfactory. Taking this into account, Ethiopia has also incorporated the good governance agenda as its core principle in the Growth and Transformation Plan-I (MoFED, 2009). Albeit Ethiopia has abundant water resources, the country faces challenges in efficiently developing and managing its water resources (Koyra & Mesene, 2020). The lack of experts, absence of ownership, low waste management system, institutional fragmentations, weak institutional capacities, and absence of accountabilities challenge good governance in Ethiopia, for example, Borkena River (Dessie *et al.*, 2019). Besides, Ethiopia's water supply condition is low; most of the population does not have access to safe and sufficient water supply facilities (McCornick *et al.*, 2003). About 33 million Ethiopians lack access to an improved water source (Water.org, 2020).

The lack of effective service delivery, transparency, responsiveness, participation, and accountability mechanisms over services hinders the prevalence of good governance (Yirga, 2010). By the same token, assigning ineffective, non-committed, and unqualified leaders to a position challenges good governance in the Oromia Region (Abagissa, 2019). Furthermore, incompetent, inefficient, and ineffective monitoring and evaluation systems were the main factors that contributed to the ineffectiveness of leadership practices of the town administration (Abagissa, 2019; Tikue, 2014). That needs the attention of scholars to investigate the challenges of good governance in the urban water supply.

Different scholars researched good governance challenges concerning land, the public sector, and town administrations in Ethiopia using different parameters - transparency, accountability, and participation. Meretu (2015) researched the prevalence of good governance in public sectors in Yirga Cheffe town administration, Gedeo Zone, Ethiopia, by using four indicators - transparency, accountability, participation, and equality, and found that the institutions have not been effective in any of the four good governance indicators. Furthermore, Yirga (2010) researched an assessment of the prevalence of good governance in public sectors in Debre Berhan town public institutions in Ethiopia using similar parameters that Meretu (2015) used. The researcher concluded that service users need to be more engaged in service-providing institutions, especially service delivery mechanisms for women and disadvantaged groups who were found to be performing poorly. Similarly, a study conducted by Tikue (2014) entitled an assessment of the prevalence of good governance in land administrations in Naeder Adet town, Tigray Region, used three different indicators of good governance - transparency, accountability, and participation. She found that good governance performance is hindered by the lack of qualified manpower and inadequate resources, weak coordination among stakeholders, weak implementation capacity, weak public awareness coupled with a weak education system, absence of strong monitoring and evaluation mechanisms, and prevalence of corruption.

However, the challenges of good governance packages on urban water supply have yet to get much attention. Consequently, this research intends to describe the practices and challenges of good governance packages in Bule Hora town water supply. The researcher employs the UNESCAP (2008) comprehensive parameters of good governance - accountability, efficiency, effectiveness, equality, participation, responsiveness, and transparency to scrutinize the Bule Hora town water supply office’s practices and challenges of good governance.

Theoretical framework

Governance theories have to do with the various perspectives of governance and how they evolve (Ekundayo, 2017). Governance is not a recent phenomenon. It spanned many years. It also evolved from different theories. However, the researcher discussed interpretive theory, public choice theory, new public management theory, and good governance theory. The interpretive model focuses on meaning that shapes the actions and institutions and how they do. The model enables people to act in their beliefs and preferences, and we cannot read off people's beliefs and choices from the objective of facts about them (Bevir & Rhodes, 2002). This theory describes and interprets how many people conduct their lives (Dent, Khin, & Ismail, 2013)

Duncan Black founded public choice theory during the late 1940s in a sequence of papers primarily focused on voting within committees and elections (Rowley, 2008b). It is an inherently interdisciplinary field of economics and politics (Mueller, 2008; Rowley, 2008b). Public choice is defined as an optimal voting rule to explain why any leader rules for making the collective choice to escape (Rowley, 2008a). The theory states that government officials behave in a manner that maximizes their gain rather than furthering the public’s interests. It is consistent with historically accepted approaches to economic analysis. Public choice adherents have implemented basic economic tenets into political science analysis (Schuster, n.d.). The theory focuses on the fragmentation and concentration of the tiers and units (George, 1997).

New public management (NPM) theory is the practical result of the private idea being better than the public (Kapucu, 2006). It has been a dominant theory in public administration since 1980 (Fakhrul, 2015; Gruening, 2001; Hope, 2001; Kapucu, 2006). Issues like private-sector change and attack on the public sectors, economic theories and changing situations, technological change, the transformation of the public sector, production performance of public sectors, and professional management caused the emergency of NPM (Fakhrul, 2015). The main features of NPM are decentralization, strategic planning and management, separation of provision and production, competition, separation of politics and administration, and performance measurement. The changed management style, freedom to manage, improved accounting, personnel management, user charges, improved financial management, and more information technology featured NPM (Gruening, 2001). The NPM offers fundamental lessons and analyses for public management throughout the world because it is related to re-engineering the public sector. It is linked to the notion of trust in economic rationalism through the value creation for public money (Hope, 2001). Also, it provides services that citizens value to increase the autonomy of public managers. Further, it rewards organizations and individuals for enhancing the efficiency of public sector production (Fakhrul, 2015).

Governance can make a significant contribution to contemporary political theory (Peters, 2012). The good governance theory is associated with governing methods and structures in developing countries. It is a governance theory that sets some basic principles according to which a good government must run. Its principles include accountability, control, responsiveness, transparency, public participation, economy, and efficiency (Ekundayo, 2017). The concept of governance has become fashionable over the past several decades and is one of the most commonly used terms in political science. It integrates much of contemporary political science. Effective governance is provided with the involvement of state actors. Governance is a political concept that requires thinking about the forms of public action (Peters, 2012). It is a valuable contribution to our understanding of political life and especially to understanding policy choices (Ibid). Governance theories are also beneficial beyond the usual pale of studies of government or state-society interactions and can be a means of approaching issues such as failed states (Risse and Lehmkuhl, 2010, cited in peters 2012). The impartiality of institutions that exercise government authority explains the quality of governance (Rothstein & Teorell, 2008).

Good governance creates reliability, predictability, and accountability (Addink, 2018). In this research, the researcher used good governance theory because it enables the researcher to describe the good governance element, like the effective and efficient water supply in Bule Hora town and equal distribution of water to residents. Thus, the researcher describes the level of accountability, transparency, and residents' participation in Bule Hora town's water and energy office.

Methodology of the Study

This research employed mixed approaches (both qualitative and quantitative methods). All methods have limitations; thus, using mixed research methods can solve the shortcoming (Creswell, 2003). A descriptive case study research design is used to describe the practices and challenges of good governance packages in Bule Hora town water supply. Semi-structured interviews, focus group discussions (FGDs), and questionnaires were applied to collect primary data. Semi-structured interviews were administered to the administrator of Bule Hora town's water and energy office, workers of the water supply office of the town, and local elders (*Abbaa Gadaa*, religious leaders, and locally respected elders). Three focus group discussions (one FGD for each kebele in the town) were administered to residents of Bule Hora town. Bule Hora town has three kebeles (Ejersa Fora, Burka Mididi, and Arda Biya Kebeles). Each FGD consists of ten participants. Questionnaires were also distributed to residents of the town. Secondary data include books, articles, magazines, reports, and archives applied to triangulate with primary data.

The target population of this study is the dwellers of Bule Hora town. According to the Bule Hora town report, 6507 households live in the town. The sample size of these populations was determined through a systematic random sampling technique by using the (Yemene.T., 1967) formula, i.e.,

$$n=\frac{N}{1+N(e)2}$$

Where,

N=total number of the target population

n=sample size

e=level of precision=0.1

Accordingly, the sample size of Bule Hora town residents is n = $\frac{6507}{1+6507(0.1)2}$ = 99.

To triangulate the finding of the quantitative method with the qualitative method, the researcher selected 10 participants from the residents of each kebeles of the town via purposive sampling techniques - 30 from Bule Hora town (for FGDs). Three participants from local elders, three from the Bule Hora water and energy office, and two from *Abbaa Gadaas* were selected purposively for interview. Generally, the total sample of this study is 137 participants. For all participants, an attempt was made to balance the gender of participants.

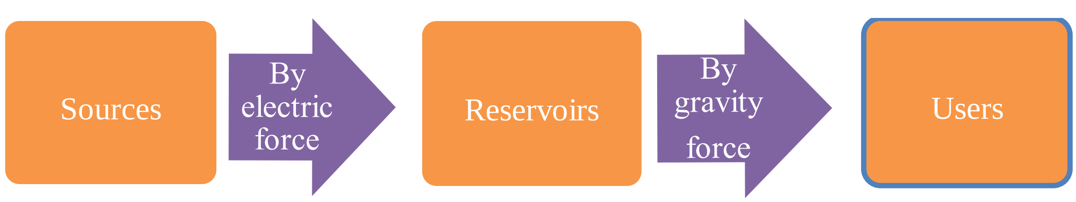
To analyze this study, the researcher employed a multi-stage that involves qualitative and quantitative data analysis methods. The researcher analyzed qualitative data through thematic and content analysis. The frequency distribution, SPSS version 20, was used to analyze the quantitative methods. Using frequency distribution, the researcher determined what number of the population agreed and disagreed with the respective questions. Finally, the researcher cross-checked information obtained from the quantitative method with a qualitative method to triangulate the data.

Findings and Discussions

Status of Water Supply in Bule Hora Town

Interview results with the Bule Hora town water and energy office administrator showed that the town's current water coverage is 53.3%. The sources of the water supply in Bule Hora town are groundwater. Accordingly, the town constructed eight wells to supply water to the residents. However, one is dysfunctional nowadays. "In the Bule Hora town, the water is moved by electric power from the sources," interview results with a water and energy office expert. But it is distributed to consumers by gravity forces (as indicated in Figure 1).

Fig. 1: Flow of water in Bule Hora town

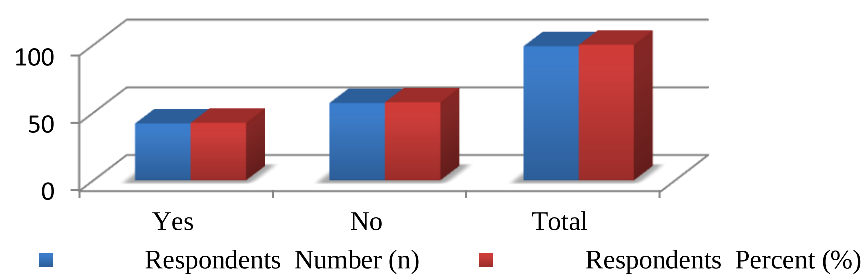


Source: Own computation based on field data, 2022

"In Bule Hora town, the building of squatter houses causes a shortage of water. When the town constructed water, the town had only three Kebeles. But the number of Kebeles has reached eight currently. As a result, water shortages occur in many Kebeles," Bule Hora's water and energy office administrator stated in the interview. The town needs more water to supply those inhabitants. The building of squatter houses causes a water shortage because when the town provided the water facility, the current population was not considered. For this reason, water shortages occur in the town. Jones *et al*. (2014) present that local authorities may need more power, resources, and incentives to effectively coordinate the different agencies and providers involved in supplying water.

Similarly, Bule Hora resident focus group discussants claimed that there is a water shortage in the town. They noticed that the water distribution in the town was unfair and unbalanced. The focus group discussants of Ejersa Fora and Burka Mididi Kebeles complained that they could get pure water frequently within a week. However, the residents of Arda Biya Kebele could get more water than residents of other Kebeles. They could get it at least three to four times per week. The interview results with *Abbaa Gadaa*, religious leader, and local elders also showed that the water distribution could be fairer among all Kebeles in the town because of a lack of good governance and efficient water and energy office. As indicated in Figure 2 below, from 99 participants (households), the majority of them, 57.58%, responded that they do not have access to pipeline water in Bule Hora town. In contrast, only 42.42% of households can access pipeline water at their houses. That exhibits that many residents in Bule Hora town have no pipeline in their houses. Those households get water from the public watershed and from neighbors that have pipeline water.

Fig2: Accessability of pipe water to Bule Hora town residents



Source: Own computation based on field data, 2022

Local elders' interview results and resident focus group discussions with all kebeles residents showed that water is not distributed equally among all kebeles in Bule Hora town. The town's water and energy office administrator also admitted to the water shortage. He replied that the pipeline distribution differences caused an imbalance in water distribution. In the town, two types of pipes distribute water. Those are new pipes and old pipes. Residents who access water through new pipelines get more water than those who access old ones. The finding of this research showed a wide gap between the supplied water and the existing population in Bule Hora town. For this reason, water is not distributed to all residents daily. The town distributed water by shift.

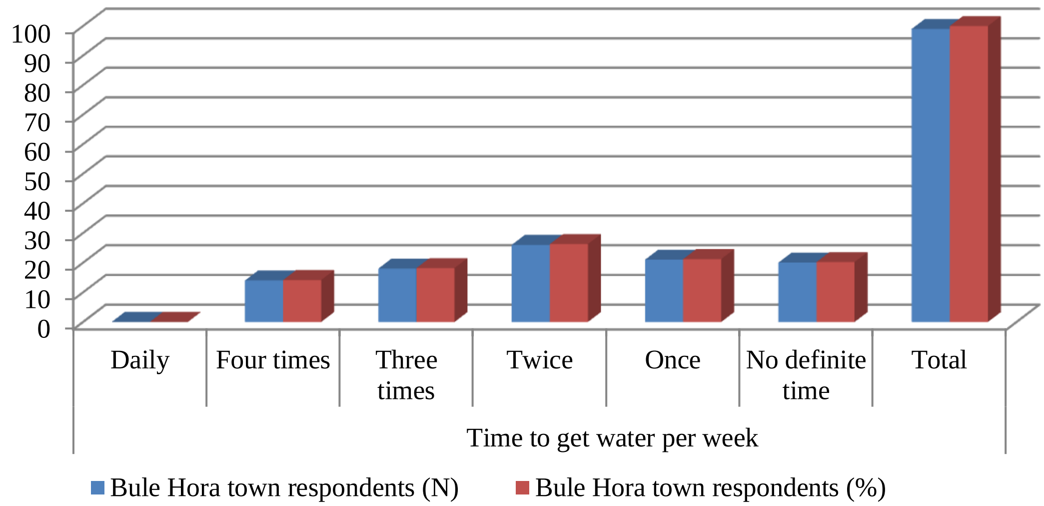
Figure 3 shows that Bule Hora town's residents need access to water daily. Most of the participants, 26.26%, in Bule Hora town get water twice a week. It follows that 21.21% of participants in Bule Hora town responded that they could get water once a week. That shows that nearly half percent of participants get water either once or twice per week. That challenged the livelihoods of the residents.

The Bule Hora town's water and energy office workers and administrators admitted to water shortage. The interview results with the water and energy office workers and the administrator revealed that the water status in Bule Hora town is about 50%. The total population of Bule Hora town is estimated to be 166,750. The Bule Hora town water and energy office administrator noticed that one person gets 80 liters per day, albeit they distribute water by shift. But this data contradicts data collected from the residents because the majority of the residents responded that they could get water twice a week frequently. The water and energy office administrator of the Bule Hora town summarized:

> *The causes of the unequal distribution and shortage of water are the high migration of people from rural areas to Bule Hora town, the availability of different NGOs, the establishment of Bule Hora University, and the opening of the Bule Hora teacher's college. Additionally, the town has become the capital city of the West Guji Zone since 2017. The town did not consider the three projects when it constructed the water.*

Adelana (2016) depicts that the rapidly urbanizing cities, city development, urban infrastructure, implications on groundwater, and hydro-geological setting of selected cities are the main factors that constrain water resources management in Sub-Saharan Africa.

Fig. 3: Frequency of getting water of residents in Bule Hora town



Source: Own computation based on field data, 2022

Practice and Status of Good Governance in Bule Hora Town's Water Supply

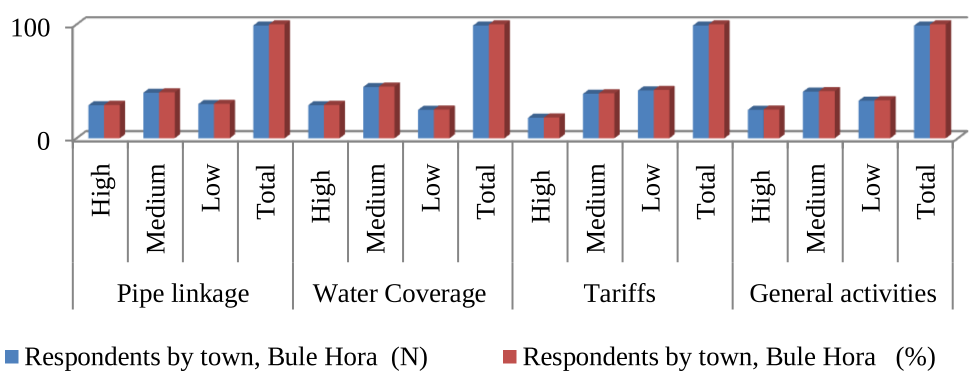
Most scholars define good governance as the proper use of public resources. In this research, good governance is defined as a mechanism of planning, implementing, monitoring, and evaluating water supply activities through the proper use of public resources. The central elements of good governance are usually eight. However, for this research, the researcher used only six pillars based on UNESCAP (2008) - transparency, accountability, equality, participation, responsiveness, and efficiency.

Transparency

Transparency is the clearness of all activities to water users in the Bule Hora town water supply office. IIAG (2013) summarizes that Ethiopia's performance in transparency indices of good governance has fallen compared to other African countries. The Bule Hora household focus group discussants showed transparency level is medium in the town's water supply office. However, the Bule Hora town households claimed that transparency status is low in water tariffs because there are no standardized rules to set the tariffs. For this reason, some residents are obliged to pay more money on water bills although they get little water.

As indicated in Figure 4, the statuses and levels of transparency in Bule Hora town's water and energy office differ based on the kinds of services. Regarding pipe linkage, the majority of participants, 40.40%, responded that the level of transparency is a medium in the Bule Hora town water pipe linkage. And the majority of the participants, 45.46%, in Bule Hora town responded that the transparency level is medium in water coverage and supply. Concerning tariffs, most participants, 42.42%, responded that tariff transparency is low in the Bule Hora town water sector. Finally, the level of general activities transparency is medium in the Bule Hora town because 41.41% of participants responded that the level is medium.

Fig.4: Levels of transparency in Bule Hora town water supply office



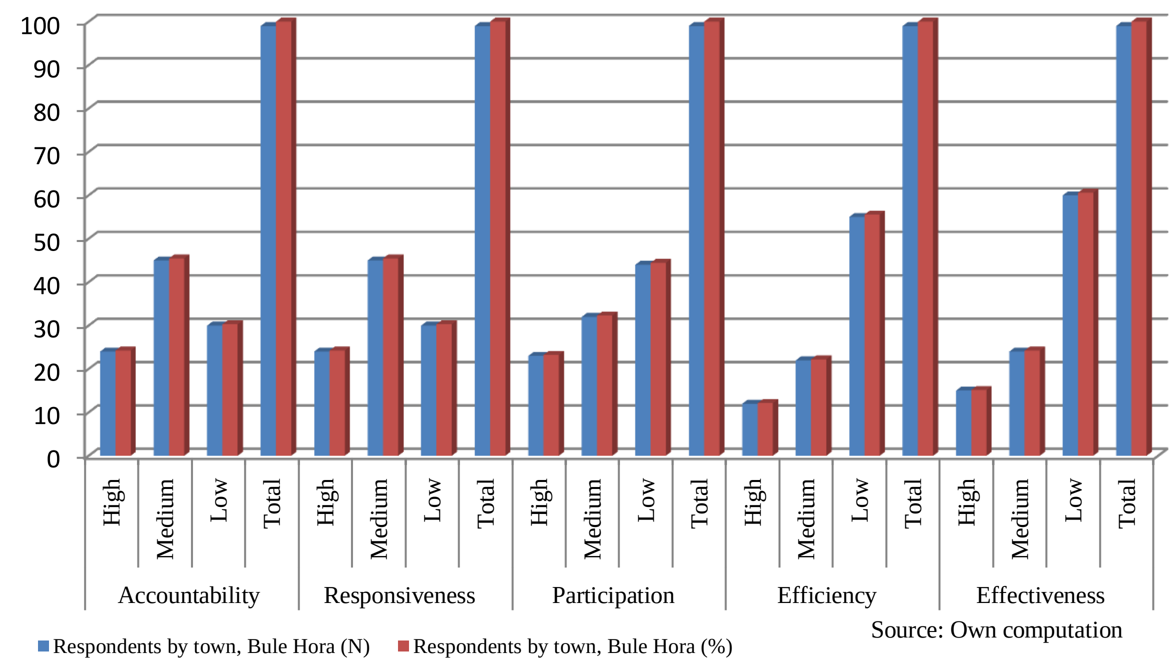
Source: Own computation based on the field data, 2022

Accountability

Accountability is the Bule Hora town's water and energy office workers and administrators responsible for their failures. And yet, Bule Hora's focus group discussion results with residents showed that the accountability level is medium in the town. For the workers, who link pipe, accountability is low in the offices of the town. Those workers ask for money to stretch a new pipeline and repair the broken pipe. Dessie *et al.* (2019) remark that the absence of accountability challenges good governance in Borkena River, Ethiopia. But the Bule Hora town experts' interview results indicated that all workers are accountable for their failures. They added that the concrete complaint that made the workers responsible has yet to come to the office.

The qualitative finding of this research is consistent with the quantitative. Of the total sampled participants, the majority (as indicated in Figure 5), 45.46%, in Bule Hora town responded that the accountability level is medium in the town's water and energy office. From that, it can be inferred that the accountability level is medium. As a result, attention has to be given to improving the levels of accountability in the town.

Fig.5: Levels of accountability, responsibility, participation, efficiency & effectiveness in Bule Hora town's water supply office



Source: Own computation

Responsiveness

Responsiveness is the process of giving necessary and sufficient answers to the households compliant who raise the water problem in Bule Hora town. Bule Hora town's water and energy office's interview results disclosed there were no organized complaints raised. However, the interview results from *Abbaa Gadaas*, elders, and focus group discussions with the town's households showed that the level of responsiveness could be higher because the workers are unwilling to accept the complaint. They raised compliances and questions concerning the tariffs and coverage of water. Yirga (2010) concludes that the lack of responsiveness mechanisms over services hinders the prevalence of good governance. Nevertheless, the office administrator denied the questions the households raised. But the administrator assured the researcher that there needed to be an organized and formal structure to solve the compliance.

As indicated in Figure 5, out of the total sampled participants, the majority of the participants responded that the responsiveness level is medium in the town. That means, in Bule Hora town, the majority of the participants, 45.56%, answered with a medium responsiveness level, whereas 30.30% responded that the responsiveness level is low because the pipeline workers bribe the community rather than repairing and stretching the line.

Participation

Community participation is the strategic good governance pillar; active participation solves many societal problems and help the government readdress its weakness. Interview results with Bule Hora town's water and energy office revealed that residents have participated in different levels during the pipes stretching. Among the total sample participants, 44.44% (as shown in Figure 5) responded that Bule Hora town's community participation level is low. Others, 32.32%, reacted that the households' participation level is medium in the Bule Hora town water supply.

Generally, the qualitative and quantitative findings of this research revealed that the households' participation level is low in the Bule Hora town water and energy office because the office does not raise community awareness participation. Yirga (2010) concludes that the lack of participation mechanisms in services hinders the prevalence of good governance in Ethiopia.

Efficiency and Effectiveness

Efficiency and effectiveness are two different terminologies but are used together as a single element of good governance. In this research, efficiency is defined as operating, linking pipes, and distributing water for Bule Hora town's residents to achieve the desired goals without wasted effort. The efficiency description, in this research, relates to the water and energy offices in the town's workers' competence. On the other hand, effectiveness is an effective solution to the water supply problem/efficiency capable of achieving the desired result with the minimum use of resources, time, and effort.

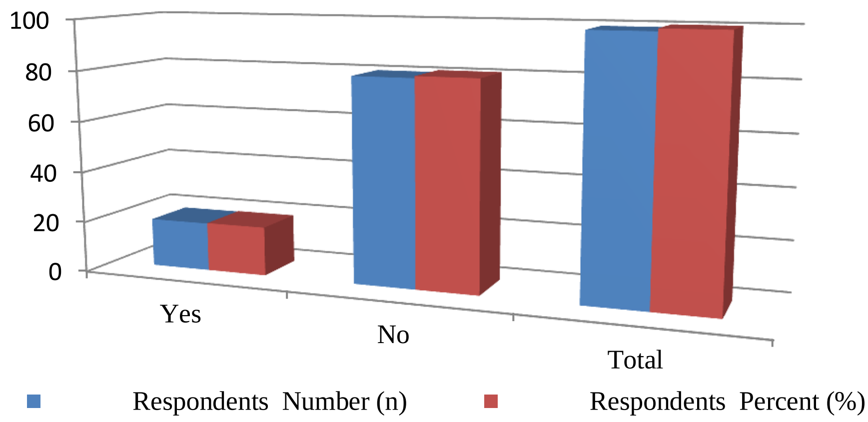
The Bule Hora town water and energy administrator interview results indicated a shortage in the electromechanical field, whereas the assigned workers are politically motivated, not professionals. These challenge the distribution of water in the town efficiently and effectively. The top leaders assigned town water and energy head based on political loyalty rather than efficiency and effectiveness. The households' focus group discussants disclosed that the water requests were politicized because the head of the office was politically inclined. So, residents do not request and complain about the water problem in the town. They further asserted that the competency of pipe linkers is low. Hence, they cannot fix the broken pipe very well. The water supply is low with minimum cost, energy, and time. So, ineffective leaders, the low commitment of leaders, and the leaders' promotion to higher positions without being sufficiently qualified challenge good governance (Abagissa, 2019). The administrator admits the workers' incompetency and ineffectiveness even though the office has a sufficient number of workers. The office has 61 workers, of which 31 are office workers, whereas 30 are field workers.

Ethiopia faces challenges in efficiently developing and managing its water resources (Koyra & Mesene, 2020). The quantitative findings also showed that the efficiency and effectiveness are low in the Bule Hora town water and energy office. Out of sampled participants, 55.56% (as demonstrated in Figure 5) responded to the efficiency lowness. And 60.60% of participants reacted to the low effectiveness in the office.

Equality

For this research, equality is the fair and balanced distribution of water for all households of Bule Hora town. All residents cannot get water equally in Bule Hora town because of unequal topography and inaccessibility of water for all of them. As indicated in Figure 6, out of the sampled participants, 80% in Bule Hora town responded that residents did not get water equally. The inequalities are visible and differ from Kebele to Kebele. The water inequality distribution is high in Ejersa Fora and Burka Mididi Kebeles in Bule Hora town. The Kebele's residents get water from a single reservoir. Contrarily, Arda Biya Kebele households get water from one. Consequently, the two Kebeles households get less water than the households of Arda Biya Kebele.

Fig 6: Equal distribution of water for all residents in Bule Hora town



Source: Own computation based on the field data, 2022

Households' focus group discussions, local elders, *Abbaa Gadaas* and religious leaders' interviews, and the town water administrator's interview results disclosed that the Kebeles water distribution inequality happened because of the non-equal replacement of old lines. Also, minimum water supply capacity and water reservoirs to distribute for the households in the town challenged it. That shows that the equality level is low in the Bule Hora town water supply office. However, Jones *et al.* (2014) remark that the poorest households do not get water due to the cost of water services. Thus, the office needs to work hard to improve the quality and level of equality in water supply and distribution.

Challenges of Good Governance in Bule Hora Town Water Supply Office

Many constraints in the Bule Hora town water and energy office challenged the sufficient water provision. Those challenges are the fluctuation of electric power, the water searching and designing problem, the labor shortage related to water, financial constraints, and politicians' interference.

Electric power fluctuation

The sources of water in Bule Hora town are groundwater. The town water and energy administrator interview results revealed that water is pulled out from the holes and fetched to reservoirs, as indicated in Figure 1, by electric power. Without sufficient electric power, the water cannot move to the basins because of the different natures of topography. "The lines of pipe pass different ups and downs to supply water from sources to the reservoirs," said the administrator. It needs uninterrupted electric power to supply water for the town's residents. The town has no electricity independently; it receives electricity from the rural lines. That challenged the efficient water supply. The rural electric line power fluctuates frequently. The main factors that challenge water resources management in Sub-Saharan Africa are urban infrastructure and implications on groundwater (Adelana, 2016).

Searching and designing underground water problem

The town water and energy office administrator and water experts' interview results showed that all water sources are groundwater. There is no river near the town. They presented that the well water is dry during the dry season. The experts explained that we must construct groundwater in wet areas throughout the year. Otherwise, it dries when no rain is available. In the Burka Mididi Kebele, one well has dried recently. That reduces the town's water supply quantity. Jones *et al.* (2014) explain that local authorities may lack sufficient power, resources, and incentives to effectively coordinate the different agencies and providers involved in supplying water.

Shortage of professional manpower and rotation of manager

The town water and energy administrator interview results disclosed that the office needed more effective, efficient, qualified, and skilled professionals in hydraulics, electromechanical, and related fields. Moreover, most laborers are Technical and Vocational Education and Training (TVET) graduates who need more skills to operate water and other technical issues. There are also low education opportunities in the office to increase the knowledge and skills of the experts. In the office, there are 61 laborers. Of this, 31 laborers work in the office, and 30 are field workers. Abagissa (2019) illustrates that the lack of competence and inefficient and ineffective monitoring and evaluation system were the main factors contributing to the ineffectiveness of the Oromia town leadership practice.

Similarly, "The head of the office is unprofessional and assigned into the office based on the political inclination," the research informants complained. For this reason, the head of the office needs more technical know-how about the water problems in the town. If the head favors the politicians, he/she can stay in power. If not, the higher politicians can remove him/her from the position. The office technical expert interview results showed that politicians frequently removed many leaders from power. That challenges the implementation of the designed plan by that person. The newcomer face challenges during implementation because he/she does not know the detail. The office laborers also go to fieldwork for per diem. Dessie *et al.* (2019) demonstrate that the lack of experts, low waste management systems, institutional fragmentations, and weak institutional capacities challenge good governance in Ethiopia.

Financial constraints

The allocated budget is low for the Bule Hora town water and energy office compared with other sectors such as health and education. Nevertheless, water is necessary for life. According to the town water and energy administrator, a 100,000 Birr budget was allocated for the water service facility. However, this is a very meager budget to deal with the water problem in the town. The office manages water activities and the laborers' wages on the income generated from the water tariff bills. But the collected money through bill tariff is insufficient to provide more water for the residents, and in most instances, it is not used for the intended goals. There are no budget plans for the office at the town level. On the other hand, the number of Kebeles has increased from three to eight. The budget constraints challenge the office to ensure all kebeles' water affordability.

Interference of politicians

In developing countries like Ethiopia, all offices and sectors are dominated and manipulated by politicians. The town water and energy expert's interview results showed that the top leaders appointed the office leaders based on their political involvement and loyalty to the politicians rather than based on their professionals and skills. They further claimed that the water and energy office remained under cabinets. Proclamation No. 228/2020 was promulgated to separate the cabinet and water and energy office though dysfunctional.

Discussions

Governance is an essentially political concept that requires thinking about the forms of public action (Peters, 2012). The impartiality of institutions that exercise government authority explains the quality of governance (Rothstein & Teorell, 2008). Good governance creates reliability, predictability, and accountability (Addink, 2018). Relating to elements of good governance, different scholars have stipulated different essentials. Keping (2018) presents good governance as featured by legitimacy, transparency, accountability, the rule of law, responsiveness, and effectiveness. On the other hand, Pomeranz & Stedman (2020) explain that good governance is featured by eight elements - inclusivity, fairness, transparency, accountability, legitimacy, direction, performance, and capability. Open and transparent, inclusive and communicative, coherent and integrative, equitable and ethical, responsive and sustainable, efficient and accountable are core elements of managing effective water governance (Adelana, 2016; Rogers & Hall, 2003). Good governance encompasses democracy and representation, human rights, the rule of law, efficient and effective public management, transparency, and accountability, developmental objectives, and a particular variety of economic and political institutions (Gisselquist, 2012). Without good governance, developing nations cannot reduce poverty (Khan, 2007; Uddin, 2019). The proximity and quality of urban services may be better than in rural areas (Jones *et al.*, 2014).

IIAG (2013) concludes that compared to that other African countries, good governance transparency indices are low in Ethiopia. Jones *et al.* (2014) add that local authorities have low power to supply quality water to residents in Ethiopia. Also, the finding of this paper is consistent with Jones *et al.* (2014) because Bule Hora's town water and energy office is unable to afford quality water for the residents due to the politicians' interference in the office. Further, a rival for power among politicians affects community participation; and a lack of communities' skills, abilities, and knowledge challenge it (Roncoli, Dowd-Uribe, Orlove, West, & Sanon, 2016). That is why the town's water and energy office leader is appointed based on loyalty and intimacy to the politicians rather than meritocracy. Transparency highly depends on public will (Beshi & Kaur, 2020).

Furthermore, good governance is challenged by a lack of accountability in the Ethiopian water supply (Dessie *et al.*, 2019). In Bule Hora town, the degree that office leaders are accountable for their failure is low. The indication is that only half residents of the town have access to water. If it is appropriately applied, accountability of government officials increases citizens' trust in government activities (Beshi & Kaur, 2020).

Similarly, the lack of responsiveness mechanisms over services hinders the prevalence of good governance (Yirga, 2010). "Citizens need to be governed fairly and seek the appropriate answer to their questions" (Beshi & Kaur, 2020). In Bule Hora town, the residents' questions cannot get appropriate responses because their questions are being politicized. Also, the lack of participation mechanisms over services hinders the prevalence of good governance in the country (Yirga, 2010). In the town, people commit to participating in water governance. However, they have missed the chance to do it because of the low coordination mechanism. In developing nations, economic boost relies on effective good governance practice indicators (Peters & Pierre, 2012). Abagissa (2019) explains that leaders' ineffective and inefficiency challenge the country's good governance. Ethiopia faces challenges in efficiently developing and managing its water resources, although the country is rich in water resources (Koyra & Mesene, 2020). This problem is boldly visible in Bule Hora town since the leaders have come to position politically. Efficient water governance creates a conducive environment for raising public awareness (Dwianika *et al.*, 2020).

Adelana (2016) presents that urbanization and urban infrastructures are the main factors constraining Sub-Saharan Africa's water supply. Ethiopia's water supply condition is low; most of the population does not have access to safe and sufficient water supply facilities (McCornick *et al.*, 2003). About 33 million Ethiopians lack access to an improved water source (water.org, 2020). Jones *et al.* (2014) remark that the poorest households do not get water due to the cost of water services. Generally, in Ethiopia, the practice of good governance in the water provision of service delivery was poor (Nega *et al.*, 2020), and particularly, the Bule Hora Town water provision was extremely poor.

Conclusions and Recommendations

The water problem is high in developing countries, especially sub-Saharan African countries, because of lacking capital to exploit water. As a developing country, Ethiopia faces good governance challenges to supply pure water to residents. It faces challenges in efficiently developing and managing its water resources (Koyra & Mesene, 2020). Albeit the providing pure water problem is higher in rural Ethiopia, the challenge is also high in urban areas. The main challenge to equal water supply and distribution is the problem of good governance packages. Good governance is the management of public resources in a manner that is essentially free of abuse and corruption, with due regard for the rule of law and respect for people's rights to be engaged in public affairs. Governance is how decision-making is realized to implement (UNESCAP, 2008). From this definition, governance contains good governance and bad governance. If the designed decision is implemented properly, it is called good governance. If not, it is bad governance.

This research describes the practices and challenges of good governance packages in Bule Hora town water supply. The research finding shows that urban water coverage statuses are 53.3% in the town. Being a *woreda* town for years, it affects getting quality water. The coverage also varies from kebele to kebele. The water is transported by electric force from the sources in the town. And it is moved by gravity from the reservoirs to the households. Besides, the old pipelines do not fit the new ones in the town. Besides, unequal topographies also exacerbated the fairwater distribution in Bule Hora town and inefficient and ineffective water affordability. The town's residents get water from groundwater. However, only seven out of eight wells supply water. One well is dysfunctional today. In addition, the existing water coverage does not fit the town's population.

Concerning the town's good governance packages that challenge water supply, none of the six elements of good governance - transparency, accountability, participation, equality, efficiency and effectiveness, and responsiveness - used in this research are high. The findings revealed that the transparency, accountability, equality, and responsiveness levels are medium, and the participation, efficiency, and effectiveness level to afford water is low in Bule Hora town. The principal challenges of good governance in the town water supply office are the lack of electromechanical experts, low accountability and transparency in tariffs and unequal water distribution among all kebeles, and residents' low-level participation in water investment. The inefficiency and ineffectiveness of the office in supplying water, searching for and designing groundwater problems, politicians' interference, budget constraints, and rent-seeking of pipe link and pipe repair experts are also challenging the good governance of the office. It recommended that the town needs to increase its efficiency and effectiveness to raise the water coverage. Finally, the researcher has put a direction for future research. The research did not cover the roles of NGOs and private sectors in urban water services. Future research should focus on how cooperation between government, NGOs, and private sectors can enhance urban water coverage.

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Economic and Political Risk Aversions to Illicit Financial Flows: A Rethink of the Portfolio Choice Factors

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Abstract

The study examines the long-term causal relationship between public debt, governance quality, and illicit financial flows in sub-Saharan Africa. Annual time series data were gathered from the World Bank Governance Indicators, International Monetary Fund Economic Outlook, and Global Financial Integrity from 2005 to 2014. The approach adopted in the study is in the tradition of the portfolio choice framework of tax evasion, rooted in the investment theory of capital flight. The study finds that there is a negative and statistically significant long-run relationship between governance quality and illicit financial flows. The results also show a negative and statistically insignificant relationship between public debt and illicit financial flows. The findings suggest that weak institutional oversight, poor regulatory quality, corruption, and political crises are important determinants of illicit financial outflows in the region. It concludes that governments need to improve the transparency of financial transactions, including the beneficial ownership of corporate structures and tax information. The results also indicate the need to strengthen institutions such as customs, anti-corruption, and other law enforcement agencies to detect intentional trade misinvoicing as tax evaders exploit loopholes in tax administration peculiar to developing countries. The study is timely as resources are critically needed to rebuild economies in view of the global COVID-19 outbreak and its deleterious effects on low-income countries. The study is also relevant for policymakers as it presents pointers to the factors that proliferate illicit capital outflows from the region.

Keywords: *Illicit Financial Flows, Public Debt, Governance, Sub-Saharan Africa, Misinvoicing*

Introduction

Illicit Financial Flows (IFFs) defy a single universally accepted definition. The World Bank (2017) defines IFFs as a cross-border movement of capital associated with illegal activity or money that is illegally earned, transferred, or used that crosses borders. On the other hand, Global Financial Integrity defines IFFs as funds crossing borders that are illegally earned, transferred, and or utilized. The issue of IFFs as a development impediment in the global south, particularly in African economies, began to emerge in the 1980s following the structural adjustment policies implemented by most African countries. In other words, the sudden or prolonged outflow of domestic capital in these countries was likely to affect a country's

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macroeconomic performance, leading to these surges being labeled "capital flight" rather than "normal" flows (Cumby & Levich, 1987; Ajayi & Khan, 2000). By the mid-2000s, studies from leading civil society organizations popularized the use of the term 'illicit financial flows' by shedding light on the potentially significant magnitude of such hidden flows due to either the illicit origin of the capital or the illicit nature of the transactions (UNCTAD, 2020).

Consequently, the concept, originally associated with capital flight, has since gained attention within the international development community, particularly in the last decade, due to its inauspicious effects on growth and economic development in developing economies. Admittedly, much of the movement of money across the globe is considered legitimate and part of the ordinary workings of the international financial system; some of this cross-border movement of money is either illegal or harmful because of how they were generated, transferred, or used. Thus, these international transfers have come to be known as "illicit financial flows", a term that has come to combine occasionally disparate activities, including illegal capital flight, international money laundering, and tax evasion. Thus, a new conceptual framework for describing these "illicit" financial flows has emerged in recent years, combining issues ranging from cross-border money laundering to tax evasion.

Many factors explain why IFFs have recently become very topical in discussions within the international development community. One of the explanations advanced in this context is that the recent decline in capital inflows from the donor community is a signal that developing countries must begin to absorb the burden of their own development needs. Thus, IFFs are seen as a major constraint on economic growth since the estimated US$88.6 billion annual losses could have been invested in productive sectors, including poverty alleviation programs, social infrastructure, and others. Further, a reversal of these illicit outflows could significantly contribute to the solution of the debt crisis in most developing countries and leverage their debt portfolios for renewed access to the international capital markets.

Thus, the global community has recognized the development-inhibiting role of IFFs, hence their inclusion in the 2015 U.N. Sustainable Development Goals (SDGs). Indeed, target 16.4 of the SDGs aims to "significantly reduce illicit financial flows and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime by 2030".

Back on the definitional ambiguities, IFFs as a multifaceted concept encompasses multiple definitions that often refer to elements involving the movement of money and assets across borders that are illegal in their source, transfer, or use. Accordingly, their sources are generally classified into three categories: criminal activities, commercial activities, and corruption. In giving a componential breakdown of the relative contributions among the three different strands of IFFs, Kar, and Cartwright-Smith (2009) averred that corruption accounts for about five percent of global illicit financial outflows while proceeds from criminal economies and commercial tax evasion represent 30 and 65 percent respectively. Similarly, a study by the United Nations Economic Commission for Africa (UNECA, 2015) reveals that more than 60% of IFFs in Africa originate from commercial activities.[6]. Indeed, in its 2020 Economic Development in Africa report, the United Nations Conference on Trade and Development asserted that the trade misinvoicing category surpasses more than half of capital flight from Africa (UNCTAD, 2020).

This paper focuses on the strand of the literature focused on commercial tax evasion and the manipulation of trade prices. This is because the mechanisms through which IFFs occur in Africa mainly involve abusive transfer pricing, trade mispricing, misinvoicing of services and intangibles, and unequal contracts with the sole purpose of tax evasion, aggressive tax avoidance, and illegal export of foreign exchange (UNECA, 2015).

Furthermore, estimates by Global Financial Integrity indicate that sub-Saharan Africa is one of the leading global emitters of IFFs and the worst affected region when IFFs are scaled in terms of the impacts on gross domestic product. Consequently, the paper argues that curbing IFFs in Africa will mean the availability of resources to tackle pressing development challenges, including financing poverty alleviation/social support programs and investment in productive sectors of African economies. Also, addressing the menace of IFFs will help address land

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[6] The ECA/AU High-Level Panel report on IFFs from Africa in 2015 reveals that the bulk of IFFs (60%) are from trade misinvoicing by large commercial companies, with criminal activities such as drug trafficking accounting for about 30%, and corruption less than 10%.

degradation problems and sustainable management of natural resources and ultimately wean the continent off donor reliance on development financing (self-sufficiency).

Objectives and Questions

The study's main objective is to investigate the channels that facilitate illicit financial outflows in sub–Saharan Africa. Specifically, it seeks to determine the association between governance quality, gross public debt, and IFFs using the Portfolio Choice framework within a specific geographical context and proffer policy solutions based on the study's findings. Consequently, the paper aims to answer the following main questions: (a) Is the IFFs problem in sub-Saharan Africa a governance issue? (b) What is the effect of public debt on illicit financial flows?

Relevance of the study

Estimates show that about $88.6 billion, equivalent to 3.7% of Africa's GDP, leaves the continent annually as illicit financial flows. Stopping these illicit capital flights could almost cut in half the annual financing gap of $200 billion that Africa faces to achieve the Sustainable Development Goals (UNCTAD, 2020). Consequently, the Africa Union has strenuously tried to reverse the current scourge in the last decade. In 2011, for example, the African Union Commission/United Nations Economic Commission for Africa (AUC/ECA) Conference of African Ministers of Finance mandated ECA to establish a High-Level Panel on Illicit Financial Flows from Africa. Underlying this decision was the determination to ensure Africa’s accelerated and sustained development, relying as much as possible on its own resources (UNECA, 2015). Chaired by Thabo Mbeki (The Mbeki Report), the Panel’s Terms of Reference encompassed six critical issues. Central among them was determining the nature and patterns of illicit financial flows from Africa (Tax Justice Network, 2015). Accordingly, this study contributes to the debate by analyzing the current governance loopholes and economic factors stimulating illicit capital outflows in the region.

Literature Review

The divergence within the research community is wider than how the term is conceptualized. In other words, the concept similarly defies a single universally accepted standard procedure with respect to its measurement. Thus, the scale of IFFs originating from developing countries cannot be measured precisely due to the various dimensions the concept encompasses. Accordingly, in analyzing the economic impacts of IFFs, a distinction is drawn between the two broad types of IFFs. First, those emanate from illegal sources such as corruption and embezzlement of public funds. Second, those emanate from legal sources such as trade misinvoicing, which is the focus of this study. Trade misinvoicing entails the fraudulent means whereby importers or exporters manipulate the values in terms of quantity or quality of trading goods in their customs declarations to evade tariffs or tax, avoid trade regulations, or take advantage of trade incentives (World Customs Organization, 2018).

The rationale for trade misinvoicing can be summarized into two main categories. The first emphasizes the role of high customs duties as a fundamental reason for misinvoicing of import and export values. Thus, when firms pay high customs duties or value-added tax rates on imports or are subject to quantitative restrictions, they are incentivized to undervalue/understate the actual value of imports (De Boyrie *et al*., 2007; Boyce & Ndikumana, 2001). Second, misinvoicing is seen as a method for achieving capital flight, which is motivated by fears of expropriation in the interplay between unsound economic policy and political instability (Patnaik *et al*., 2012). However, irrespective of the motive for misinvoicing, World Customs Organization has provided four key mechanisms through which misinvoicing occurs and is detected.

First, trade misinvoicing is done by people aiming to evade tariffs through under-invoiced imports. Thus, unit price analysis can detect an importer submitting a forged invoice in the customs declaration. This is done by comparing an importer's customs record with the traded goods' actual value. Alternatively, it can also be detected by mirror data analysis. In this case, the customs record of the importer and that of the exporter are compared in order to identify gaps and mismatches in trade data.

Secondly, under-invoicing often occurs through collusion by the importer and exporter; thus, both importer and exporter, in collusion, submit the same forged invoices to customs. This is detected through unit price analysis and cross-referencing between customs and financial data. Thirdly, misinvoicing occurs in the form of an over-invoiced import used to transfer domestic capital abroad (IFFs). In this case, a financial intermediary, in collusion with the importer, receives the over-valued payment from the importer and transfers only the original amount to the exporter. This type of trade misinvoicing is detected by unit price and mirror data analysis.

Finally, an importer transfers money to the exporter in collusion through over-invoicing of low-value goods. This is detected through customs-tax cooperation, such as the exchange of information with regard to the beneficial ownership of traders. These are some of the mechanisms commonly employed by businesses to evade tariffs or taxes, avoid trade regulations or take advantage of trade incentives. This sophisticated commercial malpractice often adopted by multinational enterprises is more pronounced in developing countries due to weak institutions and human resource capacity gaps to detect these illicit trade activities. The practice impairs growth and long-term economic development prospects for developing countries, especially those endowed with natural resources. Some of the economic effects of trade-based IFFs are examined as follows.

Economic Ramifications

Several studies have identified the factors responsible for illicit financial flows from Africa and other developing countries. Key factors among these include lack of transparency and supervision, poor regulation and weak enforcement of onshore and offshore financial regulations, underdeveloped financial markets, and corruption. Africa forfeits enormous volumes of financial resources each year through illicit outflows that have severe implications for the continent's medium and long-term development prospects. As the Economic Commission for Africa observed, this disturbing phenomenon has damaging effects on African countries, including draining resources and tax revenues, stifling growth and socio-economic development, and weakening governance. Further, IFFs also deepen the unequal distribution of economic and political power since beneficiaries of the scheme become wealthier and more robust to the detriment of the masses.

IFFs further contribute to exacerbating poverty and inequality. Thus, apart from Africa’s 33% wealth being held abroad according to estimates by Africa Tax Administration, a study on income inequality trends in sub-Saharan Africa identified IFFs as a specific feature of resource-dependent growth, which presents inequality risks (UNDP, 2017). For instance, the estimated US$88.6 billion, equivalent to 3.7% of the continent’s GDP that leaves Africa yearly, could have been invested in productive sectors of the economies that could generate employment and help bridge the widening inequality gaps. Similarly, a Global Financial Integrity report reveals that between 1980 and 2018, sub-Saharan Africa received a cumulative amount of nearly $2 trillion as a foreign direct investment (FDI) and official development assistance (ODA) but emitted over $1 trillion in IFFs.

Finally, it is worth of note that IFFs do not only impact the economic development of the populations concerned. The IFF's menace further weakens social and institutional development through its impact on the quality of political institutions, tax systems, and social cohesion (Torvik, 2009). Thus, the rapidly increasing opportunities for secretly transferring assets abroad go hand in hand with development trajectories that, in essence, are worsening existing political ills (Moore, 2012). It may therefore be argued that IFFs are closely tied up with weak political institutions. Thus, on the one hand, they are a consequence of weak institutions. On the other hand, they also contribute to weakening them even further (Cerra et al., 2008). The ripple effect is that IFFs are partly responsible for the fact that the commodity wealth of many least developed countries has not translated into developmental progress but into a veritable 'resource curse'.

Portfolio Choice Framework

Arguably, the IFFs field is still nascent and evolving. As such, established theoretical literature on IFFs is rare (UNCTAD, 2020). Even so, scientific studies on the theoretical approaches to IFFs can be derived from two main perspectives. First, most common in the specialized academic literature are papers that subsume IFFs into the concept of capital flight and primarily explore the causes of that phenomenon. On the other hand, without an established theoretical model for IFFs, economists rely on a combination of economic ideology with rigorous analytical methods (Herkenrath, 2014).

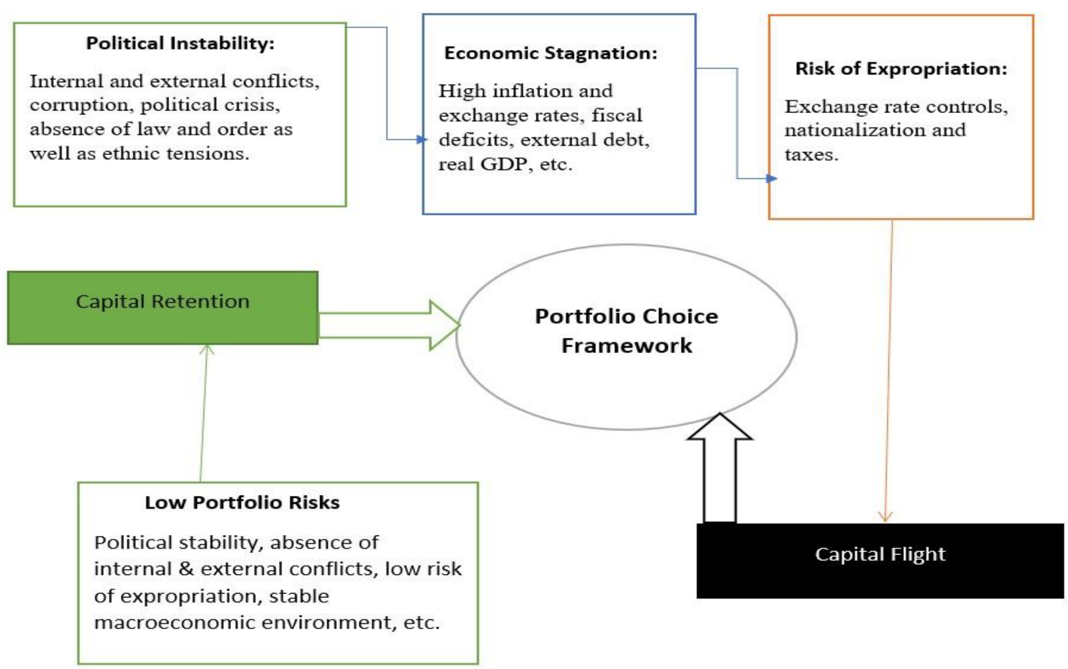
Consequently, the conceptual framework for this paper draws on the empirical studies that subsume IFFs into the concept of capital flight based on the Portfolio Choice (P.C.) model.[7]. The P.C. model provides explanations on the determinants of these flows, including the fact that the massive capital outflows from developing countries, by and large, the result of an aversion to risks such as expropriation and currency losses and a reaction to comparatively low (risk-weighted) profit expectations (Collier et al., 2001). In this regard, among the theoretical

[7] The Portfolio Choice theory postulates that capital flight occurs in developing countries mainly due to agents' desire to optimize yields on capital for a given level of political and or economic risk.

assumptions underpinning the P.C. model is that private capital flight coincides with private foreign borrowing. This often leads to a situation where domestic and foreign investors face an asymmetric risk of expropriation, such that they invest abroad, and domestic investment is consequently financed with foreign funds.

Thus, the model focuses on the notion that domestic and foreign investors face the asymmetric risk of economic factors, including implicit taxes, rapid inflation, or exchange rate depreciation. A fiscal shock, for instance, may lead to increased government reliance on inflation tax, which erodes the value of domestic financial assets and leads residents to acquire foreign assets (Khan & Haque, 1985; Dooley, 1988). Therefore, the standard approach to tax evasion is largely based on the economics of decision-making under risk, which becomes an individual's portfolio selection issue (Collier *et al.*, 2001). Figure 1 summarizes the political and economic risk factors to capital flight under the P.C. framework.

Fig. 1: **Illustration of the Portfolio Choice Factors on Capital Flight**



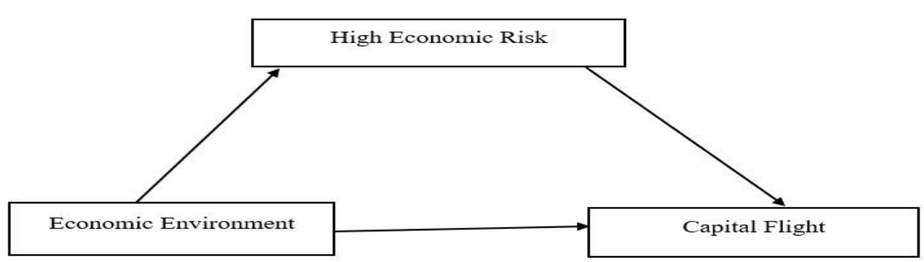
Source: Author's Construct

In their seminal paper on the economics of criminal activity and tax evasion, Allingham and Sandmo (1972) observed that taxpayers are assumed to pay the penalty on their 'concealed income' if the act of evasion is caught. Based on this assumption, the resultant effect is that a change in tax rate will have an ambitious impact on evasion, for there exist two opposing effects, an income effect, and a substitution effect. However, most tax evasion models now assume that the penalty is levied on the 'evaded tax' and the modification yields no substitution effect and therefore leads to an unambiguous result that an increase in tax rates reduces tax evasion (Yitzhaki, 1974).

The study investigates the economic and governance conditions facilitating illicit financial outflows through aggressive tax evasion and trade mispricing. Irrespective of their cost components within the IFFs spectrum, they are transactions motivated partly by the unfavorable economic environment in the country of origin or aggressive tax avoidance behavior by multinational companies and individuals due to weak governance institutions prevalent in most developing countries. Collier *et al*. (2001) elucidated that capital flight arises from portfolio diversification, return differential, and relative risk incentives. In this regard, the P.C. framework fits the purpose of the study since the objective is to investigate the association between macroeconomic imbalances (public debt), governance quality, and illicit financial flows in a specific geographical context. To this end, the theoretical assumptions underpinning the P.C. model on the capital flight are discussed below with the corresponding hypotheses.

Hypotheses

H1 (Fig.2)**:** Low or negative actual interest rates, overvalued exchange rates, inflationary pressure, and rising external indebtedness pose high investment risk and lead to capital flight.



Source: Author's Construct

One of the determinants of capital flight is economic volatility in the origin country, as depicted in the hypothesis above. In particular, the prevailing macroeconomic environment determines to a large extent, whether capital leaves or stays in a country. Thus, in analyzing the link between IFFs and macroeconomics, variables such as inflation and actual exchange rates, fiscal deficits, national debt, and real GDP are among the critical determinants, according to the literature. For instance, domestic investors react quickly in terms of sending capital abroad during a budget deficit period to escape anticipated future higher taxation to close the deficit (Boyce, 1992; Loungani & Mauro, 2001; Fofack & Ndikumana, 2009). Likewise, higher inflation erodes the real value of assets, pushing domestic asset holders to move their assets abroad (Fischer, 1993). Therefore, macroeconomic fluctuations such as inflation, fiscal deficit, and real exchange rate weaken confidence in a country's macroeconomic environment and push individuals and investors to move their capital abroad.

Reasons for a positive association between macroeconomic indices such as the external debt stock of a country and capital flight is the probability of a fiscal crisis at hand, and this could induce capital flight. Eaton (1987) asserted that the normal expectation of increased tax obligations created by the potential nationalization of private debt generates capital flight. In most African countries, for example, governments borrow from external sources to finance development and address fiscal deficits. However, the private sector shifts funds abroad to secure good returns for their assets (Khan & Haque, 1985). However, adherence to good policies like low inflation and fiscal deficit increases the economic stability of a country. It also boosts the confidence of investors to hold assets within the country, thereby reducing the extent of capital flight (Herkenrath, 2014). Further, a country with a persistent current account deficit could indicate economic instability and induce people to transfer capital abroad to escape anticipated devaluation by the government as a response measure to improve the current account balance.

In their study supporting the differential risk hypothesis, Khan and Haque (1985) opined that the perceived risk associated with an investment in advanced economies was lesser than those associated with developing economies because of the “expropriation” risk. The expropriation risk explains a system where institutional and legal arrangements are in place to protect private property and investment, which are mostly absent or ineffective in developing countries. For this, Khan and Haque further point out that private investment in highly indebted countries is subjected to expropriation risk, implying that residents can have their assets expropriated by the government through many mechanisms, including exchange controls, nationalization, and taxes which are often missing in industrialized countries.

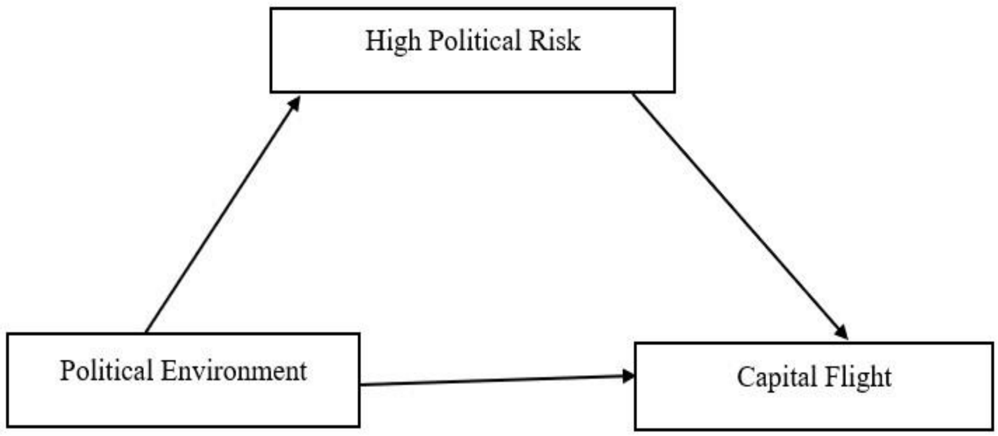
In this regard, Herkenrath (2014) posited two ways countries going through persistent current account deficits could raise revenue to reduce the deficit: through a devaluation to improve the current account balance or by raising resources internally by engineering a transfer from the private sector. In the latter case, Rojas-Suarez (1990: 9) averred that "facing this expropriation risk in developing countries, domestic residents find it optimal to hold their assets abroad where they earn a more secure rate of return and borrow external funds to finance domestic investment." In essence, domestic investors face a higher risk of expropriation and therefore invest abroad, which essentially ensures that domestic agents make their portfolios less accessible to taxation and or expropriation.

In the specific case of the public debt ratio and IFFs, it may be considered that the connection works in both ways. In an empirical study of thirty-nine African countries from 1970 to 2010, Ndikumana (2014) demonstrates that IFFs (weighted according to the size of the economy concerned) have a robust and statistically significant investment-inhibiting effect. Thus, IFFs can force governments concerned to resort to flight-driven external borrowing. On the other hand, foreign loans can also trigger debt-fuelled capital flight, such that loans contracted and guaranteed by the government flow immediately and directly into foreign private accounts. In both scenarios, IFFs compound government indebtedness, dependence on foreign aid, and its implicit and explicit policy conditionalities (Ndikumana & Boyce, 2003; Beja, 2006).

In sum, countries with higher external indebtedness face a greater risk of capital flight, and among the reasons advanced for the apparent positive association between the two is that debt disbursements can signal an increase in the probability of a fiscal crisis and induce capital flight. High external indebtedness is also likely to put upward pressure on the domestic currency, motivating residents to acquire foreign assets before an expected devaluation occurs.

Hypotheses

H2 (Fig.3)**:** Political upheavals, social instability, bad governance, and corruption pose significant investment risks and lead to capital flight.



Source: Author's Construct

The prevailing political climate in a country is a key predictor of capital outflows. This is because political instability pushes agents to minimize the risk of expropriation and future portfolio losses arising from the political crisis. The World Bank governance index database and the Political Risk Services database variously classify the components of political stability to encompass areas including internal and external conflicts, government stability, law and order, as well as ethnic tensions. The political stability index ranges from 0 to 100; a low score signifies greater risk, while a higher score indicates a stable political environment.

Further, corruption, an important governance indicator, is another significant determinant of illicit capital outflows. Whether petty or grand, corruption distorts the economic and financial environment through bribes, thereby contributing to the problem of IFFs in many developing countries. In other words, perceived ill institutions in an economy are a recipe for capital flight as citizens lose trust and confidence in the domestic economy, thereby holding their funds abroad (Lensink *et al*., 2000).

The lack of effective institutions and good governance practices in a country further gives rise to IFFs since they make politically exposed people vulnerable to corruption in the capital market, especially in countries endowed with natural resources (Ndikumana & Boyce, 2003; Le Billion, 2011). Thus, low competition in extractive sectors coupled with poor institutional oversight make the sector susceptible to corruption. This facilitates the creation of oligopolies that collaborate with governments and competitors in terms of contract negotiations, joint ventures, and other arrangements (Mpenya *et al.*, 2016; Boyce & Ndikumana, 2012). In the extractive sectors/political institutions dichotomy, Acemoglu and Robinson (2012) explain that extractive political institutions lead to extractive economic institutions, such that only a few enrich themselves at the expense of many. They surmise that extractive economic institutions provide the platform for extractive political institutions to persist. However, inclusive political institutions tend to support inclusive economic institutions. This leads to a more equal income distribution and empowerment for a broad segment of society.

Finally, on the importance of political institutions in the fight against illicit capital outflows, Nicolaou-Manias (2018) intimated that one of the governance channels in which IFFs can be curbed is through transparency measures on beneficial ownership of corporate structures. This is because tax evaders and multinational corporations exploit loopholes in beneficial ownership tax laws in developing countries to evade taxes. Effective institutions and governance structures are, therefore, very critical in curbing criminal economies since the phenomenon is mainly a result of poor governance and inadequate management capabilities.

Research Methodology

How are Illicit Financial Flows Measured?

As in the case of its definitional ambiguity, the empirical literature on IFFs estimation has revealed a vast array of methods. This can be linked to different definitions and econometric models used. Thus, so far, there is not a universally agreed methodology within the research community with regard to estimating IFFs accurately. Indeed, "with the exception of work on tax evasion and crime, mainstream development economic research has largely failed to coherently engage with attempts to estimate IFFs, despite the growing attention from policymakers" (Collin, 2020:45). This problem, according to Collin, partly arises from poor institutional quality prevalent in most developing countries.

These institutions need the requisite capacity to either detect IFFs or the practices that give rise to them. Based on this, they are also less likely to successfully negotiate bilateral tax-information exchange agreements needed by authorities to exchange valuable information for tracking down international tax evasion cases. Consequently, the semantic and conceptual difficulties involved in interpreting IFFs, allied with the broadness of the definition itself echoed in its operationalization and the design of the methods used to estimate it creates a lacuna in the literature with respect to accurate scales and patterns of IFFs (Aziani, 2018).

Notwithstanding the methodological difficulties, the partner-country trade gap analysis is the predominant approach used in the economic literature for quantifying the extent of trade mispricing. Pioneered by Bhagwati (1964) and Bhagwati *et al*. (1974), the method relies on partner-country trade gaps and argues the incentives involved for trading firms, especially focusing on tax and customs duty evasion. The methodology is based on the principle of double counting in international trade statistics. That is, the mirror trade statistics compare the source country's export statistics to the importing partner's corresponding import statistics, adjusting for transportation costs. With the underlying assumption that trade statistics from advanced economies are reliable and represent the arm's length value, any unexplained asymmetries in reported trade statistics between advanced and developing countries' trading partners are evidence of trade misinvoicing in the developing countries (Boyce & Ndikumana, 2012).

In essence, the "mirror data" approach computes trade misinvoicing by comparing what country A reports as an export to B and what country B reports as an import from A (or vice versa), mostly using bilateral data from the direction of trade statistics (DOTS) IMF database. The equation used for measuring trade misinvoicing between a developing country and its industrialized trading partners is below.

$$XmiSit = Mjt - (Xit * cif) \qquad (1)$$

$$MmiSit = Mjt - (Xit * cif) \qquad (2)$$

Where:

Equation 1 measures export misinvoicing by country i in year t, where *Mjt* refers to imports of industrialized country j from country i in year t as reported by country j. *Xit* refers to exports of country i to industrialized country j in year t as reported by country i. cif (cost of insurance) refers to the ratio of cif to fob (freight on board). A positive value of *XmiSit* would indicate export under-invoicing by country i in year t.

Similarly, in equation 2, a positive value of *MmiSit* would reflect import over-invoicing by country i in year t. The misinvoicing figures for country i are arrived at by applying equations 1 and 2 to all the industrialized trading partners of country i.

This trade-based analysis (mirror data approach) is the methodology most researchers employ in the IFFs discourse, including the one regularly conducted by Global Financial Integrity. Significantly, UNECA also adopted this methodology to estimate IFFs in Africa in its 2015 High-Level Panel on Illicit Financial Flows in Africa. However, despite the popularity of the mirror data approach, it is embedded with certain limitations. The Union argues that before any mirror trade analysis findings conclude fraud, they must be verified through field investigations or in-depth document reviews. Consequently, World Customs Organizations (2018) surmised that mirror trade analysis might only be applied as a risk assessment tool to spotlight potential cases of misinvoicing.

For example, by looking at individual commodities, it is possible to see that price volatility, transit, varying freight and insurance costs, and the use of bonded warehouses in merchant trade can result in significant trade data discrepancies arising from legitimate trade. Thus, the mirror trade approach is limited because it fails to identify gaps in trade statistics, which can occur for innocent reasons such as errors in recording prices, price volatility, and varying shipping and insurance costs (Johannesen & Pirttila, 2016). However, notwithstanding the underlying limitations in using aggregate trade statistics for empirical analysis of IFFs, the methodology has produced pointers on the scale of the IFFs problem and has triggered significant efforts by national governments and intergovernmental organizations to assess and evaluate the magnitudes and channels of trade-related tax erosion.

On the other hand, due to the statistical limitations in accurately measuring IFFs, many researchers instead try to construct indicators that show a country's exposure to IFFs or empirically identify the correlates of IFFs. Thus, instead of attempting to measure illicit flows directly, some researchers instead construct indices that reflect the exposure a jurisdiction might have to IFFs. In this case, they assume an empirical relationship exists between unobserved illicit flows and a set of observable characteristics of a given country. As actual data on IFFs are unavailable, this relationship is usually an assumed one.

Frequently, such a constructed index is a linear combination of the observable characteristics and typically takes the form of a composite index (Collin, 2020). As opined by Forstater (2018), the truth about illicit financial flows will always be that people try to hide them, and they will not be found easily in macroeconomic statistics. Accordingly, the methodology employed in this study conforms with the foregoing approach since the goal is to adduce IFFs channels by testing their relationship with public debt and governance variables within a specific geographical context.

As one of the leading global emitters of IFFs, the study seeks to estimate the association between public debt (DBT), governance (GOV), and illicit financial flows (IFF). Accordingly, the methodology is a variant of the balance of payments methods adopted by Boyce and Ndikumana (2012). The study concerns 43 countries in sub-Saharan Africa and is from the period 2005 – 2014. This timeframe is relevant for the study as it marks the period preceding concrete global actions, including the SDGs, which aim to significantly reduce illicit financial flows by 2030. This time frame also preceded regional initiatives to address the problem of IFFs, including the 2015 UNECA and African Union High-Level Panel on Illicit Financial Flows in Africa.

Table 1: Data Description and Sources

Variable	**Definition**	**Data Source**
Governance	Measures governance based on perceptions regarding: • Political stability • Control of corruption • Government effectiveness • Regulatory quality • Voice and accountability • The Rule of Law *Estimates are in units of standard normal distribution, i.e., ranging from approximately -2.5 to 2.5.	World Bank
Gross Public Debt (% of GDP)	Payments of interest and/or principal on the debt, including: • Currency and deposits • Debt securities loans • Insurance • Pensions and standardized guarantee schemes • Other accounts payable	World Economic Outlook (IMF)

Illicit Financial Flows	Measures IFFs through value gaps in trade data between developing countries and advanced economies with data from the following sources: • IMF direction of trade statistics • United Nations COMTRADE	Global Financial Integrity

Source: Author's Compilation

Results and Discussion

The study employs mixed research methods as it is most appropriate for addressing confirmatory questions (Anders *et al*., 2020; Pérez-Chiqués *et al*., 2021; Tashakkori, 2009). In other words, after quantitatively testing the association between governance, public debt, and illicit financial flows, qualitative techniques were used to thematically contextualize the findings relative to the theoretical assumptions underpinning the model adopted for the study. The analysis was done using Pearson correlation with SPSS version 27 on panel datasets involving 43 countries in sub-Saharan Africa. Countries omitted were those without consistent data covering the entire period under review. Since illicit financial flows, governance, and public debt are continuing scale variables, Pearson r correlation analysis was most appropriate for this type of study (Ahlgren *et al*., 2003).

Table 2: Correlation coefficients of the variables

		IF	GOV	DBT
IF	Pearson Correlation	1	-.910**	-.112*
	Sig. (2-tailed)		<.001	.020
	N	430	429	430
GOV	Pearson Correlation	-.910**	1	.100*
	Sig. (2-tailed)	<.001		.039
	N	429	429	429
DBT	Pearson Correlation	-.112*	.100*	1
	Sig. (2-tailed)	.020	.039	
	N	430	429	430

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Statistically, the results show a significant relationship between governance (GOV) and illicit financial flows (IFF). Conversely, the correlation output indicates an insignificant or weak relationship between public debt (DBT) and illicit financial flows (IFF). That is, whereas the association between governance quality and illicit financial flows reveals a significant *p-value* of .001(.01), the correlation between public debt and illicit financial flows shows an insignificant *p-value* of .020. Nevertheless, statistical significance alone can be misleading since the sample size influences it. That is why it is necessary to report effect sizes in research papers since researchers are more interested in how much of an effect their manipulations had and how strong the relationships they observed were than in statistical significance (Nakagawa & Cuthill, 2007). In this regard, Cohen (1988) explains that the effect size is low if the value of *r* varies around (0.1), medium if *r* varies around (0.3), and large if *r* varies more than (0.5). In this case, the results show that the effect size for GOV and IFF is (-.910), thus implying a strong negative association between governance and illicit financial flows.

On the other hand, the effect size for DBT and IFF is (-.112); this indicates an insignificant negative relationship between public debt and illicit financial flows. Thus, the findings suggest that poor governance, denoted by weak regulatory quality, corruption, weak institutions, *etc*., facilitate illicit financial outflows from the region. For example, an analysis of the Corruption Perception Index (CPI) from 2012 to 2021 indicates that only three countries from sub-Saharan Africa (Seychelles, Cabo Verde, and Botswana) made it to the first top fifty least corrupt countries globally. Conversely, of the worst fifty most corrupt countries, 24 are from sub-Saharan Africa (Transparency International, 2021). It is not surprising that there is such a strong correlation between governance quality and illicit financial flows in the region.

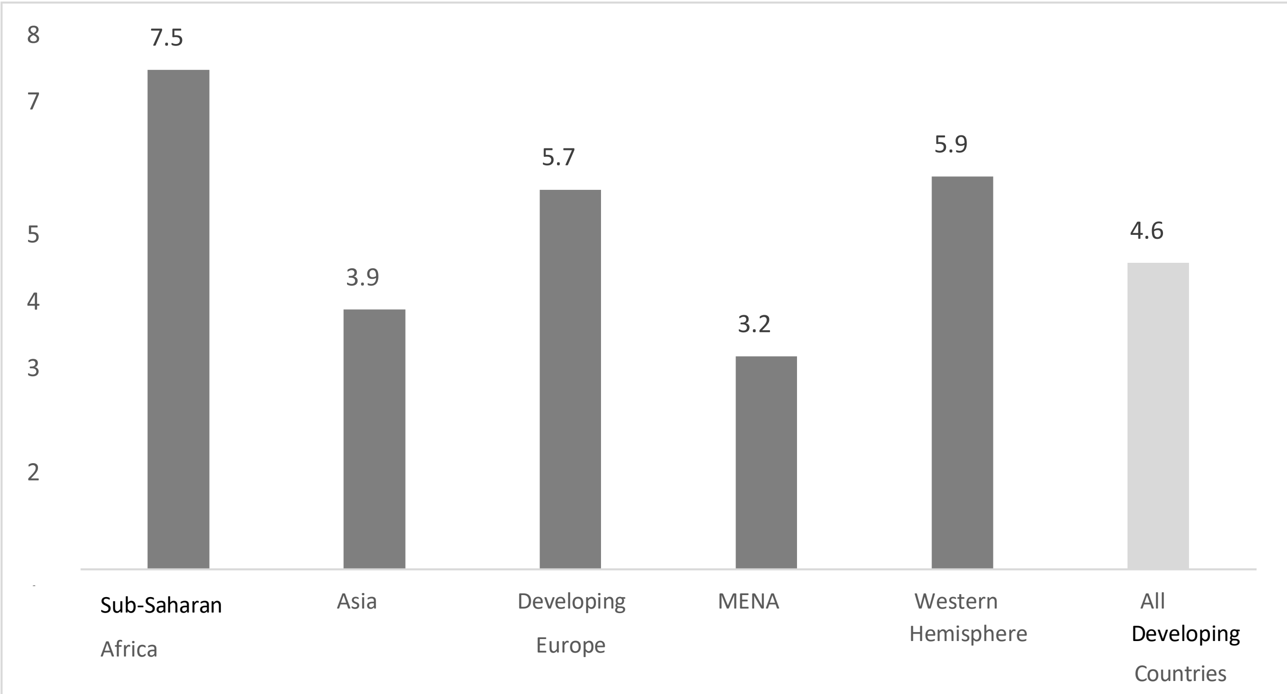
Since governance exerts a significant negative correlation with IFFs, it can be argued that the massive capital outflows from the region are, by and large, a result of institutional weakness, rampant corruption in public service, and regulatory inefficiencies. This has many implications for the fight against IFFs. For example, multinational firms can easily transfer capital abroad using both licit and illicit means due to ineffective political institutions in most African countries. This is done by undervaluing or invoicing exports to reduce tax liabilities or escape exchange controls, particularly in countries endowed with natural resources. The findings, therefore, corroborate previous studies that show that poor governance is a significant catalyst for illicit capital outflows in developing countries. For example, Ndikumana (2016), in his work on the important role governance and political institutions play in alleviating the risk of capital flight, emphasized that poor institutions facilitate the illicit acquisition of national resources and embezzlement of natural resource exports.

Furthermore, governance failure in the global financial system also contributes significantly to the IFFs problem. Governance entails regulatory capacity, institutional oversight, and transparency systems that may be lacking in the financial systems of many countries in the region. In other words, legal loopholes in the global financial system also facilitate illicit transfers and concealment of private wealth (licit and illicit) in secrecy jurisdictions or tax havens. Consequently, governance challenges in Africa are the most critical regarding illicit financial outflows.

In other words, the results imply that illicit financial outflows in sub-Saharan Africa are chiefly traceable to poor governance and weak political institutions in the region. The results lend credence to several empirical studies that conclude that IFFs, which are a consequence of the offshore financial economy, are traceable to poor governance and political uncertainties prevalent in many developing countries (Murinde *et al*., 2000; Christensen, 2011; Bendoma *et al*., 2016; Nwachukwu & Asongu, 2017). Indeed, a single African country case study by Gankou *et al*. (2016) found that political and institutional variables significantly determine the relationship between capital flight and foreign direct investment.

The findings support the argument advanced by proponents of the P.C. model that political crises and poor governance are important determinants of illicit capital flight. For example, control of corruption, one of the central components and a key determinant of good governance, is a major problem in the region. Sub-Saharan African countries perform below the global average in most governance indicators. As already stated, a recent release by Transparency International on the global CPI covering the period 2012 to 2021 reveals that no country in the region made it to the first fifty least corrupt countries, save for Seychelles, Cabo Verde, and Botswana. Meanwhile, a majority of 24 sub-Saharan African countries are among the fifty most corrupt countries globally. The results further confirm findings by Global Financial Integrity (GFI) that sub-Saharan Africa is a lead emitter of IFFs globally, as evidenced in figure 4 below.

Fig 4: Illicit financial outflows from developing countries (% of trade in 2014)



Source: Global Financial Integrity

As highlighted, economic stagnation is the other fundamental theoretical assumption underpinning the P.C. approach to capital flight from developing countries. Accordingly, the objective was to examine the association between economic variables and IFFs in the context of a region with huge growth potentials, regardless of the structural vulnerabilities. However, for the purpose of this study, only general public debt, one dimension of a macroeconomic imbalance was used in the analysis. The rationale for using public debt as the main macroeconomic variable for the analysis stems from the fact that the debt portfolio of a country generally determines the overall health of the economy.

In other words, the debt portfolio of a country in a particular period generally determines the state and growth of the economy (Kutan *et al*., 2021). Notwithstanding, macroeconomic variables are so intertwined that distortion in one indicator has a reactive effect on the others. For example, a local currency's value loss will likely push domestic wealth owners to move the capital from domestic to foreign assets holdings since the interest rates parity condition shows that depreciation in local currency makes foreign assets more attractive than domestic assets.

Similarly, instances of high inflation resulting from fiscal deficit financing through seigniorage will lead to capital flight as domestic agents seek to avoid an erosion of the value of their monetary assets by the rising inflation (Turpin *et al*., 2018).

Back on the public debt-capital flight nexus, the correlation analysis shows that the former is not a key determinant of illicit financial outflows, as indicated in the p-values. In other words, there is no statistically significant relationship between public debt and illicit financial flows as shown in the correlation output in table 2. However, the debt-driven capital flight thesis postulates that given the heavy external debt of a country, residents of these countries are motivated to move their resources outside the country. Borrowed hard currencies are sold to domestic economic agents through wage payments and transfers. These agents then illegally remit the hard currencies partly to completely abroad. Accordingly, high external debt is considered one of the propellants of capital flight. There is, therefore, an obvious contradiction between the correlation analysis and this neoclassical economic assumption regarding the relationship between capital flight and public debt.

In other words, the theory postulates that rising domestic debt reduces the incentive to save and invest in the home country's economy. The assumption is that with large foreign debt, there are expectations of exchange rate devaluation, fiscal crisis, and the possibility of crowding out domestic capital and potential threats for expropriation of assets to settle the debts (Dooley & Kretzer,1994; Ajayi, 1995). Loss-averse residents, as a result, transfer their funds broad where the risk of losses and expropriation of private capital is low. The likely eventual outcomes are a widening savings gap and economic stagnation or decay (Turpin *et al.*, 2018).

One of the underlying objectives of the study was to assess the relationship between public debt and IFFs in a region with a long history of structural economic vulnerabilities. The findings imply that macroeconomic indicators, including balance of payment deficits, public indebtedness, exchange rate differentials, and high inflation rates, although they deteriorate the economic environment, are not significant determinants of illicit financial outflows. Consequently, the results support the assumptions underpinning the new institutional economic literature on the link between economic factors and capital flight.

The theory suggests that illicit capital flows are a consequence of corruption, poor governance, and rent-seeking behaviors, mostly in extractive political institutions in developing countries.

This theoretical proposition is further supported by previous studies that confirm the lack of a predictable effect of macroeconomic factors on capital flight. This implies that the problem of illicit capital flows is not primarily an issue of portfolio choice considerations but largely a problem of governance and political and institutional factors (Boyce & Ndikumana, 2011; Ndikumana, 2016). Accordingly, **H1** is rejected: That is, economic risk factors do not have an influence on illicit capital outflows. However, **H2** is accepted: Political and governance factors are significant determinants of illicit capital outflows.

Conclusion

The approach adopted in this paper is in the tradition of the portfolio choice model of tax evasion, rooted in the investment theory of capital flight. The theory postulates that due to economic and political risk factors in developing countries, domestic agents move their capital to advanced economies to avoid anticipated erosion of the value of their assets and or their expropriation. Thus, in neoclassical economics, these capital outflows are fuelled by domestic macroeconomic policy distortions and political risk factors. This leads to rational reallocation of capital from developing economies to developed economies for favorable risk-return investment. Recent reports by Global Financial Integrity, UNECA, and other non-profit organizations show that sub-Saharan Africa is one of the leading emitters of IFFs. Consequently, the study sought to understand the factors that drive these illicit financial outflows from the region using the P.C. framework.

The paper's contribution to the field uses the P.C. framework to analyze the relationship between governance, public debt, and illicit financial flows in sub-Saharan Africa. The outcome of the analysis indicates that governance correlates significantly with illicit financial outflows. On the other hand, public debt, which generally measures the strength of an economy, exerts no influence on illicit financial flows. Therefore, the paper supports the hypothesis that political and institutional factors are fundamental determinant factors to illicit capital flows. Regarding the economic factors, the paper relied on a single economic variable (public debt) for the analysis and did not control for other variables and endogeneity problems. Future work in this direction should consider these and look especially at the post-2015 agenda to ascertain the level of progress in curbing the IFFs menace in the region.

Finally, even though the relevance of the P.C. approach on capital flows in developing countries cannot be discounted, the model leaves much unexplained. For example, the approach falls short when it comes to explaining illicit capital outflows originating in economically successful industrialized countries and fast-growing emerging countries. It would make seemingly little sense to assume that these capital movements are mainly related to the explanatory factors central to the P.C. model, thus flight from economic stagnation and political risk factors.

Secondly, while tax flight from prosperous countries may well be regarded as economically rational, it goes beyond the theoretical scope of a model in which illegal capital movements, in essence, seem to be a morally justified response to investment risks. Consequently, proponents of the IFFs concept assume a radically different explanation for the phenomenon. They argue that the general growth of IFFs is ultimately a reaction to the advancing global integration of the financial system and the readiness of numerous offshore financial centers to help conceal illegally acquired untaxed assets.

Policy Recommendations

The paper makes policy suggestions that could remedy the menace of illicit financial flows in Africa and developing countries. First, there is the need for effective collaboration among regional and intergovernmental organizations, governments, civil society, and the banking sector. Strengthening tax administration and enforcement through better regionally integrated systems and facilitating tax information exchange between governments should be the focus of the collaborations. There is also the need to move towards a consistent and globalized regulatory system on transfer pricing, including using an advanced transfer pricing system and increasing global asset recovery capacity. The results imply that governments need to improve the transparency of financial transactions, including the beneficial ownership of corporate structures and tax information. Customs and law enforcement agencies need to be strengthened in order to detect intentional trade misinvoicing as tax evaders exploit loopholes in tax administration in developing countries.

Moreover, since up-to-date information exists on average world market prices for a number of commodities, customs could always use this information to determine tax values and whether the values stated on invoices are consistent with international market prices. Access to such information increases the chances of detecting illicit financial flows as well as cues on how the practice could be curtailed.

Finally, strong sanctions must be against firms and multinational corporations whose activities lead to or promote illicit financial flows. These may include large fines, withdrawal of licenses or suspension of operations, or even imprisonment. Customs officials should use the information on beneficial owner(s) of trading companies and cross-border tax information-sharing agreements to question suspected transactions. Therefore, the exchange of tax information and more transparency in the shadow global financial system is vital in detecting illicit financial flows through trade misinvoicing.

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The Contagion of Misgovernance in Nigeria: Reflections on the Influence of Non-Administrative Criteria

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Abstract

Successive governments in Nigeria have failed to curtail the downward spiral of the sectors of her economy. The deepening socio-economic and political crises are assessed as occasioned by the dysfunctionality of the arms of government that jeopardizes essential service delivery to the detriment of the polity at whose behest they occupy the public offices. Despite the changes and institution of new administrative leadership through democratic processes, the quality of governance continues to dwindle. Poor policy formulation, implementing non-target-specific measures to deal with the malaises bedeviling the economy, and/or outright government inaction define the practical realities of Nigeria's sociopolitical landscape. These plausible facts have driven wedges between the elected representatives in government and the polity who bear the brunt of the leadership failures in all spheres. The study determined whether a contagion effect birthed by non-administrative criteria underlies the transcendently perpetual misgovernance pervading the sectors of Nigeria's economy. The study evaluates the influences of these criteria on the individuals, the potency of 'group' membership and sentiments, the contexts of leadership, and the implications for the trajectory of governance. With prioritization over the desired state of affairs in the country despite leadership changes and successive governments, these group memberships and sentiments remain inimically parallel to target-specific policy-making and de-emphasize national growth and development. The paper relies on the postulations of the social contagion theory of collective behavior and Riggs' assertions on non-administrative criteria in prismatic societies in assessing the misgovernance in Nigeria. A semi-structured Contagion in Leadership (CiL) e-questionnaire was designed to evaluate the influence of social contagion on the members of the arms of government and, consequently, on the quality of governance and service delivery in Nigeria's Fourth Republic. It was disseminated on two social media platforms - WhatsApp and Twitter, for a wider reach. Two hundred ten (210) responses were recorded across an age range of 18 and 65+ years, with a mean age of 42. Strategies for enhancing the quality of governance, including entrenching constitutionalism, and engendering the responsibility of political officeholders toward policy actions, are proffered.

Keywords: ***Misgovernance, State Failure, Social Contagion, Non-Administrative Criteria, Governance, National Development***

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Introduction

Nation-states are categorized as strong states, weak states, failing states, and failed states and collapsed states, depending on the extent to which they portray the presence or lack of a continuum of government effectiveness (Ahmad, 2013). The strong states are on one extreme and can be described as strong and successful. These states are the yardsticks by which other states within the international community are measured as per the human development indices ranging through per capita incomes, life expectancies, minimum standards of quality of life, environmental sustainability, and others. The combination of the clearly-defined interdependent functions of the three arms of government within these stable states ensures constitutionalism, food and human security, political stability, societal equilibrium, and socio-economic development.

Brooks (2005) described the successful state as that which controls a defined territory and population, enters into diplomatic relations with other states, has the monopoly of legitimate violence within its territory, and ably delivers social goods and services to its citizens. Its success is in its ability to deliver and sustain a measure of the political good of security that provides a leeway for the provision of all other desirable political and socio-economic goods (Rotberg, 2004). The collapsed state, epitomized by states like Yemen and Somalia which rank first and second, respectively, on the 2022 Fragile States Index, is on the other extreme of the strong, successful states and describes the opposite of everything that the strong state is.

The failed states are those which are consumed by internal violence, are unable and have ceased to deliver positive political goods to their inhabitants. Their governments lack credibility, leading to concerns and questions about the legitimacy and continuity of the nation-state in the minds of its citizens (Rotberg, 2004). States that fit into this description are usually the Less Developed Countries (LDCs) in the Global South. In these countries, despite the presence of these institutions, and the in-built mechanisms designed to make the systems in which they exist more democratic, there is a fundamental disconnect between the citizens, their supposed representatives (Soto, 2014), and the system.

Nigeria: What State?

Democracy, a system of government in which all citizens are stakeholders, allows for the free participation of the governed in the governance processes either directly by voting or indirectly through elected representatives. The essence of these processes is to ensure that citizens have people to represent their interests and who are accountable to them on governance matters on the one hand while being responsible for the delivery of social goods and services on the other.

Nigeria's longest stint with democracy began in 1999 with the advent of her Fourth Republic. At the time, speculations were rife that the return to the democratic rule would afford the country limitless opportunities to regain her long-lost glory as the Giant of Africa. Prior to 1999, notable events within her political landscape included the death of her Head of State, General Sani Abacha, in 1998 (Rupert, 1998), General Abdulsalami Abubakar's ascension to the position of Head of State (Onishi, 1999), and the death of Chief MKO Abiola, the acclaimed winner of the June 1993 Presidential election, in custody (Akinbode, 2019). These events were expected to be foundational to the much-needed re-jigging of the political processes to provide a basis for the actualization of a handover to a democratically elected government (Onishi, 1999).

Nigeria's experiences with military rule and with democracy in the most recent years, now in the third decade that depicts her fourth republic, is yet to deliver on governance deliverables and achieve majority citizen satisfaction effectively. Conversely, her rankings on the human development indices are plummeting, with shrinking prospects for national growth and socio-economic development. The failures are mirrored in the dwindling foreign and domestic reserves, dearth of infrastructure, rising inflation [19.64% by July 2022] (Obiezu, 2022), and illiteracy [13.2 million out-of-school children – the highest in the world] (Obiezu, 2018). Nigeria is described as the poverty capital of the world, with an estimated 95.1 million people expected to live below the poverty line by 2022 (Vishwanath & Lain, 2022), and an actual 133 million people - 63 percent of the population - reported as multidimensionally poor by the National Bureau of Statistics (NBS) in Nigeria (Ojekunle, 2022; Sami, 2022).

The NBS report stated further that this number of Nigerians is poor as a result of a lack of access to health and education and reduced living standards from unemployment and shocks (Sami, 2022). Hunger, illiteracy, intimidation, insecurity, ignorance of fundamental rights, and the weakness of governance institutions contribute to the docility of the people. They are exploited by successive political classes to reinforce the prevalent ethnoreligious and sociopolitical disharmony among the polity and consolidate their political positions attained through nepotism and other processes that undermine and contradict democratic ideals (Brooks, 2005; BBC, 2010; Kwaja, 2011; Uzun & Adegboyega, 2016).

Insecurity in Nigeria is on a constant rise. With its evolution into different forms, Nigeria is currently the sixth most terrorized nation in the world (Terrorism Index, 2022). On the 2022 Fragile States Index, she is the 16th most volatile nation (fragile States Index, 2022), and on the Business Insider Military and Defense list of the 25 Most Failed States on Earth, she is ranked 14th (Ingersoll & Jones, 2013). Reports show that insecurity was responsible for the loss of over 456,831 innocent lives in Nigeria in the decade preceding April 2019. Security agents from the army, police, and other agencies have also recorded casualties (Afolabi, 2022). The efforts of the Nigerian government to curtail the insecurity have not yielded the desired results (Obi, 2015; Afolabi, 2022).

These reports derive from the assessments of human rights abuses, corruption, unemployment, political instability, insecurity, poverty, available public infrastructure, records of school pull-outs, and drop in school attendance from insecurity (Ingersoll & Jones, 2013; Pegg, 2014; Afolabi, 2022; Bailey, 2022), comparisons between the overpopulation and the attendant unemployment, (Eromonsele, 2022; Bailey, 2022) and so forth within the state. Though there was a 0.06% decline in the youth unemployment rate from 19.67% in 2020 to 19.61% in 2021, there was a 0.07% increase in the overall unemployment rate from 9.71% to 9.79% within the same period (macrotrends.com, 2023; World Bank 2022).

Statement of the Problem

Nigeria, Africa's biggest economy, ranks 163rd on the Human Development Index for the second consecutive year (Bailey, 2022). The prevalence of these indices within Nigeria's political and socio-economic landscapes represent the manifest features of the failure of the democratic governments in Nigeria to checkmate the downward spiral of her economy and the deepening socio-economic and political crises. They keep Nigeria on the lowest rungs of the global rankings for human, infrastructural, and national development.

The Nigerian scenario may not have degenerated into the Yemeni or Somali abyss; however, the grim realities within her socio-economic and political spaces portend grave consequences for the country. They reflect the characteristics of failing, failed, and collapsed states, and are occasioned by poor policy formulation or implementation, poorly thought-out development strategies, and the implementation of non-target-specific measures. Despite the promises of change and development, choices made by the electorates based on campaign manifestoes, elections, and changes in government, the evidence of misgovernance usually emerges within the first few years of the governments in office and continues across successive governments.

Objective

The study is designed to:

i) Determine whether a contagion effect underlies the actions and inactions of individuals and groups that make up the executive, the legislative, and the judiciary and how this effect evolves into a contagion of misgovernance in Nigeria;
ii) Explain the role of Riggs' 'non-administrative criteria' within Nigeria's sociopolitical and socio-cultural landscapes in driving the contagion effect among the individuals, with the consequences of perennial misgovernance.

Conceptual Framework

Social Contagion

Gustave Le Bon developed the social contagion theory from his general and theoretical reflections on political and social opinions and the irrational, uncontrollable, or violent behavior of individuals exposed to the hypnotic influence of crowd behavior and anonymity (communicationtheory.org). He described social contagion as involving processes of 'suggestibility' whereby 'timid' people become brave from the inability to resist the *status quo* as a result of the impression of feeling outnumbered (Locher, 2002) within the group.

Robert Park and, later, Herbert Blumer explicitly evaluated the socio-psychological impact of crowd influence on individuals. Park's analysis was based on 'emergent' interaction and 'circular' reaction. Emergent interaction implies the extent to which individuals develop social behavior due to influences on their thoughts and behavior arising from their membership of the crowd and the reinforcements by the group's mood. As every member of the group accepts their individual and group behavior as correct, a circular reaction which implies the contagion effect is attained. Park noted that 'emergent interaction' and 'circular reaction' must be differentiated from 'milling', which is a process through which crowds readily gather, usually aimlessly, and in periods of social instability (Locher, 2002).

Barash (2011) describes social contagion as a three-pronged subset of contagion that, in the first subset, includes all social phenomena and the potentiality of their spread across social networks as rumors, fads, and opinions until they become the norm. The second subset is the social contagion of products that attain popularity and acceptance via aggressive marketing, advertising, or word-of-mouth recommendations. The third is the social movements through which unpopular, marginalized causes and ideas may gain traction and gather strong popular support as individuals convince their followers.

The contagion effect is a non-instantaneous process that occurs under certain circumstances in which a crowd of people (sometimes powerful) is focused on the same event, object, or person (Locher, 2002). Social contagion manifests as the influence which can vary from persuasion to the enforcement of conformity through threats of sanctions and then to memetic spread (Barash, 2011). Fowler and Christakis (2010) explain this influence as culminating in the spread of cooperative behavior. They emphasize that peer effects and interpersonal influence are more prevalent where individuals are embedded in networks comprised of more than two people and characterized by clusters (Christakis & Fowler, 2012).

Tsvetkova and Macy (2015) aver that human behavior spreads through social contact. They argue that prosocial behavior confers a benefit to others that outweighs any personal cost in the same way that antisocial behavior imposes a cost on others. This cost outweighs any personal benefit and has the potential to trigger chain reactions reaching far beyond the original victims. Loftin (1989), cited in Tsvetkova and Macy (2015), noted that criminologists and scholars of deviance argue, based on observational data, that antisocial behavior is contagious. Further empirical evidence based on the field tests on the Broken Windows theory shows that the contagion of antisocial behavior is more potent with non-violent crime (Wilson & Kelling, 1982 in Tsvetlova & Macy, 2015).

Bond *et al.* (2012) noted the potency of influence in determining the tendency to vote in an election. General theories of social and interpersonal influence, as a mechanism of contagion, focus on the process of influence rather than its underlying causes. The theories describe social influence as part of a more complex mechanism focusing on the underlying causes that trigger social influence and enable the spread of social contagion (Axelrod, 1997).

There are two main types of influence - social and interpersonal. Interpersonal influence accounts for the ability of high-status, impressive individuals regarded as popular alters to dictate the behavior of their friends. Social influence accounts for the ability of groups to put social pressure on an individual. The impact of social influence on behavior changes is cumulative with the number of alters who join in the behavior. Social influence can be defined as the ability of another person or group to affect cognitive or behavioral change within an individual (French & Raven, 1959). Tsvetkova and Macy (2015) noted that antisocial contagion had been studied in relation to monetary incentives. Falk and Fischbacher (2002) found that people are more likely to steal if they know that other members of their group steal. Jordan *et al.* (2013), in a 20-person prisoner-dilemma game, found that defection is contagious. Influence is also often triggered by other mechanisms of social contagions, such as social identity.

Turner, Hogg, Oakes, & Reicher (1988) show that, as social categories become more salient, individuals assume social identities that mark them as members of certain groups, placing them at odds with members of other groups (particularly when they belong to only one group at a time). In these conditions, social influence is highly relevant. The social identities create perceptions of similarity between the individuals and their in-group members, leading them to expect levels of agreement between themselves and the in-group on all stimuli. A socially contagious phenomenon adopted by the rest of the group but not by single individuals constitutes a new stimulus that violates this assumption. It creates cognitive dissonance. In-group members similar to the individual and in the same setting tend to behave similarly (Turner *et al.*, 1988). However, a behavior difference may arise between the inter-groups and individuals concerning contagion adoption in the given situation.

To deal with emergent cognitive dissonance, Turner *et al.* (1988) suggest that individuals ignore the cognitive dissonance and maintain the status quo; attribute the disagreement to perceived relevant differences between self and others; attribute the disagreement to perceived relevant differences in the stimulus situation; or engage in mutual social influence with the in-group members, to produce an agreement. The fourth option entails that the in-group members agree among themselves and adopt the contagious phenomenon, which explains how misgovernance in Nigeria is perpetuated. Social identity, therefore, acts as a mechanism for the spread of social contagion (Turner *et al.*, 1988).

Gladwell's 'The Tipping Point' describes the contagion effect as a social epidemic that spreads through the minds of the public in the same way that an epidemic spreads (Benson & Gresham, 2007). Social epidemics are governed by three main principles: the messenger (the Law of the Few), the content of the message (the Stickiness Factor), and the specifics of the social environment (the Power of Context) (Gladwell, 2000). The principle underlying the Law of the Few holds that the spread of ideas, beliefs, or behaviors among members of a defined social group is brought about through the efforts of a relatively small number of members of the group. They are those who provide the message (Mavens), those who spread the message (Connectors), and those who persuade others to act on the message (Salesmen) (Gladwell, 2000) and facilitate the successful and rapid spread of information, knowledge or behaviors throughout and among social networks.

From this premise, it is assumed that a latent contagion effect arising from memberships of 'groups' within the government's executive, legislature, and judicial components, underlies the actions or inactions of elected representatives and appointed officials. This contagion effect is perceived as driven by relationships that challenge the functionality of these individuals, resonating through acts of dereliction of duty and the intangibility of ensuing policies and initiatives. Further, the implications of the contagion effect for the steady decline of governance are evaluated vis-à-vis the threats to socio-political stability, national growth, and socio-economic development in Nigeria and the relationship between the citizenry and their representatives (Soto, 2014).

Research Methodology

The paper adopts a mixed-method approach. A three-part semi-structured Contagion in Leadership (CiL) e-questionnaire was developed based on the objectives and assumptions of the paper. The first part elicited the respondents' biodata. The second part was the structured aspect with a 3-point Likert scale. The third part was the unstructured, open-ended option that allowed the respondents to comment freely and proffer different perspectives and alternatives for improving the misgovernance in Nigeria.

The e-questionnaire was disseminated to individuals, private sector workers, academia, legal practitioners, civil and public servants, university students, family, and other corporate groups and their members across two social media platforms – WhatsApp and Twitter. Respondents were aged 18 years and above and literate. This was to ensure that they are individuals who are qualified to vote and are able to understand the sociopolitical contexts which the study was intended to evaluate. Only 210 responses were recorded. These were analyzed, and the results were subsequently presented and discussed.

Convenience and snowballing sampling methods were utilized to reach respondents. Convenience sampling was applied to the WhatsApp groups, whose members filled out the e-questionnaire at their own instance and convenience (Frey, 2018). The snowballing technique was applied to individuals who assisted the authors with identifying, informing, and coopting other willing participants to fill out the e-questionnaire.

Ethical Considerations

Ethical conduct was maintained by ensuring that, as part of the introduction, participants were informed of their rights to participate, refuse to participate, and stop participating in the research at any point. Respondents were not under any compulsion to fill out the e-questionnaires. To ensure confidentiality, no aspect of the e-questionnaire elicited any form of identification from the participants.

Results and Discussions

Progressive Decline in Governance

From the findings, 77.1% of respondents agree that the quality of governance in Nigeria has been on a steady decline since 1999, when there was a return to democracy from military rule. 74.3% disagree that Nigeria's current governance structure can afford Nigerians the minimum standards of social service deliverables. 46.7% of the respondents averred that governance during the Obasanjo administration, the first civilian government in Nigeria's fourth republic, was better than the subsequent Yar'adua administration. Similarly, 65.7% adjudged the Obasanjo government as better than the Goodluck Jonathan administration, which came to power after the death of Yar'adua in 2009. 88.6% rated the Goodluck administration higher in performance than the Buhari government in the essential service delivery department.

One respondent stated, '*The Nigerian government is performing way below expectations, and until punishments are served to the greedy and corrupt politicians, I do not think there is hope for Nigerian politics. The future of this country lies in the hands of the young*.'

The Buhari government is described by 86.3% of the respondents as the worst government in Nigeria and the world over due to experiences of 'the worst acts of bad governance' within the years (2015 – 2022) that it has been in power.

A respondent stated, *'we are currently experiencing the worst acts of governance by the worst government ever in Nigeria.'* Another averred that '*This Buhari government will go down as the worst government the world has ever had. Quite unfortunate*!'

Cabals and Muddled Separation of Powers

On the functionality of the arms of government, which 88.6% of the respondents agree is central to good governance, 86.7% noted a progressive decline in the commitment of the Fourth Republic's National Assembly to represent the desires of the Nigerian populace since 1999 effectively. 79% agree that the National Assembly does not checkmate the powers of the executive, and 74.3% aver that the judiciary needs to efficiently adjudicate on the relationship between the executive and the legislative. 92.4% hold that governance in Nigeria evidences the legislative and the judiciary's failures in checkmating the executive's powers. A respondent decried the dearth of mechanisms for each arm to checkmate each other, '*It is unfortunate that separation of powers in this country is a mirage*.'

71.4% assess bad governance as no longer a perception, but a reality consequent on the dwindling performance of the consecutive legislative and executive arms and the complicity of the judicial component, since 1999. The respondents describe the reality of bad governance as embedded in the bad leadership that characterizes Nigeria and for which the country is noted even outside its shores. This situation is worsened by the complicity of the three arms of government, which engenders endemic misgovernance and raises doubts about the possibilities of positive change.

A respondent stated, '*bad governance embedded in bad leadership characterizes Nigeria and her identity even outside the shores of the country. This is made worse by the complicity and what looks like a conspiracy between the three arms of government*.' '*Since 1999, see all the scandals from the house of reps to the senate to the governors, yet everything are swept under the carpet.*'

86.6% aver that the executive has become too powerful and dictatorial. The civil service, which should provide a balance in the governance structure as a part of the executive arm, is negatively impacted and no longer upholds its core characteristics of merit, political neutrality, and impartiality. On this, a respondent reiterated that '*the executive arm in Nigeria has become too powerful and dictatorial*.'

69.6% hold that the civil service in Nigeria is affected by ingrained partisanship whereby the activities of the civil servants are influenced by party and cabal loyalties that reflect the divisional politics at political party levels.

Poor Policies and Sectoral Incoherence

79.5% of the respondents hold that the laws and policies made by the legislators are not target-specific, 63.8% stated that the bills passed since the onset of Nigeria's Fourth Republic in 1999 have not been proactive and targeted at resolving the key issues that threaten national stability, growth, and development. 75.4% note that these gaps contribute to the dysfunctionality of sectors of the economy and negatively impact the quality of governance in the country.

'*Nothing works in this country*.' '*Till now, the power sector is worse, bad schools, and people die daily in the hospitals that have become like roadside chemists. Nobody is accountable; they use our money for committees and others for themselves, not for the welfare of the people*.' '*There is still hope that real change will come*.'

Bad Politicking, Lack of Commitment, and Distrust of Politicians

On the commitment of elected political officeholders to good governance in Nigeria, 97.1% noted that these elected officials rarely fulfill campaign promises made to the electorate at the height of the quests for the offices. 98.1% agree that there is a difference between the behavior of politicians before they are voted in and when they get into power; that, averred by 84.8%, perpetuates bad governance in Nigeria from one administration to the next. Respondents describe the non-fulfillment of electoral promises by leaders and politicians as a pervasive political culture that thrives on the dearth of political ideologies, a lack of commitment to core party values, and an absence of checks and discipline mechanisms on members within political parties, and the menace of cross-carpeting. These are assessed as enabling bad governance in Nigeria and requiring God's divine intervention if the country must be salvaged.

Respondents stated thus, '*Bad governance in Nigeria has turned into culture….*'*;* '*I wonder if any Nigerian politician, leader, or president is fulfilling their electoral promises. May the Lord help us.*' Another noted, '*This country….. May God help us flush out the many bad eggs.*' Others noted, '*What we have as political parties are a joke. They are just a group of people interested in meeting their own needs*.' '*These politicians are just a bunch of self-serving people that do not care about this country as long as they benefit wherever they go*.'

'*Our political parties are a sham. No ideologies, nothing! How can there be when the politicians need to stay in more than one long enough to grow them like in the developed countries*.'

'*One of the best things INEC did was to reduce the number of registered parties, though that has mostly stayed the same in our politics. The electoral fraud is still there, and they (politicians) still keep moving around the available ones as they please*.'

The INEC (Independent National Electoral Commission) is Nigeria's electoral management body created by the 1999 Constitution for organizing and managing elections and other related matters. The ruling political class is perceived, by 91.5%, to be running the electoral system in Nigeria as a business venture aimed solely at the achievement of their motives, thereby treating governance as perfunctory. Respondent stated, '*the Nigerian political structure has not delivered to the common development of the country. The power players have hijacked the system and have been manipulating it to their advantage*.'

4.3% hold that those in governments only work together for themselves, not even for their immediate constituencies. One respondent noted, '*we need good legislators to represent the citizenry in all ramifications*.' 95.2% of the respondents perceive that the elected representatives function more as cliques within the National Assembly that are more loyal to the 'group' than to the good of the entire country. 73.4% aver that these relationships between colleagues within the legislative and executive prevent some members from performing optimally. 94.3% decry the effects of these cliques, averring that the poor governance in Nigeria is driven by primordial ethnoreligious inclinations, and money and cabal politics among those in power, to the neglect of core socio-political priorities. 90.2% of the respondents suggest that these sentiments and the presence of cabals in the corridors of power simultaneously affect the output of elected leaders and the quality of governance. Consequently, the seething divisiveness among the polity is deepened, heightening the distrust, volatility, and propensities for instability in Nigeria's sociopolitical landscape.

'*Nigeria is in a state of national emergency. The divisiveness among the people is massive.'*

'*The way this country is…..let us just go our separate ways*.'

'*In this country, it is better and safer to be loyal to cliques (sic) than to do things the right way*.'

'*There are so many cabals everywhere, in the National Assembly, in the executive, in the civil service, in the smallest government offices, as long as there is something to gain in terms of power, control, or connections. One has to be careful, even the researchers*.'

Umoh (2016) highlighted the inevitability of cliques as a function of informality within human organizations. These cliques can portend risks to productivity when they resort to the pursuit of goals that are parallel to those of the organizations whose ideals they had hitherto sworn to protect.

Remediation Prospects

90.5% hold that the non-activation of the recall clauses contributes to Nigeria's persistent culture of misgovernance. 91.2% suggest that the dearth of punitive remedial measures for these governance lapses in Nigeria must be revisited to ensure the enactment and implementation of stringent penalties to checkmate poor governance. 86.7% stated that banning non-performing and corrupt elected members of the legislative and the executive from holding elective or appointive public offices in the future can also checkmate the contagion effects and the attendant misgovernance. 90.2% doubted that there would ever be punitive laws to create a conducive environment for good governance. 80% note that the legislative arm of the government will never enact laws that might affect them negatively.

Comments by respondents to this effect included that, '*Elected leaders should be held accountable and there should be measures to sanction non-performance and corruption otherwise, it will be eroding the total trust, ethics, and values of the people.*'

'*Stringent penalties that are applied to all (like the death penalty for corruption in China) can checkmate poor governance, but the legislative will never make laws that might affect them negatively*.'

'*In this country, no lawmaker will initiate or support any law that can turn around and bring the downfall or that of his clique*.'

Discussion

This study sought to establish the presence of contagion effects as the latent factors underlying the diminishing outputs of the legislative, executive, and judiciary in Nigeria. These factors contribute to the perennial character of bad governance pervading Nigeria's political, social, and economic spaces and rob her citizens of the most basic governance deliverables. The findings are discussed relatively and within the context of Riggs' non-administrative criteria.

Ineffective Political Parties and Bad Politicking

The findings proved that a common feature among most elected politicians in Nigeria is the tendency to renege on campaign promises while also metamorphosing into individuals who are non-committal to fulfilling their primary responsibilities to their constituencies (Brooks, 2005; Peterside, 2022). Political parties in Nigeria need more enduring attachment to ideals, philosophies, or ideologies (Peterside, 2022). Rather than be driven by matters of national importance, they provide platforms for politicians to vacillate between opinions and convictions based on personal and group interests that mirror religious, ethnic, and other primordially partisan interests (Umoh, 2016; Peterside, 2022).

Despite the assertion that the Obasanjo administration fared better than the Yar'adua/Jonathan governments and the current Buhari administration, the Obasanjo administration was not without its peculiar hitches. In the course of the administration, there was a build-up of agitations for and against a third-term agenda that was being orchestrated to perpetuate him to remain in power (Adegbamigbe, 2006; Aziken, 2013). This was to be further strengthened through a constitutional amendment to facilitate the 'evolution' of the country into a one-party state, a position which Obasanjo averred will ensure that, like in other countries where the system is practiced, Nigeria also enjoys political and governmental continuity (Adegbamigbe, 2006).

With each cycle of elections since 1999, the confidence of the polity that campaign promises will be kept or that constituency projects will be delivered has dwindled (Peterside, 2022). Now, these promises constitute creative lies and propaganda that thrive on the numerous gaping holes in the corruption-thinned political accountability fabric of the nation (Brook, 2005). In fact, the country barely has any political accountability mechanism (Peterside, 2022).

Budget Scandals

Since Nigeria's return to democracy, her National Assembly has been fraught with a slew of scandals. A few are highlighted here to illustrate the potency of social contagion effects in determining human behavior. In 2005, there was a bribe-for-budget scandal in which the principal accused was Senator Adolphus Wabara, who was senate president at the time. He was charged alongside five other lawmakers for demanding a bribe from the then Minister of Education, Prof. Fabian Osuji, to facilitate the passage of the 2005 budget of the ministry (Aziken, 2013). As part of the investigation, this case went to court, and in 2010, the accused were acquitted on all nine counts based on 'being frivolous, baseless, and lacking in merit' (Ige, 2010). When the scandal broke, Mallam Nasir el-Rufai, described the National Assembly as an axis of corruption (Aziken, 2013). Paradoxically, el-Rufai has been the incumbent Governor of Kaduna State since 2015, in the current Buhari-led administration, which came to power in 2015 and has been described as the most corrupt, ethnocentrically driven government that Nigeria has ever experienced. Under Buhari, Nigeria has been engulfed by corruption which drains billions of dollars from her economy yearly (Jega, 2022). Also, her ranking on the Corruption Index released by Transparency International has continued to deteriorate (Ibrahim, 2022).

Before 2015, the annual budgetary allocations to the National Assembly were N150 billion. Between 2015 and 2020, the allocations were kept between N120 billion and N125 billion. In 2021, President Buhari raised the National Assembly allocation to N128 billion. However, in passing it into law, the lawmakers increased it to N134 billion, and the president did not react (Iroanusi, 2022). In 2022, the N134 billion National Assembly budgetary allocation underwent an upward review by the National Assembly to include an additional over N500 million before it was passed. For the incoming year, 2023, the president has unrealistically proposed N169 billion for lawmakers. The allocation, which is the highest ever made to the legislature in the history of the country, is comical. It disregards the nation's dwindling economy and rising debt portfolio, the growing imperative of reducing governance costs, and the federal government's plans to finance the 2023 budget through borrowing (Iroanusi, 2022). Additionally, there are complaints of zero transparency concerning the budgets of the National Assembly, yet except for 2021, when the Ahmad Lawan-led assembly published the details of its budgetary allocation in an attempt at transparency, the details of the National Assembly budgetary allocations have been shrouded in secrecy (Iroanusi, 2022).

In 2015, the media was awash with news of the protracted crises between two groups in the Senate (the Upper House of the National Assembly) which sought to secure the senate's leadership. There were allegations, counter-allegations, and controversies surrounding the emergence of Saraki as President of the Senate, and Senator Ike Ekweremadu as Deputy President, through illegal alterations and amendments made to the Standing Rules. The filing of reports and the institution of court processes did not yield any results (Abubakar, Mudashir & Bamgboye, 2016). The non-obedience or enforcement of judicial decisions arises from the perception of the Nigerian judicial system as sluggish. This sluggishness is assessed as a deterrent to actualizing and establishing a functional criminal justice system (Aziken, 2013).

In 2016, a budget padding scandal broke when a former chairman of the Appropriation Committee in the lower house (the House of Representatives) opened a Pandora's box about the plethora of corrupt activities of legislators (Ogundipe, 2016). They were intent on attracting more out of the budget allocation of N100 billion to themselves under the guise of controversial constituency projects (Olakunle, 2016).

Sectoral Ineptitude

With the lack of attention to key sectors of the economy by the legislative, the executive, and the judiciary, the deleterious impacts of their dysfunctionality continue unabated. Cases of insecurity are rising and constantly evolving into newer, more violent strains of the menace. Attacks by bandits, Fulani herders, and other armed groups are on the rise, yet nothing tangible has been done to ameliorate the problems. In several instances of arrests, the criminal cases are not conclusively prosecuted. Despite the risks to the public, nobody is punished for the lapses. At different times in the history of insecurity and terrorist acts, which began in Nigeria in 2009, Nigerians of Northern extraction have either been implicated, indicted for their roles in the unyielding menace, or have openly declared knowledge of terrorism financiers. To date, none of these individuals has been named or effectively prosecuted. They continue to vie for and hold key elective and appointive political posts within Nigeria’s political landscape (Onochie, 2017; Maza, Koldaş & Aksit, 2020; Onyedinefu, 2022; Njoku, Olumide, Akhaine, Ogune & Iremeka, 2022).

The experience with the power supply sector in Nigeria has been that of motion without movement. The government's failures to revive the power sector have led to the near-collapse of the manufacturing sector, mainly run by the organized private sector, with the small and medium-scale enterprises (SMEs) being the most hit (Akanbi, 2022). A series of committees, experience with privatization and commercialization, un-bundling, and the introduction of the National Integrated Power Project (NIPP) rather than enhance management and efficiency escalated the corruption to the extent that a House of Representatives committee that tried to probe it became embroiled (Akanbi, 2022).

Probes by the House of Representatives Committee into government spending in the power sector from 2000 to 2007, and the Elumelu House Probe Committee indicted 21 persons and 36 companies of subversion of government policy on due process; however, they were not followed up to the prosecution stage (SERAP Report, 2017).

A report by the Socio-Economic Rights and Accountability Project (SERAP), titled, ‘*From Darkness to Darkness: How Nigerians are Paying the Price for Corruption in the Electricity*

Sector,' revealed how corruption, impunity, and other social challenges were factors in the alleged squander of N11 trillion meant to provide regular electricity supply under the governments of former presidents Olusegun Obasanjo, Umaru Musa Yar'Adua and Goodluck Jonathan (SERAP Report, 2017). The estimated financial losses from corruption in the electricity sector from 1999, when Nigeria transitioned to democracy, to 2017 is over Eleven Trillion Naira (N11,000,000,000,000 Naira) and are expected to rise above Twenty Trillion Naira (N20,000,000,000,000 Naira) within this ensuing decade. These amounts represent government investment, public funding, private equity, and social investments or divestments in the sector amidst dwindling fortune and recurrent revenue shortfalls (SERAP Report, 2017).

This dearth of sectoral vibrancy and performance, facilitated by the lack of commitment to transparency and accountability by the legislative and the executive, constitutes the bane on which a 'japa syndrome' has taken over the youth and professional populations in the country. 'Japa' is the term that describes the decision of individuals and families to completely relocate from Nigeria to other more developed countries in the West that rank highly on the global Human Development Index (HDI) in search of better conditions and quality of living standards. This phenomenon and the rise in suicide rates have characterized Nigerian society within these most recent years in which governance commitments and efforts are almost non-existent.

Lopsided Constitutionalism

Chapter 5, Part 1, Section 69 of the Nigerian constitution prescribes the procedure for the recall of non-performing and errant members of the National Assembly. The procedure, as mentioned in the constitution, to remove a non-performing member of the executive like the president, a vote of no confidence must be passed by two-thirds of the National Assembly. Numerous instances of ineptitude and inappropriate behavior among elected officials have been recorded since the onset of the fourth republic; yet, the clause has not been invoked to checkmate any untoward behavior. In a widely publicized instance, it was invoked in 2018 to recall Senator Dino Melaye, representing Kogi West Senatorial district at the time. However, it was evident that the initiation of the process was borne primarily out of the need to settle scores between him and aggrieved individuals on whose toes he had stepped within the political arena and not for reasons of lack of administrative performance, incompetence, and dissatisfaction with the quality of essential service delivery to his constituency.

These instances provide a referential exposé on the effect that contagion can have in encouraging the spread of antisocial, non-violent criminal behavior among individuals (Fowler & Christakis, 2010; Christakis & Fowler, 2012; Wilson & Kelling, 1982 in Tsvetlova and Macy, 2015), particularly in relation to monetary incentives (Tsvetkova & Macy, 2015). The prospects of financial gain have shown sufficiency in propelling public officials to attain cognitive dissonance that allows them to act inappropriately, even to the extent of 'stealing', particularly if it is an 'in-house thing' (Falk & Fischbacher, 2002). From the foregoing, there is a potency of social and interpersonal influence on the actions of those involved. This can only be paralleled if individuals choose to exist as lone rangers, which is not the case in the scenarios.

Non-Administrative Criteria as Misgovernance Contagion Drivers

The 'overlapping' characteristic of Riggs' model implies the extent to which what is described as 'administrative' is actually determined by non-administrative criteria: political, economic, social, religious, and other factors. As such, what is defined as economic is influenced by non-economic considerations, the political by non-political, and so on. Within this characteristic is the '*Sala*', which describes the administrative office in the prismatic society. The '*Sala*' administrative office is characterized by strictly administrative criteria on the one hand, while on the other, it recognizes and reflects numerous non-administrative considerations (Riggs, 1961). In Nigeria, the issue is not a dearth of institutions but rather a scenario in which conflicts arise from the presence of numerous institutions handling the same or similar responsibilities due to a need for more clarity. There are also issues of lackluster adherence to prescribed rules, regulations, and procedures and enforcement of punitive or corrective measures, except where there is a witch-hunt.

These non-administrative criteria determine the trajectories and the functionality of the administrative criteria. They allow rationality to be consciously and effectively ignored and redefine 'codes of conduct' in ways that allow the character and behavior of the '*Sala*' to be influenced by selective recruitment, allocation of benefits, unofficial income, and other types of corruption (Riggs, 1961). The '*Sala*' (political and administrative agencies) operate as '*clects*' (a derivative of clan and sects) where informal primary groups, such as the family, religion, and others, continue to influence, rise to importance over and control the formal secondary type associations (Riggs, 1961; Sharma *et al.*, 2011). The '*Sala*' and '*clects*' in Nigeria's socio-political landscapes are described as cabals (Amuwo, 1996; Agande, 2016), run exactly as described by Riggs, and effectively managed through cronyism and nepotism. They either expand or contract in response to the dominant value (religion, ethnicity, old school or family tie, colleagues, or membership of the legislative or executive) at play within the group in question in particular scenarios.

Riggs' formalism explains how, in principle, the constitution, laws and regulations, organizational charts, and statistics include laws that provide for political structures like elections, parliament, cabinet, and the practices and facts of government and society. In practice, a high degree of incongruence allows scenarios in which the parliament is unable to control the government to thrive (Riggs, 1961). This leads to a relative indifference of the population and the ruling group to the conduct of elections and leadership determination procedures since the processes that underlie these events are either designed by or emasculated by stronger undercurrents dictated by the interests of a few than by those of the majority. Also, the behavior of public officials may not correspond to legal statutes even where there is an insistence on some of the laws prescribing conduct (Riggs, 1961).

In a portrayal of cause-effect relationships, the consequence of these pressures from particularistic obligations imposed on public officials is that the risks of diminished governance increase. It begins with the institution of an uncommitted ruling class needing more vision, dreams, and responsibility to the sovereign obligations they owe the people (Mukoro, 2005). Finally, political policies that need to be clearly designed and well-adjusted to the capabilities of the administrative system and laws that are not clearly interpreted and adapted to practical realities (Sharma *et al.*, 2011) are created and implemented.

At the core of these anomalies undermining efficient governance in Nigeria is the fact that politicking and political offices have attained statuses of full-time jobs in the Nigerian socio-political landscape. Nigeria has one of the highest global costings, if not the most expensively run legislatures. The lawmakers are among the highest paid in the world, earning millions of Naira monthly as allowances besides their salaries (Iroanusi, 2022). The positions within the executive also come with mouthwatering perks of office. This trend is central to the doggedness with which political offices are pursued and attained, incumbency is protected, and the perpetuation of individuals through 'serial recycling processes' between and within the legislative and the executive is perpetrated. Measures must be adopted to change this position by making the National Assembly and all other elective political offices across her three levels of government unattractive.

The dovetail of these characteristics enables an appreciation of the spread of contagion, first among the individuals, then within the groups. As it subsequently achieves a memetic spread, it defines the (mis)governance trajectories and the contexts within which 'development' in Nigeria is described.

Recommendations - Moving Forward

A convolution of issues requires a delicate unpacking if the current trajectory of misgovernance needs to be truncated. The Sustainable Development Goal (SDG) 16 describes the pertinence of strong institutions in achieving peaceful, inclusive societies with access to justiciable, enduring development in any clime. The case in Nigeria is not the non-existence of these institutions but the fact that the extent of their strength, capacity, and functionality in eliciting transparency, accountability, and other closely related virtues that allow them to follow through on their designated responsibilities, is undermined by several factors. Modalities for strengthening the institutions should include considering the contextual values constituting the socio-culture, which Riggs describes as formidable in engendering endemic constitutional and institutional dysfunctionality within prismatic societies.

Lessons from the Indian and Swiss federations and legislative practice in Sweden are worthy of replication in the Nigerian scenario. Members of the law-making bodies do not hold the positions as permanent appointments; instead, they are either rotational, subject to their assessment as worthy members of society, or open to any eligible nominated voter aged 18 and above. Furthermore, the responsibilities do not attract untoward allowances or rewards that are draining the taxpayers' monies and government funds besides the basic pay. Instead, they are conducted as civic responsibilities for the good of all.

There is a heightened political awareness among the polity, driven by the realities and the outcomes of the misgovernance. However, this does not diminish the necessity of more pervasive political education to enable the polity consolidate their ownership of the sociopolitical and governance processes. As elicited from the questionnaire responses, the desire of the populace is for legislatures and executives that are imperatively representative of the aspirations of the citizenry, and a judiciary that protects their interests in all ramifications, and at all levels. Expectations are that leaders and would-be leaders are selfless in their approach to governance, and committed to their pre-election promises.

Another aspect is the desire for constitutional and institutional functionality devoid of Riggs 'formalism'. Mechanisms for checkmating the misgovernance contagion in Nigeria must engage non-perfunctory measures, be well-structured to encourage accountability of elected and appointed leaders to the electorate and curtail and sanction non-performance and corruption. The performance of legislature and executive members should be assessed, and their qualifications continue to be determined by the assessment outcomes. Relatedly, the constitutional provisions on which legislators rely to metamorphose into 'life' members of the NASS should be revisited, and the positions should be tenured as it is for the elected executives. Provisions must be enacted to deter the same groups of politicians from being 'serially recycled' across elective political and appointive positions at all the government levels. These provisions should also establish age, health, and tenure limits for designated positions, deter executive members from transiting into the legislature and vice versa, and curb the practice of previous political officeholders remaining lifelong beneficiaries of the nation's scarce resources.

Conclusion

Central to this study is the potency of contagion in facilitating non-violent crimes and how these crimes have redefined the quality of life of Nigeria's teeming population since the return to democracy in 1999. Riggs (1961) describes non-administrative criteria as phenomena that are not administrative in character but constitute unofficial considerations that may be economic, social, political, cultural, and so on or that may overlap. They are those factors with the capacity to impose particularistic obligations on public officials. They interfere with goal attainment by diverting officials from using their labor to accomplish an organization's presumed policies or goals (Riggs, 1961). These factors are inherent within the socio-cultural environment of the members of the legislative and executive arms of government in Nigeria. The non-administrative criteria constitute distractions with far-reaching consequences, particularly in the context of governance that should improve the quality of life of Nigerians.

Riggs' descriptions of the '*Sala*', '*clects*', formalism, and overlapping features of the prismatic societies portray characteristics of non-violent criminality that combine to enable the perpetuity of the misgovernance within Nigeria's socio-political landscape. They are the contradictions at the core of the systemic failure of governance in the nation that continually negate efforts to eradicate the recurrence of bad leadership and other factors that undermine efficiency in governance.

Implications

The findings of this study enable an appreciation of the factors underlying the persistence of conditions that allow bad governance to thrive in Nigeria. They expose the potentials of these non-administrative criteria in determining the efficacy and functionality of governance institutions on the macro scale by first evaluating their influence on the behavior of the individuals as key players in the governance equation at the micro level.

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Public Health Implications of Government Negligence in Human Corpse Management in South-West of Nigeria

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Abstract

The study examined the factors sustaining the practice of human corpse burial in residence in Nigeria, analyzed the implications of cemetery management on use for corpse interment in Nigeria, and reviewed the public health implications of residence burial in Nigeria. The research design was a case study, and data for the study were sourced from secondary materials. Information gathered was presented through thematic analyses. The study revealed that no law forbidding the interment of the dead in any part of the state, including residence. The only requirement is the consent of the government. It was also noted that there are three forms of the cemetery; community, private and public. Hence, while the public and community cemeteries are poorly managed, the private is expensive and meant for the rich. The study noted that the public health implication of residence burial includes contamination of well, water sources available to residents, and also catalysis for community transmission of contagious infection, including covid-19. The study concluded that the issues of poor administration in the public cemetery and huge costs in the private cemetery could be responsible for home interment since the law does not prohibit the act. The practice of residence burial has evidently been impacting public health ranging from water contamination to the spread of contagious infections, including Covid-19.

Keywords: Burial, Government, Human Corpse, Public Health, Residence

Introduction

Etzioni (1964, p. 1), in discussing the organizational attribute of the state, noted that all human beings are born, educated, work, play, pray, and die in an organization. Burial is expected to be executed after the sanctioning of such by the state (Etzioni, 1964, p. 1). Hence, civil registration is deployed for government to ascertain the cause of death among the population, the number of birth, and marriages (Atama, Igwe, Odii, Igbo, Ezumah, Okeke, Okonwko, & Ugwu, 2021). Despite the civil registration, it has been noted that factors including the level of education and the population's urban or rural residency status affect documentation (Atama *et al.*, 2021), especially of human corpses. The management of human corpses remains a global phenomenon that is begging for attention, given the need to respect the dead and protect residents in the

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surrounding environment. Against this background, the study focused on human corpse management measures in Nigeria.

Interment follows the declaration of death and intends to manage the human corpse. Evident from extant studies vis-à-vis the tradition of human corpse containment in Nigeria is the practice of residence burial (Olomola, 1988; Ogbuagu, 1989; Daramola *et al.*, 2014; Adeboye, 2016; Izunwa, 2016). It is believed that the dead deserve respect, while health-wise, the effect of uncontained or improperly contained human corpses on the surroundings raises concerns about dwellers' rights to a healthy surroundings. Cremation and burial are the identified approaches to containing human corpses across cultures (Chitando, 1999; Guttman, Watson & Miller, cited in Daramola *et al.*, 2014). While cremation of the corpse is with the intention of reducing bodies to bone and ashes through burning, it has not formed part of the corpse management strategy in most African states (Omonisi, 2020), rather a burial, which is the placement of the corpse into the ground either with or without a coffin is the accepted practice in this respect (Chitando, 1999; Olomola, 1988; Ogbuagu, 1989; Daramola *et al.*, 2014; Adeboye, 2016; Izunwa, 2016). Chitando (1999) attested to the fact that burial is the widely accepted approach in the management of a corpse, and it has been considered social instead of ritualistic (Azeez & Salami, 2018) and is often executed as an important funeral rite needed to ensure the right of dweller to a decent surrounding and which command respect for the dead.

The practice of human corpse burial may have followed the developments in human history. Chitando (1999), for instance, has noted that the question of what must be done to a human corpse must have been asked in the earliest human communities. The answer to the question must have stimulated the measures deployed to manage dead human bodies. Mbiti (cited in Chitando, 1999) argued that while burial was one of the methods of managing human corpses in human society, others include dumping bodies in bushes for animal and bird consumption, discarding them in water bodies, and protecting the corpse in a small building for complete decay. Park (2020) has equally itemized the practice of celestial funerals in managing human corpses. There is the practice of cremation, an approach that was believed to have been adopted by the nomadic population to prevent enemies from abusing their ancestors (Parrinder, cited in Chitando, 1999). Smirnov (1989) and Goring (cited in Chitando, 1999) argued that the practice of human corpse management began in the middle Palaeolithic, was spread in the Mesolithic era, and became a precept since the Bronze Age.

In another dimension, Chitando (1999) presented the religious perspective on the practice of burial and cremation of a human corpse. The practice of burial has been attributed to the Israelites, and the practice believes that during the resurrection of the dead, the physical body will be reassembled (Chitando, 1999). The beliefs justify the significance of the dead and explain the reasons for burial. While cremation is identified with eastern religion, it is still in-practiced in Buddhist and Hindu communities; it is rested on the belief that the cremation fire carries the deceased's soul to heaven (Schmidt cited in Chitando, 1999).

In Africa, the dead are not cut-off from society; instead, the populations live with their dead (Lee & Vaughan, 2008; Azeez & Salami, 2018; Park, 2020), and as such, the social world in Africa is made up of both the living and the dead (Lee & Vaughan, 2008; Azeez & Salami, 2018). In celebrating the dead, Ogbuagu (1989) reported the practice of expensive and lavish funerals in Southern Nigeria, while Park (2020) identified some of the burial rites availed the dead in West African states to include corpse bathing and cleaning, hand washing in a common bowl after touching the corpse and lying on the corpse. Ogu (1999) explained the use of the residence as housing for the dead. Azeez and Salami (2018) affirmed that the dead are buried within the family compound to avoid disconnection between the living and the dead. This is because the burial ground is considered the land of ancestors (Lee & Vaughan, 2008) and a gift for the elders' generation after generation (Azeez & Salami, 2018). To be buried in residence or within the compound, there are conditions to be met by the dead to be interred. Adeboye (2016), with Azeez and Salami (2018), itemized factors determining the form of burial ritual and ceremony to include the social status of the dead person, age, as well as issues surrounding the death of the person. Death deserving full burial rites and ceremony consists of those of aged parents and are usually buried at home, in a veranda, corridor, parlor, or backyard (Azeez & Salami, 2018).

The practice of residence interment often raised questions on the statutory process involved in administering funerals on corpses and the availability of cemeteries for interment in Nigeria. Makinde *et al.* (2020) identified the registration of the dead as a vital criterion for burial and argued that the process also aids government efforts in the investigation and provision of a solution to a possible outbreak of diseases. Similarly, sudden and unexpected death must be reported to the coroner (Rotimi, Ajayi, & Odesanmi, 1998). The coroner is empowered to call for an autopsy in order to assert the cause of death (Rotimi *et al.*, 1998). Nonetheless, the workability of government provisions on burial rested on certain agencies, including Local Government and National Identity Management Commission. It has been established that despite the prevalence of agencies involved in civil registration, information on the registration of dead between 2007 and 2017 was absent from the database of the World Health Organisation, WHO (Makinde *et al.*, 2020). This established the poor data management practice in Nigeria. While Local government, since the 1976 reform, has been homogenized to a single multi-purpose level of government with statutorily defined obligations to the people (Asaju, 2010; Ikeanyibe, 2018) including citing of a public cemetery (FGN, 1999), usurpation of autonomy of the level by the state, corruption, poor staffing, and absence of democratic practice are some of the identified challenges in literature (Asaju, 2010; Koni, 2016; Ikeanyibe, 2018). Public cemetery availability and enforcement of compliance with extant regulations on corpse burials are also affected by the noted challenges of the Local government.

Prior to the contemporary measures, such as local government and the NIMC, colonial rule in Nigeria impacted human corpse management through induced urbanization. NEST (1991), in their description of the outlook of Lagos, noted that urbanization in Nigeria predates colonial rule. Traditional urban settlements were agrarian and not populated like those of the colonialists. Urbanization that emerged with the colonialist featured an increase in population and propelled migration from inland towns leading to the influx of rural dwellers from villages in search of new jobs, healthcare, and possibly a place for the interment of dead bodies (NEST, 1991). Fabiyi (2016) explained that the major influence of colonialism on urbanization in post-colonial Nigeria was the introduction of paper-assisted urban planning. The colonialists took a measure to ensure the safety of indigenous people from the various practice (inclusive of cultural, social, economic, and religious), and they introduced a series of public health regulations in the country basically to protect themselves rather than addressing the town planning and urbanization issues in the country (NEST, 1991, p. 286). Aka (1993) described the town and regional development that took place in the country during colonialism, through such projects as the location of schools and citing of hospitals, as forms of unintentional planning of cities. The colonial projects propelled urban growth to some extent, but they never intended to properly structure the cities or make a cemetery provision.

The practice of cemeteries in Nigeria was identified with European Christian missionaries (Adeboye, 2016). There was the creation of a 'holy ground' to contain the corpse of church members, which also aimed at differentiating between the traditionalist/native people and Christians in the period (Adeboye, 2016). It was learned that before the introduction of Christianity, dead human bodies in traditional societies were usually wrapped in cloth and buried at home without a coffin (Adeboye, 2016). The advent of Christianity introduced an approach to the containment of dead bodies of church members as their corpses are interred in the church cemetery, the 'Holy land' (Adeboye, 2016). The act was countered in society as relatives of the concerned corpse are said to have protested against the practice because it was considered strange by them and not acceptable practice. The complaint of the relatives of dead Christians interred in church cemeteries was recorded (Adeboye, 2016). The simple implication of this is the people's preference for the interment of their dead in residence. The above analysis also applies to the treatment of corpses across cultures in African communities.

In human history, however, human corpses and funeral rites remain one medium for transmitting communicable infections (Moran, 2017; Parks, 2020). The Ebola virus outbreak in West Africa and Covid-19 globally has established the transmission of the virus from corpse to living human being through traditional funeral rites, and more death has been recorded (Moran, 2017; Suwalowska *et al.*, 2021). To this end, government exists fundamentally for the protection of the life of her citizenry from death and disease and the adoption of measures that can guarantee such safety. The study analyzed the human corpse management measure in Nigeria from this perspective.

The study is in five sections. The introduction of the study is presented in section one. Section two presented the theoretical framework and literature review, an analysis of methodology formed the content of section three, data was presented and analyzed in section four, and the study was concluded in section five.

Statement of the Problem

The spread of communicable diseases, including the Ebola virus and Covid-19, and the death surge are attributable to the cultural practice of honoring the dead (Moran, 2017; Parks, 2020;

Suwalowska *et al.*, 2021). The continuous record of communicable infections outbreak vis-à-vis the sustenance of the cultural rites availed to the dead has been noted to spread diseases (Moran, 2017; Parks, 2020; Suwalowska, Amara, Roberts, & Kingori, 2021). Containing the spread of diseases has prompted different measures by governments and international organizations such as the World Health Organisation (WHO), including awareness creation, prevention of mass gatherings, and prohibition of burial without permission from the state (Vidua, Duskova, Bhargava, Chouksey and Parthasarathi, 2020). Despite these measures, the entombment of a human corpse in residence continues in Nigeria. Against this background, the study seeks to understand the public health implications of residence burial in Nigeria.

Research Objectives

The study has three objectives: i) it aims to examine the factors sustaining the practice of human corpse burial in residences in Nigeria, ii) to analyze the implications of cemetery management on use for corpse interment in Nigeria, and iii) to review the public health implications of residence burial in Nigeria.

Review of Literature

Thematically reviewed literature as relevant to the study is presented below:

Burial Practice in Nigeria

The certainty of death must have informed the burial practiced among the Yoruba's, and the execution formed the aims of different studies. Olomola (1988) analyzed the perspective of the Ado Ekiti people on death and argued that death is perceived as a traveling medium from the physical to the ghost land. The belief that the dead bodies live posthumously encourages such measures as masquerade devoted to celebrating the demised. Douglas (2013) reviewed the availability of government cemeteries in River state, Nigeria, and he submitted that the possible reason informing the burial of dead at home or community cemetery is the insufficiency of a public cemetery. The cemetery was poorly laid out, inadequately maintained, and encroached on by neighbors. Olajide, Alabi, and Akinlabi (2013) discussed the possibility and challenges confronting the availability of cemeteries in Nigeria with a focus on Ado-Ekiti and observed that human corpse is buried in residence in the study area. The practice was noted that it could result in a health crisis in the future if left unchecked. Nwabueze (2013) has argued for the respect and recognition of the view held by a dead person before his/her burial wishes by the law. In the absence of such a directive by the dead, the surviving partner was advocated as having the responsibility for the such directive.

Daramola, Ojo, and Joel (2014) discussed the opinion and act of the disposal of the dead in the city of Ile-Ife and explained that inhabitant of the study area has different housing and socioeconomic attribute. Further, the study noted that a total of 77.9% of the dwellers prefer the disposal of a human corpse through burial, while 54.7% of the population believed in the practice of home burial. Adeboye (2016) argued that cemeteries became popular in Nigeria following missionaries' privatization of the practice on religious grounds. It was noted that the burial of the dead in Ibadan, and other Yoruba towns, is usually done by the resident. Azeez and Salami (2018) identified the reason for the practice of home burial as the need to maintain existing relationships and avoid disconnections between the dead and their families. Death was identified, in the study, as a medium and not an end of the dead person's life. The practice is also believed to be customary and based on tradition. In like manner, Moon (cited in Sandvik, 2020) pointed out that the dead should be accorded residual dignity and respect despite the fact that statutory life and privileges terminate with death.

The effect of home interment has formed the point of departure for scholars. In this perspective, Olajide and Abiodun (2013) appraised the impact (socioeconomic and environmental) of home interment on a property transaction in Ado-Ekiti, Nigeria. They argued that in the study area, there was not in existence any known planned cemetery. Also, the problem of transfer of ownership was identified, and spiritual and psychological issues were identified with the practice of home burial. Ogungbemi, Akingbade, Omunagbe, and King (2020) described the worth of houses with human graves in the Lagelu area of Ibadan and stated that out of every three houses in the area, there is a tomb in one. The tomb's effect on the housing property's worth is about a 10-40 percent reduction in price during transfer and rent. It was noted that the practice has implications for the psychology of children inhabiting such areas and not forgetting the water pollution that may result from such practice.

Death registration is, of course, a means by which government keeps a record and other health details of the deceased in the state. Tobin, Obi, and Isah (2013) appraised the registration of birth and death and factors influencing the practice in the study area in South-South, Nigeria. The study noted that birth registration was high, with about sixty-eight percent of those who recorded birth registering the same; in contrast, about sixty-one percent of the population that recorded death failed to register the same with the appropriate authority. The study argued that the factors responsible for the act include the level of education, marital status, and religion, among others, which are responsible for birth registration. Level of education was identified as the only condition for death registration. Atama *et al.* (2021) investigated civil registration issues in Nigeria to describe the socio-demographic conditions swaying vital registration in the country. It was revealed by the study that the level of education, income, and proximity to the registration center influence registration of social activities, including marriage, birth, and death in the country.

Human Corpse Management in Pandemic Era

The outbreak of the pandemic in human history is not new. Some of the notable eras have been presented by González-Fernándeza, Ibá˜nez-Bernáldezb, Martínez-Tejedorc, Alama-Carrizob, Sánchez-Ugenab, and Montero-Juanesd (2020) to include the Justinian plague between 541-543 AD, the 17th century Black Plague, the cholera epidemic, the 1918 Spanish influenza, the Severe Acute Respiratory Syndrome (SARS) between 2002-2003, the Middle East Respiratory Syndrome (MERS) in 2012 and the current covid-19 virus. Similarly, the Ebola outbreak in Africa can also be added to the list of the pandemic era (Park, 2020). During the Justinian Plague, about ten thousand deaths were recorded daily, and the challenge of managing the victims' corpses ensued (González-Fernándeza *et al.*, 2020). Similarly, the 17th-century Black plague was documented to have claimed twenty million lives in Europe (González-Fernándeza *et al.*, 2020). The 1816 cholera outbreak and 1918 Spanish influenza were claimed to have caused over forty million deaths throughout the world (González-Fernándeza *et al.*, 2020). The SARS claimed approximately nine hundred and nineteen lives across thirty-two countries, while the MERS caused about eight hundred and fifty-eight deaths across twenty-seven countries (González-Fernándeza *et al.*, 2020).

Wagner, Klunk, Harbeck, Devault, Waglechner, Sahl, Enk, Birdsell, Kuch, Lumibao, Poinar, Pearson, *et al.* (2014) attributed the cause of the Justinian pandemic of 541-543, the black plague of 14th–17th century, and the 19-20th modern plague to the Yersinia Pestis. To establish the claim, Wagner *et al.* (2014) collected teeth from two known human corpses, who were recorded to have died from the infection during the pandemic, from the Bajuwarenring cemetery (Aschheim, Bavaria, Germany). The possibility of collecting the required sample from a cemetery shows that the dead are not buried in residence in that part of the world. The study concluded that the cause of the first, second, and third pandemics resulted from rodents. Rodent species globally are identified as the reservoir for Yersinia pestis, and there is a possibility of re-emerging the infection in the human population (Wagner *et al.*, 2014; Ditchburn & Hodgkins, 2019; Jullien, deSilva, & Garner, 2021). Ditchburn and Hodgkins (2019) further established the threat posed by Yersinia pestis to the African population, having noted that more than ninety percent of the plague cases are still recorded on the continent.

It has been established that Yersinia pestis can be transmitted from dead bodies and rodents to living human beings, which validates the fact that bacterial infection can be transmitted during burial. The Yersinia pestis move around through human travel via tourism (Ditchburn & Hodgkins, 2019) and possibly through contact with a dead human corpse who died from the bacteria. Contrarily, Jullien, deSilva & Garner (2021), after a systematic literature review, noted that there is an absence of evidence of direct transmission of Yersinia pestis from human corpses and animal carcasses to living human beings. As such, three potential transmission sources of the plague were examined, including the body fluids of living plague patients, infected corpses and carcasses, and body fluids of the dead infected corpse (Jullien, deSilva, & Garner, 2021). The study submitted that pneumonic plague could be communicated by intensive handling of the corpse or carcass, possibly through inhalation of respiratory droplets, and bubonic infection can be transmitted through blood contact with the body fluid of the infected corpse or carcass (Jullien *et al.*, 2021).

In West Africa, Ebola was discovered in 1976, and the outbreak was recorded in 2014 (Moran, 2017; Park, 2020). Because of its presence in the blood, vomit, and excreta of a person infected, the virus also spreads quickly (Moran, 2017). The Ebola virus was also transmitted through the body fluid of the infected dead and the dead body. The issues have prompted questions about respecting the personality of the dead and the psychological problem of the families of the deceased (Suwalowska *et al.*, 2021). In fact, during the 2014 outbreak of the virus, contact persons with the Ebola virus traced in Liberia, Guinea, and Sierra Leone revealed the relationship between participation in funerals and the discovered cases among the population. This drew attention to how the virus was spread through funeral ceremony attendants (Moran, 2017). It was reported that President Ellen Johnson Sirleaf ordered mandatory cremation to contain the spread of the virus, especially through a new method of managing infected human corpses, the implementation of which prompted secret funerals given the consideration of the order as against their culture (Moran, 2017). Suwalowska *et al.* (2021) validated the respect for the dead body by finding extant studies that the community members were not pleased with the collection of samples from the dead bodies and taking them away from the grave those agencies/researchers government empowered for the collection.

Equally, there was the outbreak of Coronavirus in 2019 and the subsequent declaration of the infection by the World Health Organisation as a global pandemic on 30th January 2020 (González-Fernández *et al.*, 2020). Covid-19, described by Vidua *et al.* (2020), is a severe respiratory infection caused by a virus affecting the respiratory system, particularly the lungs. The infection is spread through inhaled or droplets on the mucosal surface but is contacted with contaminated bodily excretion, air-borne, and fecal-oral routes, and the incubation period of the virus is between five to six days (Vidua *et al.*, 2020). Since the outbreak of the infection, it was noted that several deaths had been recorded. Suwalowska, *et al.* (2021) reviewed the management of death from the pandemic because Vidua *et al.* (2020) and González-Fernández *et al.* (2020) stated that corpses from the infection overwhelmed the health facilities in various countries of the world. Vidua (2020) stated that the armies were called into place to help in the management of the resulting corpse from the pandemic. Suwalowska *et al.* (2021) argued that the handling of dead bodies could have sociocultural and ethical dilemmas among the people and noted that a human corpse is often regarded as having pragmatic danger to the living.

Town Planning and Urbanization in Nigeria

Urbanization, implying the growth of cities and increase in population, is the development of human settlements. While the human population remains an indispensable aspect of development, death is a certainty, and burial has been a notable measure in administering the corpse. The reality is that there is a need to plan the human settlement to reflect this certainty. Fakolade and Coblentz (1981) argued for the inclusion and participation of citizens in the design of the city's layout. Ogu (1999) appraised the effect of using the residence for the graveyard on the culture of housing in Nigeria and argued that the act might promote poor housing maintenance and devalue the price of landed property. It was also noted that it could encourage relocation from the city-center to the outward area on the cultural ground. Aribigbola (2008) evaluated the use and planning of land in Akure, Nigeria, and argued that the government's concern has shifted from proper monitoring to granting occupancy right and plan approval only. The reality of the preceding was identified with the possibility of the absence of effective coordinating measures for the implementation and monitoring of development. Woodthorpe (2011) argued for the exercise of care in the formulation and execution of policies targeted at the provision of cemetery’s use and significance.

Fabiyi (2016) acknowledged the alarming rate of urbanization in Nigeria without corresponding measures for effective administration. It was noted that the rate of urbanization demands the adoption of other approaches since there are increasing difficulties with managing cities in the country. Thus, a shortage in the use of digital infrastructure in the management of the state was named, and there was an argument for bridging the application of technologies in the administration of cities in the country. Oluwaseyi (2019) outlines the challenges confronting the implementation of town plans, including shortage of personnel on the part of the respective ministry, inadequate or absence of required materials for the implantation and monitoring, and absence of an approved plan in the study area. Badiora (2020) presented an opinion on compliance and corruption in the execution of town planning regulations in Lagos, Nigeria, and revealed that the actions of the planning officers condition the compliance or otherwise of the people with planning orders in the state. Practices including corruption stimulate disrespect for public codes, including planning rules and regulations.

Local Government Administration in Nigeria

Nigeria is a federal state by virtue of its constitutional declarations and provision. Thus, local government is the third layer of government which is considered closest to the people in terms of administration and delivery of the responsibilities of government. Following the landmark reform of the (1976) local government system in the country, a unified government structure exists at the grassroots level (Asaju, 2010; Ikeanyibe, 2018; Ikeanyibe, Chukwu, & Ibietan, 2019). Prior to the reform and evident from the operation of grassroots government precisely in the 1950s and aftermath, each region created its local government based on needs (Asaju, 2010; Ikeanyibe *et al.*, 2019). The alteration of local government structure was identified with the military intervention and their hierarchical attribute (Asaju, 2010). The effect of the centralized system has been described as counter-productive due to the fact that it is conflict-generating, as opposed to adequate administration and integration of the different groups in a heterogeneous country like Nigeria (Ikeanyibe, 2018). The system was like using a single approach for a different purpose.

Despite the constitutional obligation bequeathed on the level, only a little has been benefiting from it. Alao, Osakede, and Owolabi (2015) highlighted issues inclusive of corrupt practices, interference from the state, and over-staffing, as the challenges confronting the delivery of the purpose of government to the people. In the analysis of Osakede, Ijimakiwa, and Adesanya (2016), it was revealed that the state often interferes in the activities of local government through the control of their finance with the creation of a joint account by the state. Oluwaleye and Ifeyinwa (2019), in view of the underperformance of local government, argued for the return of democracy to the level of government in order to make it more responsive to the people.

Public Orientation System on Environmental Issues in Nigeria

The awareness of the people about the impact and possible implications of their activities may sway their relationship with the use of the surrounding. Daramola and Ibem (2010) appraised the contemporary issues in urbanization in Nigeria and argued the effect of colonialism, swift urbanization, and poor orientation of residents sustaining urban deterioration in post-colonial Nigeria. Daramola *et al.* (2016) discovered that the level of information available to people on the effect of dead bodies disposal on the available source of water was low; about 78.2% were noted not to be informed on the effect of corpse burial on the availability of potable water in residents in Ile-Ife. Nnadiukwu and Omeje (2019) analyzed the role of mass media in preventing environmental degradation in Nigeria and revealed that media houses are key to their routine programs with little or no provision for increasing awareness of environmental regulation. Ojelade, Aiyedun, and Aregbesola (2019) acknowledged the perception of the people on the fact that required information made available to residents has informed them on water-borne diseases and their effect on the community. Idehen (2019) studied the effect of the form of the cemetery on groundwater in residents around Third Cemetery in Benin City, Nigeria, and concluded that groundwater around the studied cemetery is fit for domestic use and consumption, among others. However, there is a degree of contamination observed in the observed groundwater.

Theoretical Framework

Environmentalism is the framework of analysis for the study. The central tenet of the school of thought holds that the safety of the environment is best achieved through the provision of rules and regulations (O'Riordan, 1977) to regulate and direct human activities. Thus, law and regulation imply law-making and implementation, which is one of the fundamental reasons for the existence of government. In ensuring human safety in the state, there is a need for laws by the government to such effect. Ensuring safety will imply ordering the state into a residential area, industrial, dump site, forest reservation, cemetery, and many more. These are with the intention of ensuring and accomplishing orderliness in the state. The study adopted this theory to analyze the availability and implementation of laws for human safety in Nigeria, especially concerning the burial of the dead.

Materials and Methods

The study obtained data from secondary sources, including; newspaper articles, journal articles, textbooks, and government documents. In achieving the first objective, the study reviewed the Nigerian criminal code of 2004 and the 1999 constitution. Reviewing these laws becomes necessary because it allows for understanding general decisions and agreements between the government and the people. This is because the law directs the government's and the people's activities in any state. Objective two was based on secondary materials; newspaper articles, journal articles, and textbooks were reviewed. Extant studies, and newspaper articles, are considered relevant because investigative journalism scrutinizes state issues. The third objective reviewed extant studies on burial and government approach to Covid-19 in Nigeria. Data were analyzed using themes generated from the issues under review.

Study Area

The study area of the research work is Nigeria, and the southwest geopolitical region is the focus of analysis. In the region, the Yoruba are an acclaimed dominant ethnic group, and there are other ethnic groups from both within and outside of the country in the region. The Yorubas evolved during colonial rule (Isumonah, 2004), and there was nothing like the 'Yoruba' ethnic group prior to the period (Olomola, 1988). Instead, the name applied to *Oyo* and some *Anagos* (Lloyd, 1960). The sub-group of the Yoruba has been noted to spread between Nigeria, Benin Republic, and Togo. The sub-group domicile in Nigeria includes Oyo, Ekiti, Ife, Ketu, Akoko, Ijebu, Ijesha, and Egba (while Sabe is located outside Nigeria). The sub-group occupies six states constituting the South West, in the present Nigeria federal arrangement, including Osun, Ondo, Oyo, Ogun, Lagos, and Ekiti. Despite variations in their dialects and social and political outlook, there is homogeneity in their language use and social, religious, and cultural practice (Olomola, 1988). This implies they are related in their marriage, burial, and related system. Thus, selecting any of the sub-group for analysis allows for similarity. Also, the Yoruba in contemporary Nigeria operates within the extant bodies of law enacted for the federation. Hence, there is a homogenization of burial practices.

Results and Discussions

The study presents information gathered in this section under sub-themes.

Analysis of Home Interment of Human Corpse in Nigeria

The amalgamation of Nigeria brought the erstwhile autonomous nations together under a system of law and government. The law remains the instrument of government in the administration of the state. The environmentalists shared this perspective and established that law must emanate from the people's cultural and customary practices. Hence, the government of Nigeria has been empowered to make laws through the 1999 constitution for good governance. The Criminal Code Act Chapter C39, Laws of the Federal Republic of Nigeria, 2004 (herein FGN, 2004) is an example of rules and regulations enacted to deal with specific issues, of which burial is a good example. The Code in section 246 (FGN, 2004) declares,

> *"Any person who, without the consent of the President or the Governor, buries or attempts to bury any corpse in any house, building, premises, yard, garden, compound, or within a hundred yards of any dwelling-house, or in any open space situated within a township, is guilty of a misdemeanor, and is liable to imprisonment for six months."*

The above declaration emphasized the need to seek the government's consent before burial activities can be executed in any part of the Nigerian state. This follows the submission of Etzioni (1964:1) that the state as an organization needs to sanctify the dead before burial is performed. Following the state's approval, it is said to become possible to bury the deceased either based on the directive of the dead person prior to his demise or the directive of the surviving partner (Nwabueze, 2013). More so, the coronal virus pandemic (or Covid-19) outbreak has not altered the residence burial practice in Nigeria. A close review of the requirement for death burial has been made available in the Nigerian Center for Disease Control (NCDC) guideline for burial practice during the Covid-19 pandemic succinctly claimed that the body of a dead Covid-19 patient is not infectious and as such, the corpse is due for the full funeral rite.[i]. Despite the preceding claim, states in South West Nigeria, including Lagos, ban human corpse interment during the lockdown. The suspension of lockdown witnessed the interment of corpses as appropriate to the person.

The Implications of Cemetery Management on Use in Corpse Interment in Nigeria

The cemetery provision has fallen directly under the local government's control since the enactment of the fourth republican constitution in Nigeria. It has been defined, in section 4a-e of the Nigerian Urban and Regional Planning (1992), that the local government in Nigeria has an obligation to formulate and execute plans for the town, rural areas, the local area, subject plan, and ensure control of development within their jurisdiction (FGN, 1992). During the formulation and execution of plans, a cemetery is expected to be provided since death is a certainty. Thus, the country has created a cemetery since the colonial era. The government created a cemetery, including Atan Cemetery at Yaba, Lagos, and Sango Cemetery in Ibadan. In addition to the government cemeteries, community, and private cemeteries exist in the southwest (Uwaegbulam, Nwannekanma & Gbonegun, 2018; Mohammed, 2020). While the government-created cemeteries are old, filled, poorly maintained, non-secured, and becoming insufficient, private investors are doing business out of the shortage (Uwaegbulam *et al.*, 2018).

In Lagos state, private cemeteries include Vaults and Garden at Ikoyi Lagos. The cemetery is owned by Asiwaju Bola Ahmed Tinubu (ex-Governor of Lagos State and chieftain of the Ruling All Progressive Congress). Since the commencement of operation in 2006, the price of burial space has ranged between fifty million to a hundred and fifty million Naira.[8] (Guardian, 2015). In another report, it was stated that the price of a six feet spot in Vaults and Garden at Ikoyi costs about three million and two hundred thousand Naira only[9] (Uwaegbulam *et al.*, 2018). Tijani (2015) provided insight into the activities of private burial in Lagos state when a practitioner named Ladi Sanwo was interviewed on the price of vaults; the respondent declared that the price ranges between four hundred and eighty thousand Naira to nine hundred and eighty thousand Naira[10]. The price was noted to include the addition of other beautification materials like marble, plastering, and inscription, which account for the price variation. Equally, the pricing of vault less than the minimum of four hundred and eighty thousand Naira was noted to be for a very short period, which may be less than two weeks to accommodate those with the required payment. Hence, the author raised the question of the possibility of missing a corpse from the cemetery on the part of cemetery managers.

The Atan cemetery is one of the public cemeteries created by the British and maintained by the Nigerian government in Lagos since independence. The cemetery has been noted to evolve into public and private cemetery sections (Mohammed, 2020). The private section is managed by BMC and Ebony Casket ventures (Mohammed, 2020), and the price of two and a half by six feet in the private section ranges between two hundred and fifty thousand Naira and three hundred and fifty thousand Naira[11]. The public section vault is at an unofficial price of twenty-five thousand Naira only (Mohammed, 2020). The pricing of a vault in a private cemetery is noted to inform burial in government management cemeteries (Mohammed, 2020).

Available information from Sango cemetery in Ibadan revealed the disorganized and poor planning attribute of the burial facilities. An interview conducted with Mrs. Gbadamosi by the Sunday Tribune revealed that the price of a vault in the cemetery ranges between sixty-five thousand and a hundred and fifty thousand Naira[12]. The vault of one hundred and fifty thousand

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[8] This is between USD 261 780 and USD 785 340 at the exchange rate of 1 USD to NGN 191 (as of 2015). At the current official exchange rate (July 2022) of 1 USD to NGN 415, the converted USD price may be multiplied by the current exchange rate. It is also useful to note that the Minimum wage in the country is NGN 30,000, which at 1 USD to NGN 415 is around USD 72.28

[9] This equals USD 16 754 at the rate of 1 USD at NGN 191 (as of 2015).

[10] This is between USD 2513 to USD 5131 with the exchange rate of 1 USD to NGN 191 (as of 2015)

[11]equivalent of USD 1, 309 to USD 1832 (as of 2015)

[12] USD 350 to USD 785 (at NGN 191 as of 2015)

Naira grave was considered the best by the attendant, given that it will be constructed with a strong cement block to prevent the grave robber from disinterment (Mohammed, 2020). Thus, the rising cases of ritualist invasion of public cemeteries continue to pose challenges to bodies' interment in cemeteries (Guardian, 2015). In Ondo state, for instance, it was reported that four people were arrested with the head of a newly buried corpse (Radio Nigeria, 2020).

The situation of the public cemetery in Lagos was brought into perspective when a dead body was washed off at Imota Cemetery, Lagos (Mohammed, 2020). The event was identified to have resulted in a protest. It was recorded that there was no response to the situation from the government. Hence, it was summited that public cemeteries across the country suffer the same fate (Premium Time, 2019; Mohammed, 2020).

Implications of Residence Burial for Public Health in Nigeria during Covid-19

Burying human corpses in residences could impact the public health system negatively. The public health implications could be felt in the possible transmission of the virus among the population, especially after a participant in a funeral contracting it in the interment process of the infected body transmit it to other members of the community (Wagner *et al.*, 2014; Moran, 2017; Suwalowska *et al.*, 2021), and pollution of sources of water by the interred human corpse (Zume, 2011; Oluwafemi & Oluwole, 2012; Adeola, 2016; Ohwo, 2016; Alagbe, Okocha, Ayegbo, Oyeniyi, Alagbe, Daniel, & Efeovbokhan, 2020; Solihu & Bilewu, 2021).

Funeral execution in Nigeria (like every other group in Africa) is believed to follow the same procedure with an emphasis on washing and dressing the dead prior to burial (Olomola, 1988; Park, 2020). Park (2020) has noted further that family and friends often touch dead bodies as a sign of love or respect for the deceased or as a requirement by the culture. With the outbreak of Covid-19 and related infections, dead bodies have been regarded as a practical danger (Suwalowska *et al.*, 2021) given that virus is contracted through contact with the body fluid of the victim of the infection, inhaled or droplet on the surface (Vidua, 2020), and as such the practice of touching corpse and bathing exposes the participant to the virus and possibly spread to other members of the community. With the number of family and friends that participated in the funeral, there is a possible contract of the Covid-19 virus; Moran (2017) established how contact tracing of Ebola (a related infection) revealed how participants of the funeral during the outbreak of the infection served as the agent of transmission.

The possibility of Covid-19 virus and related infections transmission remains very high from the burial practice, given the findings of Ajisegiri, Odusanya, and Joshi (2020) that there tends to be high community transmission of the infection due to low testing capacity and the overwhelming of available health resources in the country. The study by Ajisegiri *et al.* (2020) claimed that contact tracing needed to be established to the rising cases of infection. In addition, government interference in collecting and burying human corpses may prompt corrupt practices because the people will regard such practices to contravene their customary respect for the deceased. Moran (2017) explained how the government order of corpse cremation to curtail the spread of Ebola had prompted secret burial and corruption of government officials, which worsened the management of the Ebola infection among the Liberia population, leading to more death during the era.

In addition, in Nigeria, it has been established in the literature that the availability of potable water remains a challenge to residents and, as such individual results to such sources as dug wells, streams, and rivers in meeting their routine needs. Solihu and Bilewu (2021) noted that potable water availability, accessibility, and coverage in Oyo state (like other states in Nigeria) is limited. As a result, individual sources of water are from wells because of the lack of coverage of the government water supply system. Ohwo (2016) has identified the problem of potable water availability to residents from government sources with the poor maintenance of water supply equipment, corrupt practices, poor response to the growing residence, and irregular power supply. This informed residents' dependence on self-generated or other water sources that are available to the people.

Nonetheless, the same territory where the well is situated to serve as a water source for residents is also used in the interment of a human corpse. Adeola (2016) and Azeez and Salami (2018) established the practice of human corpse burial in residence among the Yoruba and noted that the dead are buried indoors or within the compound. The implication of such practice on the accessibility of potable water was presented by Zume (2011) as the contamination of water sources resulting from the movement of corrupted grave content into water sources, usually through rainfall. Similarly, Oluwafemi and Oluwole (2012) reported cases of death and hospitalization that followed the outbreak of cholera in Ibadan in the aftermath of flooding witnessed in that part of the country. Residence burial has negatively impacted water sources through contamination, which may have resulted in cases of the water-borne disease recorded among residents.

Discussion

The investigation into the practice of home interment revealed that such practice is never forbidden in the country. Instead, burial in any part of the state becomes a punishable offense if the act is executed without the requisite permission of the government. The revelation validates the findings of Makinde *et al.* (2020) on registering the dead with the government. The practice of burial as a cultural activity, as presented by Adeboye (2016), validates the environmentalist perspective of the cultural origin of law.

The findings show the reasons for the poor implementation of town planning, especially the allocation of the cemetery. The availability of a cemetery has been the statutory obligation of the local government. The findings affirm earlier studies that the local government failed to discharge its functions. The inability of the level to meet its role encourages the growth of private cemeteries, which of course, is majorly for the elite. Further, the inability of the burial provisions encourages the burial of dead bodies in residents, where it costs nothing, and there is safety for the deceased. The report of erosion of washed-off bodies from Imota cemetery in Lagos state and persistent ritualist invasion of burial grounds equally influences the use of cemetery for burial in the absence of prohibitive law from home interment.

Residence interment and funeral practice performed on human corpses has been established in the study as having the capacity to propel the spread of covid-19 virus. The funeral process is noted to feature such practice of bathing and dressing of corpse, and also there is the touching of a dead body, which are medium for contracting the virus by participants. In addition, the interred body has the capacity to pollute available sources of water for residents. It has been established that wells and other self-generated water sources are the mediums through which the probability of contracting the diseases is high. Hence, the same territory for corpse interment is also a medium of water sources available to residents.

Conclusion

The finding of the first objective reveals that the government did not forbid the practice; instead, a government, either at the federal or state level, only needs to consent. The other objective noted that there exists a cemetery, the administration of which discourages the majority from using the facility for the containment of their corpse. The third objective revealed that residents' burial of human corpses impacted public health through contamination of water sources available to residents and a medium of contracting the Covid-19 virus (and related infections). Based on the above findings, the study concluded that resident burial among the Yoruba resulted from government negligence in redefining burial culture in the country.

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