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VOLUME 19 ISSUE 2 (VER. 1.0)

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GLOBAL JOURNAL OF MANAGEMENT AND BUSINESS RESEARCH: C  
FINANCE

Volume 19 Issue 2 Version 1.0 Year 2019

Type: Double Blind Peer Reviewed International Research Journal

Publisher: Global Journals

Online ISSN: 2249-4588 & Print ISSN: 0975-5853

# Efficient Financing, Banking, and Foreign Exchange Operations in Mitigating Refined Petroleum Shortages In Nigerian Downstream Petroleum Supply Industry

By Dr. Itsekor Lucky Ubini

*Walden University*

**Abstract-** Every enterprise in Nigeria depends on refined petroleum product for either transportation, power, or heat source. The recurrent shortages or scarcity of petroleum products in Nigeria cripples business activities, which undermines the development of the economy. The purpose of this multiple case study was to identify the strategic role of finance, banks, and foreign exchange in mitigating petroleum shortages in the petroleum supply chain and to sustain business development in Nigeria. The study participants include ten senior leaders from two private-sector Nigerian downstream petroleum supply companies located in the Niger Delta region, who had successfully implemented strategies for petroleum supply. The resource based view theory served as the conceptual framework for the study. Data were collected through semi structured face-to-face interviews and review of operational and policy documents from the supply or marketing companies.

**Keywords:** *refined petroleum, shortages, foreign exchange, banking, financing, economic development, downstream supply, marketing, supply chain.*

**GJMBR-C Classification:** *JEL Code: F65, E59*



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Dr. Itsekor Lucky Ubini

**Abstract-** Every enterprise in Nigeria depends on refined petroleum product for either transportation, power, or heat source. The recurrent shortages or scarcity of petroleum products in Nigeria cripples business activities, which undermines the development of the economy. The purpose of this multiple case study was to identify the strategic role of finance, banks, and foreign exchange in mitigating petroleum shortages in the petroleum supply chain and to sustain business development in Nigeria. The study participants include ten senior leaders from two private-sector Nigerian downstream petroleum supply companies located in the Niger Delta region, who had successfully implemented strategies for petroleum supply. The resource based view theory served as the conceptual framework for the study. Data were collected through semi structured face-to-face interviews and review of operational and policy documents from the supply or marketing companies. Data were transcribed, analyzed, and validated through member checking and triangulation. The findings indicate that petroleum leaders must engage with efficient banks to obtain loans or letter of credit, liquidate letter of credit on time, obtain foreign exchange at best rates, and avoid documentation hitches and delays on international transactions. Findings may be used by petroleum business leaders and investors to create effective and efficient financial resource management strategies in the supply chain, leading to product availability, sustainability, poverty reduction, and economic development.

**Keywords:** refined petroleum, shortages, foreign exchange, banking, financing, economic development, downstream supply, marketing, supply chain.

## I. INTRODUCTION

Nigeria is a leading member of the organization of petroleum exporting countries (OPEC), with large reserves of oil. Irrespective of the availability of petroleum resources, shortages of refined petroleum products exist in Nigeria since the 1980s (Chigbu, Ubah, & Chigbu, 2016; Osuala, 2013). The Nigerian National Petroleum Corporation (NNPC) regulates petroleum supply activities in the Nigerian downstream subsector (Osuala, 2013). However, the regulatory activities of the NNPC have not created an efficient and effective petroleum supply framework for the Nigerian nation (Adelabu, 2012; Ambituuni, Amezaga, & Emeseh, 2014;

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Osuala, 2013). Shortages in refined petroleum product supply exist in Nigeria, crippling business activities (Abutu, 2014; Aminu & Olawore, 2014).

The oil and gas downstream sector was deregulated in 2003, to usher in private investors for a sustainable petroleum supply framework to enhance business development in Nigeria (Adelabu, 2012; Akinwotu, 2014; Osuala, 2013). In collaboration with the NNPC, activities of the private sector investors have grown to include depot ownership with supply chain activities such as petroleum importation, bulk storage, haulage or distribution, and bulk or retail outlet sales (Osuala, 2013). The support activities of the depot petroleum supply chain include administration, technology, human resources, marketing, security, finance, and accounting. The financing aspect of the industry usually involves banking and foreign exchange operations.

Finance is a key resource in the Nigerian Downstream Petroleum Supply Industry (NDPSI) as noted by Olukoju(2014). In the NDPSI, finance is scarce. Financing activities in the petroleum industry is a function of the Nigerian federal government until inefficiency sets into the sector (Chigbu et al., 2016). According to Menicucci and Paolucci(2016), the banking sector plays a significant role in the development of any country through financial intermediation such as the offering of credits and distribution of funds. Business in the NDPSI is based and dependent on U.S. foreign exchange dollars. Also, Menicucci and Paolucci (2016) noted that only sound banks can effect economic growth in a country.

The purpose of this article is to identify the strategic role of finance, banks, and foreign exchange operations in the petroleum supply chain to mitigate petroleum supply shortages and enhance business development in Nigeria. Findings from this study may provide petroleum organizational leaders with sustainable supply chain management (SCM) strategies regarding the contribution of improved financing, banking and foreign exchange operations for increased business development, increased revenue, job creation, and enhanced economic growth.

## II. CONCEPTUAL FRAMEWORK

The resource based view theory (RBV) was used as the conceptual framework for this research. Barney (1991) postulated that to achieve sustainable competitive advantage, leaders of a firm must acquire resources (a) for creating effective and efficient strategies, (b) uncommon in the industry, (c) that are imperfectly imitable, and (d) non substitutable in the industry. The resources include financial, human, physical, technological, organizational, and reputational. Leaders can apply RBV to optimize resources to create value, leading to organizational effectiveness and efficiency (Barney, 1991; Crook & Esper, 2014; Zimmermann & Foerstl, 2014). Furthermore, Barney (2012) affirmed that creating competitive advantage automatically generates value for a firm.

Resource and capability management in the areas of finance, affect the NDPSI (Adelabu, 2012; Aminu & Olawore, 2014). In the NDPSI, misappropriation of financial resource result in several inefficiencies such as (a) low refining output, (b) moribund refineries, (c) inadequate storage and pipeline infrastructures, (d) poor petroleum transport channels, (e) personnel shortages, and (f) irregular retail outlet activities (Adelabu, 2012; Aminu & Olawore, 2014; Osuala, 2013). Financial resource and management inefficiencies contribute to refined product shortages, which negatively affect transportation and power, crippling business activities in Nigeria (Adelabu, 2012; Aminu & Olawore, 2014; Itsekor, 2018, Osuala, 2013).

### a) *A Review of the Professional and Academic Literature*

*Financial resources in the Nigerian Downstream Petroleum Industry.* Finance is a key resource in the NDPSI (Olukoju, 2014). The oil and gas industry is the main source of finance for activities in the Nigerian economy. Financing activities in the petroleum industry is a function of the Nigerian federal government until inefficiency sets into the sector (Chigbu et al., 2016). The Nigerian economy is structurally defective as the economy depends solely on the oil and gas sector for revenue (Olukoju, 2014).

Financing developmental activities for petroleum supply initiatives in Nigeria is negatively affected by oil theft activities in the Niger Delta region (Wilson, 2014). Wilson noted the effect of oil theft as (a) a fall in revenue to the Nigerian state, (b) a loss of human and natural resources, (c) an increase in state insecurity, and (d) poor financing of developmental projects in the petroleum industry. The consequence of oil theft is lack of crude supplies to the refineries and underdevelopment of the Nigerian business economy (Chigbu et al., 2016).

According to Alaba and Agbalajobi (2014), a limited inflow of investment occurs in the downstream

sector because of low margin, uncompetitive pricing structure, and poor incentive mechanisms. The low level of investment has resulted in the limited development of the NDPSI, which inhibits business development in Nigeria (Monday, 2015). Moreover, improving the Nigerian economy will necessitate proper financing of the petroleum sector, which will require development and liberalization of the petroleum sector (Adelabu, 2012). Furthermore, Okwanya et al. (2015) posited that oil leaders should focus on market-oriented policies in the downstream sector. Market-oriented policies will make energy accessible to investors and consumers, which will increase shareholders incentive and encourage more investors into the sector (Okwanya et al., 2015).

Deregulation and privatization will free the Nigerian government from financing extensive projects, encourage private sector investments, and bring efficiency and effectiveness in resources management of the NDPSI (Chigbu et al., 2016). Moreover, Adelabu (2012) noted that deregulation and privatization would enhance effective utilization of resources, promote competition, and provide the necessary fund for the development of the sector. The deregulation of the NDPSI has a strong relationship to the economic development of Nigeria (Chigbu et al., 2016). However, deregulation and privatization will not succeed in a country that imports petroleum products with non-functional refineries (Adelabu, 2012). The deregulation of the NDPSI is to ensure a constant supply of products, reduce the price, enact competition, free up funds, and ensure efficiency in the supply of refined petroleum products (Chigbu et al., 2016).

Nigeria has earned huge petroleum dollars from the sales of petroleum products (Chigbu et al., 2016). Petroleum sales are subject to price volatility depending on international economic forces (Alimi & Fatukasi, 2014). Okwanya (2015) noted that the change in oil price has no impact on GDP, consumer-purchasing index, money supply, but on the exchange rate of the U.S. dollar. The exchange rate of the U.S. dollar affects petroleum importation and hence supplies to Nigeria (Akinwotu, 2014; Alimi & Fatukasi, 2014).

*Nigerian Petroleum Industry.* In 1956, oil was discovered in commercial quantities at Oloibiri in the Niger Delta region of Nigeria (Chigbu et al., 2016). The first oil international trade took place in 1958, and since then oil has become the backbone of the Nigerian economy (Aminu & Olawore, 2014). Shell-D'Arcy was the foremost transnational oil company (IOC) that made the oil discovery (Osuala, 2013). The incoming years witnessed the participation of the Nigerian government in the affairs of petroleum management. In 1971, the federal government of Nigeria created the Nigerian National Oil Company (NNOC) to control and regulate oil-production activities that were dominated by IOCs

(Osuala, 2013). Because of inefficiencies of the NNOC, the Nigerian National Petroleum Corporation (NNPC) was created in 1977 to replace the NNOC and affirm effective control over the petroleum industry (Osuala, 2013).

Nevertheless, the NNPC was not able to effectively and efficiently supervise of the Nigerian petroleum industry, as inefficiency still dominates the downstream sector (Adelabu, 2012; Osuala, 2013). Incompetence such as continual refined petroleum product shortages, dilapidated refineries and infrastructures, capacity underutilization of resources, and vandalism of petroleum industry equipment took over the Nigerian downstream industry (Aminu & Olawore, 2014). However, in 2003, the federal government of Nigeria started the process of deregulation and liberalization of the downstream subsector to create supply efficiency, eradicate shortages, and enhance the economic development of the nation (Chigbu et al., 2016).

*Refined Petroleum Production.* All Nigerian four refineries have a total installed production capacity of 445,000 barrels per day (Alaba & Agbalajobi 2014; Aminu & Olawore, 2014). The refineries are: the Port Harcourt Refinery Company<sup>1</sup>and 2, the Warri Refinery and Petrochemical Company, and the Kaduna Refinery and Petrochemical Company (Akinwotu 2014; NNPC, 2016). The refineries process crude oil into different refined products such as petrol or premium motor spirit (PMS), diesel (AGO), dual purpose kerosene (DPK), lubricants, jellies, gas, and coal tar (Akinwotu, 2014; Oladepo, 2014). Aminu and Olawore (2014) noted that Nigeria's four refineries are not enough in relation to the country's population when matched to other members of oil-exporting nations.

Nigerian refineries are saddled with poor management of financial and material resources by petroleum business leaders, leading to low productivity (Alaba & Agbalajobi, 2014; Osagibovo, 2012). Nigerian refineries produce less than 25% of the required 30 million liters of daily local demand (Alaba & Agbalajobi, 2014). Oladepo (2014) emphasized that the under-capacity production has resulted from the dilapidated state of the refineries, lack of maintenance, negligence, and inappropriate resource utilization. Also, Aminu and Olawore (2014) noted that refined petroleum product shortages could be attributed to (a) low refining output of refineries, (b) inadequate pipeline infrastructures, (c) pipeline vandalism and rupture, and (d) inefficient road transportation of petroleum products. To improve the infrastructural facilities, the NNPC spent over 400 million dollars on maintenance of refineries between 1990 and 2000, without an increase in production (Adelabu, 2012; Chigbu et al., 2016). The low productivity of the existing refineries resulted in sourcing refined petroleum through importation from abroad (Alaba & Agbalajobi, 2014).

Besides importation, Nigerian petroleum leaders and economic consultants proposed strategies to improve petroleum product production. Oladepo (2014) and Aminu and Olawore (2014) suggested that constructing more refineries will increase the nation's refining capacity and enhance petroleum availability. Aminu and Olayinka (2014) recommended the introduction of a petrol tax and removal of subsidies to reduce consumption and create availability. Chigbu et al. (2016) emphasized the judicious use of resources in the oil and gas sector to achieve sustainable development of the supply chain. Furthermore, Aminu and Olawore (2014) and Chigbu et al. (2016) recommended that privatizing existing refineries and pipeline networks would help create proper resource management to achieve fuel availability.

The federal government of Nigeria granted licenses to private investors to build refineries and depots to mitigate scarcity (Oladepo, 2014). The setting up of private sector participation by the Nigerian government was to increase production and distribution of refined petroleum products in addition to improve the economy (Chigbu et al., 2016; Oladepo, 2014). Private investors include independent oil marketers, major oil marketers, and private depot owners (Alaba & Agbalajobi, 2014). Both local and international private investors and oil marketers have built depots across the country; nonetheless, they have not succeeded in establishing refineries (Alaba & Agbalajobi, 2014).

*Shortages of petroleum products.* Petroleum shortages or scarcity is no news to the Nigerian economy. Since the 1980s, The Nigerian economy has experienced several eras of refined petroleum product shortages or scarcity (Adelabu, 2012; Aminu & Olawore, 2014; Aminu & Olayinka, 2014; Chigbu et al., 2016). Almost every business organization depends on refined petroleum product for either transportation or power generation (Chigbu et al., 2016). Refined petroleum product shortages have therefore resulted in underdevelopment and crippling of economic activities in Nigeria (Chigbu et al., 2016).

Government officials' neglect of infrastructures such as refineries and pipelines, and enhancing vandals and sabotage, affects the supply of refined products to the economy (Osuala, 2013). Oil spill and Pipeline vandalism disrupt both crude oil and refined products supply to refineries and consumer respectively (Anifowose et al., 2014). An oil spill in Nigeria occurs because of corrosion of pipes and storage tanks, operational error and oil tanker accidents (Anifowose et al., 2014; Osuala, 2013). In Nigeria, thieves break oil pipelines to siphon fuel, often with sparks results in an explosion, leading to hundreds of deaths of looters and bystanders (Anifowose et al., 2014). The resultant effect is refined petroleum product shortages and scarcity in the Nigerian economy. Furthermore, the NDPSI has



cartels who determine prices, the volume of importation, and proportion of supply quantity to the market, while other marketers hoard products, resulting to supply shortages in the economy (Adelabu, 2012).

*Business development.* Nigeria operates an oil-based mono-product economy (Oriakhi & lyoha, 2013). Oil is the mainstay of the Nigerian business economy (Chigbu et al., 2016). A continuous and sustainable supply of refined petroleum product will enhance business development and transform the Nigerian business landscape for productivity (Aminu & Olawore, 2014). Petroleum shortages retard business development while product availability activates business development (Chigbu et al., 2016).

Petroleum products supply availability will lead to the development of business processes in Nigeria (Osuala, 2013). Electricity generation and supply have a negative effect on industrialization in Nigeria (Osobase & Bakare, 2014). Aminu, Salau, and Pearce (2013) regretted that Nigerian business development is marred with poor power supply, a high cost of alternate power source among other weak infrastructures. Available and sustainable petroleum product activates energy source for large organizations, SMEs, and self-employed firms (Osobase & Bakare, 2014). Existing companies recruit more staffers, business activities open-up while starters succeed because of the low cost of energy for production (Osobase & Bakare, 2014).

Every sector in the Nigerian economy has a direct effect of petroleum shortage or scarcity since personnel, machinery, and money is affected (Chigbu et al., 2016). Cottage industries spring-up when petroleum product is available to substitute the unreliable national electricity supply. The net result is the development of business activities in Nigeria (Adelabu, 2012).

### III. RESEARCH METHOD AND DESIGN

Researchers use a qualitative method to understand and solve in-depth problems related to a phenomenon (Yin, 2014). I chose the qualitative method for this research. According to Harrison (2013), researchers use qualitative methods to explore human experience and meaning related to a phenomenon.

For this research, I used a case study design. Yin (2014) explained that a qualitative case study is a research process that incorporates an exploration of a problem within a context by using different data sources such as interviews, observations, and documents. The case study design was applicable to this study because I collected data from multiple sources of archival documents, interviews and existing works of literature.

#### a) Study Population and Sample

The population for the study was petroleum business leaders who work for private oil marketing companies (Depots) and who had successfully implemented strategies of petroleum supply in Nigerian

downstream. I used purposeful sampling to select participants based on the study criteria. Purposeful sampling allows researchers to select participants who will provide the best responses to address a study problem (Smith, Colombi, & Wirthlin, 2013). I interviewed 10 business petroleum leaders (Five each) from two organizations in the NDPSI (Company A and B) situated in Oghara, Delta state of Nigeria. According to Sharp et al. (2014), the number of participants for a case study ranges from 5 to 25 depending on the research requirement. I ensured data saturation by interviewing participants until no new themes emerged. Researchers achieve data saturation when participants produce the same information during the interview process and the researcher focuses on parameters and particular areas of the subject (O'Reilly & Parker, 2013).

I focused on petroleum business leaders in the NDPSI. All Participants had supply experience and had the responsibility of (a) decision-making in sourcing of refined petroleum products within Nigeria and abroad, (b) storage of petroleum products, and (c) sales and marketing of petroleum products. O'Lynn and Krautscheid (2011) noted that selecting competent participants with an understanding of the research question is essential for the study.

#### b) Data Collection

I was the primary instrument for data collection in this study. Marbash (2013) noted that researchers are the primary instrument for data collection in qualitative studies. I collected data using semistructured interviews, with open-ended questions, in a face-to-face setting. Haahr et al. (2014) affirmed that researchers must recognize themselves as the major instrument when conducting research. Stuckey (2013) indicated that the semistructured interview process can provide a clear set of instructions for researchers along with dependable and comparable qualitative data. The semistructured open-ended data collection process provides researchers with options to collect data that are relevant to research problems (Bryman, 2012). Furthermore, Doody and Noonan (2013) noted that researchers use face-to-face interviews to generate information from participants to develop knowledge.

In addition to semistructured interviews, I reviewed archival operational and policy documents with interview responses from participants for methodological triangulation. With methodological triangulation, data from different sources are used to corroborate, illuminate and explore research questions (Marshall & Rossman, 2016). Also, Wahyuni, (2012) affirmed that collating data from multiple sources allow researchers to have access to more information, check consistency and enhance the robustness of results. I employed member checking to enhance the reliability and validity of the data collection instrument and the research process. Participants received a copy of my

interpretation of transcribed interview to ensure correct representation of responses.

### c) *Data Analysis*

Marshall and Rossman (2016) stated that qualitative data analysis is a process whereby researchers search for patterns, themes, and relationships. I employed methodological triangulation process for the research analysis. Case study researchers use triangulation to test the validity of a study through the convergence of information from different sources (Carter et al., 2014).

I analyzed the interviews and archived documents using QSR NVivo<sup>®</sup>, computer-assisted qualitative data analysis software (CAQDAS) tool. In qualitative studies, researchers utilize NVivo<sup>®</sup> for data collection, organization, and analysis of audio and textual data (QSR International, 2014). I interviewed business leaders in the two organizations to obtain patterns and themes that may lead to the provision of financial resource strategies for sustainable petroleum product supply in Nigeria. I assigned letters and numbers to each participant for anonymity purposes. The letter *L* and a number represent petroleum business leaders (i.e., *L1*) in the companies A and B.

## IV. DISCUSSIONS AND FINDINGS

The banking sector plays a significant role in the development of any country through financial intermediation such as the offering of credits and distribution of funds (Menicucci & Paolucci, 2016). Banks facilitate economic growth by lending funds to creditors at an appropriate rate to optimize profit in business dealings (Tennant & Tracy, 2014). According to Obamuyi (2013), the gains of the real sector of the Nigerian economy depend on how well banks play financial intermediary roles. Furthermore, Menicucci and Paolucci (2016) noted that only sound banks can effect economic growth in a country.

All participants affirmed that the NDPSI is capital intensive and requires a huge amount of financial resources to operate (Giwa-Osagie & Ehigiato, 2015). Also, all participants agreed that the business is 100% dependent on the availability of the U.S. foreign exchange dollars (USD) and the operation of good banks. The exchange rate of the U.S. dollar affects petroleum importation and product availability in Nigeria (Akinwotu, 2014; Alimi & Fatukasi, 2014; Oriakhi & Iyoha, 2013). According to Participant L4A, finance is scarce in the NDPSI, and most marketers acquire finance through a loan from banks.

Eighty percent of participants stated that the petroleum importation business is transacted with the aid of Nigerian banks. According to Participants L1A, L2A, L8B, and L10B, banks are needed for (a) funding procurement of products, (b) having a memorandum of understanding with the international trading partner to

agree on terms of payment, (c) issuance of letters of credit (LC), and (d) sourcing USD for marketers from the Central Bank of Nigeria (CBN) at good exchange rate. Participants L1A, L2A, L8B, and L10B noted that the availability of USD to business leaders for the importation of refined petroleum products depends on the regulatory role of CBN and other banks. The CBN performs the regulatory and supervisory role over all banks, including maintaining an effective monetary and financial system in Nigeria (Ajibo, 2015; Giwa-Osagie & Ehigiato, 2015).

Alberto (2015) noted that banks are very important to society, and only banks with good standards can effect economic development. Business leaders need the backing of a good bank to support LC procurement to avoid hitches with the supplier or international traders (Giwa-Osagie & Ehigiato, 2015). To create efficiency, marketers liquidate LC on time to avoid incurring more charges, as emphasized by Participants L1A, L6B, and L7B. Participant L1A further explained that Nigerian business leaders may not be able to buy on credit from abroad; therefore, they need the support of banks through letters of credit. Participants L1A and L2A emphasized that insurance companies cover transactions because of the risky nature of the business, including volatile and flammable properties of the products. According to Participants L1A and L2A, the cost of the petroleum product insurance increases the final landing cost of the product.

Adeniran, Yusuf, and Adeyemi (2014), Rajhans and Jain (2015) posited that the exchange rate is the value of one currency expressed in terms of some other currency. Obansa, Okorafor, Aluko, and Millicent (2013) noted that the exchange rate system is an important requisite in global business especially for developing countries embracing globalization concepts for economic development. Obansa et al. and Adeniran et al. affirmed that there is a positive relationship between the exchange rate and the economic development in Nigeria. Nigeria foreign exchange policies are characterized by inconsistencies, which affects business growth in the country (Adeniran et al., 2014). Adeniran et al. further noted that an increase in exchange rates leads to increases in imports, and reduced exports, while a decrease leads to a reduction in the importation and increases exports.

The business of purchasing petroleum products overseas is transacted in foreign exchange USD (Akinwotu, 2014). All participants affirmed that the availability of the U.S. dollar and the prevailing exchange rate of the currency affect products importation. Participants L3A, L5A, L9B, and L10B declared that if the exchange rate is high, marketers may not be able to import because of the high cost and product scarcity looms. If the exchange rate is low or favorable, petroleum product availability and sustainability is

achieved. Participant L7B noted that different banks offer different foreign exchange rates, and business leaders go for best rates to enhance efficiency and profitability.

According to Participant L6B “marketers establish a credit line with reputable banks to guarantee the trader to supply the products. Interest is paid on the dollar. Companies sell products and liquidate back to L.C. The line of credit takes between 30 to 40 days for liquidation.” Furthermore, Participant L6B noted that the deregulation of the dollar from #199.00 (one hundred and ninety-nine naira) to #306.00 (three hundred and six naira) negatively affected the supply industry; creating instant credits from marketers to banks. The naira (local Nigerian currency) devaluation negatively affected importation and hence the availability of petroleum products. Also, Participant L6B stated that because of the high cost of doing business and difficulty in accessing foreign exchange, not all marketers are importing petroleum products in Nigeria.

According to Participant L7B, petrol is an international product and there is a platform for petrol price in the international business. Ji, Geng, and Fan (2014) noted that the Western Texas Intermediary (WTI) platform is often employed in determining international petroleum prices. For optimal resources utilization, Participant L7B reiterated that business leaders lock the purchase price at a good rate to create efficiency.

Suliman, Elmawazini, and Shariff (2015) advised that governments should design policies to accommodate instability in the exchange rate system to attract both local and foreign investors. Participant L8B emphasized that marketers do not have easy access to foreign exchange because of unfavorable government policies (Giwa-Osagie & Ehigiato, 2015). Government

policies on dollar sourcing affect marketers (Obamuyi, 2013). According to Participant L8, the cost of a dollar in the black market is expensive, making several depot owners not to import products, leading to scarcity of products. However, participants L10B, L7B stated that organizations that are financially strong, do not rely on loans and government, instead invest company savings in procuring products, since charges on bank loans impart on landing cost or selling price of the product. Furthermore, Participant L8 lamented the capping of petroleum prices by the federal government, which discourages investment in the industry. Alaba and Agbalajobi (2014) posited that a limited inflow of investment occurs in the downstream sector because of low margin, uncompetitive pricing structure, and poor incentive mechanism. The low level of investment has resulted in the limited development of the NDPSI, which inhibits business development in Nigeria (Monday, 2015).

Participant L10B narrated that in the year 2016, the U.S. dollar was scarce and expensive and created product shortages across the country because of high importation cost. By intervention, the Nigerian federal government paid subsidy to importers and also paid ‘Petroleum Equalization Fund (PEF). to transporters to ensure that the product was circulated through the country. In Nigeria, the government subsidizes refined petroleum products to the citizens (Abutu, 2014; Okwanya et al., 2015). The landing cost of the imported refined petroleum is higher than the local cost hence the federal government subsidizes the product to create a balance in the economy (Abutu, 2014). In Table 1, I present the frequency at which participants mentioned the significance of excellent banking and foreign exchange operations in NDPSI.

Table 1: Efficient Banking and Foreign Exchange Operations (Frequency)

Participants	Interview questions	Total number of references
L1A	1, 2, 7	11
L2A	1, 3, 8, 10	12
L3A	1, 2, 5, 6, 12	8
L4A	2	2
L5A	2	6
L6B	1, 2, 6	9
L7B	1, 2, 5, 9, 11, 12	10
L8B	1, 2, 5, 6	10
L9B	1, 2	4
L10B	2	7

d) *Archival Document Review*

Giwa-Osagie and Ehigiato (2015) affirmed that the NDPSI is capital intensive and requires a huge allocation of financial resources to operate efficiently. I reviewed the operational and policy statement documents of company’s A and Company’s B regarding content on banking and foreign exchange operations. The archival documents showed that leaders in both companies have a core strategy for

improving operational funding cost, reducing the cost of sales, and driving down business manual cost, with the aid of strict financial backings. Banking operations include charging interest on funds and issuance of foreign exchange, impact profitability on international business (Ajibo, 2015; Giwa-Osagie & Ehigiato, 2015). Giwa-Osagie and Ehigiato (2015) postulated that petroleum business leaders need the backing of good banks to secure funds for international business.



Furthermore, Alberto (2015) posited that good banks are necessary organizations needed for societal and economic development.

b) *Application to Practice*

Menicucci and Paolucci (2016) affirmed that only good banks can affect profitability in business organizations. In the Nigerian petroleum industry, finance is scarce. Participants emphasized on the appropriate application of financial resources to each of the petroleum supply chain segments to facilitate efficiency. Since the private sector depends largely on importation, acquiring foreign exchange through bank becomes paramount; marketers can be successful only if foreign exchange is obtained at existing low rates. A high rate will transact to doing business at a high cost, which will impact the landing cost of the products. Participant L6B noted that most firms do not import because of the high cost of foreign exchange. Furthermore, marketers use loans in the form of an LC to purchase products from international traders (Giwa-Osagie & Ehigiato, 2015). Petroleum business leaders or Marketers must transact business with banks at good interest rates to liquefy the LC and make profits. In Nigeria, banks finance oil and gas business through letters of credits, whose customers, in turn, pay interest to the banks (Giwa-Osagie & Ehigiato, 2015).

V. RECOMMENDATIONS AND CONCLUSION

Refined petroleum product shortages or scarcity have undermined the development of economic and business activities in Nigeria (Aminu & Olawore, 2014; Osuala, 2013). The Nigerian government involvement of the private sector in the business of refined petroleum product supply is a way to improve petroleum supply (Chigbu et al., 2016). Based on the study findings, I recommend the following actions:

- Petroleum business leaders must engage with efficient banks to obtain loans or LC at good rates.
- Marketers should liquidate LC on time to avert further charges that will increase product landing cost.
- Firms with enough savings can invest in importation to avoid incurring charges from LC loans.
- Petroleum business leaders should obtain foreign exchange at the best rates.
- Petroleum business leader should transact international business with the right documentation, right timing, without problems and delays.

Implementation of these strategies by petroleum business leaders will mitigate petroleum shortages from the financial resource perspective as also affirmed by Itsekor (2018). The findings indicate that petroleum leaders should be involved in engaging efficient banks for LC, liquidate LC on time, obtain foreign exchange at best available rates, transact

international business with right documentation, and avoid delays. Petroleum firms applying the appropriate financial strategy will enhance supply sustainability and improve economic development in Nigeria.

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GLOBAL JOURNAL OF MANAGEMENT AND BUSINESS RESEARCH: C  
FINANCE

Volume 19 Issue 2 Version 1.0 Year 2019

Type: Double Blind Peer Reviewed International Research Journal

Publisher: Global Journals

Online ISSN: 2249-4588 & Print ISSN: 0975-5853

# Economic Growth and Macroeconomic Fundamentals: Evidence from Bangladesh

By Tanvir Hasan Anik & Md. Nurul Kabir Biplob

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**Abstract-** This study aims to investigate the effect of some macroeconomic variables namely; Interest rate, Real exchange Rate, Money supply (M2) and Trade Openness on economic growth in Bangladesh. The economic growth was represented by real gross domestic product and interest rate was presented by real interest rate in Bangladesh, Real Exchange Rate was presented by Real effective exchange rate and M2 was the proxy of money supply. The periods taken for the study were from year 1987 to year 2017. The study has been conducted using Augmented Dickey-Fuller Unit Root Test, Phillips Perron Test, Johansen Cointegration Test, Vector Error correction Model and Wald Test. The findings of the Study is, there have long run relationship coming from Real exchange rate, Interest rate, Money supply (M2) and Trade openness to economic growth. Besides these, there have casual short term relationship coming from Trade openness and Money supply (M2) to economic growth in Bangladesh.

**Keywords:** *causality test, cointegration test, economic development, M2, trade openness, unit root test.*

**GJMBR-C Classification:** *JEL Code: B22*



*Strictly as per the compliance and regulations of:*





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## I. INTRODUCTION

There are many macroeconomic variables that can affect economic growth. Sometimes in long term perspective and sometimes in short run perspective. This study is with four macroeconomic variables namely; interest rate, real exchange rate, money supply and trade openness. Like Bangladesh, the developing countries are very much affected by these macroeconomic variables. Exchange rate has momentous impact on economy. Because exchange rate appreciation and depreciation maintains an economy's inflow and outflow of funds and affect every transactions to some extent. Basically balance of payment is affected by exchange rate fluctuation. It may be positively affected or negatively. Another macroeconomic variable is interest rate. It is a vital part of an economy. Interest rate affects the investment, which in turn affect the economy's growth. Lower interest rate demotivated the foreign investors to invest with this lower compensation. For this lower compensation foreign investment from a country may flight. Thus, investment may reduce, which reduces the employment and income as well. Money supply (M2) is another macroeconomic variable. Increasing money supply may increase inflation or price level of the economy if reasonable production may not happen at that period. And M2 is the proxy of money supply. It is

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broad money. Money supply, to some extent, may be good when economic production is in reasonable. Another macroeconomic variable used in this study is trade openness or trade liberalization. From the very primitive era it is known to all that no one good at everything. He who good at what, he should produce that. By this procedure the world can increase their total output. In narrow mind by removing trade barriers with other countries, an economy may achieve their goal easily with effortless manner. Basically trade openness is needed to run after considering local traders interest.

## II. OBJECTIVES OF THE STUDY

### a) General Objectives

The main objectives of this study will be to explore the relationship between some macroeconomic variables namely; Interest rate, Real exchange Rate, Money supply, Trade Openness and economic growth in Bangladesh.

### b) Research Objectives

Our study aims to address the following objectives:

- To identify whether there have long run relationship among Interest rate, Real exchange Rate, Money supply, Trade Openness and economic growth in Bangladesh.
- To identify whether there have short run relationship or casual relationship among Interest rate, Real exchange Rate, Money supply, Trade Openness and economic growth in Bangladesh.

### c) Research Questions

In order to achieve the above-mentioned research objectives, some answers are required for the following:

- Is there any short run impact of the changes of interest rate on economic growth?
- Is there any long run impact of the changes of interest rate on economic growth?
- Is there any short run impact of the changes of money supply on economic growth?
- Is there any long run impact of the changes of money Supply on economic growth?
- Is there any short run impact of the changes of real exchange rate on economic growth?
- Is there any long run impact of the changes of real exchange rate on economic growth?



- g) Is there any short run impact of the changes of trade Openness on economic growth?
- h) Is there any long run impact of the changes of trade Openness on economic growth?

### III. LITERATURE REVIEW

The literature review consists of four parts. These are given below.

#### a) *Relationship between Exchange Rate and Economic Growth*

The larger the exchange rate, the poorer will be the condition of the importing country and vice versa. In such a case, there is no doubt to say that exchange rate has a direct effect on the economic growth of any country (Kendal, 2004). Depreciation of the currency leads to increase in real output. There has been a significant correlation between inward FDI in the United States and the US real exchange rates since 1970 (Rosengren, 1992). When exchange rate drops by 1%, the stock market will react with less than 1% drop. US should maintain policy to strengthen return through appreciate currency value (Anokye & George, 2007). However, investor responds more heavily during a decrease in the exchange rate losses than an increase in the exchange rate profits (Jevando, Lius, 2004). Sometimes perhaps all developing economy like South Asian countries are wholly dependent on exchange rate.

(Chong & Tan, 2007). Real exchange rate affect relative cost of production and relative exchange rates affect the relative wealth significantly across countries and relative wealth significantly affects foreign direct investment in the United States and the effects of real wages have little impact on Foreign direct investment (Arizonan, 1992).

Exchange rate fluctuations have momentous implications for economic performance in Bangladesh. This is why fluctuation in exchange rate brings about changes in trade balance by influencing the country's export and import. Exchange rates may reason the price level to change and, as a consequence, it may change the income and wealth distribution of the economy (Jaher, 2007).

Export-import-led growth for Bangladesh in both the long run and short run by using a dynamic panel data analysis, that existence of having co-integration, that is, stable long-run relationship between trade balance of Bangladesh and its determinants (Jakir, 2006).

#### b) *Relationship between Interest Rate and Economic Growth*

According to traditional economic perspective, interest rate has negative effect on Economic growth. When the interest rate is high, investors try to swing their money from stock market to savings or fixed deposit accounts. Because stock market become higher

risk sector, which lead to effect on economic growth negatively (Mahmudul & Gazi, 2009). In the Long-run, interest rate has negative effect on the Economic growth in Japan (Mukherjee & Naka, 1995). Using daily data showed that the stock returns are heavily sensitive to interest rate and exchange rate changes (Joseph & Vezos, 2006). Higher interest rate encourage the foreign investors to invest, which in turn lead to economic growth (Liow & Huang, 2006).

Cointegrating relationship between two variables: interest rate and GDP (Nikiforos, 2010). On the other hand, there is insignificant relationship between Japanese economic growth and interest rate, especially the domestic interest rate. This is because the interest rate in Japan has implemented unprecedented monetary easing, falling the interest rate to almost zero, thus interest rate can affect the economic growth at all (Kurihara & Nezu, 2006). In therefore plan and control the interest rate to help the growth of economy (Ologunde, 2007).

#### c) *Relationship between Money supply and Economic Growth*

The probability of using M2 to target the quarterly rate of growth of nominal GDP in their paper in 1994. The study manifested that the Federal Reserve could perhaps make use of M2 that diminishes both the long-term average inflation rate and the fluctuation of annual GDP growth rate (Liu & Shrestha, 2008). Money supply has positive long run relationship with the economic development (Ramin & Chuin, 2005).

#### d) *Relationship between Trade Openness and Economic Growth*

It is showed that trade openness and exchange rate has a significantly positive impact on economic growth (Sacha & Diamond, 2016). There is a significant positive relationship between openness and productivity growth (Iqbal, 1998). A positive relationship between openness and economic growth (Abdullah, 2013).

A multiple regression framework to investigate macroeconomics determinants of growth in Pakistan including openness. The results suggest that openness has a beneficial effect on economic growth (Zahid, 2007). Open trade regimes force greater dependence on the market. Empirical evidence on the positive impact of liberalization on growth is quite abundant (Dollar, 2005).

### IV. DATA AND METHODOLOGY

#### a) *Sample Description*

The study uses annual time series data for Bangladesh during 1987–2017. The data are collected from Bangladesh Bank and World Bank. All these sources of data are recognized, accepted and the provided information that has been used widely in the

country. So data and information of the sources incorporated in this analysis are reliable.

#### b) Variables

The study is completed with the help of some dependent and independent variables. Here the dependent variable is Real GDP taken as a proxy of economic growth. Whereas, the independent variables are real interest rate taken as a proxy of interest rate in Bangladesh, M2 is taken as a proxy of Money supply. Besides these, there have another two independent variables. These are Real exchange rate and Trade openness.

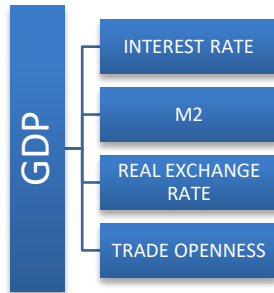


Figure 1

#### i. Real Interest Rate

A real interest rate refers to an interest rate that has been adjusted to remove the effects of inflation to reflect the real cost of funds to the borrower and the real yield to the lender or to an investor. The real interest rate of an investment is measured as the amount by which the nominal interest rate is higher than the inflation rate:

Real Interest Rate = Nominal Interest Rate - Inflation (Expected or Actual).

#### ii. Money Supply

In any economic system, the definition of something as seemingly straightforward as “money” can be surprisingly elusive. “Money” likely has very different meanings for an individual investor, a large financial firm, and a central bank or government, for instance. From the perspective of the study of economics, the money supply of a particular economy is equal to the total value of all monetary assets available within that economy. Central banks watch carefully over the money supply of a country to guard against issues like long-term price inflation, which often comes about as a result of rapid growth of the money supply of a country.

Measuring the money supply of an economy is a challenging proposition. Due to the complexity of the concept of “money,” as well as the size and level of detail of an economy, there are multiple ways of measuring a money supply. These means of measuring a money supply are typically classified as “M”s and fall along a spectrum from narrow to broad monetary aggregates. Typically, the “M”s range from M0 to M3, with M2 typically representing a fairly broad measure.

#### iii. Trade Openness

Trade openness refers to the outward or inward orientation of a given country's economy. Outward orientation refers to economies that take significant advantage of the opportunities to trade with other countries. A common measure is the openness index, which adds imports and exports in goods and services and divides this sum by GDP. The larger the ratio, the more the country is exposed to international trade. For small economies that cannot produce everything they need, more trade has to be external.

#### iv. Real Effective Exchange Rate

Exchange rates of Taka for inter-bank and customer transactions are set by the dealer banks, based on demand-supply interaction. Bangladesh Bank (BB) is not in the market on a day-to-day basis, and undertakes USD purchase or sale transactions with dealer banks at prevailing inter-bank exchange rates only as needed to maintain orderly market conditions.

Inter-bank exchange rates are also used by BB for purchase and sale transactions with the Government and different International Organizations. The USD/BDT buying and selling rates below are highest and lowest inter-bank exchange rates at Dhaka. The cross rates of BDT with other foreign currencies are based on NY and Dhaka closing exchange rates.

The real effective exchange rate (REER) is the weighted average of a country's currency in relation to an index or basket of other major currencies, adjusted for the effects of inflation. The weights are determined by comparing the relative trade balance of a country's currency against each country within the index. This exchange rate is used to determine an individual country's currency value relative to the other major currencies in the index, such as the U.S. dollar, Japanese yen and the euro. The real effective exchange rate (REER) is used to measure the value of a specific currency in relation to an average group of major currencies. The REER takes into account any changes in relative prices and shows what can actually be purchased with a currency. This means that the REER is normally trade-weighted. The REER is derived by taking a country's nominal effective exchange rate (NEER) and adjusting it to include price indices and other trends. The REER, then, is essentially a country's NEER after removing price inflation or labor cost inflation. The REER represents the value that an individual consumer pays for an imported good at the consumer level. This rate includes any tariffs and transaction costs associated with importing the good. A country's REER can also be derived by taking the average of the bilateral real exchange rates (RER) between itself and its trading partners and then weighing it using the trade allocation of each partner. Regardless of the way in which REER is calculated, it is an average and considered in equilibrium when it is overvalued in relation to one

trading partner and undervalued in relation to a second partner.

v. *Gross Domestic Product*

Economic growth is the increase in the inflation-adjusted market value of the goods and services produced by an economy over time. It is conventionally measured as the percent rate of increase in real gross domestic product, or real GDP. To calculate annualized GDP growth rates, start by finding the GDP for 2 consecutive years. Then, subtract the GDP from the first year from the GDP for the second year. Finally, divide the difference by the GDP for the first year to find the growth rate. Remember to express your answer as a

percentage. An economy producing below its potential GDP most often results from A High prices of production inputs. B corrupt government policies that stifle economic growth. low consumer demand for goods and services in the economy. An economy producing below its potential GDP most often results from A High prices of production inputs. B corrupt government policies that stifle economic growth. Economists traditionally use gross domestic product (GDP) to measure economic progress. If GDP is rising, the economy is in good shape, and the nation is moving forward. If GDP is falling, the economy is in trouble, and the nation is losing ground.

Variables	Description in short	Sources: World Bank Indicator, Bruegel Datasets & Bangladesh Bank.
GDP	Gross domestic product of Bangladesh.	
INT	Real Interest rate of Bangladesh.	
M2	Money supply.	
REER	Realeffective exchange rate in Bangladesh.	
TRD	Trade openness in Bangladesh.	

c) *Model Specification*

To examine the relationship between some macroeconomic variables (Interest rate, Real exchange Rate, Money supply, Trade Openness) and economic growth in Bangladesh, we have specified following econometric model. The independent variables are interest rate, M2, Real exchange Rate and Trade Openness, while the dependent variable is GDP growth as a proxy of economic growth.

*The model is stated as follows:*

$$GDP = F(\text{INTEREST}, M2, \text{REER}, \text{TRD})$$

$$L\_GDP = \alpha + \beta_1(L\_INT) + \beta_2(L\_M2) + \beta_3(L\_REER) + \beta_4(L\_TRD) + \epsilon_i$$

Where:

L=Log.

GDP=Gross domestic Product.

M2= Money supply.

INT= Real Interest Rate.

REER= Real Exchange rate.

TRD= Trade openness.

$\beta_1$  is the co-efficient for interest rate.

$\beta_2$  is the co-efficient for Money supply.

$\beta_3$  is the co-efficient for Exchange rate .

$\beta_4$  is the co-efficient for Trade openness.

$\epsilon_i$  is error terms.

Sometimes it is needed to convert the time series data into logarithm .The purpose of log-linear (L) is because of the value of some variables such as gross domestic product in US Dollars, while the Real interest rates are in percentage. There was therefore the use of logarithm in the model to bring the variables to the same base since the variables were measured in different ways. Using Schwarz Information Criterion (SIC), the lag length is selected automatically by *Eviews10* software.

The study uses different tools such as Augmented dickey fuller test, Phillips Perron Test, Johansen Cointegration Test, Vector Error Correction

Model, Wald Test and Regression Analysis with the help of *EViews10*.

<b>Augmented Dickey Fuller Test And Phillips Perron Test.</b>	It is used to test Whether the data are stationary or not.
<b>OLS Regression Model -Diagnostic Tests.</b>	It helps to determine the coefficients of different variables.
<b>Johansen Cointegration Test</b>	Cointegration analysis helps to identify long-run economic relationships between the variables.
<b>Vector Error Correction Model</b>	If cointegration has been detected between series we know that there exists a long-term equilibrium relationship between them so we apply VECM in order to evaluate the short run properties of the cointegrated series. But if do not happen so ,we will use unrestricted VAR.
<b>Wald Test -Diagnostic Tests</b>	To check whether an independent variable is significant or not to explain dependent variable.

i. *The Unit Root Test*

The empirical analysis begins with the stationary test of variables of the model where we have applied the standard ADP (Augmented Dickey-Fuller) test to conduct a check whether a variable is stationary or non-stationary manner. It may reflect spurious regression to regress a time series variable on another time series

Without Constant and Trends:  $\Delta Y_t = \delta Y_{t-1} + u_t \dots \dots \dots (3)$

With Constant:  $\Delta Y_t = \alpha + \delta Y_{t-1} + u_t \dots \dots \dots (4)$

Without Constant and Trend  $\Delta Y_t = \alpha + Bt + \delta Y_{t-1} + u_t \dots \dots \dots (5)$

The Hypothesis is  $H_0: \delta = 0$  (Unit Root)

$H_1: \delta \neq 0$

ii. *Johansen Cointegration Test*

This test is performed to know if there is long run relationship or association ship among Interest rate, Real exchange Rate, M2, Trade Openness and economic growth in Bangladesh. Cointegration analysis helps to identify long-run relationship or association ship among the variables. When two series has the same stochastic trend, they are said to be cointegrated. Johansen Cointegration (1988) test depends on his Maximum Likelihood (ML) estimator of the parameters of the following VEC model of two cointegrating variables. Cointegration analysis helps to identify long-run economic relationships among the variables.

Once a unit root has been definite for a data series, the next step is to scrutinize whether there exists a long-run equilibrium relationship or association ship among variables. The presence of long-run equilibrium (stationary) relationships among economic variables is referred to in the literature as cointegration which is very significant to avoid the risk of spurious regression. The basic idea behind cointegration is that if, in the long-run, two or more series move closely together, even though the series themselves are trended, the difference between them is constant. It is possible to regard these series as defining a long-run equilibrium relationship, as

variable applying OLS estimation. Therefore, we need to examine stationarity test prior to apply econometric methodology. Stationary is called when a series is found with time invariant mean and variance. On the other hand a series with time dependent mean is called non-stationary. ADF Unit Root Test is based on the following three regression forms:

the difference between them is stationary (Hall and Henry, 1989). A lack of cointegration suggests that such variables have no long-run relationship: in principal they can wander arbitrarily far away from each other (Dickey et. al., 1991). We employ the VAR based on co-integration test using the methodology developed in Johansen (1991, 1995).

But if cointegrating equation is found, then the VECM will be run to detect casual relationship among the variables.

To determine the number of co-integration vectors, Johansen (1988, 1989) and Johansen and Juselius (1990) suggested two statistic tests, viz., the trace test statistic, and the maximum eigenvalue test statistic.

*Trace Test Statistics*

The trace test statistic can be specified as:

In the trace test, the null hypothesis assumes that the number of distinct cointegrating vector(s) be less than or equal to the number of cointegration relations (r).

*Maximum Eigenvalue Test*

The maximum eigenvalue test examines the null hypothesis of exactly r cointegrating relations

against the alternative of  $r+1$  cointegrating relations with the test statistic. So, firstly, it is needed to ensure a VECM model is fitted to the time series data. In order to find this, data should have maintained two conditions. (1) The data should be non stationary at level. But they will become stationary at first difference. (2) It is well known fact that Johansen's cointegration test is very much sensitive to the lag length. So an appropriate lag structure is needed to find out. The Akaike Information Criterion (AIC), Schwarz Criterion (SC) and the Likelihood Ratio (LR) test are used to find the optimum number of lags required in the cointegration test.

### iii. Vector Error Correction Model

There have long run relationship between two series in a bivariate relationship if each series is integrated of the same order or have the same stochastic trend. If cointegration has been detected between series we know that there exists a long-term equilibrium relationship between them. so we apply Unrestricted VECM in order to evaluate the short run properties of the series. Then we may precede to Wald Test under VECM environment to establish causal links among the variables.

### d) Empirical Analysis Framework

Sometimes it is needed to convert the time series data into logarithm. The purpose of log-linear (L) is because of the value of some variables such as Gross Domestic Product in US Dollars, while the Real interest rates are in percentage. There was therefore the use of logarithm in the model to bring the variables to the same base since the variables were measured in different ways. Using Schwarz Information Criterion (SIC), the lag

length is selected automatically by *Eviews10* software. The null hypothesis of ADF and Phillips Perron test states that a variable is nonstationary and the null hypothesis of non-stationary is rejected if the calculated ADF statistics is less than the critical value. My next step is to determine whether the variables have a stable and non spurious cointegrating relationship among themselves. With a view to testing Cointegration, I have chosen the Johansen cointegration (1979) procedure., it is needed to ensure a VECM model is fitted to the time series data. In order to find this, data should have maintained two conditions. (1) The data should be non stationary at level. But they will become stationary at first difference. (2) It is well known fact that Johansen's cointegration test is very much sensitive to the lag length. So an appropriate lag structure is needed to find out. The Akaike Information Criterion (AIC), Schwarz Criterion (SC) and the Likelihood Ratio (LR) test are used to find the optimum number of lags required in the cointegration test. If there have one cointegrating relationship among the variables, then the Vector error correction model will run. Then we will precede to Wald block Test under VECM environment to establish causal links between variables.

## V. RESULT AND DESCRIPTION

### a) Descriptive Statistics

After incorporating log in each variables, the data conditions can be overviewed with the help of descriptive statistics. With descriptive statistics, it is possible to know about the variables regarding Mean, Median, Standard Deviation and so on.

Table 1: Results of Descriptive Statistics

Descriptive	L GDP	L REER	L INT	L M2	L TRD
Mean	24.85	4.75	1.56	40.60	3.39
Median	24.71	4.74	1.27	41.50	3.35
Maximum	26.12	5.07	2.45	65.87	3.87
Minimum	23.91	4.58	.027	20.81	2.81
Std. Dev.	0.63	0.106	0.101	15.72	0.32
Skewness	0.40	1.186	1.22	0.223	-0.19

### b) Testing for Stationarity

Time-series data are often assumed to be non-stationary and thus it is necessary to perform a pretest to ensure there is a stationary cointegrating relationship among variables in order to avoid the problem of spurious regression. To do so, this study adopted the Augmented Dickey – Fuller (ADF) test.



Table 2(a): Results of ADF Test at level

Variables	ADF				
	Test Statistics	1%	5%	10%	P-value
L_GDP	-2.58	-3.67	-2.96	-2.63	0.1067
L_INT	-1.50	-3.67	-2.96	-2.63	0.5183
L_M2	-1.44	-3.67	-2.96	-2.63	0.5473
L_REER	-1.02	-3.67	-2.96	-2.63	0.7313
L_TRD	-1.78	-3.67	-2.96	-2.63	0.3851

Table 2(b): Results of ADF Test with 1st difference

Variables	ADF				
	Test Statistics	1%	5%	10%	P-value
D.L_GDP	-5.06	-3.71	-2.98	-2.63	0.004
D.L_INT	-5.13	-3.71	-2.96	-2.63	0.003
D.L_M2	-8.30	-3.67	-2.96	-2.63	0.009
D.L_REER	-3.62	-3.67	-2.96	-2.63	0.011
D.L_TRD	-5.27	-3.67	-2.96	-2.63	0.002

Table 3(a): Results of PHILLIPS PERRON Test at level

Variables	PHILLIPS PERRON TEST				
	Test Statistics	1%	5%	10%	P-value
L_GDP	-2.37	-3.68	-	-2.63	0.1568
L_INT	-	-3.68	-	-2.63	0.3889
L_M2	-	-3.68	-	-2.63	0.7343
L_REER	-	-3.67	-2.96	-2.63	0.9304
L_TRD	-1.85	-3.67	-2.96	-2.63	0.3486

Table 3(b): Results of PHILLIPS PERRON Test with 1st difference

Variables	PHILLIPS PERRON TEST				
	Test Statistics	1%	5%	10%	P-value
D.L_GDP	-9.87	-3.67	-2.96	-2.63	0.0000
D.L_INT	-5.13	-3.67	-2.96	-2.63	0.0003
D.L_M2	-6.56	-3.67	-2.96	-2.63	0.0009
D.L_REER	-3.63	-3.67	-2.96	-2.63	0.01123
D.L_TRD	-5.27	-3.67	-2.96	-2.63	0.0002

To test the stationarity, ADF and PHILLIPS PERRON are used. Where, Null hypothesis: There has a unit root or nonstationarity. And Alternative Hypothesis: There has not unit root or stationarity. According to the p value of all columns in table-2(a), at level, exceed 5%. And the guideline is, when the p value is less than 5%, we can reject the null hypothesis. So the null hypothesis cannot be rejected. That means, the variables are non stationary at level. But at the first difference the p values become less than 5%, leads to stationary variables in table- 2(b). In case of Phillips Perron Test, The results exactly similar to ADF test in table 3(a) and 3(b). Variables are non stationary at level. But when the all the variables are converted into first difference, then they will become stationary.

### c) Testing for Cointegration

In order to determine whether there exists long-run equilibrium relationship or long run associationship among the variables of the study. To do so, the

Johansen cointegration test was used. This test identifies the number of long-run relationship that exists among the group of integrated variables. Before test the johansen cointegration, there should have needed to assume two conditions.

(1) The data should be non stationary at level. But they will become stationary at first difference. (2) It is well known fact that Johansen's cointegration test is very much sensitive to the lag length. So an appropriate lag structure is needed to find out. The Akaike Information Criterion (AIC), Schwarz Criterion (SC) and the Likelihood Ratio (LR) test are used to find the optimum number of lags required in the cointegration test.

#### i. Stationarity Test

Our five variables are nonstationary at level. But when we covert all these five variables into first difference, then they become stationary. Meaning that, our 5 variables are integrated of same order. Then we can run the error correction model. Here,



*H0*: Variable is stationary.

*H1*: Variable is not stationary.

GDP Stationarity test

*At level*

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
		1	0.864	0.864	20.999	0.000
		2	0.724	-0.088	36.398	0.000
		3	0.596	-0.035	47.300	0.000
		4	0.488	0.001	54.970	0.000
		5	0.389	-0.043	60.070	0.000
		6	0.294	-0.048	63.149	0.000
		7	0.194	-0.095	64.553	0.000
		8	0.097	-0.060	64.930	0.000
		9	0.005	-0.072	64.931	0.000
		10	-0.082	-0.074	65.232	0.000
		11	-0.149	-0.018	66.309	0.000
		12	-0.205	-0.040	68.481	0.000

*At first difference*

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
		1	0.340	0.340	3.1282	0.077
		2	-0.030	-0.165	3.1543	0.207
		3	0.125	0.224	3.6187	0.306
		4	0.099	-0.048	3.9224	0.417
		5	0.030	0.053	3.9518	0.556
		6	-0.011	-0.061	3.9562	0.683
		7	0.101	0.150	4.3332	0.741
		8	0.014	-0.129	4.3407	0.825
		9	-0.190	-0.131	5.8428	0.756
		10	-0.226	-0.177	8.1287	0.616
		11	-0.104	0.009	8.6523	0.654
		12	0.021	0.061	8.6754	0.730

*LINT Stationarity Test*

*At level*

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
		1	0.570	0.570	9.1349	0.003
		2	0.249	-0.112	10.953	0.004
		3	0.222	0.193	12.472	0.006
		4	0.305	0.168	15.465	0.004
		5	0.253	-0.016	17.627	0.003
		6	0.215	0.102	19.275	0.004
		7	0.184	-0.002	20.544	0.005
		8	0.137	-0.029	21.289	0.006
		9	0.048	-0.083	21.388	0.011
		10	-0.108	-0.230	21.916	0.016
		11	-0.132	-0.021	22.753	0.019
		12	-0.077	-0.028	23.060	0.027

*At first difference*

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
		1	0.012	0.012	0.0040	0.949
		2	-0.122	-0.122	0.4233	0.809
		3	-0.172	-0.171	1.3011	0.729
		4	-0.077	-0.095	1.4874	0.829
		5	0.015	-0.031	1.4949	0.914
		6	-0.207	-0.274	2.9859	0.811
		7	-0.069	-0.132	3.1631	0.870
		8	0.201	0.128	4.7414	0.785
		9	-0.003	-0.131	4.7419	0.856
		10	0.024	-0.029	4.7686	0.906
		11	-0.241	-0.251	7.5462	0.753
		12	0.175	0.141	9.1366	0.691

*L M2 Stationarity Test*

*AT level*

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
		1 0.646	0.646	11.734	0.001
		2 0.453	0.061	17.752	0.000
		3 0.284	-0.052	20.228	0.000
		4 0.330	0.257	23.732	0.000
		5 0.302	0.010	26.807	0.000
		6 0.337	0.123	30.848	0.000
		7 0.237	-0.077	32.955	0.000
		8 0.090	-0.199	33.279	0.000
		9 -0.194	-0.394	34.864	0.000
		10 -0.177	0.092	36.272	0.000
		11 -0.148	0.001	37.324	0.000
		12 -0.131	-0.138	38.214	0.000

*At First Difference*

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
		1 -0.229	-0.229	1.4174	0.234
		2 0.007	-0.048	1.4187	0.492
		3 -0.277	-0.303	3.7053	0.295
		4 -0.032	-0.199	3.7377	0.443
		5 -0.216	-0.376	5.2746	0.383
		6 0.197	-0.131	6.6253	0.357
		7 0.113	-0.014	7.0909	0.419
		8 0.169	0.070	8.2059	0.414
		9 -0.159	-0.093	9.2613	0.414
		10 -0.113	-0.186	9.8293	0.456
		11 -0.013	0.011	9.8375	0.545
		12 -0.025	-0.050	9.8709	0.627

*L\_REER Stationarity Test*

*AT level*

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
		1 0.790	0.790	21.307	0.000
		2 0.504	-0.321	30.283	0.000
		3 0.203	-0.207	31.793	0.000
		4 0.025	0.133	31.817	0.000
		5 -0.109	-0.161	32.288	0.000
		6 -0.169	-0.011	33.461	0.000
		7 -0.260	-0.224	36.351	0.000
		8 -0.353	-0.172	41.906	0.000
		9 -0.384	0.100	48.764	0.000
		10 -0.342	-0.058	54.468	0.000
		11 -0.244	0.003	57.515	0.000
		12 -0.124	0.025	58.345	0.000
		13 -0.021	-0.047	58.370	0.000
		14 0.062	0.079	58.598	0.000
		15 0.131	0.024	59.700	0.000
		16 0.149	-0.147	61.216	0.000

*At First Difference*

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
		1 0.345	0.345	3.9314	0.047
		2 0.235	0.132	5.8216	0.054
		3 -0.117	-0.268	6.3055	0.098
		4 0.029	0.137	6.3356	0.175
		5 0.029	0.084	6.3685	0.272
		6 0.040	-0.088	6.4328	0.376
		7 -0.095	-0.114	6.8131	0.449
		8 -0.177	-0.101	8.1729	0.417
		9 -0.092	0.064	8.5629	0.479
		10 -0.175	-0.189	10.032	0.438
		11 -0.034	0.028	10.090	0.522
		12 -0.052	0.068	10.236	0.595
		13 -0.064	-0.153	10.466	0.655
		14 -0.078	-0.014	10.833	0.699
		15 0.058	0.177	11.051	0.749
		16 0.079	-0.011	11.482	0.779

L TRD Stationarity Test

At level

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
1	0.894	0.894	27.256	0.000	
2	0.792	-0.034	49.410	0.000	
3	0.687	-0.078	66.634	0.000	
4	0.582	-0.056	79.481	0.000	
5	0.478	-0.063	88.489	0.000	
6	0.376	-0.066	94.259	0.000	
7	0.268	-0.098	97.320	0.000	
8	0.167	-0.051	98.565	0.000	
9	0.107	0.123	99.097	0.000	
10	0.053	-0.022	99.232	0.000	
11	-0.006	-0.093	99.234	0.000	
12	-0.051	0.007	99.372	0.000	
13	-0.098	-0.073	99.921	0.000	
14	-0.143	-0.060	101.16	0.000	
15	-0.174	-0.001	103.08	0.000	
16	-0.218	-0.129	106.33	0.000	

At First Difference

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
1	-0.016	-0.016	0.0090	0.925	
2	-0.053	-0.053	0.1046	0.949	
3	-0.093	-0.095	0.4130	0.938	
4	-0.166	-0.175	1.4299	0.839	
5	-0.030	-0.053	1.4638	0.917	
6	0.336	0.318	5.9825	0.425	
7	0.018	0.006	5.9959	0.540	
8	-0.125	-0.157	6.6804	0.571	
9	-0.411	-0.450	14.407	0.109	
10	0.067	0.185	14.623	0.146	
11	-0.072	-0.032	14.883	0.188	
12	0.126	-0.078	15.733	0.204	
13	0.243	0.098	19.065	0.121	
14	-0.021	0.119	19.092	0.161	
15	-0.152	0.142	20.578	0.151	
16	0.118	0.022	21.535	0.159	

To test the stationarity, correlogram is used.  
 Where, Null hypothesis: Variable is stationary.  
 And Alternative Hypothesis: Variable is not stationary.

According to the p value of all tables (at level) are below 5%. And the guideline is, when the p value is less than 5%, we can reject the null hypothesis. So the null hypothesis (variable are stationary) is rejected. That means, the variables are non stationary at level. But at the first difference the p values become greater than 5%, leads to stationary variables.

Variables are non stationary at level. But when the all the variables are converted into first difference,

then they will become stationary. And if it is happen, then the study can incorporate Johansen Cointegration Test.

ii. Lag selection

The number of lags are used to run Johansen Cointegration test and VAR are determined by VAR lag order selection criteria.

Table 4: Results of VAR lag exclusion criteria.

Chi-squared test statistics for lag exclusion: Numbers in [ ] are p-values						
	L INT	L GDP	L SMCR	L TRD	L REER	Joint
Lag 1	15.91155 [ 0.0071]	4.511234 [ 0.4784]	1.472899 [ 0.9162]	20.57232 [ 0.0010]	32.15146 [ 0.0000]	84.07532 [ 0.0000]
Lag 2	4.880070 [ 0.4307]	1.874871 [ 0.8662]	3.168901 [ 0.6740]	2.034168 [ 0.8444]	3.770461 [ 0.5829]	16.43950 [ 0.9011]
df	5	5	5	5	5	25

Null: Not Optimum lag.

Here, VAR lag criteria assumes 2 lags as a default. But Chi-squared Lag exclusion criteria excludes Lag 2. Since the null hypothesis is accepted in case of lag 2.

Table 5: Results of VAR lag order selection criteria

VAR lag order selection criteria

Endogenous variables: L GDP, L INT, L REER, L M2, L TRD

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-4806.030	NA	2.90e+10	43.95461	44.06294	43.99836
1	-4751.646	104.7944	2.76e+10**	43.90544**	44.77206**	44.25544**
2	-4682.387	129.0310	2.30e+10	43.72043	45.34533	44.37668

\* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

According to the five criteria (LR, FPE, AIC, SC and HQ) are asking to take 1 lag by the sign (\*). So, optimum lag would be 1. And the study uses this 1 lag in Johansen Cointegrated test and in the VECM. After selecting the lag the study uses Johansen Cointegrated Test to determine whether there exists long-run equilibrium relationship among the variables of the study.

d) Testing for Cointegration

In order to determine whether there exists long-run equilibrium relationship or long run associationship among the variables of the study. To do so, the Johansen cointegration test was used. This test identifies the number of long-run relationship that exists among the group of integrated variables.

Johansen Cointegration Test

Table 6: Johansen Co-integration Result

No. of CE(s)	Trace Statistics	Max Eigen Statistics	Critical Values (5%)		Critical Values (5%)	
			Trace	P-value	Max-Eigen	P-Value
None***	82.32	34.93	69.81	.0036	33.87	.0373
At most 1	47.38	26.23	47.85	0.055	27.58	.0737
At most 2	21.15	13.69	29.79	.347	21.13	.3902
At most 3	7.45	7.44	15.49	.5249	14.26	.4384
At most 4	.0179	0.0179	3.84	.8933	3.84	.8933

Trace Test and Max Eigen Test indicates 1 co-integrating equ(s) at .05 level.

\*\*\*Denotes rejection of the hypothesis at the .05 level.

Trace test indicates there is 1 cointegration at level .05. From table-6, the trace statistic of 82.32 clearly exceed the critical value of and 69.81 at 5 percent confidence interval. hence, we reject the null hypothesis and conclude that there is 1 cointegrating relationship and therefore, there is long run relationship exists among the variables. Since the guideline is; when trace statistics is greater than critical value, we can reject the null hypothesis. The null hypothesis is no cointegration.

The Eigen value test also supported this claim of having long run relationship among the variables. The maximum eigen value statistics of 34.13 exceed the critical values of 33.87 at 95 percent confidence level.

Thus, we reject the null hypothesis of no cointegrating relationships among the variables.

Since the variables are cointegrated or have long run associationship, the study can use VECM model.

e) Vector Error Correction Model

Table 7: Results of Vector Error Correction Model

Cointegrating Eq:	CointEq1				
L GDP(-1)	1.000000				
L INT(-1)	-0.001359 (0.00550) [-0.24713]				
L REER(-1)	-1.185382 (0.13469) [-8.80058]				
L M2(-1)	-0.022501 (0.00171) [-13.12711]				
L TRD(-1)	-0.874889 (0.08674) [-10.08671]				
C	-15.32085				
Error Correction:	D(L GDP)	D(L INT)	D(L REER)	D(L M2)	D(L TRD)
CointEq1	-0.446184 (0.11088) [-4.02418]	26.52043 (8.10137) [3.27358]	-0.060724 (0.15665) [-0.38764]	9.396479 (6.51283) [1.44276]	0.645887 (0.25621) [2.52097]
D(L GDP(-1))	0.253224 (0.18890) [1.34054]	18.33916 (13.8022) [1.32871]	0.415010 (0.26688) [1.55504]	1.157256 (11.0958) [0.10430]	-0.510578 (0.43649) [-1.16972]
D(L INT(-1))	0.000594 (0.00230) [0.25865]	-0.321687 (0.16789) [-1.91611]	0.004447 (0.00325) [1.36993]	-0.007551 (0.13497) [-0.05594]	-0.005964 (0.00531) [-1.12326]
D(L REER(-1))	0.157713 (0.16425) [0.96021]	-16.63896 (12.0012) [-1.38644]	0.121212 (0.23206) [0.52234]	1.801876 (9.64797) [0.18676]	-0.162609 (0.37954) [-0.42844]
D(L M2(-1))	-0.011973 (0.00498) [-2.40314]	0.449615 (0.36404) [1.23509]	-0.004111 (0.00704) [-0.58399]	0.551293 (0.29265) [1.88377]	0.013473 (0.01151) [1.17029]
D(L TRD(-1))	-0.194531 (0.09558) [-2.03522]	-4.679116 (6.98393) [-0.66998]	-0.118812 (0.13504) [-0.87981]	1.486852 (5.61450) [0.26482]	0.139316 (0.22087) [0.63077]
C	0.080513 (0.01924) [4.18422]	-1.905099 (1.40597) [-1.35501]	-0.010857 (0.02719) [-0.39936]	0.573531 (1.13028) [0.50742]	0.041374 (0.04446) [0.93051]
R-squared	0.602663	0.617143	0.287007	0.172764	0.348896
Adj. R-squared	0.489138	0.507755	0.083294	-0.063589	0.162866
Sum sq. resid	0.028924	154.4176	0.057735	99.79743	0.154440
S.E. equation	0.037112	2.711682	0.052433	2.179968	0.085757
F-statistic	5.308637	5.641794	1.408882	0.730958	1.875485
Log likelihood	56.52392	-63.63466	46.84719	-57.52341	33.07191
Akaike AIC	-3.537423	5.045333	-2.846228	4.608815	-1.862279
Schwarz SC	-3.204372	5.378384	-2.513177	4.941866	-1.529228
Mean dependent	0.075711	-0.159354	0.010967	1.585364	0.027288
S.D. dependent	0.051924	3.864988	0.054764	2.113796	0.093729
Determinant resid covariance (dof adj.)	3.14E-07				
Determinant resid covariance	7.46E-08				
Log likelihood	31.10774				
Akaike information criterion	0.635162				
Schwarz criterion	2.538311				
Number of coefficients	40				

Since, we have one cointegrating equation, VECM automatically convert the variables into the first difference. Here, every variable has one lag. In the upper line (table-7) L GDP, L INT, L M2, L REER, L TRD with first difference are dependent variables. So there are five models. One is with L GDP, second one is L INT third one is L M2, fourth one is L REER, and last one is L TRD. Firstly, we will concentrate on L GDP model. Here, L GDP is a Dependent variable in this model. And L GDP(-1) is the independent variable. Since The Var lag selection criteria selects 1 lag. (-1) is this lag. Similarly,

In L GDP model, L GDP(-1), L M2(-1), L INT(-1), L REER (-1) and L TRD(-1) are independent variables. And c is constant. This is so happen in all five cases. To check whether L INT(-1) is significant variable or not to explain L GDP. Like this, Whether L M2(-1) is significant variable or not to explain L INT and so on. There (table-6) have no probability value (p value) to explain. To check this, needed to run Wald Test. For this, the study should have performed system equation. The system equation of Vector Error Correction Model is given below

Table 8: Results of system equation of VECM.

$$\begin{aligned}
 D(L\_GDP) &= C(1)*(L\_GDP(-1) - 0.00135898056896*L\_INT(-1) - 1.18538209208*L\_REER(-1) - 0.0225011395815*L\_M2(-1) - 0.874888896764*L\_TRD(-1) - 15.3208548463) + C(2)*D(L\_GDP(-1)) + C(3)*D(L\_INT(-1)) + C(4)*D(L\_REER(-1)) + C(5)*D(L\_M2(-1)) + C(6)*D(L\_TRD(-1)) + C(7) \\
 D(L\_INT) &= C(8)*(L\_GDP(-1) - 0.00135898056896*L\_INT(-1) - 1.18538209208*L\_REER(-1) - 0.0225011395815*L\_M2(-1) - 0.874888896764*L\_TRD(-1) - 15.3208548463) + C(9)*D(L\_GDP(-1)) + C(10)*D(L\_INT(-1)) + C(11)*D(L\_REER(-1)) + C(12)*D(L\_M2(-1)) + C(13)*D(L\_TRD(-1)) + C(14) \\
 D(L\_REER) &= C(15)*(L\_GDP(-1) - 0.00135898056896*L\_INT(-1) - 1.18538209208*L\_REER(-1) - 0.0225011395815*L\_M2(-1) - 0.874888896764*L\_TRD(-1) - 15.3208548463) + C(16)*D(L\_GDP(-1)) + C(17)*D(L\_INT(-1)) + C(18)*D(L\_REER(-1)) + C(19)*D(L\_M2(-1)) + C(20)*D(L\_TRD(-1)) + C(21) \\
 D(L\_M2) &= C(22)*(L\_GDP(-1) - 0.00135898056896*L\_INT(-1) - 1.18538209208*L\_REER(-1) - 0.0225011395815*L\_M2(-1) - 0.874888896764*L\_TRD(-1) - 15.3208548463) + C(23)*D(L\_GDP(-1)) + C(24)*D(L\_INT(-1)) + C(25)*D(L\_REER(-1)) + C(26)*D(L\_M2(-1)) + C(27)*D(L\_TRD(-1)) + C(28) \\
 D(L\_TRD) &= C(29)*(L\_GDP(-1) - 0.00135898056896*L\_INT(-1) - 1.18538209208*L\_REER(-1) - 0.0225011395815*L\_M2(-1) - 0.874888896764*L\_TRD(-1) - 15.3208548463) + C(30)*D(L\_GDP(-1)) + C(31)*D(L\_INT(-1)) + C(32)*D(L\_REER(-1)) + C(33)*D(L\_M2(-1)) + C(34)*D(L\_TRD(-1)) + C(35)
 \end{aligned}$$

There have five model. One is L GDP. Second one is L M2, Third one is L INT, Fourth one is L REER and Last one is L TRD.

In the first model L GDP, C(1) is the coefficient. C(2) is the coefficient and so on. C(7) is the constant.

Since 1st model end with C(7), second model will begin with C(8). Because it is system equation model. They are linked with each other.

These will happen in case of all the five models.

The last value is C(35). So, it can estimate 35 coefficients and 35 p values. To estimate all the

i. Long Run Causality

coefficient, the study uses system equation with the help of Ordinary Least square Method.

Among the Five models in the system equation, the study will concentrate on only D.L\_GDP. Because this is the dependent variable of this analysis. So, we have to run this system equation model  $\{D(L\_GDP) = C(1)*(L\_GDP(-1) - 0.00135898056896*L\_INT(-1) - 1.18538209208*L\_REER(-1) - 0.0225011395815*L\_M2(-1) - 0.874888896764*L\_TRD(-1) - 15.3208548463) + C(2)*D(L\_GDP(-1)) + C(3)*D(L\_INT(-1)) + C(4)*D(L\_REER(-1)) + C(5)*D(L\_M2(-1)) + C(6)*D(L\_TRD(-1)) + C(7)\}$  with regression in below.

Table 9: Results of system equation regression of VECM.

Included observations: 29 after adjustments

$$\begin{aligned}
 D(L\_GDP) &= C(1)*(L\_GDP(-1) - 0.00135898056896*L\_INT(-1) - 1.18538209208*L\_REER(-1) - 0.0225011395815*L\_M2(-1) - 0.874888896764*L\_TRD(-1) - 15.3208548463) + C(2)*D(L\_GDP(-1)) + C(3)*D(L\_INT(-1)) + C(4)*D(L\_REER(-1)) + C(5)*D(L\_M2(-1)) + C(6)*D(L\_TRD(-1)) + C(7)
 \end{aligned}$$

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.417127	0.109387	-3.813311	0.0009
C(2)	0.275274	0.189997	1.448828	0.1615
C(3)	0.000321	0.002311	0.138799	0.8909
C(4)	0.175823	0.165289	1.063728	0.2990
C(5)	-0.010852	0.004947	-2.193599	0.0391
C(6)	-0.204901	0.096200	-2.129942	0.0446
C(7)	0.078770	0.019390	4.062367	0.0005
R-squared	<b>0.585857</b>	Mean dependent var		0.077249
Adjusted R-squared	0.472909	S.D. dependent var		0.051656
S.E. of regression	0.037503	Akaike info criterion		-3.522283
Sum squared resid	0.030943	Schwarz criterion		-3.192246
Log likelihood	58.07311	Hannan-Quinn criter.		-3.418920
F-statistic	5.186967	Durbin-Watson stat		2.211752
Prob(F-statistic)	<b>0.001850</b>			



Here,  $C_1$  = Speed of adjustment toward equilibrium. Now, there are two issues the study have to discuss:

The guideline is, if the  $C(1)$  is negative in sign and significant, then we can say that , there is long run

causality running from independent variables to dependent variable. And in practice, the coefficient of  $C_1$  with negative sign and probability value is 0.0009. Meaning that, There is long run causality from L INT, L REER, L M2, L TRD to L GDP.

#### ii. Short Run Causality

$C(3)=0$ ,  $C(4)=0$ ,  $C(5)=0$  and  $C(6) =0$

If these coefficients are zero , there is no short run causality running from from L INT, L REER, L M2, L TRD to L GDP.

How to check it?

It can check through using WALD TEST.

*Table 10(a): Results of Wald Test*

WALD TEST	
Null Hypothesis: $C(3)=0$	
Test Statistics	Probability
Chi-square	.8896

Here,

Null: L INT(-1) can not cause L GDP.

Alt: L INT(-1) can cause L GDP.

In table-8,

L INT(-1)=  $C(3)$  coefficient.

According to p value .8896, we cannot reject the null. Rather we accept null. That means, Coefficients  $C(3)$  in table-8 cannot affect dependent variable L GDP. There is no short run causality from L INT to L GDP.

*Table 10(b): Results of Wald Test*

WALD TEST	
Null Hypothesis: $C(4)=0$	
Test Statistics	Probability
Chi-square	.2875

Here,

Null: L REER (-1) can not cause L GDP.

Alt: L REER (-1) can cause L GDP.

In table- 8,

L REER(-1)=  $C(4)$  coefficient.

According to p value .2875, we cannot reject the null. Rather we accept null. That means, Coefficients  $C(4)$  in table-8 cannot affect dependent variable GDP. There is no short run causality from L REER to L GDP.

*Table 10(c): Results of Wald Test*

WALD TEST	
Null Hypothesis: $C(5)=0$	
Test Statistics	Probability
Chi-square	.0289

Here,

Null: L M2(-1) can not cause L GDP.

Alt: L M2(-1) can cause L GDP.

In table-8,

L M2(-1)=  $C(5)$  coefficient.

According to p value .034, we can reject the null. That means,  $C(5)$  in table-8 , can affect dependent variable L GDP. There is short run causality from L M2 to L GDP.

Table 10(d): Results of Wald Test

WALD TEST	
Null Hypothesis: C(6)=0	
Test Statistics	Probability
Chi-square	.0332

Here,

Null: L TRD(-1) can not cause L GDP. Alt: L TRD(-1) can cause L GDP.

In table-8 ,

L TRD(-1)= C(6) coefficient.

According to p value .034, we can reject the null. That means, C(6) in table-8 , can affect dependent variable L GDP. There is short run causality from L TRD to L GDP.

Summary of Wald Test

There is short run causality running from Money supply and Trade openness to Economic Growth. And There is no short run causality running from Interest rate and Exchange Rate to Economic Growth.

homoscedastic in nature. Here, Null Hypothesis: There is homoscedasticity. And alternative hypothesis: There is no homoscedasticity.

f) Diagonistic Tests

i. Test of Heteroskedasticity

According to the classical linear regression model (CLRM) assumption, the residuals should be

Table 11(a): Results of Heteroskedasticity Test.

<b>Heteroskedasticity Test: Breusch-Pagan-Godfrey</b>			
Null hypothesis: Homoskedasticity			
F-statistic	1.437427	Prob. F(10,18)	0.2414
Obs*R-squared	12.87609	Prob. Chi-Square(10)	0.2307
Scaled explained SS	4.232359	Prob. Chi-Square(10)	<b>0.9363</b>

Since the Prob.chi-square is more than 5%. That is why, the null hypothesis cannot be rejected. So there is no Heteroskedasticity. This is desirable.

ii. Serial correlation LM Test

Table 11(b): Results of Serial Correlation Test.

<b>Breusch-Godfrey Serial Correlation LM Test:</b>			
Null hypothesis: No serial correlation at up to 2 lags			
F-statistic	0.691672	Prob. F(2,20)	0.5123
Obs*R-squared	1.876085	<b>Prob. Chi-Square(2)</b>	<b>0.3914</b>

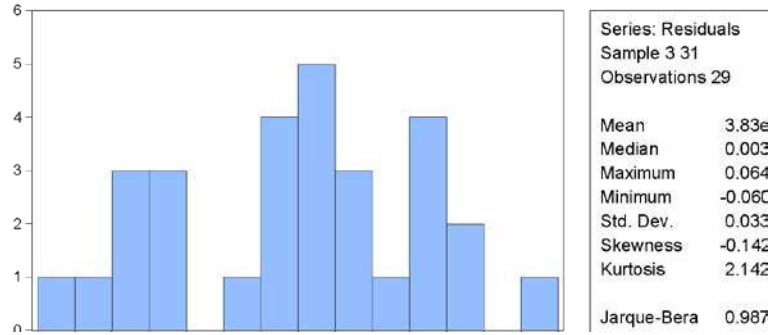
Here, the null hypothesis: there is no serial correlation in the residuals. And Alternative hypothesis: There is serial correlation in the residuals.

Since the probability value of chi-square .3914, which is less than 5%. So, we cannot reject the null hypothesis, leads to there is no serial correlation. This is desirable.

iii. Normality Test

Residuals should be normally distributed. To test the normality of the residuals, the study uses Histogram Normality Test. In histogram test, The Jarque-Bera Probability is more than 5%. That means, we accept the Null hypothesis, Residuals are normally distributed. This is desirable.

Table 11(c): Results of Histogram Normality Test.



g) Regression Analysis

The regression results reveal that market Real interest rate, Real effective exchange rate, M2 and Trade

openness as explanatory variables have explained the variations in the economic growth (GDP) of Bangladesh.

Dependent Variable: L GDP

Table 12: Results of Regression Analysis.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15.10695	0.982074	15.38270	<b>0.0000</b>
L_INT	<b>-0.008565</b>	0.005614	-1.525591	0.1397
L_REER	<b>1.333104</b>	0.174983	7.618475	<b>0.0000</b>
L_M2	<b>0.022138</b>	0.002829	7.824896	<b>0.0000</b>
L_TRD	<b>0.756725</b>	0.135209	5.596724	<b>0.0000</b>
R-squared	<b>0.980640</b>	Mean dependent var	24.85685	
Adjusted R-squared	0.977542	S.D. dependent var	0.633339	
S.E. of regression	0.094912	Akaike info criterion	-1.720720	
Sum squared resid	0.225208	Schwarz criterion	-1.487187	
Log likelihood	30.81080	Hannan-Quinn criter.	-1.646011	
F-statistic	316.5754	Durbin-Watson stat	1.338312	
Prob(F-statistic)	<b>0.000000</b>			

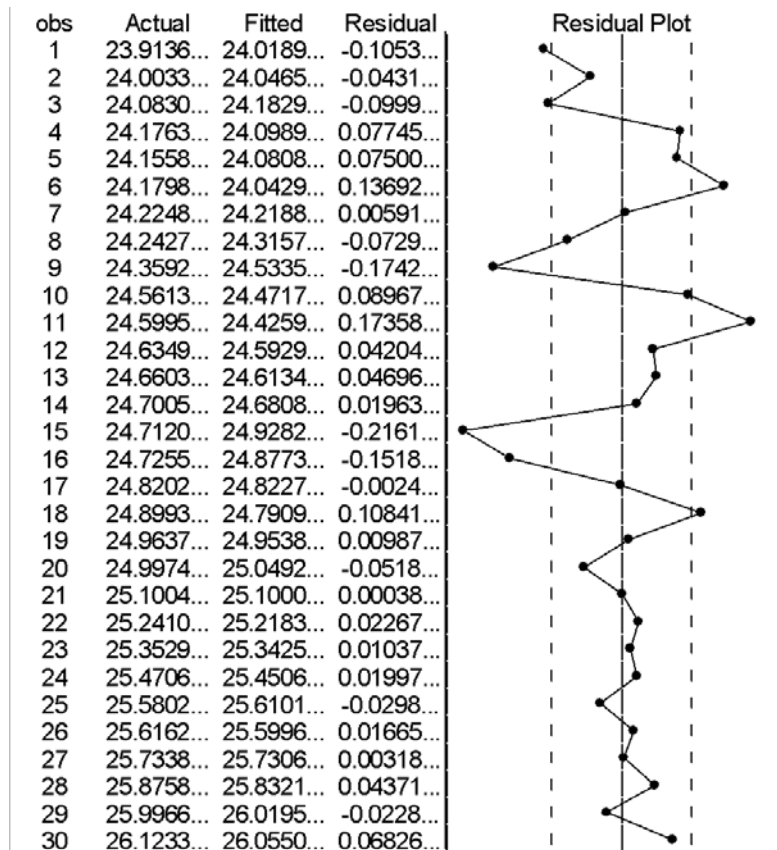
$$L\_GDP = 15.1069 - 0.0085L\_INT + 1.333L\_REER + 0.0221L\_M2 + 0.7567L\_TRD$$

In this regression model,  $R^2 = .980$ , This is desirable. More than 60% of the R-squared value indicates the model is nicely fitted. That means, this regression model is nicely fitted with .996 R-Squared value. Besides this, probability value of F-statistics is less than 5%, which implies L INT, L REER, L M2 and LTRD are jointly good to explain the dependent variable. Through diagnostic checking, it is known that this regression model is beyond the existence of serial correlation and Heteroscedasticity. And the residuals are normally distributed. In short, all good attributes have in this model. In (table-), there are four independent variables. These are L INT, L REER, L M2 and L TRD. And all the independent variables become significant except L INT, since the p values are less than 5%. Table 10 shows that if interest rate is increased one unit, economic growth (GDP) is decreased by 0.0085 units. Again if Real exchange rate is increased by one unit, economic growth (GDP) is increased by 1.333 unit.

Similarly, if Money supply and trade openness are increased by one unit, then the GDP increased by .0221 and .756 respectively. This implies that all independent variables except interest rate will have a long run positive impact on economic growth (GDP). Interest Rate has negative impact on GDP.

i. *Residuals*

The observations residual conditions are given below;



ii. *Serial correlation LM Test*

Table 13(a): Results Serial Correlation LM Test.

**Heteroskedasticity Test: Breusch-Pagan-Godfrey**

Null hypothesis: Homoskedasticity

F-statistic	0.829290	Prob. F(4,25)	0.5192
Obs*R-squared	3.514293	Prob. Chi-Square(4)	0.4757
Scaled explained SS	2.724699	<b>Prob. Chi-Square(4)</b>	<b>0.6049</b>

Here, the null hypothesis: there is no serial correlation in the residuals. And Alternative hypothesis: There is serial correlation in the residuals. Since the probability value of chi -square .0231, which is less than 5%. So, we can reject the null hypothesis, leads to there is serial correlation. The existence of serial correlation in the model is not desirable. Now we have to remove the serial correlation from the model.

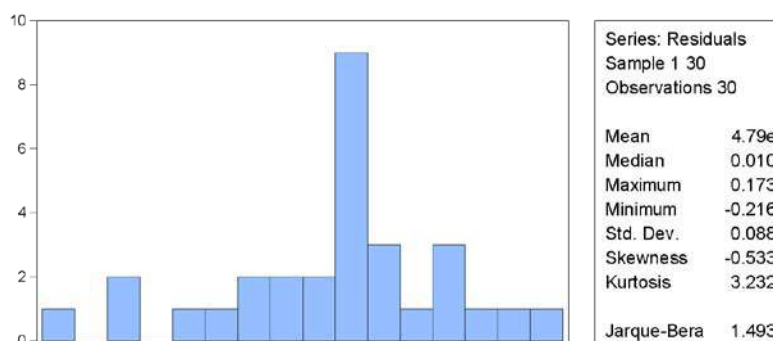
This is possible through creating a variable that is one period lag of the dependent variable(L\_GDP). The new variable become Lag\_L\_GDP. That means, Lag\_L GDP=L\_GDP(-1).

iii. *Normality Test*

Residuals should be normally distributed. To test the normality of the residuals, the study uses Histogram Normality Test. In histogram test, The Jarque-

Bera Probability is more than 5%. That means, we accept the Null hypothesis, Residuals are normally distributed. This is desirable.

Table 13(b): Results of Histogram Normality Test.



## VI. LIMITATION OF THE STUDY

A time constraint during conducting of the study was the major limitation of the study. The time available to finish the whole project was very limited especially with this kind of studies which involve complexity. No previous knowledge about research is another limitation of this study. The research is prepared on the secondary data, that is another limitation of this study. At the same time sample size is not enough due to lack of availability of the data.

## VII. CONCLUSION

This study empirically explores the present relationship among Interest Rate, Money supply, Real Exchange Rate, Trade openness and economic growth in the context of Bangladesh. The empirical evidence demonstrates that there have long run positive relationship coming from Real exchange rate, Money supply and Trade openness to economic growth, except interest rate. Besides this, there have casual short term relationship coming from Trade openness and Money supply to economic growth in Bangladesh,.

## VIII. RECOMMENDATIONS

- Since M2 has significant positive impact on GDP. This implies that if the money supply increases in considered that price level of goods and services will be increased in Bangladesh. That's why, for supplying money in the market Bangladesh bank should focus on price level and production condition of the economy.
- Interest Rate has negative long run relationship with Economic growth. So, policy makers should focus on interest rate, as possible as to the extend, lower interest rate. And make sure that not discourage the foreign investment.
- Trade openness has long run and short run positive relationship with economic growth. So, as possible as to make the Bangladesh trade barrier free with sovereign. And making sure that the potential local traders are protected.

- Real exchange rate should be measurable. Because it's goodness depends on balance of payment. Sometimes appreciation of the exchange rate may harm the country's economic growth, when account's payables are higher than receivables.

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# The Effects of Pseudo-Taxation Politics on the Implementation of Tax Reform Policies: The Nigerian Experience

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**Abstract-** Taxation is a viable fiscal policy employed by government to attain economic stability and foster development. The world societal economies are under pressure to reduce poverty, create employment, maintain peace and foster development. With the government being the machinery through which all these could be accomplished, yet having insufficient fund to deliver these social services; there is need for the citizens to render financial support in proportion to their revenue to government, so that these obligations of the government will be rightly fulfilled. This is what taxation entails. However, there have been several cases of tax evasion, tax avoidance and complaints against Nigerian taxation system prompting the reformation of the Nigerian tax policies. In spite of these reforms, it seems the issue of tax evasion and avoidance is on the increase. Many previous literatures have studied the reasons for inefficiency of taxation system despite the tax policy reform, but not much has been said about how the influence of false taxation politics played by the politico-economic elites and tax revenue collectors affects the implementation of the tax reform policies.

**Keywords:** *pseudo-taxation politics, tax, taxation, tax evasion, tax avoidance, tax policy reform, strong individuals.*

**GJMBR-C Classification:** *JEL Code: H21*



*Strictly as per the compliance and regulations of:*



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# The Effects of Pseudo-Taxation Politics on the Implementation of Tax Reform Policies: The Nigerian Experience

Ideobodo Nwafor-Orizu <sup>α</sup> & Eze Kierian Tochukwu <sup>σ</sup>

**Abstract-** Taxation is a viable fiscal policy employed by government to attain economic stability and foster development. The world societal economies are under pressure to reduce poverty, create employment, maintain peace and foster development. With the government being the machinery through which all these could be accomplished, yet having insufficient fund to deliver these social services; there is need for the citizens to render financial support in proportion to their revenue to government, so that these obligations of the government will be rightly fulfilled. This is what taxation entails. However, there have been several cases of tax evasion, tax avoidance and complaints against Nigerian taxation system prompting the reformation of the Nigerian tax policies. In spite of these reforms, it seems the issue of tax evasion and avoidance is on the increase. Many previous literatures have studied the reasons for inefficiency of taxation system despite the tax policy reform, but not much has been said about how the influence of false taxation politics played by the politico-economic elites and tax revenue collectors affects the implementation of the tax reform policies. This paper attempts to fill this gap in literature by examining actions of revenue collectors and influence of the elites on tax reform policies. An analytical study on this was carried out and the findings indicate that strong-individual against strong-institution problem and tax collectors suboptimization are what bedevil the implementation of the tax reform policies. This paper recommends institutional re-strengthening and tax collectors social re-engineering as a panacea to this problem.

**Keywords:** pseudo-taxation politics, tax, taxation, tax evasion, tax avoidance, tax policy reform, strong individuals.

## I. INTRODUCTION

Nigeria is a country that has operated a monolithic economy with absolute dependence on the oil sector until the current era of diversification into agriculture. Despite this diversification into agriculture that made the economy a dual centered one, the both Nigerian economy-dependent sectors hinges on exhaustible and often manipulative resources as a source of revenue generation for Nigeria. Furthermore, with the unfolding of events in contemporary times that has left most oil and some agriculturally dependent

nation in shock and dumbfounded, the two sectors have been seen dwindling as major revenue sources following the incessant bombing of oil pipelines and the negative fluctuations in the price of oil and agro-products in the stock exchange market. This puts up the need for a long term and more sustainable economy driver, thus, presenting taxation as a qualitative option to augment these sectors in revenue generation since it is a non-exhaustible veritable source of revenue generation to the government (Oloyede, 2010). Taxation has rightly been identified as a major tool in the strengthening of domestic resource mobilization and consequently, the search for ways and means of expanding the tax base and strengthening tax administration has been intensified. Taxation is considered a genuine source of revenue for financing developmental as well as people oriented programmes in virtually all countries, irrespective of whether they are classified as developed or developing economies. That taxation has been one of the most important weapons available to government for marshalling financial resources is undisputable (Atta-Mills, 2002; Teidi, 2003 and Oloyede, 2010). In the light of the above, taxation is the process of collecting any monetary charge imposed by the federal government on persons, entities, transactions or properties to yield revenue within a particular location (Federal Ministry of Finance, 2012). It is both the imposition and collection of an enforced contribution exacted pursuant to legislative authority whether in the name of duty, levy, tax, fees or any other name as may be legally or constitutionally approved. The operation of taxation is virtually in all countries of the world of which Nigeria is not exempted. In Nigeria, taxation is highly instituted systemically in such a way that an apparatus is set up by government to manage tax affairs and the tax system within the country so as to ensure revenue generation, income and labour redistribution, economy control and stabilization, enhance property value, influence investment, provide social cum welfare services and stimulate economic growth and development (Ekwerike, 2014). This justifies the existence of Joint Tax Board, Federal Inland Revenue Services, State Inland Revenue Services, State Board of Internal revenue, Local Government Revenue Committee, Chartered Institute of Taxation of Nigeria and other taxation – responsible government institutions.

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Despite the existence and operation of these institutions, there have been several cases of against the tripartite Nigerian taxation system both in its tax policy, tax law and tax administration by the government, citizens, investors and even business organization. Odusola (2006) observed that the tax policy aspect of the Nigerian tax system is merely on paper and not implemented especially at the local government level, the tax law aspect is marred by non compliance, evasion, avoidance and highly non-punishment of culprits while the tax administration aspect is characterized with unreliability and inadequacy of data, paucity of administrative capacity, shortage of manpower, corruption among tax officials and tax collectors, complex tax code and the hydra headed monster of multiple taxation. It is in reaction to these malaises that has been bringing the Nigerian tax system to its knee that all those involved directly or indirectly in the Nigerian tax system had championed the call for tax system reform. Nigeria in response to this call has embarked on several tax reforms since 1991 in attempt to curb the deficiencies in tax administration and collection system, complex legislations and apathy on the part of those outside the tax net as noted by Ariyo (1991). Despite the several reformations in the Nigerian tax system, there still exists high paucity in the implementation of the new tax reform policies which prevents the objectives of the tax system reform from being duly accomplished. One would then ask what problem is it that lies with the Nigerian tax system, what causes this problem? Is it from the tax administrators and bodies, from the government or from the citizen? Recent happenings in Nigeria paints a speculative picture of the problem of non-implementation of tax policies being caused by both the government, the tax administrators who tend to negate the cannons of taxation and the Nigerian code of ethics for efficient tax administration when discharging their duties, the perceived strong politico-economic individuals who boycott, evade and avoid tax using their influence without being punished, the unenlightened citizenry who does not see the need to pay tax and finally the informal sector whose tax rate is often difficult to measure. In the view of Ekwerike (2016), the issue with the Nigerian taxation system is that of high centralization on basically oil (petroleum) and trade taxes with nothing being said about value-added tax which has the potential to expand. Nevertheless, the current regime of President Muhammadu Buhari has seen to the diversification of taxation and re-awakening of value added tax but the influence is little-felt because of the dominance of the informal sector. What this means is that the problem with the Nigerian taxation system as regards to reform policies is much more than diversifying the tax base, but hinges on the implementation of the tax reform policies. This implies that the hindrance to tax reform policies lies

within implementation problems. According to Makinde (2005), implementation problem arises when the desired result on the target beneficiary is not achieved. In this case, implementation problem refers to when the much needed compliance, turnover, expected response and objectified impact is neither achieved nor witnessed. No problem emanates without a cause, therefore the problem of implementation of tax reform policies does not exist in isolation of a cause or causes. It is in cognizance of this, that this paper uses analytical methodology in attempts to discover and proffer solutions to the cause/ causes of non-implementation of tax reform policies in Nigeria from the factors in recent happenings especially as regards to behavioural attitude of tax administrators in tax administration and the influence of politico-economic elites on tax laws, tax policies and in tax evasion and avoidance – a term I choose to refer to as pseudo-taxation politics by the elites and tax administrators.

## II. CONCEPTUAL CLARIFICATIONS

For a comprehensive understanding of the discourse of this paper, operationalized below are some terminologies with which this work achieved its thrust:

*Pseudo-taxation politics:* This involves all actions, inactions and activities which are contradictory to the acceptable standards of taxation practice, but which a person (s) or party (ies) indulges in for a purpose that makes the aim of taxation suboptimal.

*Tax:* This involves a compulsory tariff imposed on persons, properties, products and other things by the government with which essential services are provided.

*Taxation:* This involves all processes of collecting taxes. It also means tax. Hence, the two words are used interchangeably.

*Tax evasion:* This is the outright refusal of an individual to pay tax.

*Tax avoidance:* This is the illegal reduction of an individual's tax rate by the individual and/or payment of tax on a rate that is below your tax rate and commensurate with your tax base.

*Tax policy reform:* This involves the changing or improvement of the exiting government guideline and plan of actions on taxation sector.

*Tax reform policy:* This consists of the newly formulated guideline and government action plan gotten through the changing or improvement of an old one as regards taxation.

*Strong individuals:* These consists of political and economic affluent individuals whose influence and status has placed in a position where they can easily influence anybody into doing things in the ways that suits them.



### III. THEORETICAL FRAMEWORK

The issue of policy implementation in Nigerian is an age-long one that dwells on translating established policies into action. This however has been reported to lag behind policy expectations (Barrett, 2005). It is in view of this that there is a need to put forward theoretical support and evaluation that will evaluate the tax reform policy scenario and establish a panacea in terms of translation and execution as accurately as possible (Hyndman, Benson and Telford, 2014). In cognizance of this, this paper adopts two theories: the Elite theory and the Rational choice theory.

The elite theory propounded and developed by Vilfredo Pareto (1848 – 1923), Gaetano Mosca (1858 – 1941), Karl Marx, Robert Michel, Wright .C. Mills etc. holds an accurate view of reality of power relationships in contemporary society. The theory posits that a small minority consisting of members of politico-economic elite and policy planning networks holds the most power and that this power is independent of the states' democratic election process; thus creating a power bourgeoisie-proletariat society. This implies that the society is stratified with the masses at the bottom and the ruling class elite at the top (Mosca in Dlakwa, 2008). These elites are the strong individuals of the society, they are wealthy and share common belief; they have strong political affluence if they themselves are not politicians and as a result, they use their influence to dictate both the formulation and implementation of policies of which the tax policies are not exempted. Deductively, any policy be it tax policy or not, which goes against this class could be predicted to fail either in its formulation or in its implementation. The theory holds that these elites are usually public regarding and displays a sense of noblesse oblige, thus, they easily manipulate the citizenry with philanthropic acts. Philanthropy then becomes an instrument with which they reduce the negative thinking of the masses towards them either evading and avoiding taxation or influencing tax policies for their self interest; instead, the masses are seen laying ignorant blames on the government of the day on gross inefficiency of tax administration and poor implementation of tax reform policies. In application.

The Rational choice theory of 1960's on the other hand, was propounded by are George Homans, Gary Becker, William Stanley Jevron amongst others. This theory holds that individuals always make prudent and logical decisions. These decisions provide people with greatest benefit or satisfaction given the choices available and also in their highest self interest. The implicit of this in the practice of tax administration and the implementation tax reform policy reveals that policy influencers, initiators, makers and implementers pursue their own self interest instead of any national interest in the tax policy formulation and implementation process. Hence, in application of the theory to taxation, the strong

individuals of the society having logically reasoned the adverse effect a tax policy will bring on them, with neither considering the level of revenue it will generate to the government nor the development it will bring to the citizenry and the country in general especially in PAYE tax, will suboptimally place his interest ahead and will assiduously strive to influence the PAYE tax policy to suit his interest. This will make the tax policy ineffective in objective as taxation is meant to reflect the words of Nick Montagu – a British tax administrator who said that “taxation is the means by which civilized societies sometimes performs uncivilized task of taking money from one group in order to give it to another”. This means that, the wealthy no matter how logical is neither supposed to influence tax policies nor evade and avoid tax because he prefers international or private sector treatment and intentionally don't want to use the services provided with tax fund. Rather, whether or not he is willing to use the tax fund developed projects, he must pay as other citizens who are not as economically buoyant as he is and who cannot afford luxurious treatment of the private sector will use the tax funded projects. Again, the application of the theory stipulates that tax administrators place the tax reform policies goal subordinate to their self interest. Hence, in the field of tax administration, they tend to look at how much their salaries are worth and how much the tax payers can give them to evade their taxes for a couple of months. The theory in application holds that the tax administrators considers how the money they can corruptly gain through their positions will solve certain problems for them even at the detriment of the implementation of the goal of the tax reform policies.

### IV. ANALYTICAL METHODOLOGY OF SOME TAX REFORM POLICIES IN NIGERIA

The Nigerian state in a bid to ensure efficient and effective tax system has established and witnessed numerous tax reforms. According to Alli (2009) and as adapted from Federal Inland Revenue Handbook (2012), the objectives of tax reforms in Nigeria are to bridge the gap between the national development needs and the funding of the needs, to ensure taxation as a fiscal policy instrument and to achieve other fiscal objectives, to achieve improved service delivery to all, to reduce and/ or manage tax evasion and avoidance; and to improve the tax administration in a manner that makes it more responsive, reliable, skillful and taxpayer friendly. However, a closer look shows that all tax reforms in Nigeria are usually geared towards the attainment of seven principal objectives which are: a) The protection and promotion of local industries (b) Promotion of the use of local raw materials (c) Improvement of the value of locally Nigerian-made products (d) Promotion of greater geographical distribution of domestic manufacturing activities (e)

Boosting of non-oil tax revenue (f) Increase in government revenue generation and (g) Improvement of tax compliance through the curtailing of tax evasion and tax avoidance. In truism, the taxation reform policies cover a wide spectrum of areas usually spanning through guidance of the operation and review of the tax system; the provision of the basis for future tax legislation and administration; serving as a point of reference for all stakeholders on taxation; provision of the benchmark on which stakeholders shall be held accountable; and provision of clarity on the roles and responsibilities of stakeholders in the tax system. Taxation reform in Nigeria is an age-long event starting from 1904; however, instituting taxation policy reform in Nigeria took place in 2012. This does not mean that taxation policy reform started in 2012. In cognizance of this, this paper listed below some taxation reforms in Nigeria from the colonial era till this present time:

1. The 1904 personal income tax introduction reform.
2. The 1917-1927 reform on establishment and transfer of native revenue ordinance of 1917 to all regions of the country.
3. The 1945 reform that granted autonomy to Nigerian Inland Revenue.
4. The 1957 tax reform by the Raisman Fiscal Commission.
5. The 1958 reform that established inland revenue board.
6. The 1959 reform that saw the promulgation of petroleum profit tax through ordinance no 15 of 1959.
7. The 1961 reform that promulgated income tax management Act.
8. The Gen. Shehu Musa Yar'adua taskforce reform on tax in 1978 that saw the introduction of withholding tax/companies income tax in 1979.
9. The 1990-1993 establishment of VAT and tax reform on tax laws.
10. The 1991/92 reform that established the federal inland revenue service.
11. The 1998/99 reform on establishment of taxes and levies Act and mineral and mining Act.
12. The 2001 tax policy and administration reform.
13. 2002 reform that established study group on Nigeria tax system.
14. The 2003/2004 reform on all tax laws in Nigeria.
15. The income tax Act amendment reform of 2011.
16. The 2012 national tax policy reform.
17. The 2017 national tax policy reform.

However, for the purpose of accomplishing the thrust of this paper, the 2004, 2012 and 2017 tax reform policies were selected and studied analytically in correlation to pseudo-taxation politics below:

*The 2004 Nigerian tax law reform:* The 2004 tax reform was an outright result of the wild consultations and nine (9) bills recommendation of the 2002 and 2004 tax study

and working group respectively which were submitted to the national assembly for ratification and approval by the Federal Executive Council (FEC). This tax group was headed by Ifueko Omoigie Okauru who was the chairman of the group and their recommendation was a milestone improvement in tax system and administration in Nigeria and were specifically in regards to taxation Acts. The reform constituted an indispensable part of the National Economic Empowerment and Development Strategies (NEEDS). The reform bill also recommended the establishment of national tax policy that is principally directed towards national development. Such national policy will constitute a means of attracting foreign direct investment, providing direction and focus on general tax practices, blending various opinions on taxes of different kinds as well as the issues surrounding those opinions, consolidation of several policy documents into a single document for easy reference (FIRS Hand Book, 2012). The reform though proposed for national tax policy, never established it rather it established some other policies which include that:

1. Taxation should hence forth be regarded as an obligation for any Nigerian citizen that expects the government to provide basic amenities and meet other statutory obligations.
2. Taxation should be solely collected by authorized tax administrators; hence there is prohibition of the act of using consultants and ad hoc tax administrators.
3. The country will shift from direct taxation to indirect taxation with less distortionary effect.
4. There should be compilation of registers for individuals and corporate tax payers, and also the issuance of smart tax identity cards for all tax payers.
5. There should be reduction of company income tax from 30 percent to 20 percent and personal income tax from 25 to 17.5percent.
6. The introduction of fuel tax at 1.50 per litre.

Despite this proposed paradigm shift by the Nigerian tax reform policies of 2004, the Nigerians saw the lope-sided aspects of the reform in pseudo-taxation political nature especially as regards to the introduction of fuel tax which the then President Olusegun Obasanjo presented alongside the reform bills to the joint session of the national assembly as a special levy which would be used for road maintenance. Most notable Nigerians saw this as influence on the taxation reform policy which was corruptly geared towards extortion and exploitation of Nigerians. Little wonder, in the words of Alhaji Abdulkadir Balarabe Musa, "Nigerians should come together irrespective of political, religious and social differences and save themselves from the tyranny of Obasanjo's administration exacted through inhumanity and tax extortion especially in the stopping of this proposed fuel tax". From another perspective of the

prevalence of pseudo-taxation politics on the policy of the 2004 tax system reform was the issue of little or non-implementation of the positive policies of this taxation. For instance, the shift from direct taxes to consumption-based taxes (VAT) was not fully actualized because of the poor performance of implementers, the policy of issuing tax payers with smart tax identity card was merely on paper and could be said to have been theoretically rather than practically approached. What reason could have led to such problem that would not be linked to the tax administrators who are responsible for the implementation of this tax reform policy? Obviously none. What about the policy of compiling the tax payers register? That one was never achieved until 2017 when the former minister of finance Mrs Kemi Adeosun started working towards the new VAID tax policy.

*The 2012 national tax policy reform:* The 2012 national tax policy which was officially launched as national tax policy (NTP) document by Goodluck Ebele Jonathan's administration on April 7, 2012 was an offshoot of the recommendations of the tax study group of July 2003. The policy seek to provide a set of guidelines, rules and modus operandi that would regulate Nigeria's tax system and provide a basis for tax legislation and tax administration in Nigeria and thus, was established to tackle such issues such as:

- The increased demand to grow internally generated revenue, which has led to the exercise of powers of taxation to the detriment of the taxpayers who suffer multiple taxation and bear a higher tax burden than anticipated,
- Insufficient information available to tax payers on tax compliance requirements which created uncertainty and room for leakages in the tax system,
- Multiple taxation by government at all levels, which impacted negatively on the investment climate in Nigeria. Elimination of multiple taxation is therefore of major concern at all levels of government,
- Lack of accountability for tax revenue and its expenditure,
- Lack of clarity on taxation powers of each level of government/encroachment on the powers of one level/ state by another,
- Lack of skilled manpower and inadequate funding, which led to the delegation of powers of revenue officials to third parties, thereby creating uncertainty in the tax system and increasing the cost of tax compliance,
- Use of aggressive and unorthodox methods for tax collection,
- The non refund of excess taxes to tax payers, due to the lack of an efficient system and funds,
- The non-review of tax legislation, which had led to obsolete laws, that do not reflect Nigeria's current realities; and

- The lack of a specific policy direction for tax matters in Nigeria and the absence of laid down procedural guidelines for the operation of the various tax authorities.

These and other problems plaguing Nigeria's tax system have not been adequately tackled for many years. One of the reasons for this was Government's heavy reliance on revenues derived from oil, as a result of which little or no attention had been given to revenue from other sources, such as taxation. However, there is now a renewed commitment by the Federal Government to diversify the economy by growing the non-oil tax revenue in order to develop a stable and sustainable revenue source to finance developmental projects. (Adapted from National Tax Policy for Nigeria – Final Draft submitted to the Federal Executive Council, 2012). From the above, it is crystal clear that the 2012 national policy on taxation has within its objectives the diversification of major revenue sources so that the country becomes majorly a non-oil revenue generator. However, further indwelling exploration reveals that the objectives of this policy also cut across the provision of a stable preference point for all stakeholders in the country on which they shall be held accountable, intelligent gathering of taxpayers information, registration of all taxable persons within the federation and issuance of unique tax identification number to such person, audit and investigation of taxpayers files to ensure completeness and accuracy, strategically increasing VAT from 5 to 15 percent, avoiding internal multiple taxation on income, property, imports, production and turnover by the various tiers of government, reducing and streamlining the number of tax incentives in the Nigeria tax system, collection of taxes only by career administrators that are public servants, thereby prohibiting the use of ad-hoc tax administrators, vesting of the power to impose, reduce, increase, review or cancel any rate of tax on the National Assembly, especially with respect to taxes from the executive, subjecting the Nigeria's tax system to comprehensive reviews every three years pertaining to existing tax legislations amongst others.

In as much as the policy goals of these tax reform policies are laudable, the big question is how much have been achieved within it? From an analytical perspective correlating the realistic experience in Nigeria, little or none have truly been achieved in regards to these established national policies on taxation. The country was still largely dependent on oil revenue and is still is. Remove the oil sector from Nigeria then and even now and watch Nigeria sink like a ship bathing in the euphoria of fiscal disaster. The tax payers were as at then not known except for those under the government payroll whose taxations were deducted at source, so it was difficult gathering information of tax payers except those on the

government payroll and those who patriotically want to pay tax. The registration of taxable persons and issuance of unique tax identification number was of course an inevitable failure as the country as at then and even now cannot even give the accurate number of its population not to talk of the total number of its taxable persons. Judging the above with pseudo-taxation politics, it is but only vivid that the Nigerian taxation system failed woeful in comparison with international taxation standard. That there is inaccuracy of population data is a political machination geared towards resource control and revenue allocation, and this has been affecting the politics of taxation in Nigeria. Again, observable is that the national assembly which this policy empowered with the mandate to impose, reduce, increase, review or cancel any rate of tax have only called for reviewing of the tax law whenever the law adversely affect their personal and collective interest. An instance is the call for the review of the country's tax law by the senate president Dr. Abubakar Bukola Saraki after being hanged on the neck over #74 million import duty of a bulletproof range-rover jeep worth #298million (Vanguard Newspaper, March 18, 2018). Should we also talk about the reason behind the non-implementation of these policies? The implementers who are the tax administrators will not escape being part of the culprits.

*The 2017 national tax policy reform:* Following the problem of non-implementation of the national tax policy of 2012 due to the insufficient awareness of most stakeholders, there was a need to reform the national tax policy (NTP) so as to tackle the non-implementation problem. It was on this ground that the President Buhari led administration through the ministry of finance inaugurated National Tax Policy Review Committee headed by Prof. Abiola Sanni on August 10, 2016 who worked hand in hand with the federal Inland Revenue services and reviewed the issues dysfunctional in the national tax policy in specific and the Nigeria taxation system in general. The committee on the conclusion of their review, recommended a guideline for clear policy implementation and monitoring strategies for stakeholders. This gave rise to the 2017 national tax policy which focuses basically on diversifying the sources of government revenues by significantly increasing the tax to Gross Domestic Product (GDP) ratio, orderly development of the Nigerian tax system and other micro areas had previously been covered by the national tax policy of 2012 (Federal Ministry of Finance – National Tax Policy, 2017). The 2017 national tax reform policy was more implementation oriented and set out qualitative implementation measures to achieve its goals both in theory and in practice. This justifies the reason that taxation stakeholders are at alert in taxation process as the policy charged every taxation stakeholder with one implementation measure or the other. It

charged the presidents and the governors to ensure that budget speeches and presentations for the fiscal year consistently contain the overriding fiscal policies and summary statements of the expected tax revenue so as to alert other stakeholders on what the government plans to do. It also stripped ministries, extra-ministerial departments and agencies other than tax authorities of their tax collection powers and ensured that there is only one revenue agency at each level of government: this will help curb the problem of multiple taxation which discourages investors and local industries in Nigeria. The policy also proposed for the establishment of a tax court as an independent body to adjudicate on tax matters, a milestone improvement which exists in other advanced countries like England. The policy advocated for the re-strengthening of the Joint Tax Board through empowering it with greater mandate beyond its present advisory role. In truism, the 2017 national tax policy reform is commendable in principles and practice. It covered a wide and key spectrum not only on paper but in the practical administration observable. However, from a federalist point of view, this policy is only effective at the national and partially at the state level. At the grass-root level where the third tier of government operates, the policy is relatively non-existent. Does it mean that local government is no longer part of the tiers of government? Or are the tax administrators at the local level all dead? What is the essence of their remuneration if they cannot effect a laudable positive impact policy of the national tax policy reform of 2017? This is simply pseudo-taxation politics, a complete aberration of the Nigerian code of ethics for efficient tax administration. Instead what is obtainable at the grass-root are tax administrators who collude with the tax payers to evade, avoid or withhold tax provided they are paid some token not up to the accrued tax rate. On the national scene, pseudo-taxation politics is still unequivocally felt among the politico-economic elites who evade or avoid tax because of their personal influence. Voices have been heard speaking out that the lords, high ranking business corporations and wealthy men of the Nigerian society do not pay tax. Notable among these voices is the voice of the immediate resigned minister of finance Dr. Mrs. Kemi Adeosun who was quoted by the Sun Newspaper dated Dec 5, 2017 as saying that "billionaires make money in Nigeria, evade tax, but pay in abroad". This augments hers initial decry at the 9<sup>th</sup> colloquium that marked the 65<sup>th</sup> birthday of Chief Asiwaju Bola Tinubu where she said that several millionaires and billionaires in Nigeria don't pay tax and that the federal government would soon come up with a new tax regime where the big guns in the society would be made to pay willy-nilly (Daily Times Newspaper, March 28, 2017). Similarly, on June 29, 2017 The Punch Newspaper reported that only 40 super-rich Nigerians pay correct tax. How can these recidivistic pseudo-taxation political elites exert such



evasion, avoidance and boycott of tax if not through pseudo-taxation politics of influence?

## V. IMPLEMENTATION CHALLENGES OF TAXATION REFORM POLICIES EMANATING FROM PSEUDO – TAXATION POLITICS; OBSERVABLE FROM THE ANALYSIS

From the above analysis of some tax reform policies in Nigeria, it is deductive that there are ten core challenges bedeviling the implementation of tax reform policies in Nigeria. These challenges are:

*Strong individual factor:* This is an observable hindrance to effective implementation of tax reform policies in Nigeria. By strong individual factor, this paper paints the picture of the politico-economic elites who believes that they are above the laws of taxation and hence should not be paying taxes. These set of cabals through their influence either dictates the formulation and implementation of taxation policies or boycott taxation through evasion or avoidance and most times without being faced by the sword of justice. The attitude of these strong individuals is one that justifies the words of Ocholi (2009) that the government institutions that were strategic in pursuit of democratic ideas had instead of becoming the bulwark of democracy turned into one weakened by inefficiency, corruption, lack of commitment, incompetence, tribalism, hooliganism and other sundry handicaps. The significance of the presence of such people in Nigeria proves that the democratic institutions of Nigeria is not only weakened to the core but has become squarely a verbal expression. Hence, people who are supposed to be under the control of the institutions are now the ones dictating the affairs of the institution at the detriment of the poor masses who are the ones that depends solely on the services provided with taxation fund.

*Corruption:* Corruption is a social malaise that has penetrated deep within the bloodstream of the Nigerian state. Achebe (1983) opined that corruption in Nigeria has passed the alarming and has entered the fatal stage and Nigeria will die if we keep pretending that she is only slightly disposed. Corruption which is a movement away from the generally accepted behavioural standard has touched all sectors of the Nigeria state include the taxation sector. Corruption in tax practice exists in terms of tax evasion and tax avoidance, bribery of tax administrators by citizens, request for bribe by tax administrators, non-declaration and wrong declaration of assets by public office holders, using taxation as an instrument to exploit others and enrich yourself, initiating multiple taxations for exploitative purpose, increasing the tax rate of a perceived enemy, non-remittance of collected tax funds to the government, etc. No matter how corruption manifests, it is evil and the practice of it affects tax reform policy implementation adversely

because the policies of taxation are channeled towards an accepted behavioural standard whereas corruption is not.

*Non-dedicational attitude of tax administrators:* One of the major problems that militate against effective implementation of tax reform policies is the non-dedicational attitude of the tax administrators towards their tax administration. They are lack lustrous and complacent to taxation duties, an attitude that is against the ethic of tax administration. This concomitant colossal effect of lack of dedication to any work be it personal or public incline is usually gross inefficiency. When this is what is observable among the tax administrators who are charged with the responsibility of not only formulating taxation policies but also seeing their effective implementation, what do you think would happen? Of course there would be high rate of non-implementation of taxation policies and even if implemented, it would be haphazardly done.

*Suboptimization:* Suboptimization is the placing of one's self interest above the general interest or placing one's interest above the interest of organization that one finds oneself in such a way that the interest becomes counterproductive to the interest of the general or organizational interest. It is another negative affective factor to implementation of taxation reform policies. Most elites place their interest above the interest of the citizenry and strive to achieve this interest against all odd even if it means evading or avoiding tax or influencing tax policies. Most tax administrators both the top managerial ones and the field workers tend to engage in the mischief of placing their personal interest above the interest of tax authorities, hence, they engage in illicit affairs such as non-remittance of collected taxes and collection of bribes which in all ramifications brings tax reform policies to its knees. Similarly, most citizens place their interest above the interest of the state which is the interest of the masses and in a bid to actualize their interest they either boycott taxation through evasion and avoidance or they give wrong information about themselves.

*Paucity of Data on taxable persons:* Taxable person's information is to taxation what blood is to human life. It is the life wire and the sustenance cable that holds the operation of taxation. Without it, taxation of people will become ineffectively done. Unavailability of data and wrong information on taxable persons explicitly obstruct the implementation of tax reform policies. This is so because, when there is availability of accurate data and information on the taxable persons of country, the tax authority of the country can easily compute the tax rate of the taxable individuals and know the estimate of revenue they are expecting within the year. This will help to make the tax reform policy goals precise and will help to easily sort out people with heavy tax burdens due to multiple taxation.



*Citizenry ignorance and insufficient awareness:* Just like the 2017 national tax policy rightly captured, insufficient awareness of the taxation stakeholders on the new tax reform policies is out-rightly sufficient to embark on a new tax policy reform. When the citizenry and the stakeholders of taxation are not aware of the new policy on taxation how then will they play their compliance role in implementing the policy? Any policy that is to be effectively implemented should be first be made aware to the citizenry who form the highest stakeholders of the policy especially when it is a tax reform policy, lest it witnesses mass non-implementation and non-compliance of the people.

*Inadequacy of experienced tax administrators:* The integral aspect of any policy lies with the implementation, and in relation to tax reform policies, the implementers are the tax administrators. However, from the analysis, the tax administrators at the local level is either inexperienced or inadequate or both. Whether inexperienced or inadequate, their non-performance and/or poor performance of duty is adversely affecting the implementation of the tax reform policies. There impact of tax reform policies at the local level of government is highly insignificant and this is as a result of the non-implementation of the tax reform policies caused by relatively little available experienced tax administrators at the local level.

*Non-punishment of tax law offenders:* Renowned Psychologists, Edward Thorndike, B.F Skinner and Ivan Pavlov in their psychological researches on law of effect, operant conditioning and classical conditioning stated that for every human action that there exist a reinforcement – either reward or punishment. What this means is that human action and behaviour can be change-motivated either through reward or punishment. It then follows that had those who had been breaching the laws of tax and implicitly hindering tax reform policies in Nigeria no matter who, been punished, they would have changed and the story of tax reform policy implementation would have also changed to being a positive one. This simply shows that the non-punishment of the offenders of tax laws have been part of the factors hindering tax reform implementation in Nigeria.

*Wide scope of taxation policies:* This is another tax reform policy implementation impeding factor. Most of the tax reform policies are over ambitious and has too many agenda. This makes it difficult to be fully implemented hence bringing about tax reform policy implementation problem. According Makinde (2005) most policies which are over ambitious and have too many agenda are not borne out of genuine or sincere effort to bring about rapid and radical development but just to boast the ego of political leaders. Little wonder, the 2017 national tax policy was far more implemented than the previous tax reform policies.

*Continuity deficiency problem:* This is a core problem bedeviling tax reform policies in Nigeria. The taxation reform policies are usually deficient in continuity; this is as a result of influence of strong individuals and godfathers and the frequent change of regimes. Tax reform policy sustenance is a war that the Nigerian government is not willing to win as each successive government is bent on establishing new tax reform policy without implementing those established by the former governments. The consequence of this is incomplete implementation and consequently poor implementation of tax reform policies.

## VI. THE WAY FORWARD ON THE IMPLEMENTATION OF TAX REFORM POLICIES IN NIGERIA

The negative influence of pseudo-taxation politics on the implementation tax reform policies is a problem that faces not only the tax authorities but also the government and the entire citizenry. Thus, there is need to tackle this hydra-headed monster that has been prevailing against the implementation of tax reform policies in Nigeria. It is in the light of this that this paper recommends the following as a panacea to the issue:

1. There is need to re-strengthen all taxation institutions in the country in such a way that they become more disciplined, dedicated, committed and impenetrable to the influence of the politico-economic elites. This re-strengthening should be multidimensional in nature so as to affects all aspects of the taxation institutions and make it more efficient in tax administration. This will curb corruption in tax administration and restore standard taxation politics.
2. There should be social and ideological re-engineering of all taxation stakeholders in such a way that their suboptimal mindset is changed through quality psychological reorientation on the need for taxation and the importance of it to the wellbeing of all.
3. There should be constant consultation, enlightenment and sensitization of the citizens on the formulation and existence of new tax reform policies so that they will have a sense of belonging and awareness. This will help promote the compliance of the citizenry in payment of tax and will reduce tax malpractices drastically.
4. There should be routine survey and opinion pool where the citizens will relate to the tax authorities on the performance of taxation and their general opinion towards tax practices in the country. This will be a veritable instrument by the federal government for formulation of policies especially fiscal policies.
5. There should be enforcement of punishment on the offenders of the tax law in pursuant to the stipulation

of the law as this will be a behavioural conditioning tool to make people comply to the payment of their tax to that they won't fall victim to the strong arms of the law. This will help curb the problem of aberration of the tax law and that of non-compliance.

6. An independent panel should be instituted by the federal government to conduct a compulsory quartile and annual audit of tax authorities so as to reduce to the barest minimum the issue of non-remittance of collected revenues.
7. The federal and state government should employ, train and deploy qualified tax administrators to different local regions and should constantly embark on a surprise supervisory visitations to these local areas to ascertain the state of tax related affairs and how the tax administrators in these areas are carrying out their duties.
8. There should be an established annual performance appraisal done along vertical intergovernmental line to assess all tax administrators' performance and determine performance improvement strategies.
9. The government should embark on adequate motivation of tax administrator through welfare packages, improvement of their conditions of work and an increase in their salary. This will limit their corruption rate and the rate at which they are easily induced by bribe both while on the field and while at the office.
10. The government should at the end of every year embark on tax policy evaluation to determine how much of the policy agenda have been actualized, how much impact the policies has had, how the policy has affected the people and how much of the policy should be sustained.
11. There should be a marshaled out policy sustainability mechanism which will not be altered in case of change of regime, to ensure the absolute completion of all positive impact policies established.
12. There should be an institutional mechanism at all levels of government to checkmate fraudulent tax collectors in order to enhance accountability and stewardship in tax administration.
13. The scope of the tax reform policies should be defined, articulated and concise, to facilitate easy accomplishment of the policies.
14. There should be a conduct of non-politically affiliated census and statistical survey for intelligent data and information gathering concerning the population and the taxable persons.
15. There should be equity in incidence, by this I mean that the government should institute a law that will make all Nigerians to pay tax no matter who you are, so that the power-bourgeoisie (politico-economic elites) who boycotts payment of tax would see no escape route.

16. The tax authorities should model increased compliance strategy especially through the consideration of the interests of the taxpayers and stakeholders in fiscal policy formulation and implementation.

## VII. CONCLUSION

Taxation from all indications is a veritable tool through which the government raises income for the sustainability of economic wellbeing of the citizens. It is a fiscal policy instrument that regulates and stirs the economy. Thus how it is used determines the direction that the economy moves towards. Pseudo-taxation politics surely will use taxation as a tool to stir the economy of any nation especially Nigeria to doom. Therefore, there is need for stakeholders in tax administration to take cognizance of the economic relevance of taxation and for that reason, be in compliance with government in tax administration to ensure that false taxation practices does not succeed in its quest, and that the wellbeing of all Nigerians is guaranteed.

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# Mobile Money Market Operations in the Financial Sector: Issues of Financial Inclusion, Savings Mobilization and Investment in Local Economy of Ghana

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**Abstract-** The importance of the financial sector in an economy cannot be overemphasized. Among others, it provides financial resources to support businesses, household consumption as well as public sector investment. However, there is limited access to the facilities provided by the sector in Ghana, hence many people are excluded from benefits that could be obtained from the financial sector. In other words financial exclusiveness is a major challenge in the country. Therefore, introduction of Mobile telecommunication technology and its attendant Mobile Money Market have been received with appreciation to the service providers. Given the modus operandi of the new system it has become necessary to examine the innovation in relation to some variables which influence economic growth as it is expected of activities in the financial sector. Hence some research questions were raised to guide a study in the Mobile Money Market. Has the introduction of Mobile Money Market reduced financial exclusion? To what extent do households use the innovation to mobilize domestic savings? How are the funds in the Mobile Money Market utilized by the owners among others.

**Keywords:** *telecommunication technology, service providers, money market, financial inclusion, savings mobilization, income redistribution, investment, consumption.*

**GJMBR-C Classification:** *JEL Code: B26*



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**Abstract-** The importance of the financial sector in an economy cannot be overemphasized. Among others, it provides financial resources to support businesses, household consumption as well as public sector investment. However, there is limited access to the facilities provided by the sector in Ghana, hence many people are excluded from benefits that could be obtained from the financial sector. In other words financial exclusiveness is a major challenge in the country. Therefore, introduction of Mobile telecommunication technology and its attendant Mobile Money Market have been received with appreciation to the service providers. Given the modus operandi of the new system it has become necessary to examine the innovation in relation to some variables which influence economic growth as it is expected of activities in the financial sector. Hence some research questions were raised to guide a study in the Mobile Money Market. Has the introduction of Mobile Money Market reduced financial exclusion? To what extent do households use the innovation to mobilize domestic savings? How are the funds in the Mobile Money Market utilized by the owners among others. The study revealed that as far as Ghana is concerned the Mobile Money Market is considered as a fast track means of money transfer mainly to relations, for household consumption purposes. Also, interest on savings in the Mobile Money Market is low therefore depositors do not patronise savings in that market. It is important to emphasize that the Mobile Money Market activity is an effective tool for income redistribution among the populace thus minimizing household poverty levels. However, large proportion of the financial activities in the market is for financing consumption and social services such as education an health. This calls for a paradigm shift in the market towards attracting savings and investment to enhance the local economy.

**Keywords:** telecommunication technology, service providers, money market, financial inclusion, savings mobilization, income redistribution, investment, consumption.

## 1. INTRODUCTION

Although the financial sector is an important dimension in every economy, the investment in the sector is limited in many developing countries thereby making branch banking, for example, a small portion of the banking industry. Consequently, large proportion of the population in Ghana, for example, is

unbanked and financially excluded. It is estimated that only about 30 per cent of Ghana's population has access to financial facilities of any kind. Therefore, expanding the financial sector is an important policy in emerging economies. This implies that the financial system ought to be handled effectively for purpose of financial inclusion.

The development of mobile telecommunication technology (MMT) and the introduction of mobile money market (MMM) in recent years, in Ghana, have been received as an appropriate development intervention. The planned expansion of telecommunication facilities has been captured in the 2019 budget estimates of Ghana. In the said budget, the government intends "to provide 400 telephony sites to provide voice signal to 2000 unserved communities, to bridge the digital divide and ensure a nationwide coverage by 2020" (National budget, 2019). However, the gains the citizenry obtain from telecommunication services have to be examined in relation to social and economic benefits for enhanced livelihood and welfare.

Therefore, the research focuses on the importance of mobile money market sub sector in the local economy. The market is operated by telecommunication providers which are companies that do not belong to the financial sector. Among the questions one may raise are the following: Who controls the activities of mobile money providers in the money market? Do the regulators in the country have expertise and resources to control the new sector of the financial system? What rewards do the subscribers/depositors receive from the providers in order to make the market sustainable? among others.

Within the context of financial analysis, a financial system is considered as a framework that allows the exchange of funds between lenders/investors and borrowers. Again, a financial system is regarded as a network of markets and institutions that brings suppliers and demanders of money together for business transactions.

In terms of its structure, the financial system is made up four main pillars namely, financial institutions, financial market, financial instruments and financial

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services. With these dimensions the financial system facilitates the allocation and development of economic resources in time and space in an economy. Therefore, the main goal of the financial system is channeling funds from savers/depositors to borrowers/investors in an economy for investment.

Again, the importance of the activities in the financial system is mobilising small valued savings into profitable large scale investments. Therefore, some economists argue that without effective operations of the financial system, these small savings would not be available for investment in an economy. Therefore, the activities in the mobile money market ought to benefit the economy in terms of facilitation of trading on the local market, diversifying and pooling of risk, mobilize savings and allocate resources to different sectors of the economy.

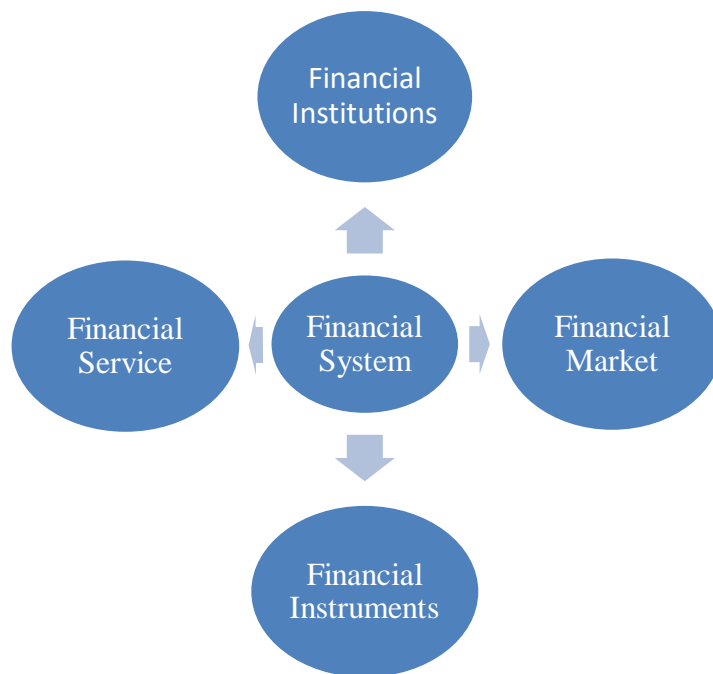
Also, the mobile money market facilitates the exchange of goods and services as well as promotion of technological innovation. This is a positive way of promoting local economy.

## II. THE CHALLENGE

An effective money market is an advantage in every economy as that enables the citizenry to take advantage of all the functions that money performs in an economy. Among others, they are capable of using money as medium of exchange for transaction purpose

instead of going back to barter system. Again, money in the economy offers a standard unit of accounts and above all, it gives the people the opportunity to store the wealth they create in the economy in the form of cash instead of illiquid assets such as marketable agricultural surpluses whose storage goes with challenges. This submission implies that if many people are excluded from the money market that constitutes a huge disadvantage to people as well as the local economy.

For purpose of economic growth, a financial system is established to develop financial institutions, financial markets, financial instruments and above all, provide relevant services in the economy (Figure 1). If an economy requires these financial dimensions for growth, then the performance of some of these functions by Telecommunication firms, with modern technology, instead of traditional financial institutions performing those roles is an issue that calls for critical examination. More so as technology has pushed telecommunication companies into the financial sector to perform some functions and activities traditionally reserved for financial institutions. Do these companies have the expertise and experience to grow the financial sector or they are in there to take advantage of technology under their control to make profit from the financial sector? Again, how do the activities of those companies influence the operations of the traditional financial institutions?



Author's Construct.

Figure 1: Dimensions of the Financial System

Therefore, an exploratory research was undertaken with the view to, among others, identifying focus of Telecommunication firms in the financial sector. To analyse the benefits this innovation from

Telecommunication companies have brought to subscribers or customers. Again, to examine the challenges the innovation has brought into financial

sector. Also, to analyse the influence the firm's activities have on the local economy.

In terms of methodology, the research was exploratory as indicated, therefore, the researcher sought to investigate into the advantages and challenges associated with the mobile telecommunication technology in the financial sector of Ghana. Moreover, its effect on the local economy was of importance in the research as an economy is expected to benefit from any technology introduced into it. The recent introduction of mobile money technology in Ghana has not promoted extensive research in the area hence, knowledge, information and secondary data in the area is limited in Ghana. That necessitated the extensive use of primary data collected from the field. Consequently, basic simple statistical methods were adopted to analyse the relevant data collected from the field.

### III. THEORETICAL OVERVIEW

Based on disaggregated consistency model, the economy of Ghana has been developed into three

Table 1: Growth Rates of Main Sectors of Ghana's Economy. (2012-2017)

Main Sector	2012	2013	2014	2015	2016	2017	Mean
Agriculture	2.3	5.7	4.6	00.0	3.0	8.4	4.0
Industry	11.0	6.6	0.8	9.1	(-1.4)	16.7	7.1
Service	12.1	10.0	5.6	4.7	5.7	4.3	7.1

Author's construct Data Base- Government Statistical Sources

According to the disaggregated consistency model, finance has a role to play in terms of balance in distribution of investment resources. Otherwise, there will be serious disequilibrium in the economy, such as, the negative growth in industry in Ghana in the year 2016. Although, agriculture is an important sector in terms of production of food to feed the populace and being the major source of employment and income in rural Ghana, its growth rate is low compared to the other two main sectors due to low investment in that sector.

Generally, one may argue that every economy has two main sectors namely; Investment Goods Sector (IGS) and Consumption Goods Sector (CGS), if we assume that there is no intermediate transaction between IGS and CGS and that they only purchase or consume final goods from each sector, then outputs of the two sectors will add up to provide the GDP of the economy.

Quantitatively, given the two sectors X1 and X2 the sum of their total output value could be captured as:  
 $X1 + X2 = GDP$

Where

X1- Total output from investment goods sector

X2 –Total output from consumption goods sector

Given marginal propensity to consume (MPC) of 'c' one could argue that the supply of consumption

main sectors namely agriculture, industry and service. The model emphasises that in economic planning, apart from increasing the overall growth rate, it also aims at transforming the sectoral balance of the macro economy. The argument is that a planner should know that since resources flow from one sector to another in the process of economic growth he/she has to ensure that target growth rates satisfy the conditions of "balanced" growth. The main sector models enable planners to break down the aggregate growth target and investment requirements into sectoral targets and requirements, as well as, specify the condition of "balanced" growth so that one sector of the economy might not grow at the expense of another. For example, statistical records in Ghana indicate that economic growth, in relation to, Gross Domestic Product increased from 3 to 7 per cent in 2016 to 8.5 per cent in 2017.

However, with respect to the three main sectors, growth rates were different:

goods should be sufficient to meet demand for consumption goods.

Thus total aggregate supply of consumption goods (X2) given the marginal propensity to consume 'c' is:

$$X2 = c(GDP)$$

$$X2 = c(X1 + X2)$$

$$X2 - cX2 = cX1$$

$$X2(1-c) = cX1$$

$$X2(1-c)/X1 = cX1/X1$$

$$X2/X1(1-c) = c$$

From the equations one could submit that, given "c", the total outputs or productive capacity of the two sectors must bear a constant relationship to each other such that

$$X2/X1 = c / (1-c)$$

$$X2/X1 = MPC/MPS$$

There would be disequilibrium in an economy if the two ratios are not equal.

A typical planning problem is to determine the distribution of investment resources between the two sectors that will ensure a "balanced" growth of the sectors as determined by the expression X2/X1. Given the target (planned) rate of growth of GDP the prevailing MPC determines the demand for consumption goods.

But often the demand for consumption goods tends to exceed the supply from the consumption goods sector in developing countries. If inflation, as a result of shortage in supply of goods, is to be avoided then the productive capacity of the consumption goods sector has to be increased through new investment in that sector.

a) *Savings and Financial Market*

The above submission brings to the fore the importance of savings (MPS) and investment in an economy. In other words, marginal propensity to save is a critical variable in economic analysis as well as the distribution of resources for investment. That supports the importance of both banking and non banking institutions in relation to savings mobilization and investment in an economy. Again, this calls for analysis of the roles telecommunication companies are playing in the financial market

b) *Mobile Money Market Technology and Financial sector*

The Mobile Telecommunication technology Service Providers introduced mobile money market in Ghana in recent past. Since the introduction of Mobile Money Technology (MMT) service in Ghana, its consumption has increased in leaps and bounds. The National Communications Authority (NCA) has estimated that in 2011 the MMT service penetration increased to about a rate of 70 percent, implying that 70 out of 100 Ghanaians owned mobile telephone handsets which are the basis of owning mobile money account. Again, the NCA estimated that in 2010, mobile Telecommunication Services output accounted for 2 percent of the Gross Domestic Product (GDP).

Furthermore, the introduction of low denominated prepaid cards and the steady decline in prices of mobile handsets have tremendously led to a rapid increase in the spread of mobile phones in developing countries. The technology has opened several opportunities in the mobile industry apart from the voice and interpersonal communications. Aside the invaluable mobile communication services offered to users, the technology has brought to the fore innovation with the introduction of mobile money transfer services. At the basic level, mobile money system is the provision of financial services through a mobile device (Donovan, 2012). This broad innovation covers wide range of services such as payments, finance, and banking services. The Mobile Money System is a relatively new addition to the essential communication services provided by mobile telecommunication networks in Africa in general and Ghana in particular.

IV. **MOBILE MONEY MARKET SYSTEM**

This is an agent-assisted, mobile phone-based, person-to-person payment and money transfer system.

In Africa, it was launched in Kenya on March 6, 2007. The popular name in the East African country for the system is M-Pesa (Mobile Pesa). The term 'Pesa' is the Swahili word for Money (Oliver et al., 2012).

It allows users to store money on their mobile phones in an e-account (electronic account) and deposit or withdraw money in the form of hard currency at one of Mobile Money outlets known as Agency. According to Mobile Financial Services (MFS), millions of Africans utilize their cell phones to manage their finances. The service is currently in use in 93 countries across the globe. According to the World Bank, only about 30 percent of Ghana's population, has access to one form of banking services or another. This leaves a gaping figure of 70 percent of the total population are unbanked. How could one promote the importance of saving in an economy without high presence of financial institutions, financial instruments, and financial services in the economy?

A number of reasons have accounted for this unfortunate situation of large unbanked population. Others include ineffective functioning of the financial sector resulting to delays in accessing money; the complex nature of the banking system and excessive bureaucracy in financial transactions (World Bank Report, 2014). There is the failure of Universal banks investing in branch banking as a way of expanding their services.

These handicaps have promoted non formal system of financial operations such as traders or individuals carrying monies on themselves or sending intermediaries with the associated challenges. However, the situation appears to be changing over the last few years in Ghana with the introduction of the mobile money transfer (MMT) services. As a way of attracting customers, some financial institutions have now turned their attention to maximizing their market share by offering Mobile Money Service to their clients. The perceptions of customers on the relevance of the innovation were assessed in the light of the incentives provided to motivate and attract potential unbanked populace.

a) *Mobile Money Market: Service Providers and Customers*

The main service providers in the mobile money market are telecommunication firms which operate mobile phones. According to Bhavnani, et al (2008) mobile phones have become the main form of telecommunication in the developed as well as the developing world. The industry has since the 20th century, witnessed massive growth in a relatively short time span. History has it that, the first billion mobile phones took around 20 years to sell worldwide. The second billion were sold in four years while the third billion were sold in two years.

Mobile Money Service providers in Ghana include firms such as Mobile Telecommunication Network (MTN), Vodafone, Airtel/Tigo and Glo among others. The total number of mobile voice subscribers had increased from 35.8 million at the end of February

2016 to 36.1 million as at the end of March 2016. This represents a percentage increase of 0.84 per cent in a month (NCA, 2016). The average market shares among the companies are distributed as follows:

Table 2: Mobile Money Market Shares by Providers

Companies/Providers	Subscribers/Customers	Percentage Market Shares	Cumulative Percentage
Mobile Telecommunication Network (MTN)	17,004,445,	46.9.	46.9
Vodafone	7,900,534	22	68.9
Airtel/Tigo	10,074,543	28	96.9
Glo	1,048,635	3	99.9
Others	110,549	0.1	100
Total	36,136,708		-

Author's Construct. 2018, Data Base NCA.2016

It is estimated that in 2016, the MTN company controlled about 47 per cent of mobile telecommunication market while the other five companies shared the remaining subscribers, constituting 53 percent among themselves. This implies that mobile money market operations are dominated by MTN subscribers, in Ghana. The activities of those subscribers are the basis for mobilization of surplus household income for savings. However, the rate at which the subscribers/depositors redeem their money from the companies is a critical issue to be considered in financial analysis.

b) *Mobile Phone Subscribers/Customers/Depositors*

Many activities and services take place in the Mobile Money Market with the view to broadening the cash base of the economy as well as making it more cashless. One has to register with one of the Mobile Money Market service providers to have access to the services in the market. Perhaps for the purpose of knowing their customers (KYC) one is required to provide personal identification cards such as Voter identification card, Drivers identification card, Ghana National identification card, and passport. Subscribers who register with the service provider are key players in mobile money market as a result they are given personal phone numbers with identification numbers (PIN). After registration, subscribers are provided services including; Transfer of money to Mobile phone users and non mobile Users. The latter receive Mobile Money services from vendors who have been engaged by the Mobile money service providers. The market could be used to up Air time. A subscriber could take advantage and open an account also known as Wallet with the Mobile Service Provider. The subscriber uses the account to save money or to load the Wallet. Having opened the Wallet and loaded it the subscriber uses it to allow cash out or receive cash on the Wallet. Periodically, a

subscriber could check balance in the Wallet, ask for mini statement and change the mobile money PIN for security reasons. Also, the Wallet could be used to pay for utilities and services with digitized accounts.

The expansion of mobile money telecommunication technology has made money market available in several places thereby bringing mobile money market to the doorstep of the citizenry. However, many people don't have money to register although the technology is available in the country. This implies that it is not only the availability of the technology per se which is relevant in the creation of money market, the ability of the populace to raise money to subscribe to the service is equally critical in terms of the expanding mobile money market.

Furthermore, the extent to which citizenry could diversify the use of the telecommunication technology and create accounts in the mobile money market is important for economic purposes. That is, if subscribers limit the usage of handsets to voice communication without subscribing to accounts then their operation in the money market has been limited. Among others, such a situation might be the result of several factors in the community such as low household income which does not call for any special account, from household point of view, limited knowledge on importance of mobile money market among the populace and above all the very low interest rate paid to depositors in the mobile money market. For example, the study revealed that a subscriber who had 10.78GHs in his wallet in September, 2018 received the message from mobile money service provider in December, 2018.

Dear customer, you have received 0.09GHS from... Mobile Money as interest earned on your mobile money wallet for the period October 2018 to December 2018. Your new balance: 10.88 GHS

Source; Correspondence on Respondent's Wallet, 2019

The quotation implies that the quarterly interest rate on the said deposit in the wallet is 0.83per cent bringing the yearly interest rate on deposit to 3.33per. Such a low interest rate would compel a potential depositor to search through the money market for an offer which is higher than the one the service provider is offering in the Mobile Money Market.

These factors combine to make mobile money market unattractive mechanism for household savings. By extension, the mobile money market is not considered an effective mechanism for mobilizing small household savings in developing countries. The other side of the coin is that if the subscribers in the market are not keen on depositing surplus household incomes in the mobile money market thereby raising loanable funds from the mobile money market, by small scale entrepreneurs for investment, is almost impossible in the local economy. That is by virtue of the fact that loans are generated from savings which translate to investment in the economy.

One could therefore argue that if subscribers in mobile money market are not enthusiastic about deposits in Wallets within the market then MMM system cannot be used as an effective machinery for savings mobilization neither can it be used as source of credit for small scale entrepreneurs who need support to grow their mini businesses.

If the principles of low savings, low credit funds, low interest on deposits are allowed to dominate the mobile money market, then the economic importance of the technology would not be felt even by small scale entrepreneurs. In other words, failure of subscribers to

load their wallets consistently has negative effect on the economy.

It is therefore relevant to examine the backgrounds of the subscribers in mobile money market to enable one to understand their behavior. Using one of the cardinal principles of banking and the financial industry as Know Your Customers (KYC), a field study covering about 162 mobile money subscribers were randomly selected for interview. About 51.9 per cent of the respondents were males and 48.1 females. By implication mobile money services are patronized more by males. If one has to own a mobile handset phones to enable one to register then it implies that more males own mobile phones than females. This might be a reflection of the male dominance in terms of economic power in the household.

As Mobile Money Market is an innovation in the country it became important to assess the sources of information about the Mobile Money Market (MMM). From the respondents, about 58.0per cent [1] indicated that they received information through media advertisement, 24.1 per cent [2] were introduced to the MMM by friends and relatives who are subscribers while 17.9 percentage [3] got the information from offices of the service providers either in the form of text messages or phone calls (Figure 1). The results show that media advertisements play a key role in diffusing the MMM innovation. Therefore if Service Providers wish to increase their subscription coverage in Ghana, media advertisements, could be the best option particularly by radio technology with wider coverage.

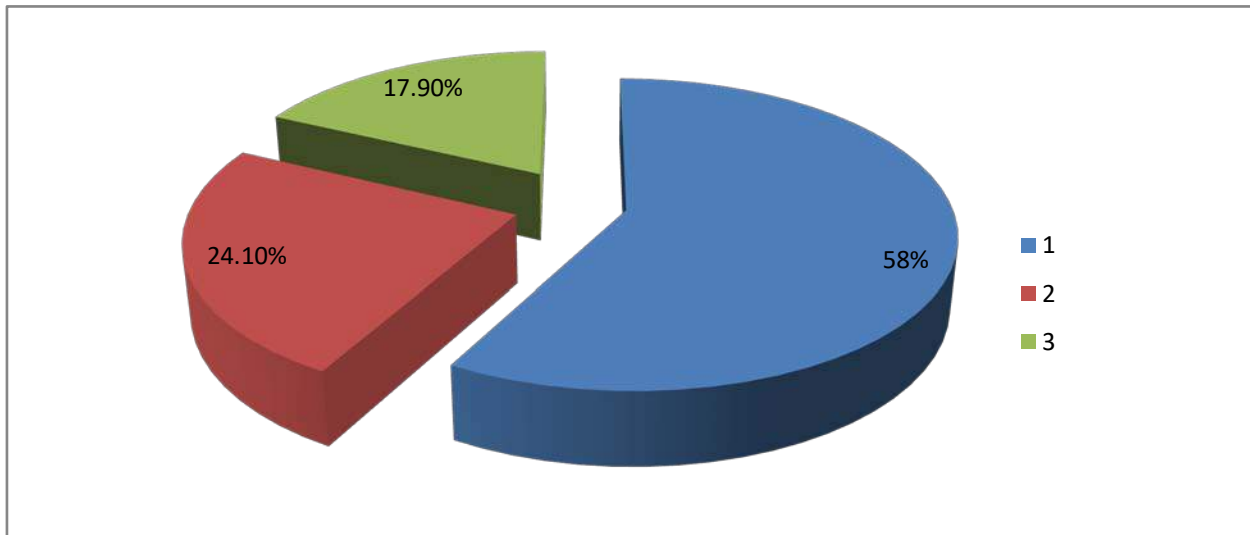


Figure Author's Construct: *Figure 2: Sources of MMM Information*



c) *Relevance of Mobile Money Market from Customers' Perspective*

As a system within the financial sector, respondents were required to rank the factors which make the mobile money market an important innovation in the financial sector. The rating was based on selected indicators, Likert scale, Very Low [1], Low[2], Can't tell[3],High [4] Very high[5] and the Rank Importance Index(RII).

The indicators include:

- i. *Accessibility*: The ability to locate and arrive at the MMM service point without walking more than one kilometer
- ii. *Convenience*: To access the service without going through any complicated processes.
- iii. *Reliability*: The dependability of the service in terms of time spent on consuming the service.
- iv. *Safety*: The issue about security of deposits.

v. *Quality*: Nature of service provision with few technical hitches.

vi. *Cost*: How much do Customers pay for accessing the service?

As well as MMM activities' influence on livelihood, that is the positive effects of the innovation on improvements in livelihoods.

Since rural economies are based on small scale farming and petty trading economic activities as means of livelihood, many communities do not have formal institutions for saving money such as Banks, Savings and Loans and Micro Finance companies to enable them engage in official financial transactions. The Mobile Money Service therefore remains the formal visible form of engaging in financial transaction in many communities.

Given the indicators outlined above, the respondents' rankings of the indicators are summarized in Table 2 below

Table 2: Relative Importance Index of MMM Services in by Subscribers.

Likert Scale	Very Low [1]	Low [2]	Don't Know [3]	High [4]	Very High [5]	Frequency	Weighted Rank	Weighted Mean	Relative Importance Index(RII)
Convenience	4	20	34	41	63	162	625	3.86	0.77
Reliability	5	24	37	44	52	162	601	3.71	0.74
Accessibility	9	20	41	43	49	162	581	3.59	0.72
Quality	1	31	32	53	45	162	596	3.68	0.74
Safety	4	18	34	39	67	162	633	3.91	0.78
Cost	5	52	42	35	28	162	515	3.18	0.64

Author's Construct. Field Data

The qualitative analysis shows the Relative Importance Index (RII) of the selected indicators (Table 2) in relation to the operations in Mobile Money Market from subscribers' perspective. The subscribers indicated that "Safety" of their money and "Convenience" for doing business as the two major factors which make the Mobile Money Market System relevant and attractive to them. This is unlike other options of handling money such as hand delivery or traditional banking system, customers are exposed to several risks such as missing cash in the case of person to person delivery also one has to pass through cumbersome processes in the case of doing business in the formal banking sector.

Again, the RII shows in subscribers' opinions Reliability and .Quality of service also attract them to Mobile Money Market. Accessibility and cost are the less important factors that would attract them to the MMM.

Another major objective of this study was to assess the main activities respondents perform in the MMM. About 78 per cent indicated that they use the system for money transfer. Also, about 4.3 per cent use their accounts to pay for goods and services. As a telecommunication device about 9.5 per cent use it to

top up Airtime and data and 8.5per cent for other activities. The purpose for which transferred money is used was investigated and it became evident that about 31per cent of the respondents use the money to buy food and other items for the household, 28 per cent used it to purchase farm inputs and labour for farming. Also, about 22 per cent indicated that the money is used for educating their kids, whilst 11per cent use the money to pay for utility bills with 8 percent using it to finance health expenses. This indicates that the transfer system mainly supports consumption as against short term investment. Again, the system facilitates transaction activities more than savings mobilisation.

Again, transactions in the MMM are related mainly to social relations such as families, friends and partners and employers. It was realized that many of the respondents do not receive transfers from employers because they are self employed (Table 3).

Table 3: Sources of Mobile Money Transfers

Sources of Transfer	Frequency	Percentage	Cumulative Percentage
Relatives	105	64.7	64.7
Friends	33	20.4	85.1
Business Partner	21	13	98.1
Employer	3	1.9	100
Total	162	100	

Author's Construct: Field Data

The results in Table 3 show that the basis of many transfers, that is about 85.1 per cent is socially motivated while only 14.9 per cent is economic. In this context, one could argue that MMM is used mainly for income redistribution but not income generation.

d) *Mobile Money Market and Service Providers*

Mobile Money Market service providers, in Ghana, operate as registered limited companies under the company Code, 1963 (Act 179) to obtain business registration certificates to operate. The Law compels them to set up management structures and board of directors to supervise the operations. In addition, some of the companies have regional offices to manage the regional markets.

Basically, the service providers are telecommunication firms therefore, they operate under the Ministry of Communications, licensed and regulated by National Communication Authority. This raises the issue of the specific role of Bank of Ghana in the operation of the Mobile Money Market. Given the failure of the Bank of Ghana to effectively regulate the banking sector of Ghana, in recent past, one could argue that Bank of Ghana does not have adequate logistics and human capital to manage the entire financial sector. Therefore to bring the mobile money market activities under the control and regulation of the Bank of Ghana would leave much to desire. On the other hand, the National Communication Authority might not have the expertise to control and monitor activities taking place in the financial market. The peculiar nature of this mobile money market creates a grey area which calls for immediate attention if the system is not to be abused.

The mobile money market service operators indicated that the decision to introduce Mobile Money Service was basically to create more value added service for their valued customers. The companies are of the opinion that the communication industry was moving to an era where technology is used to develop more innovative services to serve as another revenue stream for telecommunication businesses in order for them not to depend solely on revenue from voice services. They stressed that telecommunication business was evolving daily and for a company to remain competitive, there was the need to also innovate in order to remain competitive and be ahead of other competitors in the industry. This implies that the companies make profit maximization a major focus as

they regard the new innovations an additional revenue stream to improve cash flow.

## V. BUSINESS ORGANISATION

The companies operating in Ghana, in terms of organizational structure, have Strategic Business Units (SBU) in South East, South West and Northern parts of Ghana and each SBU has its own distribution infrastructure which is managed by a key distributor. The companies have their own staff in all the SBUs who supervise the operations of the distributors. All customers and agents, who are selected based on possession of valid national photo identification card including Voter's ID, National ID, National Health Insurance Service ID, Driver's License and Passport among others, are managed through this system. The companies also have good working relationship with their agents. This is evidenced in the frequent periodic meetings with the cluster merchants or the general merchants. At those meetings, opportunities are given to all stakeholders to share ideas and discuss developments with respect to the service.

Again, the companies meet their agents periodically to discuss introduction of new services or new promotions. The periodic reports the companies receive include complaints on fraud issues, lost SIM cards, incorrect commission payments and wrong transactions among others. The companies do handle complaints directly from customers, especially, in matters that cannot be handled by agents such as SIM blocking and replacements in case a subscriber loses his/her hand set. Some of the issues are reported through a toll free line which has been set up to handle customer complaints or the customers go directly to the company's office to complain.

For the safety of customers' accounts, it was indicated that the services provided are based on Banking Industry Security. Furthermore, one's account is password protected, data is encrypted requiring user authorization which comes in the form of profile specificity whilst confidentiality of the account holder's password is also assured. Although these measures have been put in place, the rate at which cyber crime is spreading in the market is alarming in Ghana.

## VI. KEY FINDINGS

The introduction of Mobile Money Market has drawn many people into the money arena through subscription thereby drawing individuals and mini business units into the financial sector without paying any fees. However, one has to be a subscriber of one of the telecommunication service providers in order to benefit from the services on the market.

It is important to observe that both males and females have been brought to the financial arena without discrimination. That is both males and females have benefited from the system. The service is largely relevant to low income earners because they see it as safer, convenient and reliable means of transferring and receiving cash amongst the populace.

Many depend on the system to transfer cash from relatives and friends. The cash received are used for purchasing food, household items as well as farm inputs. The system has helped to improve financial inclusion, towards the redistribution of income in some low income households, thus helping in the reduction of poverty in communities.

The subscribers consider the system as convenient and safe compared to formal and semi-formal systems of cash transfer which are associated with challenges such as delays in processing, potential danger of money being stolen or not reaching its destination among others.

Although, the technology has made transfer and handling of money easier and reliable, however, the unreliability of the telecommunication network system in many parts of Ghana is a big challenge in the introduction of mobile money market with the view to enhancing financial inclusion in the country.

With the introduction of the innovation in predominantly underdeveloped regions media advertisement, especially radio, was identified as the best means of spreading information on the money market in Ghana. Although friends and relatives also do share the information only few subscribers could receive direct information from the providers.

In terms of the economy, few subscribers use their wallet as means of savings. Many subscribers regard MMM mainly as conduit for rapid money transfer. In other words, Mobile Money Market system is a failure in terms of savings mobilization as many subscribers do not save in their accounts. They use the system to transfer money to improve upon redistribution of household income to supports citizenry to enhance their socio-economic lives. One critical reason for low savings mobilization in the Mobile Money Market is the low interest rates, estimated as 3.33per cent per annum paid on deposits by the service providers.

Also, it has been identified that greater proportion of the money transferred through the MMM system is spent on consumable goods including food,

household items as well as expenditure on other social services such as health and education. In other words, the system promotes marginal propensity to consume at the expense of propensity to save which would lead to investment and growth.

There is a grey area as to which institutions are controlling, regulating and monitoring the mobile money market in Ghana. Presently, it is in the hands of telecommunication service providers which work under Ministry of Communications and regulated by the National Communication Authority. The point is, which is more important to take care of in the money market, is it the technology operating the market or the money that is flowing through the market?

The firms have emphasized that the goal for introducing mobile money market System, was to ensure value added services to their customers and widen their revenue base. They argue that telecommunication industry is moving to an era where technology is used to develop more innovative services for profit.

In terms of policy to guide the Mobile Money Market in Ghana, the major stakeholders, such as, Bank of Ghana, the Legislature and the Service Providers, unanimously agree on the need for some effective policy guidelines to ensure that the system is free from any form of manipulation or fraud. Whilst the Service Providers on their part, believe they have enough security measures in place to check fraud and other forms of financial crime. What is happening in the sector implies that there is a long way to go in operating an effective mobile money market. The caution is that any policy framework to be developed should ensure that the innovation is not stifled. In other words, policies should aim at improving innovation and promoting growth in the economy.

## VII. RECOMMENDATIONS

It cannot be overemphasized that mobile money market is an important sector of the money market. Among others, it facilitates redistribution of household income and thereby promoting financial inclusion. The utilization of the resources that flow through the market helps some households to obtain their daily bread and enhance their livelihood.

Practically, the service providers have to operate the two services separately. It would be useful for the service providers to be asked to establish subsidiary companies that will take care of their operation in the Mobile Money Market. Those subsidiary companies should have separate Management Systems and staff who are experts in banking and Information Communication Technology. Also the subsidiaries must be financially independent from the mother companies. Again, subscribers could be made share holders of the subsidiary companies instead of the mother companies.

Since the subsidiary companies are financial firms they should be licensed by the Bank of Ghana.

The point is to allow subscribers to own shares in the subsidiary companies would enhance savings in the companies for reason of being partner in ownership and earn dividend. This implies that the establishment of Money Market companies would also promote savings mobilization in the economy and thereby increase household marginal propensity to save.

Since the Bank of Ghana has a lot of responsibilities of controlling the entire financial sector it would be proper to establish an Authority or Commission to be responsible for developing Mobile Money Market like the Security and Exchange Commission.

With huge investment the government is making in telecommunication sector (Budget, 2019), it is necessary that the networks are used to enhance the economy instead of using it for voice and social services. In other words, the network should be utilized to reduce poverty through savings mobilization, investment with the view to improving the general condition in the macro economy for growth.

Whilst the decision to pay interest to subscribers of mobile money is a laudable idea, the Bank of Ghana must develop effective mechanisms to check all forms of irregularities in interest rates structure and systems of payments. The incentive packages to agents must be reviewed to keep them at work.

Above all, the Bank of Ghana, the Legislature (The Parliament of Ghana) and the Service Providers must collaborate effectively in ensuring that appropriate legal and operational measures are introduced to safeguard the security and sustainability of the MMM system in Ghana.

## VIII. CONCLUSION

One might conclude that the MMM innovation has come to stay, for that matter it has to be managed in such a way that all the major stakeholders, namely, subscribers, agents service providers, government and citizenry benefit proportionately from the innovation. The innovation should go beyond voice communication and promote activities that would enable the subscribers to reduce poverty and promote welfare of the citizenry. Once subscribers are depending on the system to obtain fast track transfers for consumption purposes only, the innovation would not promote growth. In this respect, the innovation is being used for income redistribution and financial inclusion in areas where mainstream banking or orthodox means of transferring cash do not reach. In a positive sense, MMM innovation should be managed to create wealth to improve livelihood. Therefore, one could conclude that increased financial inclusion in an economy without growth and enhanced welfare is a failure.

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GLOBAL JOURNAL OF MANAGEMENT AND BUSINESS RESEARCH: C  
FINANCE

Volume 19 Issue 2 Version 1.0 Year 2019

Type: Double Blind Peer Reviewed International Research Journal

Publisher: Global Journals

Online ISSN: 2249-4588 & Print ISSN: 0975-5853

# La Contribution Des Etablissements De Microfinance A L'inclusion Financiere En Zone Cemac

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**Abstract-** This work aims to assess the effects of financial inclusion on economic growth in the CEMAC zone. The approach used for financial inclusion is that of microfinance, which is defined as an activity carried out by approved entities that do not have the status of a bank or financial institution. The study period extends from 2007 to 2016, the software used for data analysis is EViews, it is accompanied by two econometric tests namely the VAR model (which establishes the causal link) and the Granger causality (from which two-dimensional causality results). The results of this empirical study show that the level of savings, the volume of credit, the number of agencies and the population have a positive and significant influence on financial inclusion. Monetary authorities must therefore contribute to improving financial inclusion, in particular by promoting citizen's financial education, setting up a platform for financial support system. Tracking progress in terms of financial inclusion and tools for promoting financial inclusion in CEMAC zone.

**Keywords:** contribution, microfinance, financial inclusion, CEMAC.

**GJMBR-C Classification:** JEL Code: G21



*Strictly as per the compliance and regulations of:*



# La Contribution Des Etablissements De Microfinance A L'inclusion Financiere En Zone Cemac

Tangakou Soh Robert

**Resume-** Ce travail se propose d'apprécier les effets de l'inclusion financière sur la croissance économique en zone CEMAC. L'approche utilisée pour l'inclusion financière est celle de la microfinance qui se définit comme une activité exercée par les entités agréées n'ayant pas le statut de banque ou d'établissement financier. La période d'étude s'étend de 2007 à 2016, le logiciel utilisé pour l'analyse des données est EVIEWS, celui-ci est accompagné de deux tests économétriques à savoir le modèle VAR (qui permet d'établir le lien de causalité) et le test de causalité au sens de Granger (duquel découle une causalité bidimensionnelle). Les résultats dégagés de cette étude empirique montrent que le niveau d'épargne, le volume de crédit, le nombre d'agences et la population influencent positivement et significativement l'inclusion financière. Les autorités monétaires doivent donc contribuer à l'amélioration de l'inclusion financière notamment par la promotion de l'éducation financière des citoyens, la mise en place d'une plateforme pour le financement des startup et la mise en place d'un dispositif de suivi des progrès en terme d'inclusion financière et des outils pour la promotion de l'inclusion financière en zone CEMAC.

**Mots-clés:** contribution, établissements de microfinance, inclusion financière, CEMAC.

**Abstract-** This work aims to assess the effects of financial inclusion on economic growth in the CEMAC zone. The approach used for financial inclusion is that of microfinance, which is defined as an activity carried out by approved entities that do not have the status of a bank or financial institution. The study period extends from 2007 to 2016, the software used for data analysis is EVIEWS, it is accompanied by two econometric tests namely the VAR model (which establishes the causal link) and the Granger causality (from which two-dimensional causality results). The results of this empirical study show that the level of savings, the volume of credit, the number of agencies and the population have a positive and significant influence on financial inclusion. Monetary authorities must therefore contribute to improving financial inclusion, in particular by promoting citizen's financial education, setting up a platform for financial support system. Tracking progress in terms of financial inclusion and tools for promoting financial inclusion in CEMAC zone.

**Keywords:** contribution, microfinance, financial inclusion, CEMAC.

## I. INTRODUCTION

Selon Helms (2006), la micro finance tient son origine des services financiers informels existants depuis des siècles. La première boutique de prêts

sur gage est née en Europe en 1462, dans le but de lutter contre les pratiques usuraires. Mais ce n'est qu'en 1515 que l'on autorisera la facturation du taux d'intérêt selon Helms (2006). La première société coopérative et de crédit (SACCO), quant à elle, fut fondée en Rhénanie, en 1849, tout en s'appuyant progressivement sur l'épargne collectée pour octroyer des crédits, c'est-à-dire en mutualisant l'épargne des uns pour la prêter à d'autres (Boyé et al., 2006).

Au sein de la sous-région CEMAC, le premier EMF<sup>1</sup> voit le jour au Cameroun, la micro finance sous sa forme traditionnelle (tontine) date de plus d'un siècle (Creuset, 2006). Elle a démarré de manière formelle en 1963 avec la création de la première coopérative d'épargne et de crédit (« Credit Union » ou « Caisse Populaire » ou « Coopec ») en zone anglophone du Cameroun sous l'impulsion des missionnaires hollandais (Ces Coopec sont aujourd'hui regroupées au sein de la Cameroon Cooperative Credit Union League (CamCCUL), le plus grand réseau des établissements de micro finance du Cameroun. Ce réseau a même créé en 2000 une banque commerciale : l'Union Bank of Cameroon. Mais la microfinance n'a cependant connu un essor remarquable et ne s'est diversifiée qu'à partir du début des années 90 à la faveur des lois n°92/006 du 14 août 1992 relative aux sociétés coopératives et aux groupes d'initiative commune. Il faut également signaler ici, que la crise du secteur bancaire de la fin des années 80 et la restructuration de ce secteur qui a suivi ont entraîné la liquidation de plusieurs banques, la fermeture de la presque totalité des guichets de banques dans les zones rurales et les petites villes, et le licenciement de nombreux cadres de banques. Ces derniers vont se reconverter en créant de nombreuses Coopératives d'Epargne et de Crédit (Coopec) fonctionnant ou essayant de fonctionner comme des quasi-banques.

En termes généraux, la microfinance est la provision d'une variété de services financiers à ceux qui sont exclus du système formel (Burritt, 2006) et parfois pour des motifs d'ordre financier, social, culturel et de genre.

La micro finance représente l'intermédiaire bancaire classique en faveur des pauvres qui sont

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<sup>1</sup> Etablissement de MicroFinance

généralement exclus du système bancaire classique (Kobou et al., 2009). C'est sans doute la raison pour laquelle l'objectif généralement attribué à la microfinance est celui de réduction de la pauvreté (Hermes & Lensink, 2007; Kobou et al., 2009).

De façon générale, la microfinance se réfère à une vision du monde où « le maximum de foyers pauvres ou assimilés peuvent avoir un accès permanent à une gamme de services financiers de grande qualité et adaptés à leurs besoins incluant non seulement le crédit mais l'épargne, l'assurance et les transferts de fonds »<sup>2</sup>.

Selon le règlement 01/02/CEMAC/UMAC/COBAC, « la microfinance est une activité exercée par les entités agréées n'ayant pas le statut de banque ou d'établissement financier. Les activités pratiquées par celle-ci sont les opérations de crédit et/ou de collecte de l'épargne, elle offre des services financiers spécifiques au profit des populations évoluant pour l'essentiel en marge du circuit bancaire traditionnel ». Sur le plan pratique, les EMF se différencient des établissements de crédit notamment parce qu'ils ne sont pas habilités à effectuer directement des opérations avec l'étranger (achat/vente des devises, remise documentaire, crédit documentaire...), et ils ne sont pas agréés à effectuer des opérations directement sur le marché monétaire (ils encaissent les chèques des établissements de crédit dont leurs clients sont bénéficiaires à travers des comptes qu'ils sont tenus d'ouvrir dans les banques).

Le règlement ci-dessus relatif aux conditions d'exercice et de contrôle de l'activité des EMF dans la zone CEMAC, regroupe les établissements en trois catégories qui sont:

Les *EMF de catégorie 1*, ils procèdent à la collecte de l'épargne de leurs membres qu'ils emploient en opérations de crédit. Ils ne fonctionnent qu'avec leurs membres c'est-à-dire que chaque client détient une part d'actions dans le capital de l'entreprise, ce sont des mutualistes. Ils peuvent aussi être des coopératives ou des établissements de type associatif. Nous citons à titre d'exemple la Mutuelle de Crédit Communautaire (MC<sup>2</sup>).

Les *EMF de catégorie 2*, ceux-ci ont une caractéristique différente du premier type à savoir qu'ils accordent des crédits aux membres et non membres. Dans la même lancée ils collectent les dépôts des épargnants. Ce sont uniquement les sociétés anonymes. Comme exemple nous avons Express Union finance S.A.

Les *EMF de catégorie 3* ont une particularité, ils fonctionnent sous forme de réseau. Ceux-ci accordent des crédits aux tiers sans exercer l'activité de collecte de l'épargne (les établissements de microcrédit, les

projets, les sociétés qui accordent des crédits filières ou les sociétés de caution mutuelle).

S'agissant du capital social minimum, pour les *EMF de première catégorie la réglementation* en CEMAC n'exige pas de seuil. Par contre les établissements de deuxième catégorie doivent obligatoirement détenir un capital social minimum de 300 millions XAF, quant à la catégorie 3 la réglementation exige 150 millions XAF à titre de capital minimum et ceci depuis la dernière assemblée de la COBAC qui s'est tenue le 25 juin 2018. Selon le nouveau règlement diffusé actuellement par la COBAC, le capital social des EMF de deuxième catégorie passe de 50 millions XAF à 300 millions XAF suivant le chronogramme ci-après : 100 millions XAF au 1<sup>er</sup> janvier 2018, 150 millions XAF au 1<sup>er</sup> janvier 2019, 200 millions XAF au 1<sup>er</sup> janvier 2020, et 300 millions XAF au 1<sup>er</sup> janvier 2021.

Pour les EMF de troisième catégorie, le capital social augmente de 25 millions F CFA à 150 millions F CFA suivant les délais ci-après : 50 millions F CFA au 1<sup>er</sup> janvier 2018, 75 millions F CFA au 1<sup>er</sup> janvier 2019, 100 millions F CFA au 1<sup>er</sup> janvier 2020, et 150 millions F CFA au 1<sup>er</sup> janvier 2021.

En 2014, la sous-région CEMAC comptait par ailleurs 13 réseaux dont 06 au Cameroun, 05 au Tchad, 01 en Centrafrique et 01 au Congo. Ainsi le Cameroun détient le plus grand nombre d'EMF affiliés à un réseau (269), suivi du Tchad (180) et du Congo (34). Il y a lieu de souligner qu'il existe une différence non négligeable entre le nombre d'établissements agréés et ceux effectivement en activité considérablement faible. A travers le tableau suivant, nous allons détaillé de manière assez claire l'évolution du nombre d'avis conformes délivrés au sein de la CEMAC, sur la période allant de 2012 à 2014.

<sup>2</sup> Financial institutions with a double-bottom line : implications for the future of microfinance, Robert Peck Christen, Richard Rosenberg & Veena Jayadeva ? CGAP Occasional paper, July 2004, pp. 2-4.

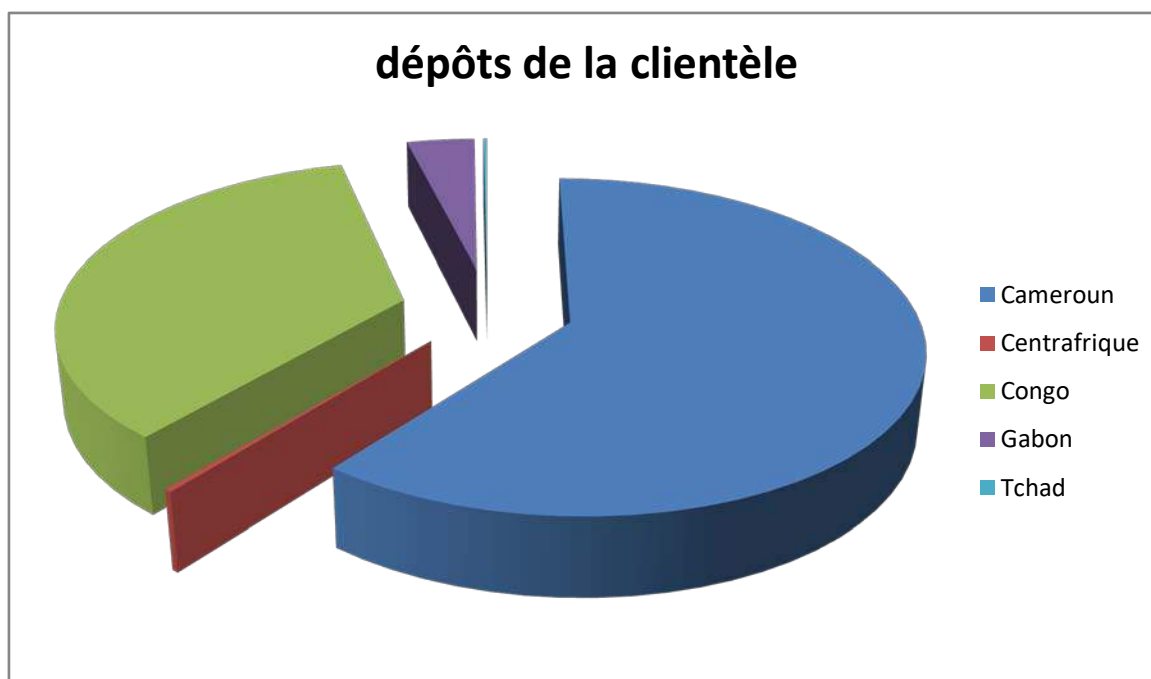
Tableau 1: Evolution du nombre d'avis conformes délivrés par la COBAC

Pays/années	2012	2013	2014	2015	Juin 2016
Cameroun	509	510	512	516	521
Centrafrique	24	24	24	24	24
Congo	64	64	64	67	67
Gabon	10	10	10	12	13
Guinée équatoriale	-	01	02	03	03
Tchad	176	176	196	197	197
Total	783	785	808	819	825

Source: Construit par l'auteur

Le secteur de la microfinance connaît une croissance assez importante des activités, au cours de ces dernières années, cette croissance concerne à la

fois les dépôts et les crédits effectués par les clients de l'ensemble de la zone.



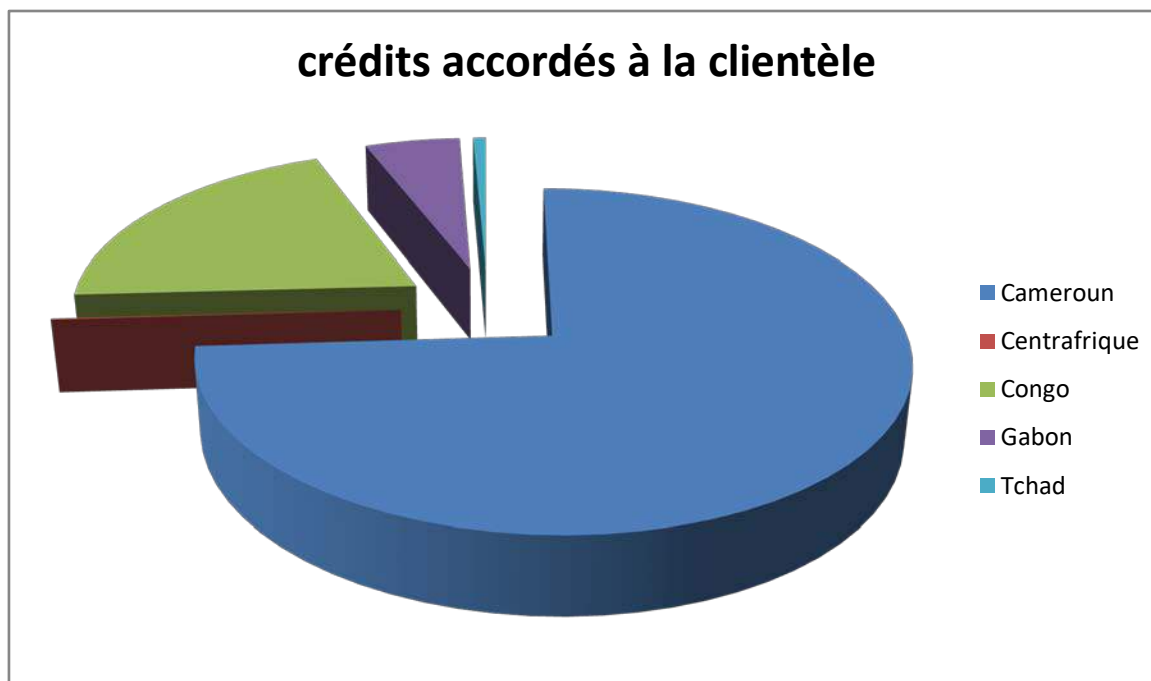
Source: Rapport COBAC 2014

Graphique 1: Répartition par pays des dépôts des EMF de la CEMAC de la clientèle au 31/12/2014

Les dépôts collectés s'élèvent à 847 milliards XAF (soit 77% du total du bilan). Ils se sont accrus de 17,4% en variation annuelle. Les dépôts de la clientèle progressent dans l'ensemble des pays, excepté au Gabon, où ils ont décliné de 1,3 milliard XAF (-4%). L'accroissement des dépôts est plus marqué au Cameroun, en Centrafrique et au Congo, avec respectivement 22%, 17% et 13% de taux de variation entre 2013 et 2014. Par ailleurs, le Cameroun et le Congo sont les pays qui contribuent le plus aux performances réalisées en matière de collecte des dépôts, avec respectivement 60% et 35% du total des dépôts dans la CEMAC.



## crédits accordés à la clientèle



Source: Rapport COBAC 2014

Graphique 2: Répartition par pays des dépôts de la clientèle au 31/12/2014

Les crédits bruts à la clientèle sont de 458 milliards XAF. Ils sont en hausse de 18,8%, en comparaison avec leur niveau de décembre 2013. Cette hausse émane principalement des secteurs de la microfinance camerounais, congolais et gabonais, dont l'augmentation des crédits bruts représente respectivement 74%, 20% et 5% de l'accroissement de ce poste du bilan.

Les crédits nets à la clientèle s'établissent à 409 milliards XAF, soit 38% du total du bilan à fin 2014, contre 31% douze mois plus tôt. Ils ont progressé de 19,3 % par rapport à la situation de décembre 2013. La progression des crédits nets est tirée principalement par les établissements de micro finance du Cameroun, du Congo et du Gabon.

## II. REVUE DE LA LITTÉRATURE

Toutefois, contrairement à ce que l'on pourrait penser, les microcrédits ne sont pas destinés uniquement aux pays du tiers monde. En effet, la microfinance existe même dans les pays occidentaux. On note la présence d'institutions de microfinance appelées institutions de crédits solidaires en France tel que l'association pour le droit à l'initiative économique (Adie France). Les institutions de micro finance se retrouvent également aux Etats unis. En effet, il existe plus de 400 programmes de micro crédits (Himes and Servon, 1998). En 1996, ces programmes ont octroyé plus de 44 millions USD à 200 000 personnes (Edgcomb, Klein & Clark (1996)). Ainsi, on peut affirmer que le phénomène du microcrédit est planétaire.

Ahlin et al., (2006) observent que les établissements de microfinance sont en mesure de mieux couvrir leurs coûts lorsque la croissance du pays est plus forte et qu'elles ont des coûts opérationnels moins élevés lorsque les systèmes financiers sont plus développés.

L'offre limitée des services financiers peut également expliquer l'exclusion financière. Rappelons que les organisations financières allouent du crédit sur la base de profits espérés (Gauthier et al., 2003). Les chercheurs s'entendent pour dire que des facteurs importants influencent les risques et les coûts liés à la clientèle à moindres revenus pour les prestataires.

La proximité des points d'EMF est un facteur déterminant dans la classification des clients, ainsi certains clients sont exclus du système de façon volontaire ou involontaire. L'exclusion volontaire se réfère à une situation où les individus ont accès aux services financiers mais décident de ne pas les utiliser. Selon Claessens (2006), et Beck & De la Torre (2006), ce type d'exclusion financière vient d'un manque de demande qu'une insuffisance d'offre de services. D'abord, certains individus peuvent croire ne pas avoir besoin des produits financiers (Kempson et al., 2000 ; Claessens, 2006). De surcroît, Chidzero et al., (2006), et Demircuc-Kunt (2008) notent que certaines personnes ne cherchent pas à accéder elles-mêmes aux services financiers, car ils utilisent déjà les services financiers d'un membre de leur foyer ou d'un ami (accès indirect). De plus, les gens peuvent se méfier du personnel des organisations et des produits financiers complexes (barrière psychologique) et restreindre leurs demandes

auprès des intermédiaires financiers (Morvant-Roux & Servet, 2007 et Ramji, 2009). Enfin, des motifs religieux ou culturels, comme la langue, expliquent une part de

l'exclusion volontaire (Kempson et al., 2000 ; Beck et al., 2007).



Graphique 3: Du microcrédit à l'inclusion financière

Seulement crédit	Gamme de services	Accès, utilisation, qualité
ONG et IF non bancaires	Variétés d'Institutions financières	Télécommunication, assurance
Réseau traditionnel d'agences	Agences et réseau social	Finance digitale
Entrée de gamme, standardisation	Diversification, protection, consommateur	Flexibilité et innovation

Pauvres actifs(jeunes, femmes..) Segments Accès universel

Source: Banque Mondiale, 2012

Au regard de l'évolution de son environnement la microfinance moderne s'est déclinée par divers sous-produits (la tontine, la microassurance, le microcrédit, la microépargne, la finance solidaire et la finance islamique) dont il s'avère important d'aborder les diverses modalités de fonctionnement.

Selon Lelart (1990), la *tontine* est une pratique informelle d'épargne et de crédit dans les pays en voie de développement. Les tontines existaient bien avant l'introduction de la monnaie dans les économies. Elles plongent leur racine dans l'histoire lointaine des peuples concernés. Les africains se sont depuis longtemps groupés pour travailler ensemble et successivement dans le champ de chacun d'eux ou construire chaque maison l'une après l'autre dans le village. Selon Bekolo Ebe (1996), cinq types de tontines sont représentatifs du système tontinier du Cameroun: *la tontine simple* ; *la tontine simple avec caisse de prêts*; *la tontine avec caisse de prêts et de secours*; *la tontine avec enchères non capitalisées*; *la tontine avec enchères capitalisées*. L'importance des tontines est telle que qu'il faut tenir compte aujourd'hui de ce phénomène dans l'analyse du développement. De plus, la question du développement financier et de son rôle dans l'évolution économique des pays en développement est de plus en plus débattue par les experts. Selon le FMI (2018), les tontines peuvent booster l'inclusion financière (d'une valeur d'environ 10%) au Cameroun. Partant du principe que les autorités camerounaises reconnaissent l'importance et la complémentarité qu'offrent les tontines (d'un poids de 90 milliards F CFA selon le ministère des Finances) au secteur financier, le FMI affirme dans son étude que, la participation du

Njangui<sup>3</sup> ouvre aussi des possibilités de prêts par les banques et les établissements de microfinance, grâce aux garanties collectives et morales qu'apporte le groupe.

Selon le BIT<sup>4</sup> (2008), la *microassurance* est un mécanisme de protection de personnes à faible revenu contre les risques (accident, maladie, décès dans la famille, catastrophe naturelle...) en échange du paiement des primes d'assurance adaptées à leurs besoins et niveaux de risque. Elle cible principalement les travailleurs à faible revenu des pays en voie de développement, particulièrement ceux qui travaillent dans le secteur informel qui sont souvent mal desservis par les assureurs commerciaux et les systèmes d'assurance sociale. Churchill (2006) parle des deux faces de la microassurance, qui ont une seule finalité: la réduction des vulnérabilités et de la pauvreté. La microassurance (ou assurance inclusive) a pour objectif de proposer des produits assurantiels spécifiques, destinés à une population aujourd'hui exclue du système traditionnel, par méconnaissance ou absence de moyens financiers.

Le *microcrédit* est intimement lié à la microfinance moderne. Armendariz de Aghion & Morduch (2005) définissent le microcrédit comme les petits prêts composés de petites garanties, offerts à la clientèle microfinancière. Pour Ghazanfar & Rallens (2006), le microcrédit est la partie des prêts de la microfinance. Lelart (2005) perçoit le microcrédit comme un petit crédit, un montant peu élevé sensiblement inférieur à un crédit qu'une entreprise peut solliciter

<sup>3</sup> Synonyme de tontines, dans la culture anglo-saxonne du Cameroun.

<sup>4</sup> Bureau International du Travail

d'une banque. Selon Schreiner & Léon (2001), le microcrédit est l'un des principaux éléments de développement de la microfinance et de lutte contre la pauvreté. Le microcrédit et la microépargne sont les facettes principales de la microfinance.

La *microépargne* est définie comme une réserve d'argent constituées de petites sommes qui n'ont pas été consommées, ni par des dépenses contraintes, ni par les dépenses quotidiennes. Elles auraient été invisibles si elles n'étaient pas mises de côté. Grâce à ces microéconomies se constitue la microépargne. L'épargne est fondamentalement une mesure de sécurité personnelle, soit pour se prémunir contre les évènements inattendus, soit pour assurer son développement économique. L'épargne est aussi un moyen de lutte contre la pauvreté et le surendettement. La microépargne est destinée à jouer plusieurs rôles: Constituer un financement capable de garantir les risques de non remboursement d'un membre du groupe; Permettre au groupe d'obtenir un volume de crédit plus élevé; Constituer une base de financement endogène pour une institution de microfinance.

Le *système bancaire islamique* doit son existence à l'idéologie islamique dans son ensemble. Celle-ci étant fondée sur la valeur de la justice sociale qui constitue la pierre angulaire de l'économie islamique. En effet, le système bancaire islamique est fondé sur le principe de partage des intérêts, et des pertes et ne se réduit pas à un système bancaire sans taux d'intérêt. Le marché mondial de la finance islamique a connu une croissance de 7% pour se porter à 2000 milliards de dollars US à fin 2015, et pourrait atteindre 3000 milliards de dollars US à l'horizon 2020, selon la Conférence Mondiale de la Finance Islamique tenue en décembre 2015 à Bahreïn<sup>5</sup>. La part de l'Afrique reste relativement faible environ 1%. En Afrique beaucoup de pays font des efforts afin d'intégrer les couches musulmanes défavorisées au circuit financier avec la création des EMF islamiques, afin d'améliorer le taux d'inclusion financière. En zone CEMAC les groupes ECOBANK et AFRILAND FIRST BANK offrent des services financiers islamiques à leur clientèle. Mohammed et al., (2014) examinent la relation entre le développement financier islamique et la croissance économique en Jordanie pour la période 1980-2012. Les résultats économétriques obtenus à l'aide du test de Granger montrent l'existence d'une relation de causalité entre le développement financier islamique et la croissance économique en Jordanie.

La *finance solidaire* renvoie à l'intégration sociale des couches démunies dans le système financier. Ce concept est intégré aux actions des EMF, ainsi il désigne les services de crédit, d'épargne, de transferts d'argent et d'assurance. Ils sont fournis par des intervenants aux statuts très variés allant des formes

associatives, aux filiales des banques classiques, voire des établissements de crédit. L'Etat intervient aussi directement dans certains pays sous la forme de structure d'administration publique. La finance solidaire permet aux épargnants de placer leurs économies dans des produits financiers contribuant au développement de l'économie solidaire et sociale ainsi qu'au financement de projets innovants. Cette épargne utile et éthique apporte des fonds à des entreprises ayant des activités liées à l'insertion, au social, au logement, à l'environnement, ainsi qu'à l'inclusion financière et sociale d'individus en difficulté. Afin de rendre la microfinance plus solidaire, des conditions sont suggérées selon le CGAP (2011): une articulation et une complémentarité des institutions de microfinance et une nécessité de coproduire les services microfinanciers avec les populations.

D'après la Banque Mondiale (2009), la complexité pour ouvrir un compte, pour faire une demande de prêt ou pour adhérer à un autre type de service financier réduit l'accès. Par ailleurs, une durée trop importante pour le traitement des demandes peut réduire l'utilisation des services financiers. Chidzero et al., (2006) considèrent que l'exclusion financière engendrée par des coûts trop importants (frais et taux d'intérêt) et des produits non adaptés aux besoins des gens serait plus volontaire qu'involontaire.

Certains individus peuvent utiliser plusieurs types de services financiers à la fois. Ainsi, nous pouvons classer l'inclusion financière en trois principales catégories à savoir :

La première catégorie regorge en son sein les individus qui *utilisent au moins un service financier formel (F)*. Ces individus peuvent utiliser à la fois des services financiers formels, semi-formels et informels.

La deuxième alternative rassemble les individus qui *utilisent au moins un service financier semi-formel c'est-à-dire un service de micro finance, mais aucun service formel (MF)*. Ils peuvent utiliser de la micro finance combinée ou non avec des services informels.

La troisième alternative regroupe les individus qui *n'utilisent que des services financiers informels puisqu'ils n'utilisent aucun service formel et de micro finance(I)*. Les individus qui n'appartiennent à aucune de ces catégories, c'est-à-dire qu'ils n'utilisent aucun service financier que ce soit ainsi ils sont donc victimes d'exclusion financière (EXC).

<sup>5</sup> Pays du Moyen-Orient.

Tableau 2: Définitions et types d'inclusion financière

Type d'inclusion	Abréviation	Définition
Formelle	F	Individu qui utilise au moins un service financier formel
Semi-formelle	MF	Individu qui utilise au moins un service semi-formel (service de micro finance), mais aucun service financier formel
Informelle	I	Individu qui utilise au moins un service financier informel, mais aucun service formel ou semi-formel (service de micro finance)
Exclusion	EXC	Individu qui n'utilise aucun service financier formel, semi-formel (service de micro finance) ou informel (exclus)

Source: Auteur

### III. METHODOLOGIE

Afin de mesurer l'impact des établissements de microfinance sur le taux de croissance économique au sein de la sous-région CEMAC, nous avons fait recours au modèle de régression linéaire, précisément la régression multiple inspirée des travaux de King & Levine (1993), Raffinot & Venet (1998) et de Ndour & Paget-Blanc (2010). En vue de répondre à la question suivante « *Quels sont les effets des activités des établissements de microfinance sur la croissance économique en zone CEMAC ?* », nous formulons les hypothèses suivantes:

$H_1$ : Les crédits accordés aux clients améliorent positivement et significativement le taux de croissance économique au sein de la CEMAC.

$H_2$ : Les dépôts effectués par les clients améliorent positivement et significativement le taux de croissance économique en zone CEMAC.

#### a) Les variables utilisées

Nous travaillons avec un modèle de régression à deux équations indépendantes, qui comportent chacune une variable endogène et plusieurs variables exogènes. Nous présenterons tour à tour les variables dépendantes et les variables indépendantes.

##### i. La variable dépendante

Dans le cadre de notre étude, la variable expliquée est le taux de croissance du PIB (TCPIB). Dans la plupart des travaux que nous avons parcourus, la microfinance et la croissance économique ont un lien indirect néanmoins, cet impact est positif. Les travaux de Mbaye (2008) concluent que les variables liées à la microfinance ont un impact significatif sur la croissance économique au Sénégal. Ainsi dans le cadre de notre travail nous nous attendons à un signe positif.

##### ii. Les variables indépendantes

Elles sont nombreuses et ainsi, nous les répartissons comme suit:

*Le niveau d'épargne*: Le niveau d'épargne des clients des EMF (NEPC) est une variable qui influence positivement la croissance économique dans les différents travaux auxquels nous avons eu recours. Nous avons l'exemple du travail de Mbaye (2008) qui dans ses conclusions confirme que le niveau d'épargne

influence positivement le taux de croissance économique au Sénégal. Han & Melecky (2013), l'élargissement de la base de dépôts dont disposent les banques et les microfinances favorise la stabilité financière également propice à la croissance économique. Selon Dabla-Norris & al., (2015) en encourageant l'épargne, l'investissement et la productivité, l'inclusion financière stimule l'activité économique. Selon le FMI (2018) et d'après le Ministère camerounais des Finances, les tontines produisent environ 90 milliards XAF qui transitent dans le système financier (banques et EMF).

*La masse monétaire au sens de M2 rapporté au PIB*: S'agissant de la masse monétaire au sens de M2 rapporté au PIB (MM), les travaux de Raffinot & Venet (1998) stipulent que les variables prises globalement n'ont aucun impact sur la croissance économique, mais par contre pris individuellement ces variables sont corrélées positivement avec les indicateurs développés. Selon Kpodar (1995), l'impact est plus modeste comparé aux autres pays en développement. Selon Salviddes (1995), le ratio M2/PIB agit positivement sur la croissance économique. Cependant les résultats contredisent l'idée de Barthélemy & Varoudaki (1998) qui, raisonnant en termes de seuil dans une optique de club de convergence, avancent que dans les pays ayant un faible ratio M2/PIB (inférieur à 36, 5%), l'impact du développement financier sur la croissance ne sera pas significatif.

*Le nombre d'agences et de guichets*: Le nombre d'agences et de guichets est une variable très importante pour l'inclusion financière. La multiplicité des agences et des guichets accroissent de manière importante le taux d'inclusion. La proximité et aussi sa présence dans des zones reculées encourageraient les personnes rurales à avoir recours aux services financiers.

*Le volume (ou encours) de crédit des EMF*: S'agissant des encours de crédit des EMF (VCEMF) les travaux de Dossou (2003) et de Kamalan (2006) confirment l'idée à priori d'une contribution négligeable des IMF selon qu'ils ont utilisé comme variable le ratio encours des IMF rapporté au crédit accordé au secteur privé par les banques. Dans le cas du Togo, l'étude faite par Korem (2007) constate une influence positive de la part des crédits octroyés par les institutions de microfinance sur

la croissance économique à court terme, mais ce résultat n'est pas statistiquement significatif. Les tests effectués confirment la non causalité entre cette variable et la mesure de la croissance économique. Autrement dit, une augmentation de la part des crédits octroyés par les IMF dans le crédit à l'économie n'affecte pas de manière statistiquement significative la mesure de la croissance économique au Togo.

*La population totale:* Dans le cadre de notre travail, la population totale (POPT) est constituée de l'ensemble Le modèle à estimer se présente comme suit:

$$(1) \quad TCPIB = \alpha_0 + \alpha_1 NEPC_t + \alpha_2 MM_t + \alpha_3 NAG_t + \alpha_4 POPT_t + \alpha_5 NEPC_{t-1} + \alpha_6 MM_{t-1} + \alpha_7 NAG_{t-1} + \alpha_8 POPT_{t-1} + \varepsilon_{1t}$$

$$(2) \quad TCPIB = \beta_0 + \beta_1 MM_t + \beta_2 NAG_t + \beta_3 VCEMF_t + \beta_4 POPT_t + \beta_5 MM_{t-1} + \beta_6 NAG_{t-1} + \beta_7 VCEMF_{t-1} + \beta_8 POPT_{t-1} + \varepsilon_{2t}$$

NEPC : Niveau d'épargne; MM : Masse monétaire ; CREDPRIV : Crédit au secteur privé sur le PIB; NAG : Nombre d'agences et de guichets ; VCEMF: Volume (ou encours) des crédits des EMF ; POPT : Population totale.

Où C est la constante, les coefficients sont les paramètres des différentes variables à estimer et  $\varepsilon$  une variable aléatoire qui mesure le terme d'erreur. Ce modèle d'origine sera transformé en modèle en Log pour l'estimation dans Eviews. Nous avons utilisé dans le cadre de notre travail les modèles dynamiques et par conséquent nous avons calculé le taux d'accroissement sur la durée allant de 2007 à 2016. S'agissant des tests utilisés, nous avons fait recours au test de causalité au sens de Granger et au modèle VAR.

c) *Présentation des résultats*

Les résultats sont divisés en deux parties à savoir les tests effectués et l'estimation proprement dite.

des clients et membres des établissements de microfinance de première, de deuxième et de troisième catégorie de l'ensemble des six pays de la sous-région CEMAC.

b) *Présentation du modèle*

Notre modèle s'inspire des travaux de King & Levine (1993), Raffinot & Venet (1998) et de Ndour & Paget-blanc (2010), les variables ont été suscitées.

i. *Différents tests effectués*

S'agissant des tests ils sont au nombre de deux, nous avons également des estimations à faire, à deux niveaux car le modèle est composé de deux équations.

a. *Le modèle VAR*

L'objectif du modèle VAR est d'établir un lien de causalité. Notre modèle est composé de deux équations, mais nous allons regrouper les résultats dans un seul tableau.

Tableau: Résultats du modèle VAR

Modèle VAR				
	NEPC	MM	NAG	POPT
LR	0,492723	0,215998	0,12896	0,2568
p-value	0,08108	0,03711*	0,00261*	0,00154*
Modèle VAR				
	MM	NAG	VCEMF	POPT
LR	0,618973	0,174738	0,154327	0,23656
p-value	0,01712 *	0,00263*	0,04606*	0,00251

\*\* représente la significativité au seuil de 5%

Source: Estimations faites par l'auteur

De ce tableau découle la conclusion suivante, il existe un lien de causalité entre les différentes variables. Le test de causalité au sens de Granger permettra de spécifier le type de causalité.

b. *Le test de causalité au sens de Granger*

L'objectif est de savoir si la causalité est uni ou bidimensionnelle. Nous allons regrouper les résultats des deux équations dans un même tableau.



Tableau: Résultats du test de causalité au sens de Granger

Test de causalité au sens de Granger							
NEPC	MM		NAG		POPT		
PIBT	9,23146	(1) 0,0016*	(2) 7,92203	0,0031*	8,8569	0,0023*	7,33458
	0,0044*						
	0,02458	0,9758	0,16103	0,8524	11,265	0,0698	0,66367
	0,5265						
NEPC			20,6033	2.E-05 *	10,2561	0,0238*	1,30138
	0,0053*						
			2,61514	0,0993	8,5986	0,0265*	6,57822
	0,0057*						
MM					9,2569	0,06987	0,17819
	0,0332*						
					7,2659	0,00126*	2,12952
	0,1464						
NAG							11,569
	0,0258*						
							8,2658
	0,0658						
Test de causalité au sens de Granger							
MM	NAG		VCEMF		POPT		
PIBT	9,12255	0,0017*	7,85084	0,0033*	2,74640	0,0396*	5,8695
	0,0236*						
	0,12769	0,8809	0,02490	0,9754	1,97780	0,0159*	0,3652
	0,0038*						
MM			9,24006	0,0016*	11,1404	0,0006*	8,7458
							0,5698
			2,74812	0,0895	757,146	0,0565*	9,8958
	0,0027*						
NAG					10,2658	0,0286*	9,5287
	0,0486						
					8,25986	0,0179*	8,5296
	0,0018*						
VCEMF							1,41840
							0,2666
							1180,95
	0,0356*						

(1) F-statistic

(2) Probabilité

\*\* représente la significativité au seuil de 5%

Source: Auteur à partir du logiciel EVIEWS

Les conclusions tirées de ce tableau, le lien de causalité est à double sens, la croissance économique stimule l'inclusion financière et vice versa. Autrement dit, la causalité est bidimensionnelle.

ii. Estimations proprement dite

Nous avons deux équations, dans la première équation le PIB est exprimé en fonction de (NEPC, MM,

NAG et POPT) et dans la deuxième le PIB en fonction de (MM, NAG, VCEMF et POPT).

Tableau 8: Régression du PIB sur (NEPC, MM, NAG et POPT)

Variable dépendante PIB par tête (PIBT)		
Variables	Coefficient	p(z)
NEPC	0.3328589	0,003**
MM	- 0.0012241	0,0687
NAG	- 0.5568368	0,005**
POPT	0.1209379	0,023**
Statistique de Arellano-Bond	9,10	
p-value de Arellano-Bond	0,107	
Statistique AR(2)	0,906	
p-value(2)	0,002	
Observations	30	
Nombre de pays	6	
R <sup>2</sup>	0,0168	

\*\* variable significative au seuil de 5%

Source: Estimations faites par l'auteur

✚ Le niveau d'épargne (NEPC) a un impact positif et significatif sur le PIB en zone CEMAC. Une augmentation de 1% du niveau d'épargne des clients des EMF, augmenterait de 0.33% le taux de croissance économique de la sous-région Afrique Centrale. Ce résultat va dans la même lancée que les conclusions de Mbaye (2008) qui stipule que le niveau d'épargne influence positivement le taux de croissance économique au Sénégal.

✚ La masse monétaire (MM) a un impact négatif et non significatif sur le PIB au sein de notre sous-région. Une baisse de 1% de la masse monétaire en circulation, augmenterait de 0.001% le taux de croissance économique en zone CEMAC. Selon Kpodar (1995), l'impact est plus modeste comparé aux autres pays en développement, Salviddes (1995), le ratio M2/PIB agit positivement sur la croissance économique.

✚ Le nombre d'agences et de guichets influence négativement et de manière significative. Une baisse de 1% du nombre d'agences des EMF, augmenterait de 0.55% le taux de croissance économique en zone CEMAC. Ce résultat nous surprend car nous pensions plutôt que la multiplicité des agences est un atout majeur. En principe ceci est dû au fait que dans les zones reculées les activités sont moindres à cause de l'instabilité des activités

général de l'argent. De nos jours, avec la dense gamme de produits que proposent les EMF à savoir le règlement des factures d'eau et d'électricité, le paiement des droits universitaires et des frais de scolarité, à long terme cette variable pourrait avoir un impact positif sur le PIB.

✚ La population (POPT) a un effet positif et significatif sur la croissance économique. Une augmentation de 1% des clients des EMF, favoriserait de 0.12% le PIB de la sous-région CEMAC. Ceci peut s'expliquer par le fait que, les EMF assouplissent les conditions d'ouverture de compte au sein de leurs structures, à travers les collectes journalières, le montant minimal à avoir pour l'ouverture du compte étant moins élevé que dans les établissements de crédit.

Tableau 9: Régression du PIB sur (MM, NAG, VCEMF et POPT)

Variable dépendante PIB par tête (PIBT)			
Variables		Coefficient	p(z)
MM		0.1126421	0,073
NAG		0.2677361	0,004**
VCEMF		0.989756	0,002**
POPT		- 0.142732	0,0623
Statistique de Arellano-Bond	7,52		
p-value de Arellano-Bond	0,11		
Statistique AR(2)	11,82		
p-value(2)	0,542		
Observations	30		
Nombre de pays	6		
R <sup>2</sup>	0,0168		

Source: Estimations faites par l'auteur

Suite aux différents résultats obtenus dans le tableau précédent, nous pouvons conclure que:

- La masse monétaire (MM) a une influence positive et non significative sur le PIB. Une augmentation de 1% de la masse monétaire augmenterait de 0.11% le niveau de croissance économique en zone CEMAC. L'augmentation de la quantité de monnaie en circulation devrait rendre plus liquides les personnes ciblées au sein de la sous-région et par conséquent les activités devraient aller bon train.
- Le volume (ou encours) des crédits des EMF (VCEMF) évolue dans le même sens que le PIB, à savoir de manière positive et significative. Une augmentation de 1% du volume (ou encours) des crédits des EMF, augmenterait de 0.98% le taux de croissance économique de la sous-région Afrique Centrale. La baisse du taux d'intérêt auquel les EMF prêtent aux clients stimule ceux-ci à courir auprès de ces établissements afin de pouvoir entrer en possession de l'argent naturellement après remplissage des conditions préliminaires. L'obtention de ces crédits va permettre à ces personnes de réaliser leurs projets, ce qui est une plus-value pour l'inclusion financière. Korem (2007) constate une influence positive de la part des crédits octroyés par les institutions de microfinance au Togo sur la croissance économique à court terme, mais ce résultat n'est pas statistiquement significatif.
- Le nombre d'agences (NAG) a un impact positif et significatif sur la croissance économique en zone CEMAC. Une augmentation de 1% du nombre d'agences des EMF, augmenterait de 0.26% le taux de croissance économique en zone CEMAC. Ceci voudrait dire que la multiplicité des n'agences impacte plutôt positivement le PIB, dans certaines

villes, on retrouve des agences et guichets qui sont proches, ce qui une multitude de choix aux potentiels clients.

- La population (POPT) a un impact négatif et non significatif sur le PIB. Une baisse de 1% de la masse monétaire en circulation, augmenterait de 0.14% le taux de croissance économique en zone CEMAC. Afin de booster l'inclusion financière au sein de notre zone de recherche, les EMF ont opté pour une politique de proximité, des agents commerciaux se baladent au sein des villes et quartiers à la recherche des clients. Ils ouvrent souvent des comptes avec des dépôts initiaux de 1000 F CFA, somme qui n'est pas très difficile à avoir, mais par contre après plusieurs mois on se rend compte qu'aucun mouvement ne s'est fait sur le compte.

Après analyse, nous nous permettons de dire que:

- *Pour la première équation:* Les variables qui influencent positivement et significativement l'inclusion financière sont le niveau d'épargne et la population totale ; le nombre d'agence influence négativement mais pas de manière significative l'inclusion financière ; quant à la masse monétaire, elle influence de manière non significative et négativement l'inclusion financière.
- *Pour la deuxième équation:* Les variables qui influencent positivement et significativement l'inclusion financière sont le nombre d'agence et le volume de crédit (ou encours) des EMF ; la masse monétaire influence positivement mais pas de manière significative l'inclusion financière ; la population totale a un impact négatif et non significatif sur l'inclusion financière.

#### IV. CONCLUSION ET RECOMMANDATION

Afin d'améliorer de manière considérable le taux d'inclusion financière au sein de la sous-région, les autorités monétaires devraient essayer d'assouplir certaines conditions, afin de rendre les EMF autonomes et qu'ils ne dépendent plus trop des banques.

Aussi il serait opportun de permettre aux EMF:

- D'avoir accès directement au marché monétaire
- De demander aux EMF de ne plus ouvrir anarchiquement les agences car lorsqu'ils sont très proches, d'après nos conclusions ils n'ont qu'un effet négatif sur l'inclusion financière.
- La BEAC devrait continuer à augmenter le montant du capital social des EMF, afin d'éloigner les brebis galeuses et aussi cela permettrait de réduire le risque de faillite de ceux-ci.
- Le genre féminin reste délaissé dans l'élaboration des stratégies en vue d'améliorer le taux d'inclusion financière, pourtant les femmes sont les personnes n'ayant pas accès aux services financiers. En vue d'autonomiser les femmes, les organismes internationaux, ainsi que les gouvernements devraient mettre sur pied, des stratégies centralisées exclusivement sur les femmes. Chaque Etat devrait mettre en place des séminaires de promotion de l'éducation et du développement de la culture financière des citoyens.
- Les réformes dans le but d'accélérer l'inclusion financière pourraient être adoptées notamment : étendre à toutes les institutions financières l'accès à la base de données sur les clients ; améliorer la gestion des sûretés en informatisant le registre des sûretés mobilières et le cadastre ; former les juges à la résolution des litiges bancaires, tout en œuvrant pour la création des tribunaux de commerce.
- Les institutions financières devraient proposer des services et produits financiers adaptés aux besoins des personnes exclues du système financier traditionnel tels que les micro-crédits.

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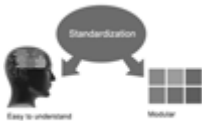


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After nomination of your institution as “Institutional Fellow” and constantly functioning successfully for one year, we can consider giving recognition to your institute to function as Regional/Zonal office on our behalf. The board can also take up the additional allied activities for betterment after our consultation.

**The following entitlements are applicable to individual Fellows:**

Open Association of Research Society, U.S.A (OARS) By-laws states that an individual Fellow may use the designations as applicable, or the corresponding initials. The Credentials of individual Fellow and Associate designations signify that the individual has gained knowledge of the fundamental concepts. One is magnanimous and proficient in an expertise course covering the professional code of conduct, and follows recognized standards of practice.



Open Association of Research Society (US)/ Global Journals Incorporation (USA), as described in Corporate Statements, are educational, research publishing and professional membership organizations. Achieving our individual Fellow or Associate status is based mainly on meeting stated educational research requirements.

Disbursement of 40% Royalty earned through Global Journals : Researcher = 50%, Peer Reviewer = 37.50%, Institution = 12.50% E.g. Out of 40%, the 20% benefit should be passed on to researcher, 15 % benefit towards remuneration should be given to a reviewer and remaining 5% is to be retained by the institution.



We shall provide print version of 12 issues of any three journals [as per your requirement] out of our 38 journals worth \$ 2376 USD.

**Other:**

**The individual Fellow and Associate designations accredited by Open Association of Research Society (US) credentials signify guarantees following achievements:**

- The professional accredited with Fellow honor, is entitled to various benefits viz. name, fame, honor, regular flow of income, secured bright future, social status etc.



- In addition to above, if one is single author, then entitled to 40% discount on publishing research paper and can get 10% discount if one is co-author or main author among group of authors.
- The Fellow can organize symposium/seminar/conference on behalf of Global Journals Incorporation (USA) and he/she can also attend the same organized by other institutes on behalf of Global Journals.
- The Fellow can become member of Editorial Board Member after completing 3yrs.
- The Fellow can earn 60% of sales proceeds from the sale of reference/review books/literature/publishing of research paper.
- Fellow can also join as paid peer reviewer and earn 15% remuneration of author charges and can also get an opportunity to join as member of the Editorial Board of Global Journals Incorporation (USA)
- • This individual has learned the basic methods of applying those concepts and techniques to common challenging situations. This individual has further demonstrated an in-depth understanding of the application of suitable techniques to a particular area of research practice.

**Note :**

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- In future, if the board feels the necessity to change any board member, the same can be done with the consent of the chairperson along with anyone board member without our approval.
- In case, the chairperson needs to be replaced then consent of 2/3rd board members are required and they are also required to jointly pass the resolution copy of which should be sent to us. In such case, it will be compulsory to obtain our approval before replacement.
- In case of “Difference of Opinion [if any]” among the Board members, our decision will be final and binding to everyone.

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# PREFERRED AUTHOR GUIDELINES

**We accept the manuscript submissions in any standard (generic) format.**

We typeset manuscripts using advanced typesetting tools like Adobe In Design, CorelDraw, TeXnicCenter, and TeXStudio. We usually recommend authors submit their research using any standard format they are comfortable with, and let Global Journals do the rest.

Alternatively, you can download our basic template from <https://globaljournals.org/Template.zip>

Authors should submit their complete paper/article, including text illustrations, graphics, conclusions, artwork, and tables. Authors who are not able to submit manuscript using the form above can email the manuscript department at [submit@globaljournals.org](mailto:submit@globaljournals.org) or get in touch with [chiefeditor@globaljournals.org](mailto:chiefeditor@globaljournals.org) if they wish to send the abstract before submission.

## BEFORE AND DURING SUBMISSION

Authors must ensure the information provided during the submission of a paper is authentic. Please go through the following checklist before submitting:

1. Authors must go through the complete author guideline and understand and *agree to Global Journals' ethics and code of conduct*, along with author responsibilities.
2. Authors must accept the privacy policy, terms, and conditions of Global Journals.
3. Ensure corresponding author's email address and postal address are accurate and reachable.
4. Manuscript to be submitted must include keywords, an abstract, a paper title, co-author(s) names and details (email address, name, phone number, and institution), figures and illustrations in vector format including appropriate captions, tables, including titles and footnotes, a conclusion, results, acknowledgments and references.
5. Authors should submit paper in a ZIP archive if any supplementary files are required along with the paper.
6. Proper permissions must be acquired for the use of any copyrighted material.
7. Manuscript submitted *must not have been submitted or published elsewhere* and all authors must be aware of the submission.

## Declaration of Conflicts of Interest

It is required for authors to declare all financial, institutional, and personal relationships with other individuals and organizations that could influence (bias) their research.

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Plagiarism is not acceptable in Global Journals submissions at all.

Plagiarized content will not be considered for publication. We reserve the right to inform authors' institutions about plagiarism detected either before or after publication. If plagiarism is identified, we will follow COPE guidelines:

Authors are solely responsible for all the plagiarism that is found. The author must not fabricate, falsify or plagiarize existing research data. The following, if copied, will be considered plagiarism:

- Words (language)
- Ideas
- Findings
- Writings
- Diagrams
- Graphs
- Illustrations
- Lectures



- Printed material
- Graphic representations
- Computer programs
- Electronic material
- Any other original work

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1. Substantial contributions to the conception and acquisition of data, analysis, and interpretation of findings.
2. Drafting the paper and revising it critically regarding important academic content.
3. Final approval of the version of the paper to be published.

### Changes in Authorship

The corresponding author should mention the name and complete details of all co-authors during submission and in manuscript. We support addition, rearrangement, manipulation, and deletions in authors list till the early view publication of the journal. We expect that corresponding author will notify all co-authors of submission. We follow COPE guidelines for changes in authorship.

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### Appealing Decisions

Unless specified in the notification, the Editorial Board's decision on publication of the paper is final and cannot be appealed before making the major change in the manuscript.

### Acknowledgments

Contributors to the research other than authors credited should be mentioned in Acknowledgments. The source of funding for the research can be included. Suppliers of resources may be mentioned along with their addresses.

### Declaration of funding sources

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## PREPARING YOUR MANUSCRIPT

Authors can submit papers and articles in an acceptable file format: MS Word (doc, docx), LaTeX (.tex, .zip or .rar including all of your files), Adobe PDF (.pdf), rich text format (.rtf), simple text document (.txt), Open Document Text (.odt), and Apple Pages (.pages). Our professional layout editors will format the entire paper according to our official guidelines. This is one of the highlights of publishing with Global Journals—authors should not be concerned about the formatting of their paper. Global Journals accepts articles and manuscripts in every major language, be it Spanish, Chinese, Japanese, Portuguese, Russian, French, German, Dutch, Italian, Greek, or any other national language, but the title, subtitle, and abstract should be in English. This will facilitate indexing and the pre-peer review process.

The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.



### ***Manuscript Style Instruction (Optional)***

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

### ***Structure and Format of Manuscript***

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

- a) A title which should be relevant to the theme of the paper.
- b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
- c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
- d) An introduction, giving fundamental background objectives.
- e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
- f) Results which should be presented concisely by well-designed tables and figures.
- g) Suitable statistical data should also be given.
- h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

- i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
- j) There should be brief acknowledgments.
- k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.



## FORMAT STRUCTURE

***It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.***

All manuscripts submitted to Global Journals should include:

### **Title**

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

### **Author details**

The full postal address of any related author(s) must be specified.

### **Abstract**

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

### **Keywords**

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in a research paper?" Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

### **Numerical Methods**

Numerical methods used should be transparent and, where appropriate, supported by references.

### **Abbreviations**

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

### **Formulas and equations**

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

### **Tables, Figures, and Figure Legends**

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.



## Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

## PREPARATION OF ELETRONIC FIGURES FOR PUBLICATION

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

Color charges: Authors are advised to pay the full cost for the reproduction of their color artwork. Hence, please note that if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a Color Work Agreement form before your paper can be published. Also, you can email your editor to remove the color fee after acceptance of the paper.

## TIPS FOR WRITING A GOOD QUALITY MANAGEMENT RESEARCH PAPER

Techniques for writing a good quality management and business research paper:

**1. Choosing the topic:** In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

**2. Think like evaluators:** If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

**3. Ask your guides:** If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

**4. Use of computer is recommended:** As you are doing research in the field of management and business then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

**5. Use the internet for help:** An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.



**6. Bookmarks are useful:** When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

**7. Revise what you wrote:** When you write anything, always read it, summarize it, and then finalize it.

**8. Make every effort:** Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

**9. Produce good diagrams of your own:** Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

**10. Use proper verb tense:** Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

**11. Pick a good study spot:** Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

**12. Know what you know:** Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

**13. Use good grammar:** Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice. Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

**14. Arrangement of information:** Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

**15. Never start at the last minute:** Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

**16. Multitasking in research is not good:** Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

**17. Never copy others' work:** Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

**18. Go to seminars:** Attend seminars if the topic is relevant to your research area. Utilize all your resources.

**19. Refresh your mind after intervals:** Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

**20. Think technically:** Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.



**21. Adding unnecessary information:** Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

**22. Report concluded results:** Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

**23. Upon conclusion:** Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

## INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

### **Key points to remember:**

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

### **Final points:**

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

*The introduction:* This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

### **The discussion section:**

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

### **General style:**

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

**To make a paper clear:** Adhere to recommended page limits.

### *Mistakes to avoid:*

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.



- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

#### **Title page:**

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

**Abstract:** This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

*Reason for writing the article—theory, overall issue, purpose.*

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

#### **Approach:**

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

#### **Introduction:**

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.

*The following approach can create a valuable beginning:*

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.





**Approach:**

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

**Procedures (methods and materials):**

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

**Materials:**

*Materials may be reported in part of a section or else they may be recognized along with your measures.*

**Methods:**

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

**Approach:**

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

**What to keep away from:**

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.

**Results:**

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.



**Content:**

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

**What to stay away from:**

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

**Approach:**

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

**Figures and tables:**

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

**Discussion:**

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."

Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.



**Approach:**

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

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<i>References</i>	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring



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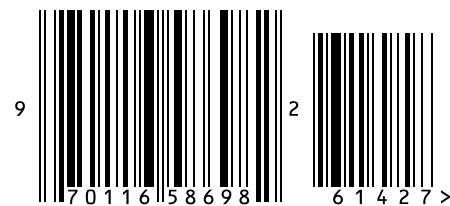
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ISSN 9755853



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