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# Interest Rate and Private Sector Investment Relationship in Nigeria: Crowding-In or Crowding-Out Effect (A Look at Small and Medium Enterprises)

## Emmanuel Okokondem Okon, Otaro Joy Osinimu

Department of Economics, Faculty of Social Sciences, Kogi State University, Anyigba, Nigeria

#### **Email address**

Tonydom57@yahoo.com (E. O. Okon), Otarojo@gmail.com (O. J. Osinimu)

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#### **Abstract**

This paper seeks to investigate interest rate and private sector investment relationship in Nigeria. The theoretical framework is based on Keynesian and Monetarists views which dominate the debate on whether changes in interest rates have an impact on investment. Stratified random samplings as well as simple random sampling methods were used for collecting data from enterprises in Jos the capital of Plateau state. The use of these methods of sampling was to ensure that the enterprises fall into the small, medium as they were randomly selected from the 3 local government areas of Jos town. With help of descriptive statistics, tables and graphical illustrations, the data derived were critically analyzed. Chi-square technique was used to test the hypothesis postulated. The implication of the result is that high interest rate crowds-out (reduces) private sector small and medium scale investment. Hence, it is therefore recommends that Nigerian government should encourage banks to set aside a reasonable percent of their annual profits before tax as soft loans to Small and Medium Enterprises at a very low interest rate. At the same time, it should intensify its efforts to establish the zero interest rate banking institutions with the full fledge Islamic ethic in operation such that it will benefit Small and Medium Enterprises operators and the procedure should be eligible enough for SMEs to enjoy the stress-free financing mode irrespective of one's religious affiliation.

# 1. Introduction

Located in the continent of Africa, Nigeria covers 910,768 square kilometers of land and 13,000 square kilometers of water, making it the 32nd largest nation in the world with a total area of 923,768 square kilometers [1]. The population of Nigeria is 170,123,740 and the nation has a density of 187 people per square kilometer [1]. Nigeria shares land borders with 4 countries: Chad, Niger, Benin, Cameroon (see Figure 1).

Nigerian economy is often described as a mixed economy. A mixed economy connotes a framework in which allocative mechanism in respect of what is to be saved, invested, produced and at what prices, is left to the forces of the market and not to any planning authority or government. The existence of the state is merely to buttress the mechanism and improve its efficiency [2]. It means that in a mixed economy, private sector should play the leading role while the public sector provides the enabling economic environment. According to [3], conducive economic environment could be

created by the government through the formulation and implementation of appropriate, effective and sound macroeconomic policies and programs which, among other things, will facilitate the availability of required resources, stimulate saving and investment, and ensure macroeconomic stability (low inflation rate, exchange rate stability and low interest rate) as well as the provision of adequate infrastructural facilities in the economy.

During the colonial government era up to the Nigeria's First Development Plan of 1964, there was commitment to the promotion of private investment. The interventionist role of the colonial government in the local economy concentrated mostly in the provision of physical infrastructures such as ports, roads and railways, the enforcement of law and order, and access to credits which private enterprise development critically needs [4]. For example, a state- owned financial enterprise, the Nigerian Local Development Board (NLDB) which was later transformed into the Federal Loans Board (FLB) on the suggestion of the World Bank Mission to Nigeria in 1953, was established in 1946 to organize credit for the private entrepreneurs; and by 1949, a total loans of £100,342, about 22.3% of the total loans approved by the board for the period 1946-49 were obtained by the private sector enterprises [5]. At Nigeria's independence, the nationalists who took over the management of the Nigerian economy from the colonialists had strong support for private sector development. This belief in private sector led economy was affirmed in the First National Development Plan thus: "it has always been the aim of government policy to stimulate the rigorous growth of the private sector" [6].

The interest rate policy in Nigeria as it affects private sector investment is perhaps one of the most controversial of all financial policies. The reason for this may not be farfetched because interest rate policy has direct bearing on many other economic variables like investment decision. Interest rates play a crucial role in the efficient allocation of resources aimed at facilitating growth and development of an economy and as a demand management technique for achieving both internal and external balance [7].

Economic policy makers in some developing countries have traditionally emphasized on the necessity of keeping interest rates low in order to encourage private sector to invest. Following this approach, the interest rates have been kept at low levels and therefore real interest rates have been negative for long periods. In 1970"s, some economists, led by [8] and [9], began to support financial liberalization as a medium of promoting saving, investment, and growth. This was based on the argument that real interest rates are frequently negative in developing countries because of administrative controls on the nominal interest rates and heavy regulation in the financial market.

This argument indicates that real interest rates have a net positive impact on private investment, contradicting the traditional view of a negative relationship between private investment and real interest rates. Although, the financial liberalization literature supports higher interest rates, the possibility of a negative relationship between investment and interest rates was not ruled out. [8] argued that in those countries where self-finance is important and the interest rate is negative or very low, an upward increase in real interest rates promotes saving and the substitution from physical assets to bank deposits. His arguments indicate a nonlinear relationship between real interest rates and private investment.

Interest rate policy in Nigeria lacked consistency during the Structural Adjustment Program (SAP) as periods of liberalization were intertwined with impositions of some credit controls [7]. The business environment, in general, is very risky and uncertain so firms may not be able to service debt. Apart from this, the judicial system is reportedly inefficient and banks cannot easily enforce contracts, consequently, banks charge high interest rates and request for high levels of collateral. In addition to the above, high interest rate in the Nigerian financial system is a reflection of the extremely poor infrastructural facilities and inefficient institutional framework necessary to bring about substantial reduction in the risk associated with financing an extremely traumatized economy[10]. The administration of low interest rate which was intended to encourage investment before the SAP era and during SAP era of 1986 ushered in a dynamic interest rate regime where rates were more influenced by market forces and it failed to yield desired result of stimulating investment growth in Nigeria. All these problems highlighted persist due to the inconsistency of monetary policy and inability to formulate interest rate reform that will be a component of the broad policy package aimed at facilitating financial intermediation and management that can induce investment spending through low interest rate.

In Nigeria, four categories of interest rate are identified; namely, rediscount rates (rechristened monetary policy rate (MPR) by the Central Bank of Nigeria in 2006), rates on government securities, deposit and lending rates. MPR is the rate which the Central Bank of Nigeria (CBN) charges other banks on loans. This rate is fixed and varies by the apex bank according to the direction it desires other interest rates (and consequently money supply) in the economy to follow. Government securities rates, comprising treasury bills rate, treasury certificates rate and government development stock rate, vary according to their maturity structures. Deposit rates are of two types - savings and time deposit rates. Time deposit rate depend on the maturity of the deposit, which ranges from seven (7) days to twelve (12) months. Lending rates are of two types - the minimum (prime) and the maximum lending rates. Table 1 shows interest rates in Nigeria between 1970 and 2006.

From the Table 1 (see Appendix), it is observed that the lending rates to productive sector of the economy had been very high. Banks paid low deposit rates, borrowed from the Central Bank of Nigeria at low rates and lend out to the productive sector at a very high lending rates. For instance, in

the year, 2000, Monetary Policy Rate (MPR) was 15.5 % and deposit rate was 5.0% whereas the lending rate was 30%. For many years now, Central Bank of Nigeria's MPR has been at double digit. In 2012, it was largely at 12 per cent [11]. By the time deposit money banks charge their own lending rates to prospective customers wanting to loan money, it's usually between 15-20 per cent and more.

This has made nonsense of government's effort at stimulating the real sector of the economy. Even the aviation, textile and entertainment intervention funds set aside by government to revitalize these ailing sectors have been difficult to access by the target beneficiaries. Banks, apart from charging high interest rates on loans, also add all manner of administrative or miscellaneous charges which make the burden of borrowing unbearable. What are obtained in many other developing countries are low interest rates of between 5-8 per cent with a moratorium [11]. What cheap loans do for entrepreneurs are that it makes take off and expansion of business relatively easy for the investors. With that, the cost of doing business is reduced and they in turn will be able to provide cheaper services and goods. Invariably, the consumers get a better deal from the producer.

However, with the high interest rate, the mortality of small and medium enterprises (SMEs) becomes high as lack of cheap loans to grow their business and hence interest rates will lead to higher cost of production, low capacity utilization, staff rationalization (right-sizing and downsizing), low sales as consumers may not be able to afford the goods and services, default in loan repayment, and ultimately, business collapse.

Against this background, this paper attempts to establish an empirical relationship between interest rate and investment in Nigeria. This is on the basis that a lot of economies depend on investments to resolve several economic problems, crisis and challenges. Less developed countries in Africa such as Nigeria has introduced various economic policies that will attract as well as keep hold of private investors. This is due to the fact that investments in certain sectors of the economy can rapidly transform the numerous economic challenges that are facing the nation. Therefore, the Nigerian government at any given opportunity works a lot to attract investments into various sectors of the economy [12]. The motive for this is not farfetched. Investment both private and public comes with a lot of benefits such as job creation, increase in per capita income, reduction in the level of poverty, increase in standard of living, increase in GDP, etc. This study focuses on private investment because literature is filled with proof that private investment in most developing countries is positively related to growth than public investment [13], [14], [15], [16].

The paper is structured as follows: Section 2 presents the theoretical framework as well as the empirics on interest rate and investment. An overview of small and medium enterprises in Nigeria was discussed section 3. The research methodology was included in section 4 while section 5 discussed the presented results. The summary, conclusion and recommendations were made in section 6.

## 2. Literature Review

# 2.1. Interest Rate and Investment: The Theory

The Keynesian and Monetarists views dominate the debate on whether changes in interest rates have an impact on investment. One school avers that it has minimal impact on investment while the other school suggests that changes in interest rates have a significant effect on investment. [17] offers another significant viewpoint when she avers that the real interest rate is the price at which the supply of and demand for capital are equated where capital is supplied via saving, and is demanded for investment.

The Keynesian school believes that interest rate is primarily a monetary phenomenon that is determined by the supply of and demand for money. Among this school, changes in interest rates have minimal impact on investment. Therefore the demand for investment funds is interest inelastic. They envision that increased money supply lowers the interest rate, stimulating investment, employment and hence gross domestic product, that leads to multiple rounds of increased spending and increased real income.

The Monetarists view is that interest rates are a function of the real economy determined by the supply and demand for loanable funds, a market which reflects actual opportunities and constraints in the investment sector. A change in the interest rates therefore causes far-reaching effects on investment. In this case the demand for investment finance is interest elastic. The monetary school sees changes in money supply as stimulating new and old investment on real and financial assets, consumption goods as well as investment goods.

# 2.2. Interest Rate and Investment: The Empirics

Many scholars draw different conclusions about the relationship between interest rate and investment [18]. According to a large number of empirical analyses, if investment was added as an endogenous variable into a monetary utility function model, the result turned out that investment indeed has a certain impact on interest rates [19]. If discount rate was replaced by stochastic interest rate in a real option model, the result turned out that the uncertainty of interest rate had obvious effects on investment [20]. The analysis of irreversible investment under the changing rates showed that the change in rate had positive or negative effect on the demand of investment [21].

The diffusion model of short-term rates showed that the uncertainty of rate may limit the best investment and enterprise scale [22]. Different from the traditional theory, some scholars concluded that there was a positive correlation between interest rate and investment. Based on the evidence of 21 developing countries, 1971 to 1980, the analysis about the real financial assets showed that there was a positive relationship between the growth of real interest rates and financial assets [23]. If the discount factor was selected to

represent the variable of investment and the GMM estimation method was used to analyze the relationship between investment and interest rate in an uncertain environment, the result turned out that there was a positive correlation between them. And the higher volatility the interest rate had, the more positive the correlation would be [24].

There are also some scholars who believe that the rates may have no impact on the investment. VAR model was used to test the causal relationship between interest rates and investment, and found that investment depended on the level of demand in the macroeconomic, rather than interest rates [25]. According to the analysis of three rate hikes from 1960 to 1978 in West Germany, it turned out that the effect of interest rate on investment is different in two periods due to the different policy [26].

In the field of microeconomics, impulse response was used to analyze the effect of rate policy on investors. Based on the data of interest rates and ISE national 100 index, 2002-2010, the result showed that investors cannot cope with the impact of interest rates in the short term [27]. When it came to the optimal investment decision-making under the rate risk in the long term, it is proved that interest rate had a great influence on the investment income [28]. Empirical analysis was applied according to the long-term interest rates, short-term exchange rate and investment. On the analysis of short-term investment on the long-term bonds, it turned out that there was a weak relationship between interest rate changes and investment in Switzerland. And in the United States the relationship curve corresponded better to the interest rate parity theory [29].

In Nigeria, [30] reported that Ekwenem studied interest rate and investment behavior from the period 1976- 2006 using time series data, he found out that the behavior for investment have significant influence on interest rate and inflation rate. [31] Simulated the inter-relationships among interest rates, savings and investment in Nigeria between 1993 and 2010 using two stages least square method. Their result suggested that a marked decrease in the real lending rate would not result automatically into increased domestic investment. [32] Examined variations in interest rate and investment determination in Nigeria and deduced that investment has an indirect relationship with interest rate variation and other variables that he used. [7] Investigated the link between interest rate and investment decision in Nigeria in a study using Multiple Linear Regression model. A modified Mundel - Flemming model was used where interest rate was the dependent variable and other variables such as; Gross domestic product, investment level, Government spending, debt and exchange rate were independent variables. They found out that there is no strong empirical evidence that there is a link between interest rate and investment decision in Nigeria. They recommended, however, that there should be efficient infrastructure and the clamor for Islamic Banking, which is interest rate free, should be embraced since it will not hurt investment decisions in any way.

Some of the literature reviewed on the subject matter of

interest rate and investment used mostly econometric models and required secondary data, nonetheless, suffered from methodological limitations in the sense that there is a tendency to ignore the validity and reliability of time series data. In addition, there was no specification on whether it was public or private investment. However, this study attempts to employ evidence based approach by gathering primary data from field survey and it specifically focused on privately owned small and medium scale enterprises in Nigeria.

# 3. Small and Medium Enterprises in Nigeria: Overview

A lot has been said and written about SMEs the world over. It has also formed the subject of discussions in so many seminars and workshops both locally and internationally. In the same token, governments at various levels (local, state and federal levels) have in one way or the other focused on the Small and Medium Enterprises. While some governments had formulated policies aimed at facilitating and empowering the growth and development and performance of the SMEs, others had focused on assisting the SMEs to grow through soft loans and other fiscal incentives.

International agencies and organisations (World Bank, United Nations Industrial Development Organisation (UNIDO), International Finance Corporation (IFC), United Kingdom Department For International Development (DFID), European Investment Bank (EIB) etc., are not only keenly interested in making SMEs robust and vibrant in developing countries but have also heavily invested in them. Locally, the several Non-Governmental Organisations such as Fate foundation, Support and Training Entrepreneurship Programme (STEP), the Nigerian Investment Promotion Commission (NIPC), the Association of Nigerian Development Finance Institutions (ANDFI), as well as individual Development Finance Institutions (DFIs) have been promoting the growth of SMEs in Nigeria through advocacy and capacity-building initiatives, and have continued to canvass for better support structures for operators in the SME subsector.

All the massive attention and support given to SMEs relate to the widely acclaimed fact that SMEs are job and wealth creators [33]. In justifying the introduction of small and medium scale industries equity investment scheme (SMIEIS) in 2003, the then Governor of the Central Bank of Nigeria, Chief Joseph Sanusi said "With a concerted effort and renewed commitment from all stakeholders, this scheme will surely succeed and realize its intended objective of revamping the SMEs as engines of growth in the economy and a veritable tool for the development of indigenous technology, rapid industrialization, generation employment for our teeming youths and the pivot for sustainable economic development in Nigeria" [33].

In categorizing organizations as small, medium or large, it means that businesses can be classified by means of their

sizes. It is difficult to determine when a business transits from small to medium or large. To facilitate our discussion, this article shall look at some definitions and thereafter, attempt a definition for each of the three groups based on capital or assets base, the skill of the managerial team and the total market share, other criteria notwithstanding [34].

The International Labour Organisation [35] defines micro enterprises as those having 1-10 employees and small scale enterprises as those having 11-50 employees, and did not bother to talk about the market spread and capital base. At the 13th Council meeting of the National Council on Industry held in July, 2001 Micro, Small and Medium Enterprises (MSMEs) were defined by the Council as follows:

- i Micro/Cottage Industry: Industry with asset base of not more than №1.5 million excluding cost of land, but including working capital and a staff strength of not more than 10.
- ii Small Scale Industry: Industry with asset base of more than ₹1.5 million but in excess of ₹50 million excluding cost of land, but including working capital and/or a staff strength from 11 to 100.
- iii Medium Scale Industry: Industry with asset base of more than №50 million, but not in excess of №200 million excluding cost of land but including working capital and/or a staff strength from 101 to 300.
- iv Large Scale Industry: Industry with asset base of over №200 million excluding cost of land but including working capital and/or a staff strength of more than 300.

According to Yinka Fisher, coordinator of Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) in Lagos in an interview with [36], Micro Small and Medium Enterprises (MSMEs) were defined as follows:

- i Micro Enterprise: Any enterprise employing between one to nine people and having a capital base from one naira to №5 million excluding cost of land.
- ii Small Enterprise: Those that employ between 10 and 49 employees and having a capital base from №5 million to №50 million so once a business is within that confine, it is running a small enterprise.
- iii Medium Enterprise: Any enterprise that employs from 50 to 199 employees and having a capital base from N50 million to N500 million. If a business is within that confine it is running a medium enterprise and if it has anything above that, it is a large enterprise or a multinational as the case may be.

The National Policy on MSMEs adopts a classification based on dual criteria: employment and assets (excluding land and buildings), as follows:

Table 2. Classification of MSMEs.

	SIZE CATEGORY	Employment	ASSETS (₹million) (excluding land and buildings)
1	Micro enterprises	Less than 10	Less than 5
2	Small enterprises	10-49	5–less than 50
3	Medium enterprises	50-199	50-less than 500

Source: [37]

Generally, small businesses are usually associated with little capital outlay, minimal fixed assets, highly localized in the area of operation, and often with unsophisticated management structure. [38] Says characteristically, small business is one that is actively managed by its owners, highly personalized, largely local in the area of operations, of relatively small size within the industry and largely dependent on internal sources of capital to finance its growth. It is very easy to start up one since it does not involve drawing up complex plans nor does it involves much capital. In the same vein, the exit and failure rates are very high. Small businesses contribute to availability of goods and services in the market thereby leading to reduction in price level. Small and medium businesses exist to fill gaps left over by large scale businesses, thus these business organizations exist to do what big businesses refuse to do or cannot do. Also, there are some businesses whose maximum operation and size demand smallness of scale. These include food and related products, furniture and fixtures, tailoring, relaxation spots, traditional crafts, and native medicine.

The SMEs are noted for their ability to adapt to changes because the decision process is not complex and the owner-manager does not need anyone's permission to adapt to change. They are also noted for greater use of local raw materials, simplified record keeping and a good relationship with consumers and employees.

# 4. Research Methodology

#### 4.1. Area of Study

Jos is a city in the Middle Belt of Nigeria. The city has a population of about 900,000 residents based on the 2006 census [39]. Popularly called "J-town", it is the administrative capital of Plateau State.



Figure 1. Map of Nigeria showing Plateau state.

Plateau State is the twelfth largest state of Nigeria with an area of 26,899 square kilometers [41]. The State has an estimated population of about three million people. It is located between latitude 80°24'N and longitude 80°32' and 100°38' east [41]. The state is named after the picturesque Jos

Plateau, a mountainous area in the north of the state with captivating rock formations. Bare rocks are scattered across the grasslands, which cover the plateau. The altitude ranges from around 1,200 meters (about 4000 feet) to a peak of 1,829 metres above sea level in the Shere Hills range near Jos [41]. Jos city/town is located on the Jos Plateau at an elevation of about 1,238 metres or 4,062 feet high above sea level [39] (see images of Jos town in Figure 2 and 3).



Source: [42] Figure 2. Jos Town.



Figure 3. Ariel view of Jos Town.

The city is divided into 3 local government areas of Jos north, Jos south and Jos east. The city proper lies between Jos north and Jos south. Jos east houses the prestigious National Center for Remote Sensing. Jos north is the state capital and the area where most commercial activities of the state takes place although due to the recent communal clashes a lot of commercial activities are shifting to Jos south. The Governor's office is located in an area in Jos North called "Jise" in Berom language, "Gise" in Afizere (Jarawa) language or "Tundun-Wada" in Hausa language. Jos south is the seat of the Deputy Governor i.e. the old Government House in Rayfield and the industrial centre of Plateau State due to the presence of industries like the NASCO group, Standard Biscuits, Grand Cereals and Oil Mills, Zuma steel west Africa, aluminum roofing industries, Jos International Breweries among others. Jos south also houses prestigious institutions like the National Institute of Policy and Strategic Studies (NIPSS), the highest academic awarding institution in Nigeria, the National Veterinary

Research Institute, the Police Staff College, the NTA television college and the Nigerian Film Corporation. Jos north is the location of the University of Jos and its teaching hospital. The city has formed an agglomeration with the town of Bukuru to form the Jos-Bukuru metropolis (JBM).

During British colonial rule, Jos was an important centre for tin mining [43]. Other local enterprises include food processing, beer brewing, and the manufacture of cosmetics, soap, rope, jute bags, and furniture. Heavy industry produces cement and asbestos cement, crushed stone, rolled steel, and tire retreads. Jos also is a centre for the construction industry and has several printing and publishing firms. The Jos-Bukuru dam and reservoir on the Shen River provide water for the city's industries [42].

### 4.2. Method of Study

There are 36 States in Nigeria, which are bound together by a federal agreement. There is also a territory called the Federal Capital Territory (FCT), which is not a state, but a territory, under the direct control of the Federal Government. The States are further divided into a total of 774 Local Government Areas [39].

There are about 56 cities in Nigeria [44]. The cities/towns are categorized into three types; there is the "Metropolis", which is characterized with having more than one Local Government Areas (LGAs). This type of cities are usually formed when large municipalities are split into smaller LGAs, to aid efficient administration and management, or when small towns grow and merge into existing large cities, or both; some are also formed when urban areas of multiple LGAs merge as a result of growth and are now fully defined as a single settlement, Another type of settlement is the "Municipality", which is basically an LGA that is fully defined as its own city or town. This type of cities is usually mid-sized, although some large cities also exist as a single LGA. The third type of settlement is the "village", which is basically grouped together with several other villages into one sizeable LGA [45].

The study purposely selected Jos city/town in Plateau state of Nigeria because during British colonial rule, Jos grew rapidly and established itself as a popular destination for people of different backgrounds in Nigeria, as well as a large number of European nationals. Today, this great diversity of race, ethnicity and religion makes it one of the most cosmopolitan cities in the country [46] (i.e., larger city where the population is composed of people from various cultural backgrounds. These people co-exist with each other very easily because of their broad mindedness). Although there are a few other cosmopolitan cities in Nigeria: Lagos, Ibadan, Kaduna, Kano, it was the discovery of tin by the British that led to the influx of other ethnic groups such as the Hausa, Igbo, Yoruba, in Jos [47]. The Jos city can be described as both metropolitan and cosmopolitan. The city is divided into 3 local government areas of Jos north, Jos south and Jos east. The city is home to many small scale, medium scale as well as large scale businesses involved in economic activities such as mining, agriculture, manufacturing, trade and commerce, etc.

A stratified random sampling as well as simple random

sampling method were used for collecting data from some micro credit organizations (including Country Women Association of Nigeria (COWAN), ECWA and some other medium and small scale enterprises in the 3 local government areas of Jos the capital of Plateau state. The use of these methods of sampling was to ensure that the enterprises fall into the small, medium and as they are randomly selected. This was aimed at reducing bias to the barest minimum.

# 4.3. Data Source and Estimation Technique

The study adopted survey research design in the collection of data. A carefully crafted questionnaire constructed with the aim of reducing boredom, fatigue and demand on the target participants so that they do not exhaust their energy, time and effort in answering the questions. It was believed that this approach is bound to elicit the best responses from the participants in terms of objectivity, frankness, originality, pointedness on key issues and promptness of response.

The questionnaire were administered to respondents and then collated and analyzed. This formed the primary data used in the study. 17 questionnaires were administered randomly to enterprises in Jos north and 23 questionnaires were administered in Jos south while 10 questionnaires were administered randomly to enterprises in Jos east. The city proper lies in Jos north. Jos north is the state capital and the heart of the city, most commercial, social and educational

activities takes place in this area. However due to urban growth and the recent communal clashes, a lot of commercial activities have been shifted to Jos south and to other nearby local government areas within plateau state [48]. This was the reason why more questionnaires were randomly administered to enterprises in Jos south.

The primary data collected were presented in tables, barcharts, and pie-chart and analyzed using non-parametric simple percentages. In the course of investigating the effect of interest rate on private investment, chi-square  $(x^2)$  was employed to test the significance in the relationship between the observed and expected frequencies. The relationship was expressed as follows:

$$x^2 = (fo - fe)/fe \tag{1}$$

Where: fo = Observed frequency; fe = Expected frequency;  $\chi^2 = \text{Chi-square}$ ;  $\Sigma = \text{Summation sign}$ .

This was subjected to a level of significance of 0.5 or 95% level of confidence. The degree of freedom is then computed thus:

$$DF = (r - 1)(c - 1) \tag{2}$$

Where: DF = Degree of freedom; r = Number of rows; c = Number of columns

### 5. Result and Discussion

Table 3. Jos City/Town.

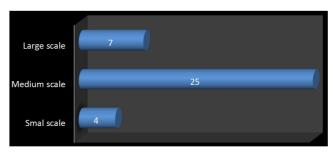
<b>Local Government Area</b>	Questionnaires Issued Frequency	Questionnaires Retrieved	Percentage Retrieved
Jos north	15	14	$14/36 \times 100 = 38.9\%$
Jos south	18	16	$16/36 \times 100 = 44.4\%$
Jos east	7	6	$6/36 \times 100 = 16.7$
Total	40	36	100%

Source: Authors compilation from field survey 2015

Table 3 above reveals that 14 questionnaires were retrieved from Jos north as against 17questionnaires administered. On the other hand, 16 questionnaires were retrieved from Jos south out of 18 questionnaires given out. 6 questionnaires were collected back from Jos east out of 7 questionnaires issued out. An aggregate of 36 questionnaires were retrieved out of 40 administered. This represented 72 percent retrieval rate.

The actual breakdown of how the 40 questionnaires were administered to firms and organisations in Jos the capital of Plateau state are as follows: There were 3 large scale organizations, 9 medium scale and 4 small scale businesses. 3 questionnaires were issued to each firm in the large and medium scale enterprises and 1 questionnaire each to the small scale businesses. This brings the number of questionnaires issued to the large scale enterprise to 9, that of the medium scale to 27 and that of the small scale to 4. Out of the 3 issued out to each of the three large scale enterprises, COWAN returned all 3, ECWA returned 3 and First Bank returned one, making a total of 7, representing 77.8%. Out of the 3 issued out to each of the 9 medium scale enterprises,

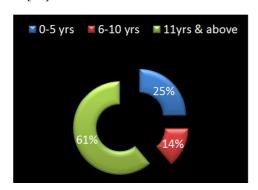
each business unit returned all 3 except for CAAP that returned only 1 making a total of 25, representing 92.6%. The four questionnaires issued to the small scale businesses were all returned representing 100%. This brings the total number of questionnaires to 36 out of 40 administered. The number of respondents used for the analysis is 36. The analyses of this piece of information contained in the questionnaires are presented below:



Source: Authors compilation from field survey

Figure 4. Nature of the firm/organization.

As depicted on Figure 4 above, 4 business units that responded representing 11.11% were small scale, 25 business unit representing 69.44% were medium scale and 7 business unit representing 19.44%were large scale. This shows that majority of the firms were medium scale enterprise as such this will capture to a large extent the objective we hope to achieve. Small scale industry orientation is part and parcel of Nigeria. Evidence abound in the respective communities of what successes the great grandparents made of their respective trading concerns, yam barns, iron smelting, farming, cottage industries and the likes. In concrete terms, small scale industries constitute a greater percentage of all registered companies in Nigeria, and they have been in existence for a quite long time. Majority of the small scale industries developed from cottage industries to small enterprises and from small scale, to medium and large scale enterprises [49].



Source: Authors compilation from field survey

Figure 5. Length of Operation of the Firm/Organization.

Regarding the issue of length of operation of the firms/organization, the report in Figure 5 shows that 9 firms (representing 25.02%) have been operating between 0-5 years, 5 firms (representing about 14%) have been operating between 6-10 years, and 61% of the firms (i.e., 22 firms) have been operating from 11 years and above. This shows that majority of the businesses have existed for a reasonable length of time and were well experienced. The historical background of small and medium scale enterprises in Nigeria can be traced back to 1946 when the essential paper No. 24 of 1945 on "A Ten year plan of development and welfare of Nigeria 1946 was presented. Small and Medium Scale Enterprise has been described as an all-time necessity in any economy. It was there at the beginning; it has gained prominence today and will increase its importance tomorrow. This is simply dictated by the developmental needs of the Nigeria society [50].

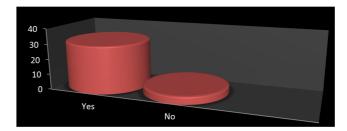
Table 4. Sources of Funds.

Funds	Frequency	Percentage
Loans	36	100%
Personal contribution	(22)* (4)*	*
Others	$(4)^*$	*
Total	36	100%

Source: Authors compilation from field survey

Note: \* not considered

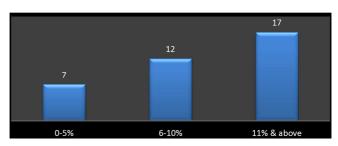
For both developing like Nigeria and developed countries like USA, small and medium scale firms play important roles in the process of industrialization and economic growth. Apart from increasing per capita income and output, SMEs create employment opportunities, enhance regional economic balance through industrial dispersal and generally promote effective resource utilization considered critical engineering economic development and growth [51]. However, the seminal role played by SMEs notwithstanding its development is everywhere constrained by inadequate funding. When the small and medium firms selected for this study were asked about their sources of funds (whether loans, personal contribution, etc.), Table 4 portrayed that all respondents collect loans representing 100%. Some of the firms get fund from personal contributions and other sources in addition to loans collected. It should be noted that we were only concerned with firm and business that collect loans as such other sources of funds were not recognized (i.e. informal means of getting funds were not regarded in this analysis).



Source: Authors compilation from field survey

Figure 6. Loans sourced from Financial Institutions.

A close examination of Figure 6 above revealed that 31 of the firms representing about 86.% sourced their loans from various financial institutions while 5 firms representing about 14% source their loans from other sources (but with interest). Thus, this is highly representative of the objective we hope to achieve. According to [52] credits to both individual and corporate organizations are available in Nigeria through several formal and informal institutions. These institutions can be commercial banks, microfinance banks, lending houses, mortgage houses, etc.

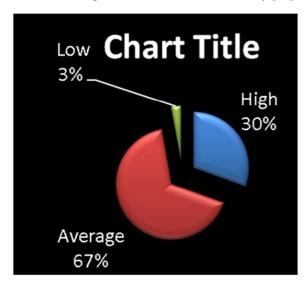


Source: Authors compilation from field survey 2015

Figure 7. Interest Rate on Loans.

As showcased in Figure 7 above, 17 firms representing 47.26% paid over 11% and above as interest on loans collected, 12 firms paid 6-10% interest on loans representing

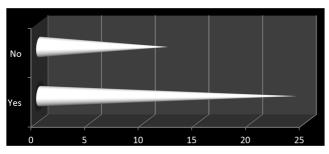
33.36% and 7 firms paid 0-5% interest on loans representing 19.46%. This shows that majority of the firms paid high percentage on the loans collected. It seems like securing loans from financial institutions in Nigeria can be interest rate intensive. The deregulation of interest rate in August, 1987 started financial sector reforms in Nigeria [53]. Since then, the Nigerian government has been pursuing a market determined interest rate which does not permit a direct state intervention in the general direction of the economy [54].



Source: Authors compilation from field survey

Figure 8. Views on the interest in percentage on the loan.

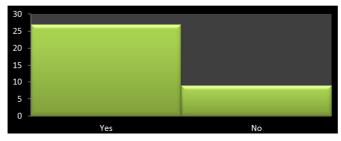
The illustration in Figure 8 above shows that 11 firms (respondents) representing about 30% were of the perception that the interest on the loan is high, 24 respondents representing about 67% opined that the interest on the loan is averagely high while 1 respondent representing about 3% said the interest on the loan is low. Thus, the bottom line is that the interest rate on loans collected is averagely high as perceived by majority of the firms/business. However, according to [55], bank customers with existing loan obligations must brace for higher levels of indebtedness as the Deposit Money Banks have begun an upward review of the interest rates on all outstanding loans. The development followed increase of the Monetary Policy Rate from 12 per cent to 14 per cent by the Central Bank of Nigeria's Monetary Policy Committee.



Source: Authors compilation from field survey

Figure 9. Level of Interest rate and positive effect on level of investment.

When asked whether the level of interest rate have a positive effect on their level of investment, the result from Figure 9 above shows that 24 respondents representing 66.72% said that the level of interest rate have a positive effect on their level of investment. 12 respondents representing 33.36% said the level of interest rate does not have a positive effect on their level of investment. This indicates that most firms and organizations are still motivated to invest despite the level of interest rate and very strict collateral requirement. One plausible reason for the result displayed here is probably because the Central Bank of Nigeria in a bid to stimulate access to finance by MSMEs had in September 2014 introduced the Central Collateral Registry Regulations. The regulation amongst other things was expected to: encourage financial institutions to accept movable assets as security for loans granted; provide a framework for the establishment of a national collateral registry; establish the process of registration and the realization of security interests over movable property; and stimulate responsible lending to MSMEs [56].



Source: Authors compilation from field survey

Figure 10. Level of interest rate on loan effect on diversification or expansion of business.

The respondents' opinions on interest rate on loan and diversification or expansion of their business are presented on Figure 10 above. It shows that 27 respondents representing 75.06% believed that the level of interest rate affects the diversification and expansion of their business while 9 respondents representing 25.08% said that the level of interest rate does not affect expansion or diversification of the business. This indicates that the level of interest rate whether high, low or average does not hinder majority of firms/businesses from expanding or diversifying their businesses. Nonetheless, this seems not to affirm the report by [57] that high interest rate has become a major burden for many investors.

At this point, the study tested the Null hypothesis  $(H_0)$ : interest rate has no significant impact on private sector investment. In testing this hypothesis, chi-square distribution system was used at 5% level of significance because of its ability to provide technique for comparing observed and expected frequencies. Where chi-square calculated is more than tabulated, the alternative hypothesis is accepted while the null hypothesis is rejected and vice versa.

Question	Response			
Dose the level of interest rate on the loan affect	Yes	No	Total	
diversification or expansion of your business	27	9	36	
fo	fe	fo – fe	$(fo - fe)^2$	$(fo - fe)^2/fe$
27	18	9	81	4.5
9	18	-9	81	4.5
36	36			9

Table 5. Chi-square Analysis.

Calculation:

$$fe = \frac{36}{2} = 18$$

$$Df = (r - 1)(c - 1)$$

$$Df = (2 - 1)(2 - 1)$$

$$Df of (1)at 0.05 level of significance$$

$$x^{2}cal = 9$$

$$x^{2}tab = 3.84$$

Since chi-square calculated is more than chi-square tabulated, we therefore reject the null hypotheses and accept the alternative hypotheses and conclude that interest rate has significant impact on private sector investment. The implication is that high interest rate crowds-out (reduces) private sector small and medium scale investment. This result accords [58] who investigated why private investment in Pakistan has collapsed and how it can be restored. They explored that increase in real interest dampens the investment level. Other studies with similar result include: [59], [60], [61].

In addition to the crowding-out effect on private sector small and medium scale investment as a result of high interest rate, there are other combination of problems of SMEs which affect their performances which were identifies in a paper present by Mr. Oluseyi Oluboba, the General Manager of Enterprise and Financial Support Company Limited in a seminar titled "Career Crisis and Financial Distress- the Way Out". The problems include: low level of entrepreneurial skills; poor management practices; inadequate equity capital; poor infrastructural facilities; shortages of skilled manpower; multiplicity of regulatory agencies and overbearing operating environment; societal and attitudinal problems; integrity and transparency problems; restricted market access; strict collateral requirement; lack of skills in international trade; lack of access to information given that it is costly [33].

# 6. Summary, Conclusion and Recommendation

This paper seeks to investigate interest rate and private sector investment relationship in Nigeria. The theoretical framework is based on Keynesian and Monetarists views which dominate the debate on whether changes in interest rates have an impact on investment. There are 36 States in Nigeria and a Federal Capital Territory (FCT), and about 56 cities in Nigeria The study purposely selected Jos city/town in Plateau state of Nigeria because it is a metropolis.

Stratified random samplings as well as simple random sampling methods were used for collecting data from enterprises in Jos the capital of Plateau state. The use of these methods of sampling was to ensure that the enterprises fall into the small, medium as they were randomly selected from the 3 local government areas of Jos town. With help of descriptive statistics, tables and graphical illustrations, the data derived were critically analyzed. Chi-square technique was used to test the hypotheses postulated. Since chi-square calculated was more than chi- square tabulated, we therefore reject the null hypotheses and accept the alternative hypotheses and conclude that interest rate has significant impact on private sector investment. The implication is that high interest rate crowds-out (reduces) private sector small and medium scale investment.

In addition to the crowding-out effect on private sector small and medium scale investment as a result of high interest rate, there are other combination of problems which affect the performance of SMEs in Nigeria. However, it is incontestable that a strong SME sector is fundamental to the economic prosperity of any nation, particularly growing economies like Nigeria. Hence, it is therefore recommends that:

Nigerian government should encourage banks to set aside a reasonable percent of their annual profits before tax as soft loans to SMEs at a very low interest rate. At the same time, it should guarantee long term loans to SMEs since they lack the necessary collateral to access such funds from financial institutions. It should be noted that the introduction of Central Collateral Registry Regulations by government amongst other things was expected to encourage financial institutions to accept movable assets as security for loans granted. In spite of the desirability of the Regulation the practicability of its implementation could hamper its objective of stimulating growth in credit advancement to MSMEs. To this end, the CBN will need to take decisive steps to address the shortcomings in the regulations. For instance, a firm engagement with the state governments will be desired as there is need to adopt a more robust legal framework through the adoption of the already existing Sale of Goods Law and the enforcement powers which only resides in the of the executive arm of Government. The backing of the judiciary will also be required for the prompt

determination of disputes arising in respect of registered security interests [56].

Zero interest rate should also be considered, that is the Islamic banking window units of the conventional banks should be strengthened with appropriate legislation by the CBN and specify the proportion of the loan from this window that should be channeled to small and medium scale enterprises (selective credit control) [62]. CBN should intensify its efforts to establish the zero interest rate banking institutions with the full fledge Islamic ethic in operation which should be nationalistic in outlook rather than the regional licensed Islamic bank. CBN should organize an effective sensitization on the benefit derivable from the zero interest rate banking to the SMEs operators and the procedure to be eligible to enjoy the stress-free financing mode irrespective of one's religious affiliation.

It is further recommended that government should assist the small and medium scale producers by improving infrastructural facilities and environmental infrastructures such as road network, water, electricity, and communication. Inefficiencies in these areas create additional costs to smallscale manufacturers, and limit their growth

The need to strengthening Entrepreneurship Education across all levels of the nation's educational sector will surely go a long way in equipping prospective SMEs owners with the necessary entrepreneurial skills and technical knowhow required to establish, grow and develop SMEs [63]. Apart from this formal education acquired from various institutions, trade/commercial centres and apprenticeship should also be encouraged especially for those that will not be able to meet the requirements in the formal schools. This is rather a way

of building capacity for SMEs operators.

# **Limitations of the Study**

The limitations noted in this study are as follows: first, the survey instrument itself limits this study. The instrument did not use proven and consistent scales as such the information should be used with caution. Next issue noted is that the research was limited to small and medium scale enterprises thus micro enterprises were excluded. The cottage/micro enterprise challenges though similar or comparable to SMEs, but could be fundamentally different from those of SMEs. Other limitations of the study relates to time, funds and logistics constraints, which limited the intensity of the spread or area of coverage of the study. Even though SMEs are spread throughout the length and breadth of Nigeria though with negligible concentrations in some States and less urban areas, this study focused mainly on SMEs in Jos city/town. Even at that, much attention was on Jos north and Jos south.

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# **Competing Interests**

The authors have declared that no competing interests exist.

# **Appendix**

Table A1. Nigeria: Interest Rates and Inflation Rates (1970 - 2006) (%).

	Minimum	Maximum	Profit Seeking	Saving Deposit	Saving/Lending			
Year	Lending Rate (rd)	Lending Rate (R)	(R-rd)	Rate (S)	Rate Gap (R-S)	NIR	INFR	RIR
1970	7.0	8.0	1.0	3.0	5.0	8.0	13.8	-6.3
1975	6.0	9.0	3.0	4.0	5.0	9.0	33.9	-24.9
1980	7.50	9.50	2.0	6.0	3.50	9.5	9.9	-0.4
1981	7.75	10.0	2.25	6.0	4.0	10.0	20.0	-10.9
1982	10.25	11.75	1.50	7.50	4.25	11.8	7.7	4.1
1983	10.0	11.50	1.50	7.50	4.0	11.5	23.2	-11.7
1984	12.50	13.00	0.50	9.50	3.50	13.0	39.6	-26.6
1985	9.25	11.75	2.50	9.50	2.25	11.8	5.5	6.3
1986	10.50	12.00	1.50	9.50	2.50	12.0	5.4	6.6
1987	17.50	19.20	1.70	14.00	5.20	19.2	10.2	9.0
1988	16.50	17.60	1.10	14.50	3.10	17.6	38.3	-20.7
1989	26.80	24.60	-2.20	16.40	8.20	24.6	40.9	-16.3
1990	25.50	27.70	2.20	18.80	8.90	27.7	7.5	13.2
1991	20.01	20.80	0.79	14.29	6.51	20.8	13.0	7.8
1992	29.80	31.20	1.40	16.10	15.10	31.2	44.5	-13.5
1993	18.32	36.09	17.77	16.66	19.43	18.3	57.2	-38.8
1994	21.00	21.00	0.00	13.50	7.50	21.0	57.0	-36.0
1995	20.18	20.79	0.61	12.61	8.18	20.8	72.8	-52.0
1996	19.74	20.86	1.12	11.69	9.17	20.9	29.4	-8.44
1997	13.54	23.32	9.78	4.80	18.52	20.9	8.5	-12.4
1998	18.29	21.34	3.05	5.49	15.85	21.8	10.0	11.0
1999	21.32	27.19	5.87	5.33	21.86	27.2	6.6	20.6
2000	17.98	21.55	3.55	5.29	16.26	30.0	6.9	23.1
2001	18.29	21.34	3.05	5.49	15.85	24.0	18.9	5.1

Year	Minimum Lending Rate (rd)	Maximum Lending Rate (R)	Profit Seeking (R-rd)	Saving Deposit Rate (S)	Saving/Lending Rate Gap (R-S)	NIR	INFR	RIR
2002	24.85	30.19	5.34	4.15	26.04	24.0	20.2	3.8
2003	20.71	22.88	2.17	4.11	18.77	-	14.0	_
2004	19.18	20.82	1.64	4.19	16.63	_	15.0	-
2005	17.95	19.43	1.48	3.83	15.60	-	17.9	-
2006	16.89	18.41	1.52	3.13	15.28	-	8.2	-

Source: [4]

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