

## Savings Mobilization in Nigeria: a Re-Assessment of Financial Repression Hypothesis

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### Abstract

This study investigates the effect of interest rate on savings in Nigeria. Three different models were presented to cover the period of regulation, deregulation and the combination of two periods. The result obtained from the Ordinary Least Squares regression shows that interest rate regulation has no significant impact on saving while within the period of deregulation, interest rate has a positive but insignificant effect on savings. The positive effect of interest rate on savings within this period is an indication that interest rate deregulation has the potential of encouraging savings in Nigeria. This result corroborates with the negative effect of the Dummy variables which shows that other non interest rate policies negatively impact on savings in Nigeria. The implication of this is that government policies over the years have hindered commercial banks from performing optimally both in terms of credit allocation to sectors, exchange rate and interest rate determination which are supposed to be market driven. It is based on this finding that this study recommends a comprehensive deregulation of interest rate by the monetary authorities so that commercial banks can so that commercial bank can determine their interest rate based on the market price of goods and services. The establishment of more bank branches in the country will also compliment the savings mobilization effort of banks while exchange rate control is inimical to the effective operation of commercial banks in Nigeria

### Keywords:

Savings mobilization,  
Re-Assessment,  
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## **Background to the Study**

Interest rate policy has been a major issue in economic discourse in recent times. This is because of the important role it is expected to play in mobilizing savings and the efficient utilization of this savings into productive investment that would boost economic growth. Various studies (Adeleke and Gbadebo, 2014; Hishongwa, 2015 and Adelokun, 2015) have shown that savings play a significant role in economic growth of an economy. Therefore ensuring an efficient level of interest is therefore seen as an important prerequisite for the development of other sectors in the Nigerian economy. The basic role of interest rate as enunciated by Lanyi and Saracoglus (1983) including among others is to serve as a reward for postponing current consumption; and that of accumulating monetary resources to influence the demand and allocation of borrowed funds. Also, both the domestic interest together with foreign interest rate and expected rate of inflation jointly influence whether savings are accumulated in domestic assets, foreign assets, foreign financial assets or inflation hedge in making decision on savings and borrowing.

Prior to the introduction of Structural Adjustment Programme (SAP) in Nigeria, interest rate was fixed and administratively determined by the monetary authority. The role of monetary policy within this period of fixed exchange rate was to reduce cost of capital in order to stimulate investment for rapid economic growth (Ogiogio, 1988). The reason given by the government for its intervention was associated with administrative bottlenecks, distortion in prices, and inadequate mobilization of resources, allocation and the subsequent utilization of these resources in the economy hence the non-performance of the financial sector in mobilizing savings has been adduced to be constant intervention by government in interest rate management which brings in distortions and inefficiencies, (Mckinnon and Shaw, 1973; Soyibo and Adekanye, 1992; Uchendu, 1993; Cuba 1997 ; Okpe, 1998; and Ogwumike and Ofoebu, 2012). The regulation of interest rate in the face of high rate of inflation can make real interest rate to be negative. This can erode the profitability of banks; inhibit savings mobilization and constrain economic growth and development. These scholars have advocated for financial liberalization so as to boost the savings as well as adequate returns for banks. They advocate for a financial liberalization where interest rate will be market determined.

In 1986, the Nigerian government introduced the Structural Adjustment Programme with the aim of correcting the economic imbalance that existed during the period of financial reform. The period 1987 therefore witnessed the emergence of the gradual deregulation of interest rate in Nigeria. The regulated interest rate was replaced with 'market determined' rate. The aim of market determined interest rate was to aid in the mobilization of savings and to channel it into productive investment, ensure financial stability, accelerate the pace of economic growth and development. According to Iyoha (1996), the ultimate objective of the deregulation under SAP was to bring about improved financial intermediation by enhancing the role of banks in effectively mobilizing domestic savings and optimally allocating investable resources. But studies conducted by Anthony and Egbiremolen (2014) observed no causality between financial liberalization and interest rate in Nigeria while Ogwumike and Ofoegbu (2012) opined that financial liberalization does not bring about positive real interest rate and that sometimes government policy of financial liberalization are mixed.

Despite the mixed result obtained about government policy on financial liberalization and interest rate deregulation, the aim is to ensure positive real interest rate and adequate returns to banks that would boost economic growth and development. The need to reexamine the policies of regulation and deregulation and how they have impacted on the economy becomes apt and need to be investigated. It is important to emphasize here and ask important questions such as, to what extent has the government policy of interest rate regulation and deregulation impacted on savings mobilization in Nigeria? Have savings in Nigeria been repressed as espoused by the financial repression proponents (Mckinnon and Shaw, 1973). These are some of the questions that this study seeks to address empirically.

### **Literature Review**

The classical exposition of the role of interest rate in an economy is based on free market forces devoid of government intervention; that is interest rate stimulates savings in a free market economy. There are three classes of savers. The first class of savers are those who are insensitive to interest rate changes. This group of savers will be willing to save only to safeguard their money in order to forestall robbery, to take care of unforeseen contingencies or to save for rainy day. This class of savers will be willing to save irrespective of the level of interest rate. The second classes of savers are those who save in relation to interest rate changes. These are people who are willing to save when the interest rate is just enough to induce them to save. The third group are those that are sensitive to interest rate changes. That a rise in interest rate will stimulate savings in an economy while a low level of interest rate will discourage savings. In the classical doctrine both the second and the third groups of savers see savings as a sacrifice an abstinence or an opportunity to forgo present consumption in order to take advantage of the rise in interest rates.

The classical theory has been criticized on several fronts. Keynes (1936) is of the view that income is a major factor in determining the level of savings in an economy which was neglected by the classical economists. Interest rate is determined by the forces of demand and supply of money. The supply of money is seen as a determinate of the rate of interest which is exogenously determined and therefore perfectly inelastic while the demand for liquidity is the desire to hold cash balances such as for transaction, precautionary and speculative motives. The transaction and precautionary motives depend on income while the speculative motive depends on interest rate.

In development literature, Rostow (1960) provides the condition necessary for the takeoff of an economy which requires the ratio of efficient investment and savings to rise by 5 percent of national income or more. The rise of national income will be accompanied by the development and extension of banking institutions, which will expand the supply of working capital and in most cases, also by an extension in the rate of long term financing done by the central, formally organized market. But Cain cross (1964) observed that Rostow (1960) did not say how the 5 or 10 percent or more could be attained.

Morris (1967) and Myint (1971) gave prominence to private savings in countries' economic development most especially in developing countries. Attention was given to financial institutions in the process of mobilizing savings. According to Morris (1967), financial

institutions that collect and disburse funds should be available and accessible to the people as well as having safety of funds, liquidity and interest payment on deposit. Kim (1982) emphasized on the need to integrate the informal and the formal financial institutions in mobilizing savings in the less developed countries. According to him, savings can be mobilized if the formally organized and the informal financial market can be integrated by providing the needed funds if the banking institutions can expand rural informal financial institutions without violating existing banking policies on deposit.

### **Empirical Literature**

Various scholars have investigated the effect of interest rate on savings with divergent views and mixed results about its effects and this has significant implication for policies. Agu (1988) carried out investigation using Mckinnon's and Fry's (1980) model of financial repression hypothesis using Ordinary Least Squares technique. It was concluded that distortion in interest rate led to negative real interest rate in Nigeria. In a related study Reichel (1991) observed that interest rate does not have significant effect on savings in Nigeria. Contrary to these studies, Uchendu (1993) who used OLS opined that gross domestic product has a positive and significant impact on savings while real interest rate has a positive impact on savings but it is not statistically significant while Nwaga and Ngola (1990) adopted the traditional model of Fry and Giovannin on interest rate on private savings and discovered that interest rate does not have significant effect on private savings in Kenya.

Soyibo and Adekanye (1992) adopted the modified Yusuf and Peters (1984) model. The result shows that lagged savings rate and current income have significant effect on savings while foreign savings and adjusted real interest rate have a negative and insignificant impact on savings in Nigeria. Having a contrary view on the empirics of Soyibo and Adekanye (1992), Cuba (1997) asserts that Uchendu's (1993) study did not give room for comparative analysis because interest rate regulation and deregulation are two different policies therefore lumping these two different periods without looking at it separately can be misleading hence results emanating from the study may be spurious. To achieve these, two different models were specified to capture the period of regulation and deregulation. Using Ordinary Least Squares regression, their study established that interest rate and income have significant effect on gross domestic savings in Nigeria. Okpe (1998) made improvements on the study carried out by Soyibo and Adekanye (1992), Uchendu (1993) and Cuba (1997) on the grounds that they used gross domestic savings which also embodies both private savings and public savings. Real interest rate does not affect public savings directly which is essentially budget provisions. Using Ordinary Least Squares technique it was discovered that interest rate deregulation has significant effect on savings than interest rate regulation which shows that financial savings in Nigeria was not repressed during the period 1987-1996.

In investigating the direction of the relationship between interest rate and savings in Nigeria, Okpe and Chiawa (2006) used the Granger Causality test. The test revealed that the relation between interest rate and savings are unidirectional inferring that interest rate granger causes savings but savings does not granger cause interest rate. Obamuyi and Olorunfemi (2011) used co-integration and error correction mechanism from 1970-2006 in their study which showed

that financial reform and interest rate have significant effect on economic growth in Nigeria based on the long run relationship and the transmission mechanism flowing from interest rate to economic growth through investment channels.

Studies conducted by Itodo, Eche and Kamo (2012) and Simon-Oke and Jolaosho (2013) used Vector Auto Regressive Analysis (VAR) on real interest rate and savings mobilization in Nigeria discovered that real interest rate has negative and insignificant impact on savings in Nigeria. Onwumere, Okore and Ibe (2012) also obtained similar result of the negative and non significant impact of interest rate on savings in Nigeria using Ordinary Least Squares regression. Contrary to Onwumere's et al (2012), Sunday (2012) used Ordinary Least Squares regression which hinted that interest rate has significant effect on savings in Nigeria.

In Ghana, Ngula (2012) asserted that interest rate has weak effect on savings using Ordinary Least Squares (OLS) regression, but observed that exchange rate, inflation rate and money supply are the major determinants of savings. Corroborating this finding, Gaire (2012) hinted that a long run relationship exists between average interest rate and savings and that real interest rate has positive but negligible effect on savings in Nepal. Alogoskoufis (2012) used endogenous growth model to determine the relationship between savings, investment and interest rate. The study observed that savings and investment are cotermined through adjustment in real interest rate. Ogwumike and Ofoegbu (2012) used Autoregressive Distributed Lagged model (ARDL) to observe that financial liberalization does not bring about positive interest rate that will transform into savings while Agu, Anthony and Egbiremolen (2014) used granger causality and impulse response analysis to determine the effect of financial liberalization in Nigeria. The finding shows the absence of causality between financial liberalization and interest rate on the one hand and financial liberalization and savings mobilization on the other hand. The result from the impulse response shows a positive response between liberalization and interest rate as well as liberalization and savings mobilization on the other hand.

Emeka, Agok, and Ene (2015) used Ordinary Least Squares regression after using the unit root test to ascertain the stationarity of the data and infer that interest rate deregulation have positive and significant impact on savings during the period of deregulation in Nigeria. In a similar vein, Opoku and Ackah (2015) and Adhlakun (2015) used the error correction model to test for stationarity of data and hinted that real interest rate have both short and long run positive and significant impact on savings in Ghana and Nigeria respectively. Muhammad (2015) used log linear regression model to assert that income and literacy level of individuals are the most potent factor that aid savings mobilization in Bangladesh. Other factors that play significant impact are transaction cost and return on substitution on investment.

Udude (2015) used Vector Autoregressive model (VAR) test and discovered that interest rate does not have significant effect on savings in Nigeria but when income was added in the equation both interest rate and income have significant effect on savings in the economy. Hassan (2016) used OLS regression and discovered that interest rate has negative and insignificant effect on savings in Nigeria. The result presented suffered from misspecification

as indicated by the coefficient of determination and Durbin Watson (DW) test. The coefficient of determination shows a weak relationship between the dependent and the independent variable while the DW test is less than one.

The main shortcoming of the study conducted by Uchendu (1998), Soyibo and Adekanye (1992), Cuba (1997) and Okpe (1998) is that the comparative study conducted by these authors shows that the number of years investigated under the period of deregulation is not long enough to conclude about the effect of interest rate on savings in Nigeria and the recommendations therein may be misleading. In most of the studies conducted, comparative analyses were not carried out because the authors were focused on looking at the relationship between interest rate and savings but most policies of government within the entire period shows that the level of government involvements in the financial sector may have had the tendencies of distortion. Some of the aims of liberalization which were hitherto introduced by the government since the introduction of the Structural Adjustment Programme in 1986 which saw the gradual introduction of interest rate deregulation in the economy did not materialize.

### **Theoretical Framework**

The framework for this study is derived from Mckinnon and Shaw (1973) financial hypothesis. According to this theory government intervention in the financial market create distortions which often lead to inefficient operation in the financial market. The involvement of government in the financial market could frustrate the banking sector from making maximum profit. The failure of banks and other financial system have severally been blamed on government intervention through interest rate regulation, ceiling on deposit and loan rates and official restrictions such as policies, laws, regulation of taxes etc. which do not allow financial institutions to operate optimally. They therefore advocate for positive rate of return on financial assets and financial liberalization.

### **Methodology**

#### **Explanation of the Variables**

The variables used in this study are real savings rate, real gross domestic product, real interest rate, commercial bank branches, lagged savings rate and dummy variable. The dependent variable used in this study was the real savings rate. However, savings and time deposit with commercial banks was used as proxy because commercial banks account for about 80 percent of total institutional savings in Nigeria (Okpe, 1998). Banks are also seen as an important channel for the transmission of monetary policy, Ogege and Shiro (2013). The data used for this study were commercial banks savings and time deposit rates. The real values were obtained by deflating the commercial bank savings and time deposit with the appropriate price index.

The independent variables used were real domestic product, real interest rate, commercial bank branches, lagged savings rate and dummy variables. The variable influenced the dependent variable (real savings) and they are equally influenced by variables outside the model. The value for real gross domestic product was derived by deflating nominal gross

domestic product against the appropriate consumer price index. The data on real interest rate was obtained by subtracting the rate of inflation from nominal interest rate. To avoid the problem of multicollinearity in this test both savings and time deposit rates of interest were combined to obtain a new average interest rate while the dependent variable was lagged by one period. This is because present savings is influenced by the past savings. The dummy variable used took care of non-interest rate structural adjustment reform policies that were introduced within the period of 1987 and this variable took the value of 1 when interest rate was deregulated otherwise taking a value of 0.

### **Model Specification**

The Mckinnon and Shaw (1973) model was used to assess the effect of real interest rate and the mobilization of savings in Nigeria for the period 1970-2016. This period covered the period of regulation and deregulation, which is 1970-1987 and 1988-2016 respectively. This division was under taken in order to assess the efficacy of the financial repression hypothesis. To this end, the linear and the logarithmic function were analyzed to capture these periods.

The linear form of the model is specified below:

$$SR_1 = F(GDP_i, RIR_i, CBB, SR_{i-1}) \Psi \text{-----eq1}$$

The logarithmic form of the model is:

$$\text{Log}SR_i = \lambda_0 + \lambda_1 \log GDP_i + \lambda_2 \log RIR_i + \lambda_3 CBB + \lambda_4 \log SR_{i-1} + U_{\odot} \text{-----eq2}$$

Where:

- $SR$  = Real Savings Rate
- $GDP$  = Real Gross Domestic Product
- $RIR$  = Real Interest Rate
- $CBB$  = Commercial Bank Branches
- $SR_{i-1}$  = Lagged value of Real Savings Rate.

To capture the period of deregulation from 1987-2016 the following model was used.

$$SR_2 = F(GDP_2, RIR_2, CBB_2, SR_{2-1}) \Psi \text{-----eq3}$$

The logarithmic form of the model becomes

$$\text{Log}SR_2 = \delta_0 + \delta_1 \log GDP_2 + \delta_2 \log RIR_2 + \delta_3 CBB + \delta_4 \log SR_{2-1} + U_{\odot} \text{-----eq4}$$

The model for estimating financial savings for both periods of regulation and deregulation was given as:

$$SR_3 = F(GDP_3, RIR_3, CBB, SR_{i-1}, D87) \Psi \text{-----eq5}$$

The logarithmic form of the model becomes

$$\text{LogSR}_3 = \alpha_0 + \alpha_1 \log \text{GDP}_3 + \alpha_2 \log \text{RIR}_3 + \alpha_3 \text{CBB} + \alpha_4 \log \text{SR}_{3-1} + \text{D87} + U_{\text{C}} \quad \text{-----eq1}$$

Where SR, GDP, R and  $\text{SR}_{3-1}$  are as defined in equation 1 and D87 is dummy variable. The variable was used to capture the non interest rate structural adjustment reform policies. The dummy variable in equation 6 was not log because the logarithmic value of one is equal to zero. In the model  $\lambda_i, \delta_i$  and  $\alpha_i$  (where  $i=1,2,\dots,n$ ) are the various regression coefficient and  $\lambda_0, \delta_0$  and  $\alpha_0$  are the intercepts of the regression equation and  $\mu_{\text{C}}$  is the error term which took into cognizance the influence of other factors not considered in the equation and the error term occurs in the course of the measurement of the data. Based on previous studies and a priori expectation  $\delta_i$  and  $\alpha_i$  except  $\lambda_i$  are expected to have a positive regression coefficient. If  $\delta_i$  is greater than  $\lambda_i$  it means that interest rate deregulation has more impact than interest rate regulation. That is financial saving has not been repressed during the period of deregulation and if  $\lambda_2 = \delta_2$  interest rate has no impact on saving at all.

### Presentation and Discussion of Results

To ascertain the relationship between interest rate and savings, the unit root test was conducted in order to avoid spurious results, the data was subjected to stationary test using Augmented Dickey-Fuller (ADF) test and is presented table 1.

**Table 1: Unit Root Test**

Variables	ADF Test Statistic @level	ADF Test Statistic 1 <sup>st</sup> Diff	Critical Values			Prob	Order of Integration
			1 Percent	5 percent	10 percent		
RSR	0.67	-3.40	-3.59	-2.93	-2.60	0.0000	I(1)
RGDP	-1.21	-6.98	-3.58	-2.92	-2.60	0.0000	I(1)
RIR	-0.54	-6.74	-3.58	-2.92	-2.60	0.0000	I(1)
CBB	0.94	-4.77	-3.58	-2.92	-2.60	0.0003	I(1)

**Source:** E-views 9.0 output, 2017

From the unit root test results, all variables are stationary (i.e. no unit root) at first difference that is I(1) since their ADF test statistics is greater (using absolute value) than the critical values at all significant levels.

### Johansen Co-integration Test

Since the variables did not attain stationary at level series, a test for co-integration is conducted to determine if the linear combinations of the stochastic trends in the series are co-integrated. As Granger (1986) notes, "A test for co-integration can be thought of as a pre-test to avoid spurious regression situation. Thus, if the linear combinations of the stochastic trends are I(0), the linear combinations cancel out the stochastic trends in the series. Hence, the co-integration result is presented in table 2.



**Table 2: Co-integration Test**

Null Hypothesis	Trace Statistic	0.05 Critical Value	Null Hypothesis	Max-Eigen Statistic	0.05 Critical Value
$r = 0^*$	78.58	47.86	$r = 0^*$	51.01	27.58
$r \leq 1$	27.57	29.79	$r \leq 1$	15.83	21.13
$r \leq 2$	11.73	15.49	$r \leq 2$	11.59	14.26
$r \leq 3$	0.14	15.49	$r \leq 3$	0.14	3.84

Source: E-views 9.0 Output, 2017

**Note:** That  $r$  represents number of co-integration vectors. Both Trace statistic and Max-Eigen statistic indicates 1 & 1 co-integrating equation each. \*denotes rejection of the hypothesis at the 0.05

Table 2 shows the Trace test and Max-Eigen value test which indicates 1 co-integrating equations each. The trace statistic and the Max-Eigen statistic are greater than their respective critical value for all the co-integrating equation. Thus, the null hypothesis of no co-integrating equation is rejected. This implies that even though the series of the variables were non stationary at levels, their linear combinations are co-integrated. This further means that there exists a long run relationship among the variables at 5 percent significance level. Thus, the application of the OLS technique will yield informative and dependable results.

**Table 3: Determinations of Savings during the period of Regulation and Deregulation**

Variables	Regulation		Deregulation	
	Coefficients	T-Statistic	Coefficients	T-Statistic
Constant	-3.037749	-3.115139	-12.25755	-4.513971
GDP	0.944534	3.507709	0.685254	4.918896
RIR	-0.002037	-1.995738	0.001383	0.397880
CBB	0.682390	3.092776	3.622356	4.371533
RSR(-1)	0.175197	0.724796	0.158546	1.125892
R <sup>2</sup> 0.926404			R <sup>2</sup> 0.958114	
R <sup>2</sup> 0.899642			R <sup>2</sup> 0.950865	
DW 1.766236			DW 1.798686	

E-views 9.0

Table 3 shows that GDP and commercial bank branches have a positive and significant effect on savings in Nigeria while real interest rate has a negative but insignificant effect on savings during the period of regulation. The test in the period of deregulation shows that interest rate was positive but statistically insignificant during the period. Lagged savings have a positive but statistically insignificant effect on savings. The coefficient of determination R<sup>2</sup> shows that at least more than 92 and 95 per cent of the variation in the dependent variable were explained

by the independent variables in both periods respectively while the DW test is approximately 2 hence, the absence of serial correlation in both periods also.

**Table 4: Determination of Savings from 1970-2016**

Variables	Coefficients	T-Statistic
C	-3.777771	-3.168061
GDP	0.658780	4.709116
RIR	-0.001619	-0.608850
CBB	1.025704	2.583883
DV	-0.133791	-0.649929
RSR(-1)	0.540384	5.394906
R <sup>2</sup>	0.926404	
R <sup>2</sup>	0.937309	
DW	1.685212	

E-views 9.0

Table 4 provides information on the effect of interest rate on savings in Nigeria from 1970-2016. It shows that GDP, Commercial bank branches and lagged savings rate have a positive and statistically significant effect on savings while real interest rate has a negative but statistically insignificant effect on savings in Nigeria. Government policy proxy by dummy variable is negative and statistically insignificant on savings. If we compare this result with table 3, one will observe that it is because of the inclusion of government policy that makes interest rate to be negative within the period under study. This has implications for policy because government is still visible in regulating the banking sector especially within the period of financial liberalization. The coefficient of determination R<sup>2</sup> shows that 92 percent of the dependent variable is explained by the independent variable while the Dubin Waston test of approximately 2.0 is indicative of the absence of serial correction.

### **Conclusion and Recommendation**

It was observed that interest rate for the entire periods have been repressed especially during the period of regulation. During the period of deregulation interest rate has a positive effect on savings but it is not statistically significant. This goes on to show that if the policy of deregulation is followed without government intervention, commercial banks would be able to perform efficiently. The non-performance of the banking sector was demonstrated with the inclusion of dummy variable which shows that government intervention affect interest rate negatively. The implication of this is that government policies over the years have hindered commercial banks from performing optimally both in terms of credit allocation to sectors, exchange rate and interest rate determination which are supposed to be market driven. More so, high level of inflation of more than 10 percent can impact negatively on the level of interest rate because it will reduce the real value of goods and services and frustrate the savings mobilization efforts of the banking sector hence an inflation rate of single digit will stimulate savings and encourage economic growth and development. This is because people will borrow at low interest rate, invest in productive investment, generate more income and there will production and increase in consumption of goods and services.

It is based on this finding that this study recommends that a comprehensive deregulation of interest rate should be implemented by monetary authorities so that commercial bank can determine their interest rate based on the market price of goods and services. Government intervention on exchange rate determination should stop and let it be market driven. The establishment of more bank branches in the country will also compliment the savings mobilization effort of banks. This is because banks that are stable and accessible will win the confidence of customers and encourage savings. Most savers in the rural areas carry out business activities and save their income at home and with the informal financial institutions. Therefore opening more bank branches will bring banking to the door step of savers and also integrate the informal financial institutions with the formal financial institutions thereby encouraging more savings into the banking sector.

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