

## Exchange Rate Volatility, Inflation and Savings Behaviour: A Comparative Analysis of Political Era in Nigeria

ANU KESHIRO TORIOLA

Olabisi Onabanjo University, Ago-Iwoye, Nigeria

WALID GBADEBO ADEBOSIN

Micheal Otedola College of Primary Education, Noforija-Epe, Lagos, Nigeria

MOSES OLAITAN TORIOLA

Rochester University, New York, USA

**Abstract.** The effect of exchange rate volatility and inflation on savings behaviour across political era in Nigeria was examined by comparing the civilian with the military era. This investigation is imperative to determine which regime performed better in terms of savings mobilisation and the economic condition that engender such performance. The study makes use of time series data from the Central Bank of Nigeria Statistical Bulletin covering the period of 1984 to 2015 and the Autoregressive Distributed Lag technique was used in the estimation. The inferences were drawn at 5% significance level. It was found that exchange rate volatility boost savings in both the short and long run while inflation retards savings in the long run over the entire political era. The effects of exchange rate volatility and inflation on savings behaviour in Nigeria across the two political eras differs only in the long run. The need to maintain stable inflation to curb the hazardous effect of oil price shocks on inflation through the diversification of the country revenue base was suggested. Also, government needs to sustain civilian rule while also implementing policies that will stimulate savings.

**Keywords:** Political era, Savings, Exchange rate, Inflation, Volatility.

### 1. Introduction

The economy of oil exporting nations especially those in the third world countries with Nigeria inclusive is characterized by high degree of uncertainty mainly because of their over-dependency on revenue from oil. The price level, foreign exchange rates and other macroeconomic parameters are relatively unstable in these countries when compared to the first world countries. The volatility in the price of oil in the global market rendered their exchange rate highly volatile. This high degree of volatility also retards the level of savings that is needed to accumulate capital resources for investment purposes.

Savings is the excess in income after tax and expenditure. It is difference between income after tax and consumption. When savings increase their will be an increase in capital accumulation and this will translates to increase in economic productivity (Krieckhaus, 2002). More also, when there is a rise in inflation, savings may fall. Meanwhile, when the rise in inflation continues for a number of periods, such scenario is referred to as inflation. It is a general accepted phenomenon that high inflation without a corresponding rise in income level, will translate to a decline in savings. In literature,

there are however three perspectives explaining inflation. These perspectives are fiscal, monetary and balance of payments. While in the monetary perspective is based on the position that inflation result from increase in money supply, the fiscal perspective, believed that budget deficits are the major factors that brings about inflation especially in nations with persistent and continuous increase in price level. In the balance of payments perspective however, emphasis is placed on the exchange rate (Oduola and Akinlo, 2001). Simply, a crash in exchange rate brings about inflation either through higher import prices and increase in inflationary expectations

In Nigeria the capital resources available are insufficient to meet investment needs due to low domestic savings. The low domestic savings in the country is often attributed to, among other factors; low per capita income, and high and volatile inflation rates, low exports-to-GDP ratios and poor financial intermediation (Omankhanlen, 2011). The sixteen years of military era from the second republic in 1983 and the restoration of democracy in 1999 has been an era in the history of Nigeria in which corruption was practically institutionalized as the foundation and essence of government which adversely affected exchange rate and savings in the country.

Against the analytical background, several studies on savings behaviour and macroeconomic variables nexus have focused attention on exchange rate volatility and savings behaviour nexus, exchange rate volatility and economic or output growth, inflation and savings behaviour nexus and on economic growth and savings behaviour nexus. Based on the extent of this review, studies have not documented in one empirical analysis the relationship among exchange rate volatility, inflation and savings behaviour in Nigeria under different political regimes in Nigeria. This study is motivated to address the identified lacuna by investigating exchange volatility, inflation and savings behaviour in Nigeria with a view of comparing the relationship among these variables across political regimes in Nigeria. The study specifically:

- investigates the trends of exchange rate, inflation and savings across political era in Nigeria.
- examines the effect of exchange rate volatility and inflation on savings behaviour over the entire political eras in Nigeria.
- compares the effects of exchange rate volatility and inflation on savings behaviour under civilian with military rule in Nigeria

The policy outcome of this study in no doubt will be of immense benefit to the monetary authority, commercial bank, investors, government and academia and researchers. The study will shed light on the implication of exchange rate volatility and inflation on the prevailing macroeconomic uncertainty which will aid monetary authority in their policy formulation to militate against the adverse effect of international oil price shocks a prominent factor accountable for the volatile exchange rate in Nigeria. The policy recommendations will assist Commercial banks to put in place attractive policy measures that will stimulate private savings such as attractive savings deposit rate among others. Among other agent that will benefit from the policy outcome of the study

## 2. Literature Review

In the study savings behaviour, exchange rate and exchange rate volatility were conceptualised. Savings which can be classified into national, private and public savings is generally defined as resources set aside for investment purposes and not for luxury. It is income not spent, or deferred consumption. In economics, a country's national savings is the sum of private and public savings. While public savings is government revenue minus government spending, private saving equals to the amount of after tax income less the consumption.

Exchange rate has been defined from different perspectives in economic literature. Krugman (2001) defined exchange rate as the value of a currency compared to another currency. Exchange rate is the relative price of two monies

and attempts to model the relative price in terms of the relative supply of and demand for those monies” (MacDonald & Taylor, 1989). There are two basic measures of exchange rate; the nominal and real exchange rate. The nominal exchange rate is the spot exchange rate while the real exchange rate is sometimes refers to as the Purchasing Power Parity (PPP) exchange rate. We have fixed and flexible exchange rate regime but when the regime is flexible the rate sometimes move very fast. Volatility of exchange rates describes uncertainty in international transactions both in goods and in financial assets. In the literature, the word exchange rate volatility takes a very specific meaning. “ It is the day to day, month to month variability of exchange rate, a variability that may have no trend to it” (Marston, 1987).

On the theoretical ground, the Deaton’s hypothesis which analyzes the effects of unanticipated inflation on savings ratio provides the theoretical foundation for the study. However, the study articulated two groups of theories consisting of:

**Inflation and Savings Nexus Theories:** The Deaton (1977) Disequilibrium Hypothesis was based on the position that the households do not have sufficient data to compare relative and general price changes with when both are moving at the same time at least in first case. Under these circumstances unanticipated inflation will tend to increase savings. Angus Deaton (1977) showed that unanticipated increase in inflation result in involuntary saving. The basic idea in Juster/Wachtel Real Income Uncertainty Hypothesis is that consumer saving will respond to the certainty with which people view income prospects, not just to actual income or to the closest approximation of expected income. In a world where rates of price inflation are visible, high and volatile expectations about real income can be expected to result in an increase in the saving rate, as a contingency against a shortfall in future real income.

**Exchange Rate Volatility and Savings Nexus Theories:** The basic principle of The Purchasing Power Parity Theory is that goods market arbitrage equalizes prices internationally once

the prices of goods are measured in the same currency (Pilbeam, 1998) based on the principle of one price (LOP) that submitted that in the absence of a competitive market structure and transport costs and other trade impediments, trade and effective arbitrage in goods markets will equalize price across nations. The main Purchasing power parity theory argued that a rise in the local price level resulting from expansionary monetary policy or unregulated credit flows will lead to an equi proportionate depreciation in the nominal rate of exchange. In recent time, the recurrent volatile movement in exchange rate failed to correspond to the usual changes in relative price levels in their magnitude or direction. Exchange rates and their rates of change over time have been more volatile than relative price levels and rates of inflations which is anomalous to existing theories. The Monetary Models of Exchange Rate assumes that the appropriate price indexes for calculating purchasing power parity, whatever they may be, are the same as the indexes that are appropriate for deflating nominal money balances in a demand function for real money balances. There are several versions of the monetary version of the analysis changes in exchange rate. Flexible price approach is based on the supposition of continued purchasing power parity and the existence of stable money demand functions for the local and international economies. As an improvement of the flexible version, the sticky price approach allows for accommodation of short-term deviation from purchasing power parity. That is, the model believes that there may be deviations from PPP in the short and long run but will later vanish. The price level therefore will affect the exchange rate negatively.

Results of several empirical studies conducted on the nexus between exchange rate volatility and savings behaviour were mixed. Among the prominent studies that provide evidence of a negative effect of exchange rate volatility on savings behaviour include Serve’n, (2003) and Chiu and Sun (2015). There also prominent evidence suggesting a positive effect such as David (1987) and Katusiime, Agbola and Shamsuddin (2015). It is appropriate to point out that while most studies in developed countries

trend across positive effect, however studies in developing and emerging market economies show more evidence for a negative relationship between the two variables but in Nigeria, there are scarce evidence on this relationship but the few available evidence produce mixed results. On the effect of inflation on savings, most studies suggest positive effect including Qun, and Xiaoyang (2014) and Igbatayo and Agbada (2012). Meanwhile, Burke and Ozdagli (2013) provide evidence of a negative effect of inflation on savings. However, while empirical evidence in developing and emerging market economies produced mixed result, most evidence on Nigerian economy pointed out a negative effect of inflation on savings.

### 3. Methodology

The methodology presents the procedure used in the collection, analysis, estimation of the data and in the interpretation of result of the estimation. This study used ex post factor research design in the analysis because the design is a quasi-experimental study that helps to determine how an independent variable, present prior to the study in the participants, affects a dependent variable. The study is anchored on the Deatons' disequilibrium hypothesis which predicts that unanticipated increase in inflation result in involuntary saving. The hypothesis express the savings ratio as  $(s/y) = (sly) + (\log y - \log y) - \phi(\log p - \log p)$  where the value of  $\phi$  is between minus one and zero (Deaton, 1977). The first term on the RHS of (1) gives the equilibrium savings ratio when the expectations of real income and prices are fulfilled. According to the second term consumer cannot react to stimuli they do not perceive so that all unanticipated real income is saved. Finally, the third term suggests that unanticipated prices will increase the savings ratio, *ceteris paribus* (Koskela & Viren, 1981).

To model the effect of exchange rate volatility and inflation on savings behaviour accros political eras, this study adapted the model used by Igbatayo & Agbada (2012) on the short and the long-run relationship between saving, inflation, and economic growth in Turkey where saving rate, the rate of economic growth,

inflation rate, and interest rate were used. This was modified by making national savings the dependent variables while inflation rate, interest rate and economic growth as the explanatory variables and incorporating exchange rate volatility into the model. To model the comparative effect of exchange rate volatility and inflation on savings behaviour under civilian and military rule, a dummy variable was introduced in a new model to capture the two political eras. The dummy variable is with intercept such that 0 indicates the civilian era while 1 indicates the military era. The linear form of the first model is given as:

$$NS = \beta_0 + \beta_1 EXRV + \beta_2 INF + \beta_3 INT + \beta_4 GDPG + \mu_i \quad (4)$$

Where:

The second model is stated as follow:

$$NS = \beta_0 + \beta_1 EXRV + \beta_2 INF + \beta_3 INTR + \beta_4 GDPG + \beta_5 DUM + \mu_i \quad (6)$$

In the study, National savings NS is total National savings as a ratio of RDP, exchange rate volatility series EXV was the standard deviation of the growth rates of exchange rate. Inflation INF was measured using 12 months average headline, core and food: all items less farm produce, GDP growth GDPG rate is GDP per capital and dummy variable DUM measure the political era where 0 and 1 denotes the civilian era and the military era respectively. Based on prior knowledge, exchange rate volatility and interest rate are believed to have negative coefficients. The coefficient of economic growth is however expected to be positive. There is still wide disagreement in the direction of the coefficient inflation although Deatons hypothesis and Zeldes (1989) suggest a positive coefficient specifically where there is high level of uncertainty as in developing countries literature agreed that it should be negative with developed nations in question.

The annual time series data which covers thirty one (31) years period from 1984 to 2015 was compiled from the Central bank of Nigeria (CBN) Statistical Bulletin. The choice of the period was based on the need to cover the two major political eras in Nigeria, the second military junta 1983 to 1999 and the fourth

republic 1999 till date. In order to avoid overlapping in the data set, the civilian era covered was between 1984 and 1998 while the military era is from 1999 to 2015. The Earnest Shonekan civilian rule of 1993 which was short-live was inclusive in the military era since the military was more dominant during the regime.

The formal econometric techniques employed in the analysis is the autoregressive distributed lag (ARDL) approach to cointegration as developed by Pesaran et al. (2001) as it provides the estimates of the long and short run parameters simultaneously.

**4. Results**

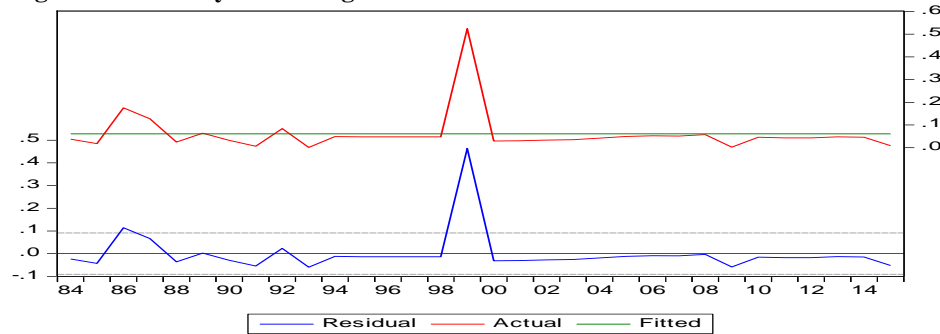
**1. Preliminary Tests**

**Table I: ARCH Effect Result.**

Heteroskedasticity Test: ARCH			
F-statistic	0.046523	Prob. F(3,25)	0.9864
Obs*R-squared	0.161002	Prob. Chi-Square(3)	0.9836

Source: Author, 2019.

**Figure 1: Volatility Clustering**



The result in Table I indicated that the residual has ARCH effect since the F-statistic is not statistically significant. The graphical display for volatility clustering in exchange rate showed that periods of low volatility tend to be followed by periods of low volatility for a prolonged period while the periods of high volatility was also followed by periods of high volatility for a prolonged period.

**Table II: Descriptive statistics**

	NS	EXRV	INFL	INTR	GDPG
Mean	0.042131	0.061000	20.60313	22.18094	0.174069
Median	0.014350	0.045985	12.30000	21.44500	0.168750
Maximum	0.178800	0.524395	72.80000	36.09000	0.534500
Minimum	0.000800	0.001045	4.700000	11.75000	-0.045700
Std. Dev.	0.055367	0.090913	19.17896	5.181534	0.139292
Skewness	1.211939	4.373714	1.388426	0.275788	0.410877
Kurtosis	3.013086	22.59390	3.519332	3.755306	2.809357
Jarque-Bera	7.833807	613.9181	10.64082	1.166299	0.948834
Probability	0.019903	0.000000	0.004891	0.558138	0.622248
Sum	1.348200	1.951997	659.3000	709.7900	5.570200
Sum Sq. Dev.	0.095030	0.256221	11402.81	832.2973	0.601474
Observations	32	32	32	32	32

Source: Author, 2019

The Jarque-Bera test of normality test in Table II showed that national savings, exchange rate volatility and inflation are normally distributed while interest rate and economic growth are not.

**Table III: Correlation Matrix**

	NS	EXRV	INFL	INTR	GDPG
NS	1				
EXRV	-0.161646	1			
INFL	-0.377455	-0.157788	1		
INTR	0.180058	0.045175	0.155302	1	
GDPG	-0.501186	0.019164	0.588461	0.145184	1

Source: Author, 2019

The result of the multicorrelation tests in Table III indicates the absence of the problem of multicorrelation. While exchange rate volatility, inflation and economic growth showed negative association with savings, the association between interest rate and savings was positive.

**Table IV: Lag-Order Selection Criteria**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-114.4815	NA	0.000164	8.309070	8.591959	8.397667
1	22.54863	207.9078	1.63e-07	1.341474	3.321695*	1.961654
2	62.87380	44.49673	1.72e-07	1.043186	4.720741	2.194950
3	142.9278	55.20968*	2.58e-08*	-1.995023*	3.379864	-0.311675*

Source: Author, 2019

In Table IV, a maximum of 3 lag as suggested by all the lags section criterion.

**Table V: Unit root test results.**

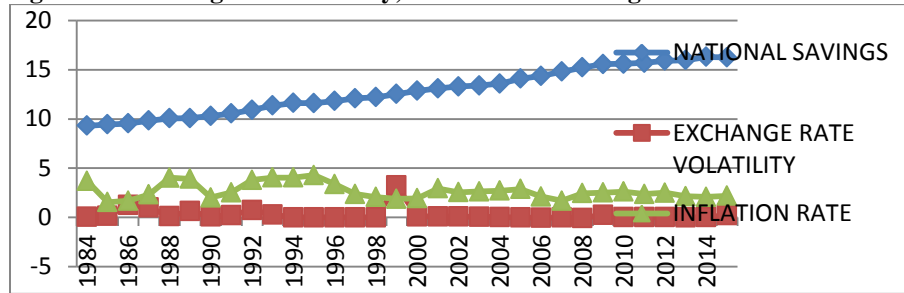
Variables	ADF Test (Value)			Order of Integration
	Level		First Diff	
NS	3.046080		-4.133980	I(1)
EXRV	-4.094209		-	I(0)
INFL	-1.262191		-5.523608	I(1)
INTR	0.515253		-6.099530	I(1)
GDPG	-1.422588		-5.955231	I(1)
Critical Value @			-2.647120	
	1%	-2.644302		
	5%	-1.952474	-1.952910	
	10%	-1.610211	-1.610211	

Source: Author, 2019

The ADF unit root test result presented in Table V showed that exchange rate volatility is the only variable that was stationary at level at 5% level of significance. After taking their first difference, all the variables become stationary.

## 2. Empirical Results

**Figure II: Exchange rate volatility, Inflation and Savings Behaviour**



Source: Author, 2019

The trend analysis in Figure II showed that over the political era while savings was increasing in a steady manner, exchange rate and inflation has been volatile.

### I. Exchange Rate Volatility and Inflation Effect on Savings Behaviour Model

**Table VI: Bound Test**

Model	Number of Lag	F-statistics	5% (I1) Critical value
3	3	4.800909	4.01

Source: Author, 2019

**Table VI: Short Run Estimate Results**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXRV	0.966413	0.270147	3.577353	0.0060
INFL	0.064705	0.061358	1.054548	0.3191
INTR	0.009054	0.007937	1.140711	0.2834
GDPG	-0.302920	0.279482	-1.083863	0.3066
ECM(-1)	-0.765206	0.255730	-2.992247	0.0151
R-squared	0.832280			
Adjusted R-squared	0.496840			
Durbin-Watson stat	2.108599			
F-statistic	21.48159			
Prob(F-statistics)	0.012743			

Source: Author, 2019

**Table VII: Long-Run Estimate Results**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXRV	5.180283	1.863125	2.780428	0.0214
INFL	-0.476103	0.188630	-2.524010	0.0326
INTR	0.035249	0.016296	2.163100	0.0588
GDPG	3.282571	1.194324	2.748477	0.0225
C	0.046758	0.249770	0.187203	0.8557
R-squared	0.808460			
Adjusted R-squared	0.542266			
Durbin-Watson stat	2.476617			
F-statistic	11.53447			
Prob(F-statistics)	0.003034			

Source: Author, 2019

The result of the first model in Table VI and VII showed that in the short run while exchange rate volatility( $\beta =0.966$ ,  $t=3.577$ ,  $p<0.05$ ) showed a significant positive effect on savings, inflation, interest rate and economic growth rate do not show any effect on savings. However, in the long-run, while exchange rate volatility ( $\beta =5.180$ ,  $t=2.780$ ,  $p<0.05$ ), interest rate ( $\beta=0.035249$ ,  $t=2.163100$ ,  $p<0.05$ ) and economic growth rate ( $\beta =3.282571$ ,  $t=2.748477$ ,  $p<0.05$ ) exert a significant positive effect on savings, inflation ( $\beta =-0.476103$ ,  $t=-2.524010$ ,  $p<0.05$ ) exerts a significant negative effect on savings in Nigeria. The result corroborated the findings of Katusiime, Agbola and Shamsuddin (2015) and Chiu and Sun (2015)

**II Political Era Comparative Effect Model**

**Table VIII: Bound Test**

Model	Number of Lag	F-statistics	5% (I1) Critical value
3	3	5.890622	3.79

Source: Author, 2019.

**Table IX: Short Run Estimate Results**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<b>EXRV</b>	3.031545	0.938504	3.230188	0.0144
<b>INFL</b>	0.287727	0.101545	2.833504	0.0253
<b>INTR</b>	0.025098	0.010115	2.481333	0.0421
<b>GDPG</b>	-1.586045	0.403272	-3.932944	0.0057
<b>DUM</b>	0.766183	0.440612	1.738906	0.1256
<b>ECM(-1)</b>	-0.243934	0.059517	-4.098558	0.0046
R-squared	0.999271			
Adjusted R-squared	0.997189			
Durbin-Watson stat	2.331883			
F-statistic	479.9260			
Prob(F-statistics)	0.000000			

Source: Author, 2019

**4.2.3.3 Long-run Estimates**

**Table X: Long-Run Estimate Results**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<b>EXRV</b>	28.780113	8.388204	3.431022	0.0110
<b>INFL</b>	1.353803	0.550530	2.459089	0.0435
<b>INTR</b>	0.062387	0.056237	1.109370	0.3039
<b>GDPG</b>	-4.658401	2.065086	-2.255790	0.0587
<b>DUM</b>	-3.816362	0.460245	-8.292030	0.0001
<b>C</b>	-6.605552	1.317486	-5.013753	0.0015
R-squared	0.999271			
Adjusted R-squared	0.997189			
Durbin-Watson stat	2.331883			
F-statistic	479.9260			
Prob(F-statistics)	0.000000			

Source: Author, 2019

The analysis of the second model on the comparative effect of exchange rate volatility,

inflation and savings behaviour under civilian with military rule indicates that exchange rate

volatility ( $\beta = 3.031$ ,  $t = 3.230$ ,  $p < 0.05$ ), inflation ( $\beta = 0.287727$ ,  $t = 2.833$ ,  $p < 0.05$ ) and interest rate interest rate ( $\beta = 0.025$ ,  $t = 2.481$ ,  $p < 0.05$ ) exert a significant positive effect on savings in the short run, while the effect of economic growth ( $\beta = -1.586045$ ,  $t = -3.932944$ ,  $p < 0.05$ ) on savings was negative. However, exchange rate volatility ( $\beta = 28.780$ ,  $t = 3.431$ ,  $p < 0.05$ ), inflation ( $\beta = 1.353$ ,  $t = 2.459$ ,  $p < 0.05$ ) and interest rate ( $\beta = 0.062$ ,  $t = 1.109$ ,  $p > 0.05$ ) exert a significant positive effect on savings while the effect of economic growth ( $\beta = -4.658$ ,  $t = -2.255$ ,  $p < 0.05$ ) on savings was also negative in the long run. The estimated differential coefficient for the political eras proxy by dummy variable ( $\beta = -3.816362$ ,  $t = 0.0015$ ,  $p < 0.05$ ) is statistically significant only in the long run indicating the effect of exchange rate volatility and inflation on savings behaviour in Nigeria differs across the two political era in the long run. This means that, the long run positive effect of exchange rate volatility on savings and the long run negative effect of inflation on savings from the result of model one has a more serious implication in the military era. The result is particularly surprising as it shows that exchange rate volatility and inflation stimulate savings which implies that the high level of macroeconomic uncertainty in the country enhance savings. This means that the growth in savings under the high level of macroeconomic uncertainty is likely to come from public saving fuelled by embezzlement of oil proceeds during the period of oil boom by the political elite account for the meagre growth in savings. Also, the significant negative effect of economic growth on savings both in the short and long run is an indicative of the fact that Nigeria is experiencing stunted growth. It is a kind of growth which retards savings, reduced investment and standard of living. The result is supported the result in the study conducted by Hatane and Stephanie (2015) and the findings of Oladapo, Jonathan, Akomolafe and Paul (2015)

The study concluded that over the entire political era savings behaviour reacts positively to exchange rate volatility both in the short and long run but inflation retard savings only in the long run. The policy suggestions emanating from the above findings to stimulate savings is for the monetary policy authority in Nigeria to

formulate a policy framework that will make interest rate on savings attractive to both the private individuals and business organizations by reducing the wide disparity between interest on savings and interest on deposit. In order to stimulate savings effectively, the high level of macroeconomic uncertainty in the country should be minimised through a policy framework that hedge against the adverse effect of oil price on the economy by diversifying the source of government revenue. The corruption in the Bureau De Change and in parallel market as well as political corruption should be checked through holistic, efficient and fast delivery of judgement in the court on issues associated with corruption.

## References

- Burke, M.A and Ozdagli, A. (2013) Household Inflation Expectations and Consumer Spending: Evidence from Panel Data, Federal Reserve Bank of Boston, Working Papers, No. 13-2
- Chiu, Y. & Sun, C. (2015) The Role of Savings Rate in Exchange Rate and Trade Imbalance Nexus: Cross-countries evidence, *Economic Modelling* xxx (2015) xxx–xxx, 1-9
- David H.H (1987) Personal Saving Behavior and the Rate of Inflation, *The Review of Economics and Statistics*, 60(4), 547-554
- Deaton, A (1977).: "Involuntary Saving through Unanticipated Inflation", *American Economic Review*, 1977,899-910.
- Igbatayo, S. & Agbada, A.O (2012) Inflation, Savings and Output in Nigeria: A Var Approach, *Journal of Emerging Trends in Economics and Management Sciences*, 3(5): 447-453
- Koskela, E & Viren, M (1981) Inflation, Tight Money and Household Saving Behaviour: Finnish Evidence, *Keskusteluaiheita Discussion papers*, 91(29).8-15
- Kriekhaus, J. (2002). Reconceptualizing the Developmental State: Public Savings and Economic Growth, *World Development*, 30(10), 1697–1712.

- Krugman, P. (2001), Oil and the Dollar, in Bhandari, J. and Putnam, B.(eds), Economic Interdependence and Flexible Exchange Rates, MIT Press: Cambridge, MA.
- Marston, J and Bilson, R. (1978) Exchange Rate Theory and Practice, University of Chicago Press, Chicago, IL, 121-151.
- Martson, R (1887) "Real Exchange Rates and Productivity Growth in the United States and Japan" MIT press Cambridge MA.
- Odusola, A. F. & Akinlo, A. E. (2001) Output, Inflation, and Exchange Rate in Developing Countries: An Application to Nigeria, *The Developing Economies*, XXXIX-2: 199–222
- Omankhanlen, A.E (2011) The Effect of Exchange Rate and Inflation on Foreign Direct Investment and Its Relationship with Economic Growth in Nigeria, *Economics and Applied Informatics Years, XVII – No.1*
- Qun, C. & Xiaoyang, L. (2014) Cross-Country Effects of Inflation on National Savings, *Shatakshee Dhongde*
- Serven, L. (2003) Real-Exchange-Rate Uncertainty and Private Investment in LDCs, *The Review of Economics and Statistics*, 85(1): 212–218
- Zeldes, S.P. (1989). Consumption and Liquidity Constraints: An Empirical Investigation. *Journal of Political Economy* 97 (2):305-346.