Exchange Rates and the Consumer Price Index in Nigeria: A Causality Approach

Adetiloye, Kehinde Adekunle

Department of Banking and Finance, School of Business,
Covenant University, Ota, Nigeria

Abstract

This paper was motivated by the need to establish the impact of importation into Nigeria and its main objectives were to find out the significant relationships between the official and parallel exchange rates and the consumer price index (CPI.). It also established that import ratio in the economy is a contributor to the increase in the cost of living (CPI) in the country. The paper adopted the techniques of correlation and Granger causality to find the significance of the relationships between the index and the exchange rates. It found out that there is higher positive relationship between the ratio of imports and the index than exist between the parallel and official rates. The coefficient between autonomous exchange rates and the consumer price index (CPI) is less significant than official rate, while the import ratio in the economy shows a near two-way balance causality with the consumer price index. The more significant one is causality is that import ratio granger causes CPI. The paper recommends a more liberalised foreign exchange market to reduce the impact of the parallel market and increase in domestic production of consumables to reduce importation of domestically substitutable goods in the economy.

INTRODUCTION

The role of the exchange rates in the Nigerian economy has always been much in contention as result of its volatility and consequent impact on various sectors of the economy, especially, on the daily living profile of Nigerians. Much as inflation, especially, money supply induced price increases has affected the index in Nigeria, it has equally been affected by the continuous depreciation of the Naira in the process of exchange to goods which and has played a major role financial landscape of the country (Ismail, 2009). The sudden floating and liberalisation of the foreign exchange market on the costs of goods and services is documented in works of Babatope-Obasa (2004). That Nigerian is an importing nation where the imported goods rivalled the locally produced goods is well known and acknowledged in Fullerton and Ikihide (1998). As expressed in Calvo and Reinhart (2000), one of the problems of floating exchange rates in developing economy is the inability to tackle the problem of speculation headlong given the level of informal financial sector that powers the economic sector. With the understanding that high consumer prices in Nigeria could be as result of the imported inflation and the possibility that the high exchange rates, is contributing to the prices of goods purchased and consumed in the domestic economy. However, floatation of the domestic currency has positively affected the export of commodities especially the agricultural produce (Adubi and Okunmadewa 1999). The sum of the above is that the price of the currency *vis a vis* the domestic prices have tended to move in tandem. Price increase in the foreign exchange market spirals to the domestic prices though the goods are neither imported nor have imported inputs in their manufacture or assembly process. This led to the belief that the Taylor rule is also applicable in the Nigerian financial environment. The soundest monetary policy is one based on the trinity of a flexible exchange rate, an inflation target, and a monetary policy rule (Batini 2004). The use of this principle however is subject to the individuals' countries priorities and choices. The basic objectives of this paper are to find the correlation between the exchange rates and the import ratio on the one hand and consumer price index on the other hand and to find out the impact and the causality between the exchange rates and the index and import ratio in Nigeria. The paper is divided into five sections. The review of empirical literature follows the current section, which is followed by the methodology, results, recommendations and conclusion in that order.

CURRENT EMPIRICAL LITERATURE

An economy's financial position is susceptible to its foreign exchange volatility. Foreign exchange market developments have cost implications for the households, firms and the State. Benita and Lauterbach (2004) showed that exchange rate volatility have real economic costs that affect price stability, firm profitability and a country's *financial* system stability. The internationalisation of financial markets has resulted in flows of vast sums of funds between countries and in the cross listing of equities. This has therefore made governments to closely watch and monitor the prices obtainable for the domestic currency. Monetary authorities' inability to

continuously guarantee the rate in fixed exchange regime and absorb the risks in the market for other to profit brought about floating of exchange currencies. Floating exchange rate appreciation reduces the competitiveness of products meant for export markets; and has a negative effect on the domestic markets (Yucel and Kurt, 2003). However, for import-dominated economy, it may have positive effect on the stock market by lowering input costs. Depending on imported goods, have serious implications, the least of which is imported inflation and which can influence the domestic prices of final goods obtainable in the economy through the consumer price index. The correlation between both depends so much on what constitutes the imported consumables that are domestically consumed.

Current Exchange Rate Theories and Practises
Volatile exchange rates make international trade and investment decisions more difficult because volatility increases exchange rate risk. Exchange rate risk refers to the potential to lose money because of a change in the exchange rate. Because goods prices adjust more slowly relative to financial asset prices and financial assets are traded continuously each business day, the shift in emphasis from goods markets to asset markets has important implications. The basic partner currency is the dollar in which the international payments are made and received this makes the domestic currency to share in the sins of the dollar which may daunt many foreign investors to diversify out of the dollar (Rogoff, 2008) and maintain minimum amounts. In addition, the constant interventions of the government through many means to influence the Naira exchange rate complicates the maintenance of low level of price index in the economy (Shittu, 2009) though the reasons for constant disequilibrium in the exchange rate cannot be fully established (Battini, 2004). The impact of the consumer price index on the exchange rate has been established in Ghana as been beneficial for the real effective exchange rate (Opoku-Afari, 2004). The exchange rate generally, is expected to influence the index depending on the interaction with the international markets and the propensity to consume imported goods. The exchange rate is derived from the interaction of demand for and supply of foreign exchange and will change every day or even every minute as supplies of and demands for financial assets of different nations change (Avivazian and Varouj, 1986). Portfolio Balance models have risk premiums in the forward exchange rate that are a function of relative asset supplies (Avivazian and Varouj, 1986). The equation below summarizes how the export and import levels, and hence the current account balances, depending on the real exchange rate (Marrewijk, 2005).

$$CA (Q) = X (Q) – M (Q)$$

The elasticities approach focuses on the relative price effects on the current account balance. According to the Marshall–Lerner condition, which states that the sum of the price elasticities of export and import demand must exceed unity, a depreciation of the domestic currency will improve the current account balance. Empirical estimates show that the Marshall–Lerner condition is fulfilled for most countries, but only after a sufficiently long period has elapsed, to ensure that the export and import quantities can adjust to the change in relative prices (Marrewijk, 2005). The floatation method of Nigerian currency is dirty, partly arising from the earlier two-window structure, which encouraged round tripping. With the autonomous market expected to be more market driven, the market still experiences round tripping from officially sourced foreign exchange. Constant reduction between the autonomous and the parallel rates and parallel and official rates is important to eliminating any form of premium. The magnitude of the premium between the official and parallel markets rates often imply that speculations are strong in the currency and that the government has upper hand in the market imply that a more broad autonomous market that includes other traders should be introduced. The features of the parallel market and the market that the Central Bank of Nigeria introduced were quite similar with the (Bureaux d' Change) banks behaving in similarly speculative manner, which according to Ayogu (1999), must be resisted.

Scholars have attributed the resilience of the parallel market as the reason for its being close to the Purchasing Power Parity and the equilibrium exchange rate (Emran and Shilpi, 2004, and Bahmani-Oskooee and Tanku, 2007). Nigeria's economy is monoculture and depends mainly on the proceeds from export of crude petroleum for funding the foreign exchange market, which has invariable turned into 'resource curse'; and continuance reliance on it led to the abandonment of industrial development (Ojo, 2010,). The volatility of the petroleum price also is expected to affect the real effective exchange rate of the Naira. However, its effects on the market is more salutary though high prices for this commodity has been ascribed as the major cause of Dutch disease in Nigeria (Olomola and Adejumo, 2006) as the autonomous and the official market are active when the prices of the crude petroleum are high. The choice of currency of transaction is also important in the pass through process as volatility of such currencies impact the transactions undertaken by the importing country.

Components of Consumer Price Index
Consumer price index measures indicate the relative movement in the general prices of goods and commodities consumed by the public relative to a base period, being made up of a basket of consumables that is not sacrosanct, but changeable. It is the general measure of the level of inflation existing in the economy and its impact on the living standards of the people. The constituents of the

consumer prices index vary from rural to urban sectors of the economy as the consumption patterns are not the same (Sharma, undated), This have changed as the living patterns changed overtime. While these changes allow the components to be varied, it also ensures that that it is realistic. The components alter and vary from country to country, making international comparison meaningless.

Basic necessities such as food and shelter (housing) constitute a major part of the index for developing economies while leisure (holiday) and entertainment form a main percentage for the developed countries. Thus, consumer price indexes for most nations are country-specific and may not be properly compared. Larger proportion of income being spent on imports implies that proportionally lower percentage is spent on domestic goods. A major consideration of the indices is the inflationary trends in the economy. The understanding that an amount of inflation exist in the economy at any point in time implies that prices of consumables change at varying rates for locally produced goods. However, the common five or six items of expenditure are housing, food, clothing, shelter, electricity, utilities, and other manufactured goods. Within the food component, two imported essentials that are domestically consumed are almost unavoidable: wheat and rice; and fish and poultry for protein. Some other consumable items are imported that may not enter into the current account of the country such as imported beans from Niger Republic and smuggled poultry meat from Benin Republic. The weights attached to these items indicate their relative importance in the consumption pattern of the population.

Domestic and Imported Inflation
Inflation being a consideration of the index, the impact of exchange rate input in the consumption patterns of the people depends on two important variables. Firstly, the exchange rate pass-through which measures the rate of imported inflation a country absorbs. This in itself is a function of many other factors among which is the domestic price elasticity of the goods imported for consumption by the people. McCarthy (1999), while investigating the exchange rate pass through of industrialised countries discovered that though external influences are stronger in the process, the large import share can be a strong factor in the in price transmission to domestic prices. The quantity of imported goods in the index should impact the index, but dumping has been seen to mitigate this (Bacheeta and van Wincoop, 2003, and Zorzi *et al* 2007) though imported goods have increased when measured against the GDP. The analysis however did not include any of the countries of Africa. Of recent the inflation figures for the economy have been amended severally after they have been initially released, leading one to the fact that the figures are neither reliable nor plausible.

Li-gang and Tsang (2008) agree that import prices translate at higher rate in Asian emerging economies than developed economies. This raises the question of efficient pricing between exporters of goods to Nigeria and importers. The improvements in the lives of the people are more seen in their ability to consume imported goods at the micro level. The impact this trend has on the economy is to create pressure on the exchange rates (both official and autonomous). Alternatively more imported goods are taken as components of the index. The Nigerian elite has developed a penchant for purchasing imported goods to show the new middle class status it has achieved, even sending children to study overseas. The ability to purchase some goods having been enhanced, has fuelled this trend, where most of the goods available for purchase from consumer loans granted by commercial banks are those imported into the country.

DATA AND METHODOLOGY
Data is sourced from the Statistical Bulletin or the Central Bank of Nigeria for all the variables, but was truncated to 21 years (1986-2007) for data availability. (The liberalised foreign exchange market in Nigeria effectively took off in September 1986.) The study adopted two techniques to measure the variables to analyse the questions raised in the paper. The group unit root process was adopted to enable a cross section of the various variables be tested with the same method. This was done with the Hadri panel unit root test, which uses a null hypothesis or assumes a common unit roots processes, or of no unit root in any of the series in the panel. The result, which is shown as Table 1, allows the variables to be used in the causality approach.

Table 1: Hadri Group Unit Root Test
Sample: 1986-2007
Series: OFFRATE, CPI, IMPRATIO, PARRATE
Exogenous variables: Individual effects
Newey-West bandwidth selection using Bartlett kernel
Total number of observations: 87
Cross-sections included: 4

Method	Statistic	Prob.**
Hadri Z-stat	5.91258	0.0000
Heteroscedastic Consistent Z-stat	5.95091	0.0000

** Probabilities are computed assuming asymptotic normality
Intermediate results on UNTITLED

Series	LM	Variance HAC	Bandwidth	Obs
OFFRATE	0.5837	9578.441	3.0	22
CPI	0.6332	8920.348	3.0	22
IMPRATIO	0.6171	17.30496	3.0	22
PARRATE	0.6069	7844.327	3.0	21

The variables are: *CPI* = Consumer Price Index, *OFFRate* = Official Exchange Rate, *PARRateXR* = AFEM (Autonomous Foreign Exchange Market) Parallel Exchange Rate, *INFN* = Inflation Rate,

IMPRAT = Import Ratio (Imports/GDP). The short annual length of the data shows that the market is of recent origin in country. The two models adopted are correlation to show the strength of relationship and the Granger causality approach to show the causative variables among the variables of interest in the study

Correlation

Pearson product moments correlation was adopted for as the first model with bootstrap to show the deviations that are possible in the relationships among the variables of interests. Putting the above functional form and stating it in an econometric form of correlation, Pearson's correlation." It is obtained by dividing the covariance of the two variables by the product of their standard deviations. The population correlation coefficient $\rho_{X,Y}$ between two random variables X and Y with expected values μ_X and μ_Y and standard deviations σ_X and σ_Y is defined as:

$$\rho_{X,Y} = \text{corr}(X,Y) = \frac{\text{cov}(X,Y)}{\sigma_X \sigma_Y} = \frac{E[(X - \mu_X)(Y - \mu_Y)]}{\sigma_X \sigma_Y}, \quad (1)$$

Where E is the expected value operator, *cov* means covariance, and, *corr* a widely used alternative notation for Pearson's correlation

The official exchange rate is *(OFEXR)*, μ_y and σ_y denote the mean and the standard deviation respectively for the variable y, which is the parallel exchange rate *(PARREXR)*. μ_{xy} and σ_{xy} denote the mean and the standard deviation respectively for the combination of the variables (*CPI, IMPRATIO OFEXR* and *PEXR*). This model was used to analyze the result of the correlation analysis.

Granger causality is normally tested for significance in the context of linear regression models. Though, a significant relationship between two unrelated variables does not imply causation between them. A bivariate linear autoregressive model of two variables X_1 and X_2: is adopted for causal relationship in the variables of interest.

$$X_1(t) = \sum_{j=1}^{p} A_{11,j} X_1(t-j) + \sum_{j=1}^{p} A_{12,j} X_2(t-j) + E_1(t)$$

$$X_2(t) = \sum_{j=1}^{p} A_{21,j} X_1(t-j) + \sum_{j=1}^{p} A_{22,j} X_2(t-j) + E_2(t)$$
(2)

where P is the maximum number of lagged observations included in the model (the model order), the matrix A contains the coefficients of the model (i.e., the contributions of each lagged observation to the predicted values of $X_1(t)$ and $X_2(t)$, and E_1 and E_2 are residuals (prediction errors) for each time series.

RESULT AND ANALYSES

Though the relationship between the official exchange rate and the parallel or autonomous rates appears strong, the concern here is on the strength of relationship between the consumer price index and either of the rates. Bootstrapping was used to examine the extent of covariance, standard errors and confidence limits which ordinarily are not available in the normal correlation estimates and is useful in these parametric estimates, though the assumptions of those methods are not doubt.
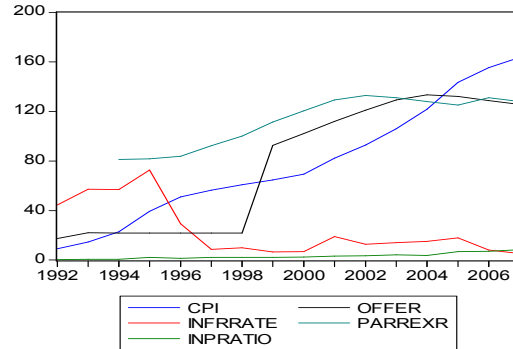

Figure 1: The Graphical Relationship between the Variables (import ratio is close to the floor)

While the official exchange rate demonstrates a weaker relationship between the Consumer prices and itself by the coefficient (*r*) of .915 and higher covariance of 2737.024 and a stronger relationship exist between the parallel or autonomous market rates and the price index with the correlation coefficient of .938 and a lower covariance of 2578.586 (Table 3). One causative factor for this is the wild fluctuations in the official rates over the years as a control variable of macroeconomic management, while the rate for the autonomous or parallel rate has steadily increased over the years. The autonomous rate has been a perforce reason for continual *allowed depreciation* and realignments in the official rates. Both rates have significant relationships with the consumer price index beyond 0.001. The above clearly shows that the autonomous or parallel market rate is more realistic than the official rate. The tendency for the autonomous rate to follow the *REER* of the country can be proved here. The assertion that the parallel rates often follow the *PPP* is equally indicated here in these results. In spite of the high correlation (*r*) of 0.921 between the two rates, it is clear that that they have differential impacts on the consumer price index as the autonomous rate is more impactful.

Table 2: Granger Causality among the Variables
(Significant relationships are in bold)
Granger Causality between the variables: ofirate. Parrate. CPI and impratio
Sample: 1986 2007

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Probability
CPI does not Granger Cause OFFRATE	20	1.46818	0.26162
OFFRATE does not Granger Cause CPI		**3.91969**	**0.04271**
IMPRATIO does not Granger Cause OFFRATE	20	0.57993	0.57201
OFFRATE does not Granger Cause IMPRATIO		1.57284	0.23982
PARRATE does not Granger Cause OFFRATE	20	1.42268	0.27180
OFFRATE does not Granger Cause PARRATE		0.45878	0.64063
IMPRATIO does not Granger Cause CPI	**20**	**4.70905**	**0.02587**
CPI does not Granger Cause IMPRATIO		**2.82918**	**0.09067**
PARRATE does not Granger Cause CPI	**20**	**1.66176**	**0.22290**
CPI does not Granger Cause PARRATE		0.42984	0.65838
PARRATE does not Granger Cause IMPRATIO	20	0.14690	0.86460
IMPRATIO does not Granger Cause PARRATE		0.89532	0.42922

A surprising result is the relationship of the import ratio to the GDP and the consumer index - which has steadily increased over the years as the elite acquire more economic power. The coefficient is higher than either of the official or autonomous rates at (r) 0.977. The parameter, as the correlation shown shows a stronger relationship between the rate of importation and consumer price index. The relationship is strong as the ratio of import has increased in recent times as indicated on the figure above (Table 3). All results are significant beyond 0.01 levels. Sum of squares and cross products is least at 2687.835 and the covariance is lowest at 134.39 while the confidence interval is also least at between .960 and .993. The coefficients between the parallel and official rates and import ratio in the economy are also high. In conclusion, the higher the ratio of imports against products in the economy, the higher the consumer price index. This is proven by the correlation results of the variables considered with the import ratios in the economy having the highest coefficient.

Granger Causality Approach
The causal relationships possible in the increase of the CPI and either of the parallel and official rates are measured to estimate the significance of each of the rates on the CPI and the exchange rates (parallel and official). The causality here is surprising as the CPI granger causes import ratio with a significant Wald F statistics high enough for concern at 4.70 and p 0.02. This reverse causality is observed to be high at Wald F 2.82918, and p of 0.09. This implies

that the CPI also impacts and causes a rise in the import ratio in the economy. This point to possible existence of dumping as the cheap prices of imported goods is inducing a significant level of importation (Table 2). In this circumstance, the role of the CPI and imports in the economy seem to counterbalance each other with the CPI enabling dumping in the short run. The least significant of the variables of interest is the autonomous or parallel market rates, which is understandable. By this parallel or autonomous rate and official rates granger causes the increases in CPI at p 0.222 which is not significant. The causality factor of import ratio to the GDP falls to less than 0085 which though less than the default but high enough to call for policymakers' attention. The three key variables remain the parallel and official rates and import ratio in the economy, which can show the rate of foreign goods consumption in the economy relative to domestic goods. By this result the official rates granger causes the increases in the CPI and is more significant than the autonomous exchange rate at 0.042. This may be because more funds are available through the official window than the parallel market. An important reason for this may also be the end use of autonomous funds is for unauthorised goods which are nevertheless demanded in by consumers. Many of these consumables pass through the borders without import tariff. The impact of the parallel market is more felt in the unofficial transactions. The relationship between autonomous and official rates shows a weak causality with F 1.4 and p of 0.222

flowing from the parallel to the official rates and can be accepted as true and representative on the actual circumstances. That the official rates influence on the parallel is weak as expected.

Table 3: Correlations

			CPI	OFrate	PARRATE	IMPRATIO
CPI	Pearson Correlation		1			
	Sig. (2-tailed)					
	Sum of Squares and Cross-products		59339.325			
	Covariance		2966.966			
	N		21			
	Bootstrap[a]	Bias	0			
		Std. Error	0			
		95% Confidence Interval	Lower	1			
			Upper	1			
OFrate	Pearson Correlation		.915**	1		
	Sig. (2-tailed)		.000			
	Sum of Squares and Cross-products		54740.479	60325.788		
	Covariance		2737.024	3016.289		
	N		21	21		
	Bootstrap[a]	Bias	.001	0		
		Std. Error	.028	0		
		95% Confidence Interval	Lower	.851	1		
			Upper	.961	1		
PARRATE	Pearson Correlation		.938**	.921**	1	
	Sig. (2-tailed)		.000	.000		
	Sum of Squares and Cross-products		51571.730	51049.429	50976.545	
	Covariance		2578.586	2552.471	2548.827	
	N		21	21	21	
	Bootstrap[a]	Bias	.004	-.002	0	
		Std. Error	.018	.040	0	
		95% Confidence Interval	Lower	.905	.834	1	
			Upper	.982	.994	1	
IMPRATIO	Pearson Correlation		.977**	.855**	.858**	1
	Sig. (2-tailed)		.000	.000	.000	
	Sum of Squares and Cross-products		2687.835	2371.442	2187.285	127.494
	Covariance		134.392	118.572	109.364	6.375
	N		21	21	21	21
	Bootstrap[a]	Bias	.002	.008	.011	0
		Std. Error	.009	.040	.038	0
		95% Confidence Interval	Lower	.960	.778	.798	1
			Upper	.993	.934	.972	1

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

RECOMMENDATIONS

The three key variable employed in this paper brings the relationship and the control measures that can be adopted into understanding. While it may be difficult to remove the imported consumables completely from the components of the CPI, it is necessary to reduce the consumption of imported goods that have local substitutes and thereby reduce imports from this side. Also, banned consumables that find their way to the market can be administratively controlled to bring their sources of foreign exchange into the official market. In all, local production must be encouraged to boost domestic production and income and reduce leakages of foreign exchange.

The merger of the both autonomous and official rates coupled with further liberalisation have been severally advocated and they are recommendations here, for the simple fact the many more transactions that should be in the official market source their foreign exchange needs from the parallel market. The maintenance of a single exchange rate will prevent round tripping of the currency, where what is obtained in the official market is sold in parallel market. The benefits will also include simplicity in managing the exchange rates while market forces discipline those who speculate rather than the government having to bear the cost of the speculative activities of the dealers as it is now. A latent advantage of the merger of the exchange rates is the inculcating of discipline in the management of the internal macroeconomic dynamics in more prudent manner than it is presently done.

The merger of both the parallel and official rates will put the cost of speculation in the market on participants who make profit by their arbitraging practices and impose the cost of maintaining prices on the government. The dirty flotation of the currency presumes a kind of official manipulation which can cost enormous amount of resources. This would bring the government and monetary authorities to their main responsibility in managing the internal macroeconomic variables properly. A balanced approach to fiscal and monetary management of the financial side of the country will bring about and fairly stable exchange rate that will not have inflationary implications. In addition, the ability of business and government to project clearly will be enhanced, rather the present method that

leaves the central bank to be responsible for the fiscal mismanagement of the economy.

CONCLUSIONS

The paper has attempted to establish a correlation and causal relationship between consumer price index and the main variables of official and the parallel exchange rates and import ratio. With the variables, it was established that a string of causal relationships exist. The parallel exchange rate impacts against the official rate causing a pull on the rates while the official and parallel rates both impact the consumer price index as expected with the parallel rates being of higher significance. The import ratio is more significant in the correlation than either of the two rates based on the coefficients and other measures while its F statistic is also shows that it granger causes increases in consumer price index. The granger causality also shows that consumer price index can cause import ratio to increase. Its causality in the consumer price index under is high and significant in both directions. It is recommended that the market be further liberalised to remove the impact of the parallel market while production of consumables is encouraged domestically to reduce importation.

REFERENCES

Adubi A. A. and F. Okunmadewa (1999) "Price, Exchange Rate Volatility and Nigeria's Agricultural Trade Flows: A Dynamic Analysis". AERC Research Paper 87 African Economic Research Consortium, Nairobi March 1999.

Ayogu, Melvin (1999) "Empirical Studies of Nigeria's Foreign Exchange Parallel Market: Speculative Efficiency and Noisy Trading" Paper No 69 Africa Economic Research Consortium.

Bacchetta, P. and van Wincoop, E. (2003), "Why do Consumer Prices React Less than Import Prices to Exchange Rates?" Journal of European Economic Association, 1, 662-670.

Bahmani-Oskooee, Mohsen and Altin Tanku (2007) "Black Market Exchange Rate Versus the Official Rate in Testing the PPP: An application of a Non-Linear Test". Comparative Economic Studies Dec

Batini, Nicoletta (2004) 'Achieving and Maintaining Price Stability in Nigeria' IMF Working Paper WP/04/97

Babatope-Obasa (2004): "A Further Empirical Investigation to the Concept of Money Demand in Nigeria: A Case of Currency Substitution". A paper presented at the 9th Annual conference of Econometric Modelling for Africa. 30 June – 2 July 2004.

Ca' Zorzi, Michele. Elke Hahn and Marcelo Sánchez (2007) "Exchange Rate Pass-Through in Emerging Markets" Working Paper Series No 739 European Central Bank

Calvo, Guillermo A., and Carmen M. Reinhart, 2000, "Fear of Floating," NBER Working Paper No. 7993 (Cambridge, Massachusetts: National Bureau of Economic Research).

Emran, M. Shahe and Forhad Shilpi (2004) "Is Black Market Exchange Rate a Good Indicator of Equilibrium Exchange Rate. A Simple Test with Evidence from South Asia" EconWPA Development and Comp Systems No 0406005.

Fullerton Thomas J. and Silvanus I Ikhide (1998) "An Econometric Analysis of Nigeria Consumer Price" Index Journal of Economics Vol. 24 No 2 Pp 1-15.

Ismail O. Shittu (2009) "Modelling Exchange Rate in Nigeria in The Presence of Financial and Political Instability: An Intervention Analysis Approach". Middle Eastern Finance and Economics Issues Issue 5. Eurojournals Publishing.

Li-gang Liu and Andrew Tsang (2008) "Exchange Rate Pass-Through to Domestic Inflation in Hong Kong" Working Paper 02/2008 Hong Kong Monetary Authority.

McCarthy, Jonathan (1999) "Pass-Through of Exchange Rates and Import Prices to Domestic Inflation in Some Industrialized Economies" Bank for International Settlements Working Papers No 79

Rogoff Kenneth (2008) 'Problems of Sagging Dollar Likely To Snowball". New York Times March.

Ojo Ade T (2010) The Nigerian Maladapted Financial System: Development Dilemma and Reforming Tasks. Lagos. Chartered Institute Bankers Nigeria Press

Olomola, Philip A. and Akintoye V Adejumo (2006) "Oil Price Shock and Macroeconomic Activities in Nigeria" International Research Journal of Finance and Economics Issue 3 EuroJournals Publishing,

Opoku-Afari, Maxwell (2004) "Measuring the Real Effective Exchange Rate (REER) in Ghana" CREDIT Research Paper No. 04/11.

Sharma, G.D (undated) "Compilation of Consumer Price Indices (CPI) and Wholesale Price Index (WPI) in India". Central Statistical Organisation Ministry of Statistics and Programme Implementation.