Global Journal of Applied, Management and Social Sciences (GOJAMSS); Vol.12 September 2016; P.157 – 165 (ISSN: 2276 – 9013)

EMPIRICAL ANALYSIS OF ELECTRICITY SUPPLY ON ECONOMIC GROWTH, EVIDENCE FROM NIGERIA1980-2013

UGWOKE THEOPHILUS IFEANYI
Department of Economics,
Faculty of Management and Social Sciences,
Madonna University, Nigeria
E-mail: excellenttheophilus@yahoo.com.

&

UGWOKE APPOLONIA CHIOMA
Department of Business Administration,
Faculty of Management and Social Sciences
Madonna University, Nigeria
E-mail: appoloniaugwoke@yahoo.com

Abstract
This paper dwelt on empirical analysis of electricity supply on economic growth, Evidence from Nigeria1980-2013 using the Cobb Douglas production function in line with the similar study by Gbadebo and Okonkwo (2009). The choice of this model is very relevant to the topic of the study as it includes two important factors of any production activity viz: capital and labour. The data used in this paper are basically secondary data and time series data. The ordinary least squares (OLS) techniques were used because of its blue qualities. GDP is taken as the dependent variable proxied for economic growth while electricity industrial consumption, gross capital formation, labour force and foreign direct investment are taken as the explanatory or independent variables. The results of the ordinary least squares test show that there exists a positive relationship between economic growth of Nigeria and all the independent variables except FDI. All the variables are rightly signed except foreign direct investment. Employing the Augmented Dickey Fuller (ADF) test to check for the integrating order of the variables, it was found that at level, all the variables were not stationary, but achieved stationarity at first order integration. The Johansen test was conducted to check if the variables are co-integrated and it was found that at 5% significant level, all the variables are co-integrating. Therefore, we reject the null hypothesis and conclude that there exists a long-run relationship between electricity supply and economic growth of Nigeria. The study recommends that government should intensify action in support of policies that encourage private sector participation in the provision of electricity. Also, the study recommends that government should encourage and support the utilization of the abundant renewable energy sources in the country which will not only increase the revenue base of the nation but also reduce the emission of hazardous pollutants associated with the use of non-renewable energy sources.

Keywords: Labour force, Electricity consumption, Gross capital formation and Economic Growth

Introduction

The electricity sub-sector is strategic and indeed may be considered as the most important infrastructural requirement for the growth of the economy. Nigerian electricity power sector has witnessed a myriad of problems resulting in low economic development of the country. Virtually all the consumers of electricity in Nigeria, the households, commercial and industrial sectors share the same experience of an epileptic supply of electricity in which the greater part of the power supply depends on generators and diesel plants. Electricity which is one of the most demanded energy source in the Country, has very erratic supply giving pressure to high demand for petrol or fuel substitute Akpan and Akpan (2013). As rightly captured by Ekpo (2008) fifty years of government monopoly of the electricity power sector, yielded a chronically inept public enterprise characterized by poor operational performance, poor transmission and distribution, poor revenue collection and low level of technological development of facilities.

The Federal Government on its part has continually been investing much of its resources in the electricity power sector. For instance, a total of N433,235.81 billion had been invested in the sector with as much as N152.3 billion being invested on generation, transmission and distribution between 1991 and 2004, Nigerian Energy Digest, (2005).

Nigeria face serious infrastructural challenges one of which is power sector, that greatly militate against the socio economic progress of the nation, Adenikunju (2005) and Iwayemi (2008). This is aptly captured by the President in his speech at the CBN 2010 Infrastructure Finance Conference where he acknowledged:

> that huge infrastructural deficits have over the years constrained the production of goods and services, functioning of industries, movement of goods and persons, trade and commerce, banking, health, education, and other aspects of lives, stressing that closing the infrastructural gap requires huge quantum of resources which the federal government might not be able to meet.

The inadequate supply of electricity led the Nigerian government to introduce electricity sector reform to reposition the industry by catalyzing private investment in the sector. The reform has opened a window of opportunity to private sectors with a hope of enhancing high efficiency as opposed to the hitherto inefficient public monopoly status.

Objective of Study

The broad objective of the paper is to analyze the effect of electricity supply on Nigerian economic growth.

Research Questions

- What is the impact of electricity supply on industrial consumption and to what extent has it affected the output of the industrial sectors.
- To what extent has electricity supply influenced the capital formation, labour force!
- What is the impact of electricity supply on foreign direct investment inflow into the country?

Hypotheses

Ho_1: There is no significant relationship between electricity supply and industrial consumption

Ho_2: There is no significant impact between electricity supply and capital formation and labour force

Ho_3: there is no significant impact between electricity supply and foreign direct investment inflow into the country.

Literature Review

Extensive studies on electricity consumption and economic growth in Nigeria covering the conceptual theoretical and empirical literature have been carried out by many scholars. However, there are mixed and conflicting results of the direction of causality between the variables.

Bala (2014) stated that Nigeria has about 15MW of hydro power potential, solar intensities of 3.5 kwh/m^2/day – 7.5 kwh/m^2/day and an average sunshine of 6hrs/day. Wind speed of about 43million at 10m height which generates about 43 million tons of municipal waste annually namely organic. Many researchers have explored the availability of wind energy sources in Nigeria. For instance, Adekoya and Adewale (1992) analyzed the wind speed data of 30 stations in Nigeria and determined that annual mean wind speed and power flux densities vary from 1.5 to 4.1m/s and 5.7 to 22.5 W/m^2 respectively. Also, Fagbenle and Karayiannis (1994) carried out a 10-year wind data analysis from 1979 to 1988 to discover the wealth potentials of Nigeria. Ngala et al (2007) performed a statistical analysis of the wind energy potential in Maiduguri, Borno State using the Weibull distribution. In each of these reports their findings point to the fact that the nation is blessed with a vast opportunity of harvesting wind power for electricity production particularly at the northern states, the mountainous parts of central and eastern States, and also offshore areas, where wind is abundantly available throughout the year round.

According to Chiang Lee (2005) production and consumption activities need energy as input. He finds that there is a close relationship between energy consumption and GDP in Taiwan. He views energy as an engine for economic growth in the long run. A pioneer study conducted by Kraft and Kraft (1978) examined the relationship between the USA energy consumption and GNP for the period of 1947 and 1974. The study found a unidirectional causality from GNP to energy consumption. Also Erol and Yu

(1987) using bivariate models tested the relationship between energy consumption and GDP for six selected economies namely; Canada, England, France, Germany, Italy and Japan with data from 1952-1982 period. The study found a bidirectional casual relationship for Japan, unidirectional from energy consumption to GDP for Canada and directional from GDP to energy consumption for Germany & Italy. They found no causality for France & England.

Wang et al (2010) studied the activity effect and shift effect of electricity consumption in China between 1998 and 2007. They found that street change led to increase in electricity consumption while technological effect was responsible for the decrease in electricity consumption during the study period. In addition, the main contribution to increase in electricity consumption in the study period among industrial sub-sector were manufacturing of raw chemical materials, non-metal mineral products, smelting of ferrous and non-ferrous metals and production and supply of electricity power and heat power.

Datama et al (2012) examined the impact of energy consumption on economic growth in Nigeria over the period 1980-2010 using the autoregressive distribution lag (ARDL) approach to co-integration analysis. The results indicate a long-run relationship between economic growth and energy consumption both petroleum and electricity consumption are statistically significant on economic growth but coal consumption is statistically insignificant. Changes in economic structure could bring about a substantial increase or decrease in the electricity consumption. In a study carried out by Gladhart et al (1986), socio demographic factors such as family size, age distribution, and the number of wage earners in the household were significant in determining the energy usage.

Opara-Ndudu (2015) made a comparative analysis of some countries that have efficiently made great impact in improving their electricity supply through solar energy. The solar photo voltaic (PV) industry has witnessed unprecedented growth in the past five years with countries such as Germany, USA, India and China. For instance, Germany installed around 128GW of solar capacity between 2012 and 2014 through a scheme on Granting Priority to Renewable Energy Sources. In USA also, a significant progress has been made through government supportive programme which include Renewable Portfolio Standard (RPS), Public Benefit Fund for Renewable Energy (PBFRE), Feed-in-Tariffs and other financial incentives.

Foreign direct investment has not contributed much to the growth of and development of Nigerian economy due to repatriation of profits, contract fees, and interest rates in foreign loans. However, there is no doubt that FDI, has risen since early 1980s but the bulk of the FDI inflow is focused on a few countries targeted mainly at extractive industries particularly on the petroleum sector. Huge capital outflows are recorded in most of these oil exporting countries particularly in Nigeria and Libya and this calls for question on the ability of FDI to drive growth effectively in these countries.

Methodology

This paper employed the time series data sourced from Central Bank of Nigeria (CBN) and National Bureau of Statistics for various years. Since the data used are time series, tests such as testing for stationarity (unit root test), co-integration test and error correction model would be conducted.

Model Specification

The researcher adopted the Cobb Douglas production function which is very suitable in applied research and in investigating the impact of electricity supply on economic growth empirical evidence from Nigeria (1980-2013). The Cobb Douglas production function is given by the equation.

$$Q = F(AL^{\alpha} K^{B}) \ldots\ldots.(1)$$

Where Q= Quantity of product

L = quantity of Labour applied for the production of Q.

K = Capital applied to the production

A = a positive constant

α and β= Constants between 0 and 1.

The model lays emphasis on capital which is scarcely available in most developing countries.

Secondly, the model places high emphasize on labour which is however relatively in abundance in most developing countries. These two factors are very essential in any productivity process. The mathematical form of the model is stated that Real Gross Domestic Product (RGDP), a dependent variable and proxy for economic growth is a function of industrial consumption of electricity (INDEC); capital formation (CF), labour force (LA), and foreign direct investment (FDI) as follows:

$$RGDP = F(INDEC + CF + LA + FDI) \ldots\ldots\ldots\ldots\ldots\ldots.(2)$$

However, in order to estimate equation (2), it should be expressed in econometric form as RGDP = $\beta_o+\beta_i$INDEC+β_2CF+β_3LA+β_4FDI+M……. (3)

Where β_o =intercept, Bi (where i =1,2,3 and 4) = parameters to be estimated and μ is the stochastic error term. Having stated the econometric form of the model as in equation (3), the next step adopted by the researchers was to log-linearized the equation because a log-linear form is more likely to reveal evidence of a deterrent effect than a linear form:

LnRGDP= $\beta_o+\beta_i$LnNDEC+β_2LnCF+β_3LnLA+β_4LnFDI+μ…….. (4)

Where Ln = natural log of the respective variables.

Test of stationarity was conducted using the Augmented Dickey Fuller (ADF) test. Since the data used are time series generated through a stochastic process, it is necessary to determine if this stochastic process is stationary hence the need to conduct a Unit root test using the Augmented Dickey-fuller test. The simple equation of the ADF test can be expressed as:

$\Delta Y_t = \beta_1 + \delta Y_{t-1} + \Sigma_{=1} \alpha \Delta Y_{t-1} + E_t$ …….. (5)

Where Y = the time series variable under study

t = a linear time trend (deterministic trend)

Δ = denotes first difference operator

β = is the constant

δ = the coefficient

n = the optimum number of lags in the dependent variable

Σ = Summation sign

Et = pure white noise error term

Unit Root Test Using Augmented Dickey Fuller Test

Since most economic variables used for policy analysis and forecasting are characterized by persistence and possibly non-stationary behavior, it becomes pertinent to subject these time series to pre-test or unit root in order to determine the appropriate transformation that renders the data stationary Gospodinor et al (2013).

The Johansen's (1988) Multivariate Maximum likelihood approach to co-integration is arguably the most popular approach in estimating long-run economic relationships and therefore used in this study. This is actually a test of the hypothesis of no co-integration among the variables against the existence of co-integration denoted by the Null Hypothesis:

Ho - $\beta_1 = \beta_2 = \beta_3 = \beta_4$ = as against the alternative hypothesis

$H_1 : \beta_1 \# \beta_2 \# \beta_3 \# \beta_4 \# 0$.

The study employed the error correction model (ECM) because it is the appropriate estimation technique that captures both the short-run and long-run effects of the different variables. The Error Correction Model used in this study is specified as:

$$\Delta Y_t = \beta_0 + \beta_1 \sum_{t=1}^{n} \Delta Indec_{t-1} + \beta_2 \sum_{t=1}^{n} \Delta CF_{t-1} + \beta_3 \sum_{t=1}^{n} \Delta LA_{t-1} + \beta_4 \sum_{t=1}^{n} \Delta FDI_{t-1} + \delta ECM_{t-1} + Et \quad \text{……..(6)}$$

Where ECM_{t-1} = the residual or error correction mechanism of the previous year.

Data Presentation and Analysis

Data on GDP, Industrial electricity consumption, capital formation, labour force and foreign direct investment were used as shown below. The results of the computer analysis of the data are also presented

Table 1: Result Of Unit Root Test

Variables	ADF Test Statistic at Level	5% critical values	Prob.	Order of integration
GDP	-4.219999	-2.9591	0.000783	I(1)
INDEC	-8.974167	-2.9591	0.0000000	I(1)
CF	-2.972831	-2.9591	0.001147	I(1)
LA	-4.757214	-2.9591	0.000009	I(1)
FDI	-4.477768	-2.9591	0.000000	I(1)

Source: Eview Computation

Table 2: COINTEGRATION TEST

Date: 01/27/16 Time: 11:53
Sample: 1980 2013
Included observations: 31
Test assumption: Linear deterministic trend in the data
Series: LNRGDP LNINDEC LNINDOPT INT LNGCF LNLA LNFDI
Lags interval: 1 to 1

Eigenvalue	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.853341	181.9145	124.24	133.57	None **
0.792928	122.4056	94.15	103.18	At most 1 **
0.589511	73.59023	68.52	76.07	At most 2 *
0.487577	45.98766	47.21	54.46	At most 3
0.418484	25.26092	29.68	35.65	At most 4
0.208799	8.455318	15.41	20.04	At most 5
0.037816	1.195027	3.76	6.65	At most 6

*(**) denotes rejection of the hypothesis at 5%(1%) significance level
L.R. test indicates 3 cointegrating equation(s) at 5% significance level

Causality Test

Using the pairwise granger causality test, there was no bidirectional causality observed. Rather, we had cases of unidirectional causality at 5% significance level running from LNRGDP to LNINDEC, LNLA to LNRGDP, LNGCF to LNLA, LNFDI to LNGCF and from LNFDI to LNLA. All variables are expressed in logarithm form in order to obtain more stationary behaviour Volgelvang. (2005).

Long Run Estimate

Table 3 :Long Run Estimates

Variables	**Coefficients**	**T Statistic**	**Prob**
C	-8.589760	-2.710512	0.0117
LNINDEC	0.006983	0.130552	0.8971
LNGCF	0.138613	4.519903	0.0001
LNLA	0.876647	4.383007	0.0002
LNFDI	-0.032179	-1.573122	0.1278

Source: Author's Eview Computation

LNRGDP = -8.5897 + 0.00698LNINDEC + 0.1386LNGCF + 0.876LNLA - 0.0321LNFDI
R^2 = 0.800624
F Statistic = 18.027027
F tab = 2.74
Prob (F Statistic) = 0.000000
DW = 1.247
T tab = 2.056

The table above shows the results of the OLS conducted on LNRGDP as the dependent variable and LNINDEC, LNGCF, LNLA and LNFDI as explanatory variables.

A close examination showed that LNINDEC, INDOPT, INT, LNGCF and LNLA are all rightly signed while LNFDI was negatively signed.

Results and Discussion

The result obtained from the OLS conducted on LNRGDP as the dependent variable and LNINDEC, LNGCF, LNLA and LNFDI as explanatory variables revealed that all the variables are rightly signed

except FDI which possesses a negative sign. The coefficient of determination (R^2) showed that yup to 80% of the variables are explained by the explanatory variables. The test of significance from our result showed that three variables INDEC, GCF and LF were statistically significant at 5% level of significance. Both the "T" and "F" tests are significant, hence we reject the null hypothesis and accept the alternative that there exists a significant relationship between RGDP and all the variables. The result of the long-run estimates of industrial electricity consumption (INDEC) on the RGDP to Nigeria is positive ie 0.00698, implying that an increase in INDEC will bring about an increase in RGDP by 0.00698%. Also, a 1% increase in capital formation will result in a corresponding increase in RGDP to the tune of 0.1386%. The labour force has a positive relationship with RGDP, while that of PDI with a value of 0.0321 has an inverse relationship with RGDP. FDI from the result revealed a negative impact contrary to general expectation. The reason for this in our peculiar Nigerian situation is not far fetched due to insecurity, poor governance, corruption and repatriation of profits by expatriates to their home countries. This study is collaborated by some notable scholars who also found negative impact of FDI on the growth of the economy. Some of these include Goldberg and Klein (1998), Boyd and Smith (1992). In summary, there exists a positive relationship between RGDP and INDEC, GCF, LA while FDI impacted negatively on the growth of RGDP.

Conclusion

At which ever level one may look at it, it follows without doubt, that electricity supply spurs economic growth in Nigeria. Succinctly speaking, the most singular impediment to the attainment of Nigeria's vision to become one of the 20 developed economies in 2020 is power because of the direct bearing it has on other economic indicators like unemployment rate and low capacity utilization in the manufacturing and industrial sectors.

Industrial electricity consumption, capital formation and labour force exerted positive significant effects on the output level of the GDP. By implication, an increase in all of these variables will give rise to an increase in the output level of GDP.

The energy sector has performed poorly overtime inspite of the availability of abundant energy resources in the country. Going through stages of administrative changes/reforms, the sector has been inefficient and this has undermined its output. Electricity supply has been very low with occasion of severe power outages nationwide. Though a positive relationship exist between electricity supply and economic growth, the poor performance of the sector has led to a slow growth in output in the economy. However, the recent privatization of PHCN may be a step in the right direction but the new firms should be more focused on power generation rather than distribution of existing power. Most importantly, looking at the positive signs of most of the variables, the study has shown that expansionary measures/policies are required for the growth of the electricity sector which will trickle down to increase in the GDP. Improvement in the electricity supply should be vigorously pursued as this would reduce the patronage of the more expensive alternative provisions by the use of the petrol and chisel generators.

Recommendations

In line with the findings, the following recommendations are made

1. Government should extend the privatization to transmission sub-unit of the power sector and also consolidate the already privatized generation and distribution units.
2. The study recommends that Government should institute a more formidable, functional, monitoring units to oversee the performance of the private operators in the power sector.
3. Government should develop appropriate policies to enhance the utilization of the abundant renewable energy sources in the country. To achieve this, government should encourage and support the global trend in the renewable energy technologies which to a very great extent will reduce the huge foreign exchange being invested on the non-renewable energy sector in the country.
4. The study recommends that Government should put in place an active and functional energy policy that will guarantee adequate conservation of energy installations and security of the citizenry. This will attract both foreign and local investors into the power sector.

REFERENCES

Adekoya, l. O. and Karayiannis, T. G. (1994). On the Wind Energy Resources of Nigeria. *International Journal of Energy Research 18(5) pp 493-508.*

Adenikinju, A. E (2009). Efficiency of Energy Sector and its Impact on the Competition of Nigerian Economy. *International Association of Energy Economics. Vol. 31 pp 1519-1530.*

Akpan G.E and Akpan U.F. (2013). Electricity Crisis Carbon Emission and Economic Growth in Nigeria Proceedings of the 20th *NAEE Conference, Ibadan pp 467-480*.

Bala, E.J. (2014). *Energy and Power Development in Nigeria, prospects, Challenges and way forward.* Convocation Lecture at Federal University of Technology, Minna: Niger state.

Boyd, J. H. and Smith, (1992). "International equilibrium Allocation of investment Capital: Implications for Economic Development" *Journal of Monetary Economics (30) 409 – 432.*

Central Bank of Nigeria (2010), Infrastructural Finance Conference, Abuja.

Chien-Chiang Lee, C.P.C. (2005). *Structural Breaks, Energy Consumption and Economic Growth Revisited*. Evidence from Taiwan. *Energy Economics:857-872.*

Datama ,Y.U. Umar, Y, Abdullahi, Y.Z, Nasiru, I. (2012). Energy Consumption and Economic Growth in Nigeria. An Empirical Assessment Based on ARDL, Bound Test Approval, *European Scientific Journal 8 (12) 141-157.*

Dickey. D. & Fuler .N. (1979). Distribution of Estimates for Autoregressive Times Series with Unit Root. *Journal of the American Statistical Association.* 74:427-431.

Ekpo, A. (2008). "World Bank Report on Investment in Infrastructural Decay in Nigeria, *Sunday Punch*, May 10.

Ero, U. & Yu, E.S. (1987). Relationship Between Energy and Income for Industrialized Countries. *Journal of Electricity and Employment 13: 113-122.*

Gbadebo, O. and Okonkwo (2009). Does Energy Consumption Contribute to Economic Performance? Empirical Evidence from Nigeria. *Journal of Economics and Business. Vol. 7 (2) Pp. 43 – 47.*

Gladhart, P, Morrison, B. & Zurichest. (1986). *Energy and Families East Lansing*, Michigan Institute for families. East Lansing, Michigan Institute for family and child study Michigan State University, University press.

Goldberg, S. and Klein, W. (1998), Foreign Direct Investment, Trade and Real Exchange Rate Linkages in Developing Countries. A Review of Glick (ed) Managing Capital Flows and Exchange Rates. Lessons from the Pacific Basin, Cambridge University Press.

Gospodinor, N, Herrera, A. & Pesarento, E. (2013). *Unit Roots Cointrgration and Pre-testing in VAR Models*, Forthcoming Advance in Economics.

Iwayemi, A. (1994). "*Energy Poverty on Africa*" Proceedings of A Workshop Held in DFID, Abuja.

Johansen, S. (1988). Statistical, Analysis of Co-integrating Vectors, *Journal of Economic Dynamic and Control* 12, 213-254.

Kraft, J. & Kraft, A. (1978). In the Energy Pofial Relationship Between Energy and GDP. *Journal of Energy and Development 3.401-403.*

Ngala, G. M. Alkali, B. and Aji, M. A. (2007). Viability of Wind Energy as a power generation source in Maiduguri, Borno State, Nigeria. *Renewable Energy 32(13) pp 2242 – 2246.*

Nigeria Energy Digest (2005). Publication of Nigeria Energy Digests, Oct. 3 – 18, p. 9.

Opara- Ndudu (2015). Developing Nigeria's Renewable Energy Potentials. *This day Newspaper*.

Wang, W.M.U. H., Kang, X, Song K, & Ning .Y. (2010). Change in Industrial Electricity Consumption in China 1978-2007 *Energy Policy* Vol. 38 issues 7 pp 3684-3690.

APPENDIX

DATA ON GDP AND OTHER VARIABLES

YEAR	RGDP	INDEC	GCF	LA	FDI
1980	31546.8	199.7	15,328.20	27,202,300	404.1
1981	205222	121	18,220.59	28,432,110	334.7
1982	199685	262	17,145.82	29,711,201	290
1983	185598	254.4	13,335.33	30,700,124	264.3
1984	183563	217.2	9,149.76	30,330,234	360.4
1985	201036	259.8	8799.48	30,844,300	434.1
1986	205971	280.5	11351.46	32,612,300	735.8
1987	204807	294.1	15226.58	32,821,120	2452.8
1988	219876	291.1	17562.21	34,422,165	1718.2
1989	236730	257.9	26825.51	35,603,400	13877.4
1990	267550	230.1	40121.31	30,043,881	4686
1991	265379	253.7	45190.23	30,788,219	6916.1
1992	271366	245.3	70809.16	31,635,543	14463.1
1993	274833	237.4	96915.51	32,532,154	29660.3
1994	275451	233.3	105575.49	33,417,326	22229.2
1995	281407	218.7	141920.24	34,343,507	75940.6
1996	293745	235.3	204047.61	35,194,224	111295
1997	302023	236.8	242899.79	36,095,012	110452.7
1998	310890	218.9	242256.26	36,972,865	80750.4
1999	312184	191.8	231661.69	37,946,736	92792.5
2000	329179	223.8	331056.73	38,875,613	115952.2
2001	356994	241.9	372135.65	39,626,299	132,433.70
2002	433204	146.2	499681.53	40,482,284	225,224.80
2003	477533	196	863072.62	41,221,986	258,388.60
2004	527576	398	804400.82	42,063,952	248,224.60
2005	561931	182	1546525.65	43,250,245	341,717.25

2006	595822	195.3	1935040.14	44,459,832	740,208.19
2007	634251	203.5	2050762.63	45,659,878	1,640,136.13
2008	674889	191.8	3048023.41	47,008,096	2,006,498.17
2009	719000	234.2	4007832.4	48,330,258	2,224,046.56
2010	776300	247.6	4,012,918.65	48,330,258	2,978,258.30
2011	834000	250.5	3,908,280.32	49,706,559	3,506,908.71
2012	888900	244.3	3,357,397.77	51,167,238	3,466,351.10
2013	950100	256.78	3,790,877.60	52,600,554	3,712,884.40

Source: CBN Statistical Bulletin 2013