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**IMPACT OF AGENT BANKING ON THE ECONOMIC GROWTH OF NIGERIA**

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**ABSTRACT**

*This study employed regression to examine the impact of agent banking on the Nigerian economic growth from 2011 to 2018. The study made use of five explanatory variables which included (Net Profit (NP), Automated Teller Machine (ATM), Point of Sale terminals (PST), Web Pay (WP), Mobile Pay (MP), NIBSS Instant Payment (NIP) and NIBSS Electronic Fund Transfer (NEFT)) to establish the impact explanatory variables have on these dependent variable (net profitability). Net profit as a dependent variable served as proxy for banking sector. The study revealed the following major findings: NP, Net Profit had significant impact on economic growth. It is insignificant at 5% based on t-statistics. ATM, Automated Teller Machine has significant impact on economic growth. It is not significant at 5% based on t-statistics. PST, Point of Sale terminals have significant impact in economic growth. It is not significant at 5% based on t-statistics. WP, Web Pay has significant impact on economic growth. It is not significant at 5% based on t-statistics. MP, Mobile Pay has significant impact on on economic growth. It is significant at 5% based on t-statistics. NIP, NIBSS Instant Payment has significant impact on economic growth. It is not significant at 5% based on t-statistics. NEFT, NIBSS Electronic Fund Transfer has significant impact on economic growth. It is not significant at 5% based on t-statistics. In order for agent banking to further have impact on the banking sector of the economy; policy makers should intensify efforts towards ensuring that agents made access to the public for it to impact on the people; The government through the Central bank of Nigeria should formulate and implement institution strengthening policies in the areas of financial institutions particularly banking sector in Nigeria; There is need to also improve on the performance of the banking sectors of the economy for provision of fundamentals including internal security and cyber security to avoid internet fraud in order to create more confidence in the sector.*

**Keyword:** Automated Teller Machine (ATM), Point of Sale Terminal (POS), Web Pay, NIBSS Instant Payment (NIP) and NIBSS Electronic Fund Transfer (NAFT).

## SECTION ONE

### BACKGROUND OF THE STUDY

In the time past, the banking services were done manually. However, there is limitation to this success especially on the area of money transaction or transaction processing. This era encountered huge set back, as customers find it absolutely difficult to travel with large sums of money and also remit cash to another branch of the bank they operate. According to David (2012); ‘Nigeria did not embrace electronic banking early compared to developed countries’. Nigeria adopted electronic banking system in the early 2000s. During the introduction of electronic banking system, the use of raw cash was said to have bred corruption through the “cash and carry syndrome” usually linked with the swift movement of Ghana-“must go” bags by some politicians. Such bags as some analyst say, are a major source of corrupt practices as dubious persons seek to bribe their way to avoid being checked in some sensitive areas or places in a corrupt society. As a result of the increased demand for customers’ deposits with the banking industry and the level of corruption in the country, the issue of financial inclusion which is anchored to agent banking and mobile banking became more important. In order to accomplish this, the banks have had to provide better products, improve customer service and reduce operating costs, by introducing agent banking (CBN, 2011). Having in Nigeria an adult population of 84.7 million, of which banked population are only 30%, and as at December, 2010 with more than 88.3 million mobile phone subscriptions, there is high potential for agent banking and other remote access financial service in Nigeria that will increase financial inclusion. Investopedia (2013) opine that ‘Agent banking is a situation where a syndicate manager will receive a mandate from a borrower to arrange a syndicated loan’. Agent Banking in Nigeria was recommended which was as a result of the increased demand for customer deposit in Nigerian banks. Since the start of electronic banking in Nigerian banks, it has attracted problems to some civil servants yet to receive their salaries for their previous months as efforts been made to electronically transfer salaries into their account failed and the workability of agent banking which is instrumental to electronic banking in terms of payment of salaries is not assured (Ibrahim, 2009).

### STATEMENT OF RESEARCH PROBLEM

In recent times, due to the competitive change and advancement in the financial system, most banks in Nigeria have engaged in research to find the possibility of having an increase and improvement on their customers’ accessibility and profitability so as to control their market share. Hence, CBN has recommended Agent-banking to be a possible means of giving greater service delivery to customers by banks. The instruments to be used in achieving agent banking in Nigeria include; Point-of-sale Machine (POS), Automated Teller Machines (ATMs), Online banking services, Mobile Phone Banking, etc. Financial Service Providers in Nigeria find it so difficult and not profitable to establish their branches in remote areas and hence, the need for an Agent to deliver such bank services to the people in those areas is highly needed.

So, the challenge is in having the knowledge of the impact of the instruments used in achieving agent banking on the economic growth of Nigeria. The need for this study is to establish the relationship between agent banking and customers accessibility and profitability in Nigeria considering the level of computer literacy.

### **OBJECTIVES OF THE STUDY**

The major objective of this study is to empirically study the impact of agent banking on the banking sector and extension economic growth in Nigeria. Specifically to:

1. Determine the overall effect of Automated Teller Machine (ATM) on banking sector in Nigeria.
2. Determine whether Point of Sale terminals (PST) influence banking sector in Nigeria.
3. Determine whether Web Pay (WP) influences banking sector in Nigeria.
4. Determine whether NIBSS Instant Payment (NIP) influences banking sector in Nigeria.
5. Determine whether NIBSS Electronic Fund Transfer (NEFT) influences banking sector in Nigeria.

### **RESEARCH QUESTIONS**

1. To what extent has Automated Teller Machine (ATM) influenced Bank's Net Profitability in Nigeria?
2. To what extent does Point of Sale terminals (PST) influence economic growth in Nigeria?
3. To what extent does Web Pay (WP) influence economic growth in Nigeria?
4. To what extent does NIBSS Instant Payment (NIP) influences economic growth in Nigeria?
5. To what extent does NIBSS Electronic Fund Transfer (NEFT) influences economic growth in Nigeria?

### **STATEMENT OF HYPOTHESES**

1. H<sub>1</sub>: There is no significant statistical relationship between Automated Teller Machine (ATM) and banking sector growth in Nigeria
2. H<sub>1</sub>: There is no significant statistical relationship between Point of Sale terminals (PST) and banking sector growth in Nigeria.
3. H<sub>1</sub>: There is no significant statistical relationship between Web Pay (WP) and banking sector growth in Nigeria.
4. H<sub>1</sub>: There is no significant statistical relationship between NIBSS Instant Payment (NIP) and banking sector growth in Nigeria.
5. H<sub>1</sub>: There is no significant statistical relationship between NIBSS Electronic Fund Transfer (NEFT) and banking sector growth in Nigeria.

### **SIGNIFICANCE OF THE STUDY**

The significance of Agent Banking on economic growth in Nigeria is timely and has the following relevance:

1. The study provides an econometric basis upon which the impact of agent banking is examined in Nigeria's banking sector growth.
2. The research will give an insight that will clear the perception as to whether the agent banking has more impact on economic growth or not;
3. The research will also enable policy makers and relevant stakeholders in nation building such as Central Bank of Nigeria (CBN) in making policies that will guide against adverse effect on the agent banking sector on economic growth.

4. The research will add value to both the academics and the professionals in making contributions to the Government based on empirical findings related to agent banking activities in the country.

### **SCOPE OF THE STUDY**

This study only concentrates on agent banks activities for the period of eight years that is from 2011 to 2018.

### **LIMITATIONS OF THE STUDY**

The limitation encountered was on data used for the study; here a time series data of eight years were studied.

## **SECTION TWO**

### **CONCEPTUAL REVIEW**

#### **Agent Banking**

The term “Agent Banking” refers by the CBN in its guidelines and circular as the practice where a third party (an agent) provides financial services to customers on behalf of a licensed financial institution or mobile money operator (the principal). The third party or agent can be post offices, pharmacy stores, supermarkets, retail shops, gas Stations, business centers etc. The principal is a deposit money bank, microfinance bank, and primary mortgage bank or a licensed mobile money operator. The Bangladesh Bank (BB) defines agent banking as “providing limited-scale banking and financial services to the underserved population through engaged agents under a valid arrangement, rather than a teller/cashier. It is the owner of an outlet who conducts banking transactions on behalf of a bank”.

#### **Agent Banking Methods**

Any financial institution or mobile money operator that intends to carry out agent banking in Nigeria is expected to embark on pre-approval documentations by conducting a feasibility study, outlining its strategies for selection/recruitment and management of agents, risk management, internal control and operational procedures as well as Know Your Customer (KYC) and Anti- Money Laundering/Combating the Financing of Terrorism (AML/CFT) compliance procedures. Armed with these documents, the financial institution applies to the CBN for approval to commence agent banking. If found eligible, the CBN gives an approval. The organization recruits agents strictly following the CBN guidelines and its selection criteria. Agents who may be supermarkets, pharmacy stores, gas stations, retail outlets etc and who meet selection requirement sign a contract/agreement with the Principal (financial institution or mobile money operator). The agent marks out a portion of its business space to render financial transactions. The space is branded and a signage is placed outside the business to indicate the availability of the service. The agent attends to customers using a point-of-sale (POS) device or a mobile phone. The agent is expected to maintain a float (agreed cash balance with the principal) to enable it consummate transactions. When the agent receives cash lodgment on behalf of a bank, for instance, the customer’s account with the bank is credited and the agent’s float account 12 with the same bank is debited. The reverse takes place when the agent makes cash payment. When float is low, agent rebalances its position with

the bank. The Figure below explains a typical agent float management procedure (cited in Timothy, 2015).

### **Financial Inclusion**

Previous researches on financial exclusion define it among others as those processes that serve to prevent certain social groups and individuals from gaining access to the formal financial system (Leyshon and Thrift, 1995), Hannig & Jensen (2010) B.I.S. (2010) or as the inability of some societal groups within an economy to access the financial system (Caro et al, 2005). Similarly, Conroy (2005) identified the process that prevents the poor and the disadvantaged social groups from gaining access to formal financial systems of their countries as a form of financial exclusion, while Mohan (2006) opined that lack of access by certain segments of the society to appropriate, low-cost, fair and safe financial products and services from mainstream providers are measures of financial exclusion. On the other hand, a Government Committee on Financial Inclusion in India defines inclusion as the process of ensuring access to financial services as well as timely and adequate credit where needed by groups at an affordable cost (Rangarajan Committee, 2008) and Nirupam et al (2009).

Development economic literatures on the nature of relationship between financial deepening and economic growth as well as strategies and models to achieve their complementarities abound in the advanced economies. However, the need to examine the nature of predictive relationship between financial inclusion and economic development is recent attraction among researchers especially in the developing countries. Generally, the simplest way to measure financial access is through the number of functional bank accounts held by individuals. With regard to this, Chain et al (2009) and CGAP (2009) observed that between 2.1 billion and 2.7 billion adults, or 72 per cent of the adult population in developing countries do not even have a basic bank account. Sureshander (2003) even argued that merely having a bank account may not be a good indicator of financial inclusion, rather that the ideal definition should focus on people who want to access financial services but are often denied the same due to one incapacitation or the other. While several definitions of financial inclusion exist with focus on the extent of individuals' involvement in banking activities, it may sometimes be necessary to point out that financial inclusion involves more than mere banker-customer relationship.

Chakraborty (2011) defines financial inclusion as the process of ensuring access to appropriate financial product and services needed by vulnerable groups such as weaker societal sections and low income groups at an affordable cost in a fair and transparent manner by mainstream institutional players, thus making an inclusive financing arrangement critical aspects in the context of economic growth and development of any economy. An alternative definition of Financial Inclusion is the perception which views inclusion as a progression inculcating some elements of hierarchy of needs with higher levels of financial inclusion achieved as more needs are fulfilled. This perception views Inclusive financing as a "hierarchy of financial needs" syndrome that starts by promoting non-cash methods of bill payment, advancing business through borrowing and fund investment (Amit Jain, and Gidgetin Master Card Advisors; 2012).

### **Financial Deepening**

Financial deepening refers to the increase provision of financial services with a wider choice of services geared towards the development of all levels of society. The World Bank (1992) further notes that financial deepening encompasses increase in the stock of financial assets. From this perspective, financial deepening implies the ability of financial institutions in general to effectively mobilize financial resources for growth and development. This is affirmed in Okeke (2009) which observes that a high level of financial deepening is a necessary condition for accelerating growth in an economy.

### **Instrument of Agent Banking**

The different kinds of agent banking instruments that are being used in the areas (i.e. countries) where the operations are in operative include the followings;

#### **Automated Teller Machine**

The automated teller machines (ATMs) are electronic terminals that let bank customer almost virtually any time, to withdraw cash, make deposit, check balance of account or transfer fund between account, you generally insert an ATM card and enter you pin. Some financial institution and ATM owner charge a fee, particularly if you don't have an account with them or if your transactions take place at remote locations. Generally, ATMs must tell you the charge a fee and the amount on or at the terminal screen before you complete the transaction. Check with your institution and at ATMs you used for more information about these fees.

#### **Credit Cards**

In the word of Lindsay (1994), credit cards developed from Oil Company, restaurant and department store charging by several decades serving as a means of payment in the same way as debit card. When they purchase goods or services from shop, hotel, petrol station or in payment of any one who is willing to accept the particular credit cards as a means of settlement.

#### **Personal Computer Banking**

Personal computer banking (PC banking) is also a fast-growing instrument in electronic banking which is also found in agent banking as one of the instruments. Customer can now make them transaction with telephone banking, and also in some cases download information and manipulate it in their own financial management software. The benefits that customers can derive here are that, it allows them to reconcile their statement of accounts, it also helps in checking deposits already made and cheque that have been cleared etc. However, there are a number of problems that can militate against this banking system with the use of PC. The first is that, the person must be a customer of a particular bank otherwise; the instrument will be of no use. The second is that the purchase of software package is usually expensive.

#### **Point of Sale (Pos) Machine**

A Point Of Sale Machine is the payment device that allows credit/debit cardholder to make payment at sales/purchase outlet. It allows to perform the following services such as; retail payment, cashless payments, cash back balance inquiry, air time vending, loyalty redemption, etc. The Pos involves a computer terminal in retail stores that will transfer funds instantly from the bank deposit of the store in which customer is making purchase in the process the computer will verify that customer

has sufficient funds to cover the purchase and will inform the customer of the new bank balance. The customer can also arrange for over draft of the bank, so that instant loans (up to a present limit) can be made on the

### **Economic Growth**

This refers to sustained rise in the value of economic activities within a country over a period of time. The Gross Domestic Product (GDP) often comes in handy in measuring the aggregate worth of an economy.

### **EMPIRICAL REVIEW**

According to Onaolapo (2015), whom empirical finding examines the relationship between financial inclusion and economic growth in Nigeria also indicates that there is a significant relationship between financial inclusion and economic growth in Nigeria in the period under study.

Achugamonu et al (2016); investigated the extent to which bank agents have contributed in driving the inclusive growth agenda of the Federal Government of Nigeria. A maximum of 275 questionnaires were administered on bank officials across the 6 geopolitical zones of Nigeria using a random sampling technique. The 182 returned questionnaires were analyzed using multivariate regression approach employing SPSS. The study found among others that geographical spread of bank agents and the development of tailor-made financial products will engender financial growth among the active poor in the rural communities. It therefore recommended among others, the need for the Central Bank of Nigeria to deepen inclusive growth by licensing more agent banks especially in the rural areas across the six geopolitical zones of the country.

According to the Financial Inclusion Strategy Report (NFIS, 2012), the goal of inclusive growth is accomplished when users of financial products have access to a broad range products created according to their needs and provided at affordable costs. Some of the products include payments, savings, credit, insurance and pensions. “Studies have shown that ardent users of these financial services are likely to be more industrious, consume more and invest more”, (Narva Ashraf, Dean S. Karlan & Wesley Yin, 2006).

Empirical evidence reveal that widening financial inclusion will reduce the cost of cash management, and defend the strength of the local currency, while promoting a sound financial system in the economy. (Mboto & Uba 2013).

Ogunleye, (2009) links financial inclusion to financial stability, stating that the former promotes the later by facilitating inclusive growth. “Financial inclusion is important for ensuring economic inclusion as financial sector development drives economic growth by mobilizing savings and investment in the productive sector” (Johnson & Nino Lazarawa, 2015). Financial inclusion is key to reducing the economic vulnerability of households, promote economic growth, alleviate poverty and improve the quality of lives (Christen, R., Lauer, K., Lyman, T., & Rosenberg, R., 2011).

## **THEORETICAL FRAMEWORK**

The two major models of agent banking in Nigeria as recommended by the CBN Guideline for the Regulation of Agent Banking and Agent Banking Relationship are Bank-led model which is a general agency arrangement where only a bank may act as a principal in forming agent banking relationships; Non-bank led model which is a general agency arrangement where parties other than banks may act as principal in forming agent banking relationships. For the purpose of this study, the bank led model is adopted because of the peculiarity of the data obtained which scope does not include officials of other non-bank financial institutions.

According to the CBN, the purpose of agent banking in Nigeria is to enhance financial inclusion and to deliver banking services to a larger number in a more cost effective manner. The CBN aims to create 170,000 mobile money and agent banking locations across the country by the year 2020. The target for agents in the National Financial Inclusion Strategy is to establish a network of 32,500 agents by 2015 and 65,000 agents by 2020 (CBN, 2012). The expectation is that most Nigerians will then be able to operate a bank account and access financial services even without having to go to a regular bank branch. Agent banking is expected to bring banking services closer to the underserved living in urban, semi urban and rural locations. Permissible activities under the CBN agent banking guideline include cash deposit and withdrawal, bills payment, payment of salaries, local money transfer, balance inquiry, generation and issuance of mini statement, agent mobile payments, loan disbursement and loan repayment and cash payment of retirement benefits.

## **SECTION THREE METHODOLOGY, DATA PRESENTATION, ANALYSES & INTERPRETATION**

This section describes the methodology, data presentation, analysis and interpretation of results in this study. The Methodology consists of the procedures that was used for collecting data, summarizing and analyzing the data gathered in order to answer the research questions and also covers method of data collection, source of data collection, techniques of data analysis, analysis and interpretation of results.

### **Research Design**

The research approach used in this study is Longitudinal research technique, which entails the collection and evaluation of time series data on which variables are beyond been controlled.

### **Method of Data Collection**

The method of data collection is secondary.

### **Sources of Data Collection**

The secondary data were all collected from different sources e.g. Central Bank of Nigeria (CBN) Statistical Bulletins. The secondary data shall comprise Net Profit (NP), Automated Teller Machine (ATM), Point of Sale terminals (PST), Web Pay (WP), Mobile Pay (MP), NIBSS Instant Payment (NIP) and NIBSS Electronic Fund Transfer (NEFT) from 2011 to 2018.



### Method of Data Analysis

The data analysis shall be carried out using the following analytical techniques: Unit Root Test, cointegration, Vector Correction Model (ECM), and Autoregressive Distributed lad Model.

### Model Specification

The models are specified as follows:

$$NP_t = \beta_0 + \beta_1 [ATM]_t + \beta_2 [PST]_t + \beta_3 [WP]_t + \beta_4 [MP]_t + \beta_5 [NIP]_t + \beta_6 [NEFT]_t + \mu_t \dots (3.1)$$

$NP = f(ATM, PST, WP, MP, NIP, NEFT)$

$$NP_t = \beta_0 + \beta_1 ATM_{t-1} + \beta_2 PST_{t-1} + \beta_3 MP_{t-1} + \beta_4 WP_{t-1} + \beta_5 NIP_{t-1} + \beta_6 NEFT_{t-1} + \dots + U_t$$

$$NP_t = \beta_0 + \beta_1 \sum_{i=0}^p [ATM_{t-1}] + \epsilon_t$$

Where:

NP= Net Profitability

ATM = Automated Teller Machine

PST= Point of Sale terminals

WP= Web Pay

MP= Mobile Pay

NIP= NIBSS Instant Payment

NEFT= NIBSS Electronic Fund Transfer

$\beta_0$ = Intercept

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ = Slope Parameters

$\mu$  =Error Term

t= Time

### A Priori Expectations

This defines the theoretical expectations about the sign or size of the parameters of the specified model. A priori expectations are determined by the principles of economic theory guiding the relationship between the variables under study. For equation (3.1), in line with economic theory, agent banking is expected to have a positive relationship with the NP. These a priori expectations are mathematically expressed as follows:

$$\beta_1, \beta_2 > 0$$

$$\beta_3, \beta_4 > 0$$

$$[\beta_5, \beta_6] < 0$$

### Data Presentation

The results of the stationarity test using ADF for all the time series data in table 2 shows that the null hypothesis (H0) of a unit root can be rejected at 1(0), 1(1) and 2(1) differences because all the series (BP, ATM, POS, WP, MP, NIP and NEF) are stationary and therefore their regression will not be spurious. The series are all stationary at a critical value of 5% level of significance. The stationarity is obtained by comparing test statistics with critical values, if the t-calculated is greater than the critical values numerically, the variable is stationary and if it is the reverse, it is not stationary. The table 2 shows the entire ADF statistics calculated greater than critical values that is why they are stationary. Hence the data are adequate enough for further treatment and analysis since they are have found to be stationary.

## Results and Discussions

$$\text{InBP} = 0.22 + 2.84\text{ATM} + 0.100\text{POS} + 0.719\text{WP} + 0.209\text{MP} + 0.163\text{NIP} + 0.855\text{NEF} + \text{Ut}$$

(1.85)    (2.48)            (5.18)            (2.87)            (0.99)            (2.80)            (01.015)

$$R^2 = 0.986 \quad \text{Adjusted } R^2 = 0.908 \quad \text{DW} = 2.04 \quad F = 12.55$$

The equation shows that  $\alpha = 0.22$  which is the intercept. This is the base level of prediction for the dependent variables when all the independent variables are equal to zero. The coefficients of the independent variables measure how a percentage change in independent variables affect the dependent variable. From the result, 1% increase in ATM transaction leads to about 0.84% increase in bank profit. This shows that there is a positive relationship between volume of ATM transaction and bank profitability. This result is not significant at 5% as the p-value of 0.2439. The standard error measures the statistical reliability of the coefficient estimates- the larger the error, the more statistical noise in the estimates. The standard error is 1.1456% which is small or insignificant and thus shows that volume of ATM transaction is statistically reliable to bank net profit.

Furthermore, a 1% increase in POS transaction leads to about 0.10% increase in bank profit. This shows that there is a positive relationship between POS transaction and bank profit. This result is not significant at 5% as the p-value of 0.1214. The standard error measures the statistical reliability of the coefficient estimates- the larger the errors, the standard error of 0.405% is insignificant and thus shows that POS transaction is statistically reliable to predict the bank profitability.

More so, a 1% increase in the web pay transaction leads to about 0.72% increase in the bank profit. This shows that there is a positive relationship between web pay and bank profit. This result is not consistent with the a priori expectation of the study and it is insignificant at all the levels as the p-value of 0.2132 is less than all the levels of significance. The standard error measures the statistical reliability of the coefficient estimates- the larger the error, the more statistical noise in the estimates. The standard error of 0.250% is insignificant and thus shows that value added tax is statistically reliable to predict capital expenditure.

The result for the mobile pay transactions shows that increases by 1% in bank profit, it will lead to about 0.981% increase in bank profit. This shows that there is a positive relationship between mobile pay transactions and bank profit. This result is consistent with the a priori expectation of the study and it is insignificant at 5% as the p-value of 0.2181 which is more than 0.05. The standard error of 0.2138% is insignificant thus shows that mobile transactions is statistically reliable to predict bank.

The result for the NIP shows that if it increases by 1% in NIP, it will lead to about 0.163% increase in bank profit. This shows that there is a positive relationship between NIP and bank profitability. This result is consistent with the a priori expectation of the study and it is insignificant at 5% as the p-value of 0.0416 is less than 0.05. The standard error of 0.4148% is significant and thus shows that NIP is statistically reliable to predict bank profit.

The result for the NEF shows that increases by 1% in NEF, it will lead to about 0.856% increase in bank profit. This shows that there is a positive relationship

between NEF and bank profit. This result is consistent with the a priori expectation of the study and it is insignificant at 5% as the p-value of 0.4954 which is more than 0.05. The standard error of 0.843% is insignificant and thus shows that NEF is statistically reliable to predict Bank profit.

R-square ( $R^2$ ) is the fraction of the variance of the dependent variable explained by the independent variables. In this result, the  $R^2$  is about 95% and adjusted  $R^2$  is 98% meaning that about 90% of the capital expenditure is explained by the independent variables put together. If more repressors are added, the  $R^2$  decreases; Adjusted  $R^2$  penalizes the  $R^2$  for the repressors which do not contribute to the explanatory power of the model and in this case is close  $R^2$ . Sum of squared residual is a measure of error in using the estimated regression equation values of the ATM, POS, WP, MP, NIP and NEF. From the result, it shows that electronic banking transactions have significantly impacted on Nigeria's banks profitability over the period 2011-2018.

## SECTION FOUR

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### Summary

This study employed regression to examine the impact of agent banking on banking sector in Nigeria from 2011 to 2018. The study made use of five explanatory variables which included (Net Profit (NP), Automated Teller Machine (ATM), Point of Sale terminals (PST), Web Pay (WP), Mobile Pay (MP), NIBSS Instant Payment (NIP) and NIBSS Electronic Fund Transfer (NEFT)) to establish the impact explanatory variables have on the dependent variable (net profitability). Net profit as dependent variable served as proxy for banking sector.

The study revealed the following major findings:

NP, Net Profit had significant impact on economic growth. It is insignificant at 5% based on t-statistics.

ATM, Automated Teller Machine has significant impact on economic growth. It is not significant at 5% based on t-statistics.

PST, Point of Sale terminals have significant impact in economic growth. It is not significant at 5% based on t-statistics.

WP, Web Pay has significant impact on economic growth. It is not significant at 5% based on t-statistics.

MP, Mobile Pay has significant impact on on economic growth. It is significant at 5% based on t-statistics.

NIP, NIBSS Instant Payment has significant impact on economic growth. It is not significant at 5% based on t-statistics.

NEFT, NIBSS Electronic Fund Transfer has significant impact on economic growth. It is not significant at 5% based on t-statistics.

#### Conclusion

This research work was conducted to find out the influence of agent banking on the Nigerian economic growth. This study was necessitated by the fact that the economy is often said to be hindered from growing in terms of (banking sector) as a result of agent banking. However, such growth is insufficient in the real sense of it, as proportion of the annual banking sector contribution to Nigeria's real Gross

Domestic Product (RGDP). Therefore, this study employed the regression method, stationarity test and other diagnostic tests to investigate whether or not agent banking has impact on banking sector in Nigeria.

### **Recommendations**

It was obvious from the study that Automated Teller Machine (ATM), Point of Sale terminals (PST), Web Pay (WP), Mobile Pay (MP), NIBSS Instant Payment (NIP) and NIBSS Electronic Fund Transfer (NEFT) have statistically significant impact on banking growth individually as well as collectively. Therefore, this study recommends the following:

1. Policy makers should intensify efforts towards ensuring that agents made access to the public for it to impact on the people in order for agent banking to further have impact on economic growth;
2. The government through the Central Bank of Nigeria should formulate and implement institution strengthening policies in the areas of financial institutions particularly banking sector in Nigeria.
3. There is need to also improve on the performance of the banking sectors of the economy for provision of fundamentals including internal security and cyber security to avoid internet fraud in order to create more confidence in the sector.

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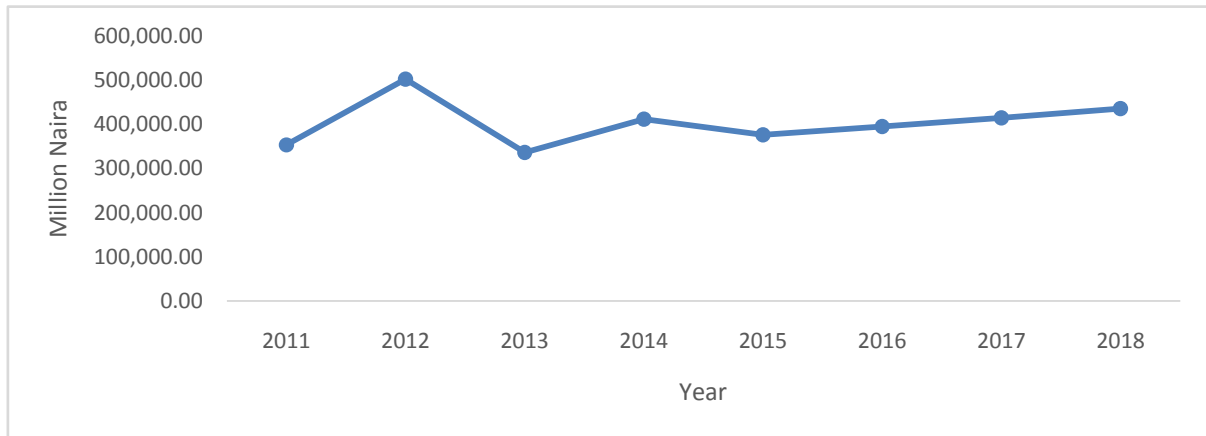
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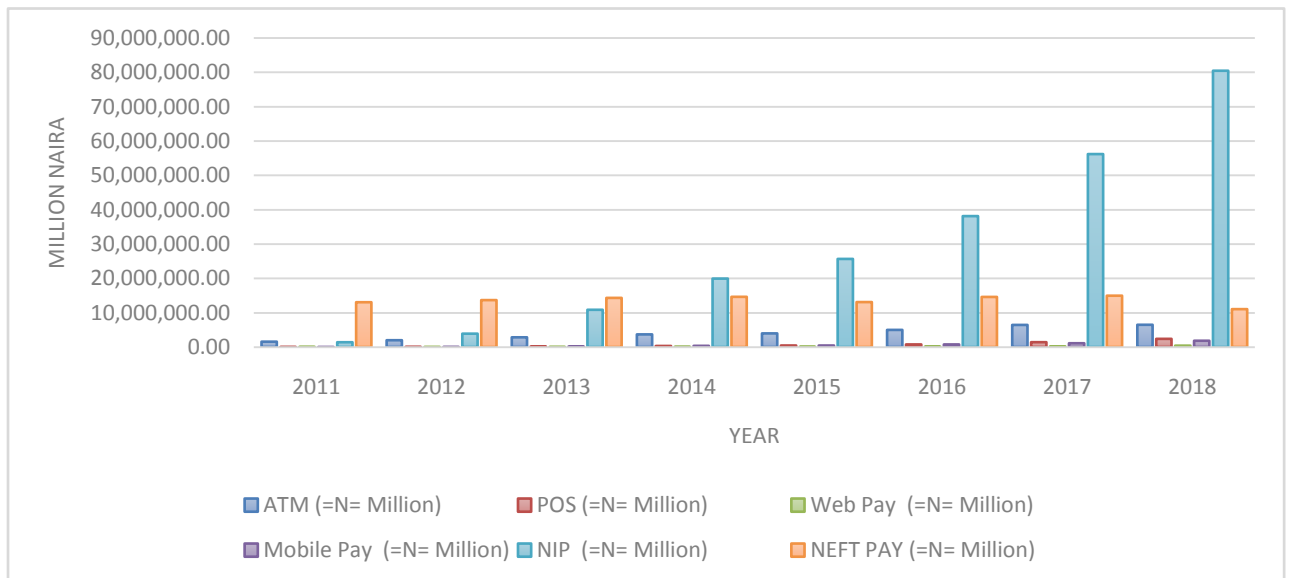
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**APPENDIX 1: LIST OF FIGURES AND TABLES**

**Figure 1: A Line chart showing distribution of Nigeria’s Banks’ Profitability trend (Million Naira) from 2011-2018**

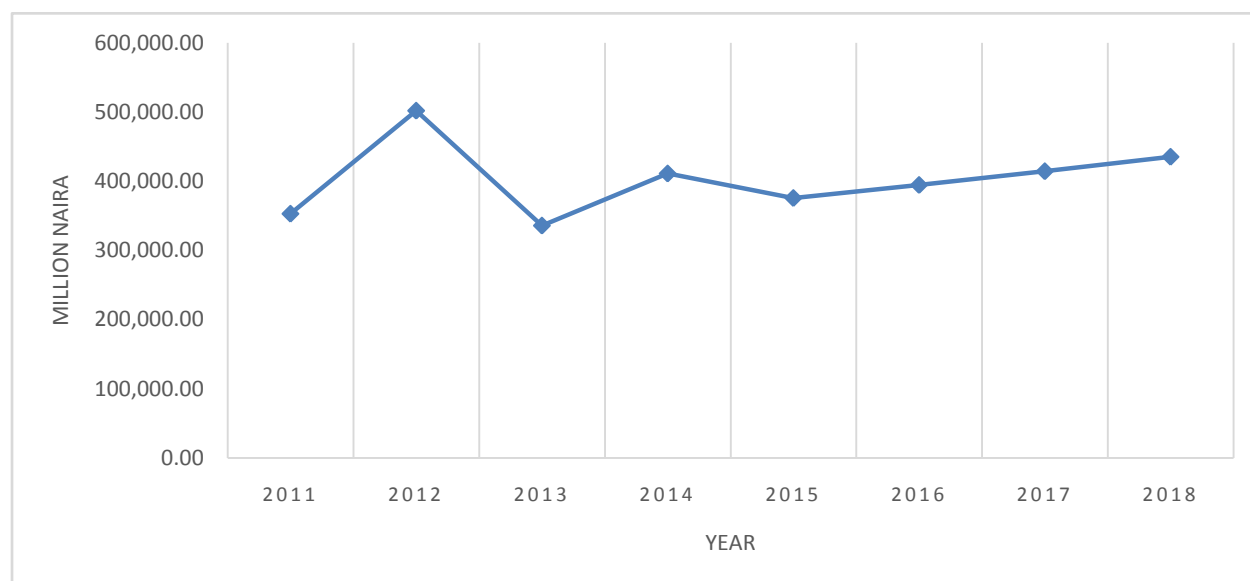


**Figure 2: A Bar chart showing distribution of Nigeria’s ATM, POS, Web Payment, Mobile Pay, NIBSS instant payment and NIBSS electronic transfers (Million Naira) from 2011-2018**





**Figure 3: A Line chart showing distribution of Nigeria’s Banks Volume of Electronic transaction (Million Naira) from 2011-2018**



**Data Analyses**

**Table 1: Summary of the description of variables and their corresponding unit and sources**

Variable	Description	Unit	Source
NP	Net Profit	Millions of Naira	CBN
ATM	Automated Teller Machine	Millions of Naira	CBN
POS	Point of Sale terminals	Millions of Naira	CBN
WP	Web Pay	Millions of Naira	CBN
MP	Mobile Pay	Millions of Naira	CBN
NIP	NIBSS Instant Payment	Millions of Naira	CBN
NEFT	NIBSS Electronic Fund Transfer	Millions of Naira	CBN

Source: Researcher’s own computation

**Table 2: Augmented Dickey-Fuller (ADF) Unit Root Test**

Series	ADF Test Statistics	1% Critical Value	5% Critical Value	10% Critical Value	Order of Cointegration
BP	-5.614463	-4.803492	-3.403313	-2.841819	I(0)
ATM	-10.66644	-6.423637	-3.984991	-3.120686	1(2)
POS	-14.11890	-3.694851	-3.694851	-2.982813	I(1)
WP	-4.251929	-5.119808	-3.519595	-2.898418	2(1)
MP	-3.023971	-5.604618	-3.694851	-2.982813	1(1)
NIP	-5.051141	-4.803492	-3.403313	-2.841819	1(0)
NEFT	-3.804417	-6.423637	-3.984991	-3.120686	2(1)

Note: \* denotes that the variable not stationary at that percent

Source: Author’s computation, 2019 using E-views 10.0

**Table 1: Original Sourced Data**

Year	Bank Net Profitability (=N= Million)	ATM (=N= Million)	POS (=N= Million)	Web Pay (=N= Million)	Mobile Pay (=N= Million)	NIP (=N= Million)	NEFT PAY (=N= Million)
2011	352,987.00	1,561,740.00	31,020.00	59,610.00	18,980.00	1,396,052.86	13,042,031.79
2012	501,879.00	1,984,658.82	48,008.31	31,567.36	31,509.33	3,891,026.30	13,660,032.67
2013	335,890.00	2,828,939.00	161,016.33	47,316.33	142,797.14	10,844,922.94	14,307,317.71
2014	411,114.00	3,679,877.60	312,071.74	74,043.63	346,467.29	19,921,499.57	14,616,579.54
2015	375,651.83	3,970,252.41	448,512.55	91,581.29	442,353.76	25,649,060.79	13,087,085.48
2016	394,539.86	4,988,133.40	758,996.51	132,360.33	756,897.48	38,109,061.20	14,584,802.66
2017	414,377.59	6,437,592.40	1,409,813.09	184,596.63	1,101,998.97	56,165,666.31	14,946,463.88
2018	435,212.78	6,480,085.90	2,383,108.90	404,600.99	1,830,701.11	80,423,025.70	11,030,961.55

Source: Central Bank of Nigeria Statistical Bulletin, 2018.

**Table 2: Transformed Data**

Year	Bank Net Profitability (=N= Million)	ATM (=N= Million)	POS (=N= Million)	Web Pay (=N= Million)	Mobile Pay (=N= Million)	NIP (=N= Million)	NEFT PAY (=N= Million)
2011	5.55	6.19	4.49	4.78	4.28	6.14	7.12
2012	5.70	6.30	4.68	4.50	4.50	6.59	7.14
2013	5.53	6.45	5.21	4.68	5.15	7.04	7.16
2014	5.61	6.57	5.49	4.87	5.54	7.30	7.16
2015	5.57	6.60	5.65	4.96	5.65	7.41	7.12
2016	5.60	6.70	5.88	5.12	5.88	7.58	7.16
2017	5.62	6.81	6.15	5.27	6.04	7.75	7.17
2018	5.64	6.81	6.38	5.61	6.26	7.91	7.04

Source: Researcher's Own computation

**Table 4.3: Regression of BP=  $\alpha + \beta X_1 + \beta X_2 + \beta X_3 + \beta X_4 + \beta X_5 + \beta X_6 + U_t$**

Dependent Variable: BP

Method: Least Squares

Date: 01/27/20 Time: 18:19

Sample: 2011 2018

Included observations: 8

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ATM	0.841844	1.145610	2.480639	0.2439
POS	0.100023	0.405430	5.179745	0.1214
WP	0.718686	0.250103	2.873555	0.2132
MP	0.209621	0.213748	0.980691	0.5062
NIP	0.163041	0.414756	2.804155	0.2181
NEF	0.855079	0.842723	1.014661	0.4954
C	0.218346	3.363809	1.848603	0.3157
R-squared	0.986888	Mean dependent var		5.601936
Adjusted R-squared	0.908219	S.D. dependent var		0.054658
S.E. of regression	0.016559	Akaike info criterion		-5.693232
Sum squared resid	0.000274	Schwarz criterion		-5.623720
Log likelihood	29.77293	Hannan-Quinn criter.		-6.162058
F-statistic	12.54482	Durbin-Watson stat		2.043073
Prob(F-statistic)	0.212828			

Researcher's Own computation using E-views 9.0 Output, 2020.

### Appendix 3: Bank Profit (BP)

Null Hypothesis: BP has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.614463	0.0044
Test critical values: 1% level	-4.803492	
5% level	-3.403313	
10% level	-2.841819	

\*MacKinnon (1996) one-sided p-values.

Warning: Probabilities and critical values calculated for 20 observations

and may not be accurate for a sample size of 7

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(BP)

Method: Least Squares

Date: 01/27/20 Time: 10:26

Sample (adjusted): 2012 2018

Included observations: 7 after adjustments

Variable	Coefficien		t-Statistic	Prob.
	t	Std. Error		
BP(-1)	-1.678135	0.298895	-5.614463	0.0025
C	9.404984	1.672895	5.621981	0.0025
R-squared	0.863097	Mean dependent var		0.012992
Adjusted R-squared	0.835716	S.D. dependent var		0.102627
S.E. of regression	0.041597	Akaike info criterion		3.286633
Sum squared resid	0.008651	Schwarz criterion		3.302087
Log likelihood	13.50321	Hannan-Quinn		-
F-statistic	31.52219	criter.		3.477644
Prob(F-statistic)	0.002480	Durbin-Watson stat		1.032748

#### Appendix 4: Automated Teller Machine

Null Hypothesis: D(ATM,2) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic - based on SIC, maxlag=1)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-10.66644	0.0014
Test critical values: 1% level	-6.423637	
5% level	-3.984991	
10% level	-3.120686	

\*MacKinnon (1996) one-sided p-values.

Warning: Probabilities and critical values calculated for 20 observations

and may not be accurate for a sample size of 4

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(ATM,3)

Method: Least Squares

Date: 01/27/20 Time: 10:29

Sample (adjusted): 2015 2018

Included observations: 4 after adjustments

Variable	Coefficien		t-Statistic	Prob.
	t	Std. Error		
D(ATM(-1),2)	-2.764303	0.259159	-10.66644	0.0595
D(ATM(-1),3)	1.134274	0.155221	7.307500	0.0866
C	-0.036041	0.009406	-3.831721	0.1625
R-squared	0.991422	Mean dependent var		0.017050

Adjusted R-squared	0.974265	S.D. dependent var	0.114810
S.E. of regression	0.018418	Akaike info criterion	5.037282
Sum squared resid	0.000339	Schwarz criterion	5.497561
Log likelihood	13.07456	Hannan-Quinn	-
F-statistic	57.78655	crit.	6.047330
Prob(F-statistic)	0.092619	Durbin-Watson stat	1.871704

## POS

Null Hypothesis: D(POS) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic - based on SIC, maxlag=1)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-14.11890	0.0001
Test critical values: 1% level	-5.604618	
5% level	-3.694851	
10% level	-2.982813	

\*MacKinnon (1996) one-sided p-values.

Warning: Probabilities and critical values calculated for 20 observations

and may not be accurate for a sample size of 5

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(POS,2)

Method: Least Squares

Date: 01/27/20 Time: 10:37

Sample (adjusted): 2014 2018

Included observations: 5 after adjustments

Variable	Coefficien		t-Statistic	Prob.
	t	Std. Error		
D(POS(-1))	-1.212747	0.085895	-14.11890	0.0050
D(POS(-1),2)	0.305231	0.054496	5.601005	0.0304
C	0.291673	0.025563	11.40988	0.0076

R-squared	0.992276	Mean dependent var	0.059514
Adjusted R-squared	0.984553	S.D. dependent var	0.126714
S.E. of regression	0.015749	Akaike info criterion	5.180383
Sum squared resid	0.000496	Schwarz criterion	-

			5.414721
		Hannan-Quinn	-
Log likelihood	15.95096	criter.	5.809321
F-statistic	128.4723	Durbin-Watson stat	1.404507
Prob(F-statistic)	0.007724		

### Web Pay

Null Hypothesis: D(WP) has a unit root  
 Exogenous: Constant  
 Lag Length: 0 (Automatic - based on SIC, maxlag=1)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.251929	0.0232
Test critical values: 1% level	-5.119808	
5% level	-3.519595	
10% level	-2.898418	

\*MacKinnon (1996) one-sided p-values.

Warning: Probabilities and critical values calculated for 20 observations

and may not be accurate for a sample size of 6

### Augmented Dickey-Fuller Test Equation

Dependent Variable: D(WP,2)

Method: Least Squares

Date: 01/27/20 Time: 18:01

Sample (adjusted): 2013 2018

Included observations: 6 after adjustments

Variable	Coefficien t	Std. Error	t-Statistic	Prob.
D(WP(-1))	-0.999486	0.235066	-4.251929	0.0131
C	0.184589	0.042908	4.301981	0.0126
R-squared	0.818832	Mean dependent var		0.102814
Adjusted R-squared	0.773539	S.D. dependent var		0.197431
S.E. of regression	0.093953	Akaike info criterion		1.630835
Sum squared resid	0.035309	Schwarz criterion		1.700248
Log likelihood	6.892505	Hannan-Quinn		-
F-statistic	18.07890	criter.		1.908703
Prob(F-statistic)	0.013138	Durbin-Watson stat		1.533687

### Mobile Pay (MP)

Null Hypothesis: D(MP) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic - based on SIC, maxlag=1)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.023971	0.0957
Test critical values: 1% level	-5.604618	
5% level	-3.694851	
10% level	-2.982813	

\*MacKinnon (1996) one-sided p-values.

Warning: Probabilities and critical values calculated for 20 observations

and may not be accurate for a sample size of 5

### Augmented Dickey-Fuller Test Equation

Dependent Variable: D(MP,2)

Method: Least Squares

Date: 01/27/20 Time: 18:05

Sample (adjusted): 2014 2018

Included observations: 5 after adjustments

Variable	Coefficien		t-Statistic	Prob.
	t	Std. Error		
D(MP(-1))	-0.975021	0.322431	-3.023971	0.0942
D(MP(-1),2)	0.241074	0.236362	1.019935	0.4151
C	0.216616	0.110961	1.952176	0.1902

R-squared	0.853732	Mean dependent var	0.087169
Adjusted R-squared	0.707463	S.D. dependent var	0.185574
S.E. of regression	0.100371	Akaike info criterion	1.476184
Sum squared resid	0.020149	Schwarz criterion	1.710521
Log likelihood	6.690460	Hannan-Quinn	-
F-statistic	5.836745	critier.	2.105122
Prob(F-statistic)	0.146268	Durbin-Watson stat	3.446678

## NIP

Null Hypothesis: NIP has a unit root  
 Exogenous: Constant  
 Lag Length: 0 (Automatic - based on SIC, maxlag=1)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.051141	0.0077
Test critical values: 1% level	-4.803492	
5% level	-3.403313	
10% level	-2.841819	

\*MacKinnon (1996) one-sided p-values.  
 Warning: Probabilities and critical values calculated for 20 observations  
 and may not be accurate for a sample size of 7

Augmented Dickey-Fuller Test Equation  
 Dependent Variable: D(NIP)  
 Method: Least Squares  
 Date: 01/27/20 Time: 18:09  
 Sample (adjusted): 2012 2018  
 Included observations: 7 after adjustments

Variable	Coefficien t	Std. Error	t-Statistic	Prob.
NIP(-1)	-0.223825	0.044312	-5.051141	0.0039
C	1.844140	0.316176	5.832643	0.0021
R-squared	0.836141	Mean dependent var	0.251497	
Adjusted R-squared	0.803369	S.D. dependent var	0.140015	
S.E. of regression	0.062087	Akaike info criterion	2.485605	
Sum squared resid	0.019274	Schwarz criterion	2.501059	
Log likelihood	10.69962	Hannan-Quinn criter.	-	2.676616
F-statistic	25.51403	Durbin-Watson stat	1.816653	
Prob(F-statistic)	0.003929			

## NEFT

Null Hypothesis: D(NEF,2) has a unit root  
 Exogenous: Constant  
 Lag Length: 1 (Automatic - based on SIC, maxlag=1)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.804417	0.0574



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Test critical values: 1% level	-6.423637
5% level	-3.984991
10% level	-3.120686

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\*MacKinnon (1996) one-sided p-values.

Warning: Probabilities and critical values calculated for 20 observations  
 and may not be accurate for a sample size of 4

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(NEF,3)

Method: Least Squares

Date: 01/27/20 Time: 18:14

Sample (adjusted): 2015 2018

Included observations: 4 after adjustments

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Variable	Coefficien		t-Statistic	Prob.
	t	Std. Error		
D(NEF(-1),2)	-4.214425	1.107772	-3.804417	0.1636
D(NEF(-1),3)	1.854599	0.630285	2.942478	0.2086
C	-0.026026	0.027212	-0.956412	0.5142

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R-squared	0.941266	Mean dependent var	0.032936
Adjusted R-squared	0.823798	S.D. dependent var	0.128562
S.E. of regression	0.053966	Akaike info criterion	2.887229
Sum squared resid	0.002912	Schwarz criterion	3.347508
Log likelihood	8.774458	Hannan-Quinn	-
F-statistic	8.012968	critier.	3.897278
Prob(F-statistic)	0.242351	Durbin-Watson stat	1.678970

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