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TABLE OF CONTENTS

EFFECT OF CASHLESS POLICY ON BANKS' FINANCIAL PERFORMANCE IN NIGERIA: AN EMPIRICAL ASSESSMENT
By
Ogbeide S. O.[1]

Abstract

This study examined cash less policy and the financial performance of banks in Nigeria. Time series data for the period 2007 to 2016 for five variables representing about fifty (50) annual observations was generated from the Central Bank of Nigeria Economic Reports and Nigeria Deposit Insurance Corporation Annual Reports. The study used Augmented Dickey Fuller test to determine the stationary state of the variables. It also employs the descriptive statistics and panel least square to analyse the data generated. The empirical findings revealed that cash less policy largely influence the financial performance of banks in Nigeria. The volume of Automated Teller Machine (ATMVL) and Point of Sales (POSVL) were found to increased banks financial performance though not statistically significant. The study recommends that more ATM centres be opened by banks through the influence of the Central Bank of Nigeria in order to enhance the success of the cash less policy.

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1.0   Introduction

Theoretically, cashless policy is presumed to have a corollary effect on income generation, reduction of cost and consequently increase in performance level, customers' deposit, quick and easy assesses to financial services and size of banks in the banking sector. Osazevbawu, Sakpaide and Ibubune (2014) state that most banks in Nigeria in their operations under a cash based economy are known for the huge profit they declare each year, notwithstanding the fact that such system is characterized by high cost of operations. Cash dependency by Nigerians has been a major issue of concern to CBN prior to the cashless policy in Nigeria (Pius, 2014).

According to Osazevbawu, Sakpaide and Ibubune (2014), the cashless policy though new in Nigeria is quite enhancing to the business climate; it however has certain draw backs which includes high level of fraud and fraudulent practices is observed to associate with the cashless policy. The researchers noted that since the cashless policy is all about electronic money transactions, series of cybercrime and fraud have been a common thing with it in Nigeria over the years in addition with high level of unstable networks. Similarly, in the first quarter of 2017 the Central Bank of Nigeria mandating banks to charge 1.5% on cash withdrawals and deposits above five hundred thousand naira (N500, 000) has continued to elicit sharp reaction from members of the public(Vanguard, 15th April, 2017). A lot of persons have begun to nurse uncertainty as

regard the workability of the CBN cash less policy occasioned by this harsh policy development by the apex bank in Nigeria. While banks tend to mage huge earnings from this policy development, customers who are the depositors are at the receiving end. This could cause them to strategize alternative way of keeping their hard earned money.

This policy development could be seen as imbalance given the current harsh economic condition in Nigeria. These ills associated with the cash less policy and the recent CNB policy have the likelihood to make a lot of persons see the evolvement of the cashless policy as less preferable to the cash based policy/practices. Never the less these teething issues, the policy has tend to influence the attitude of Nigerian in cash handling, smooth and effective business transaction as well as other transactions with the banks. This presupposes that banks have a way of benefitting from the policy directly or indirectly. Directly, the policy has the propensity to increase the volume of deposit and indirectly, it could influence banks' earnings and consequently the financial performance. Premised on this, it of essence to empirically determine how the cash less policy has influenced banks financial performance in Nigeria (Ogbeide & Fapohunda, 2017).

Similarly, since the evolvement of the cashless policy in Nigeria, an avalanche of research works on both theoretical and empirical fronts have been effectuated but these prior studies (Akhalumen 2012; Odior and Bannso, 2012; Ejiofor and Rasak, 2012; Mieseigha and Ogbodo, 2013; Emegwu and Emeti, 2015) majorly focused on the prospect, benefit, problems and

challenges of the discourse with the exception of the study by Osazevbanu and Yomere (2015) on cashless policy and banks' profitability. Majority of the researches have not really examined the nature of relationships between cashless policy and the financial performance as well as the impact of the policy on banks in the Nigeria banking industry, hence this study is undertaken with a view to contributing to existing literature on the empirical fronts.

The paper is structured into five sections. Section one above deals with the introduction, section two is concerned with literature review, section three is the methodology used to undertake the study, section four is the data analysis, interpretation and discussion of findings while section five is on conclusion and recommendations.

2.0   Literature Review
2.1   Empirical Review

The volume of cash carried about by persons in the Nigerian society appears to have significantly reduced since the advent of the cashless policy by CBN. Observations in some nooks and crannies in urban cities in Nigeria indicates most persons have become friendly with the use of the Automated Teller Machine (ATMs) at effectuating varying bank transactions. Electronic money transfer seems to be on the ascendancy which is an indication that banks have fully embraced the policy and put necessary machineries to ensure a huge success. This obviously forms the increase of the number of ATM and POS centres. However, these facilities are not used by customers without certain financial charges. The income banks derive from

these charges occasioned by full implementation of the cashless policy increases the total revenue / income generated annually. This presupposes that on the theoretical front, a relationship should exist between the cashless policy and bank total income.

A lot of banks in Nigeria in terms of their operations under the cashless policy make huge profits yearly, judging by the astronomical figures usually declare quarterly, half-yearly and annually. Osazevbaru, Sakpaide and Ibubune (2014) study revealed that cash based economy is not without cost to the banking system, government and individuals; noting further that high cash usage results in high cost of processing borne by every entity across the value chain. They report that the cost of printing new notes as a result of frequent handling of cash is said to cost a colossal amount annually to bank customers, thus causing banks to profit from it.

Generally, cost of cash in Nigeria's financial system is high and on the increase (CBN, 2011; Nweke, 2012). Buttressing this further, extract from Central Bank of Nigeria (2012) reveals that cash in transit cost ₦27.3 billion, representing 24%, processing fees and cost stood at ₦89.1 billion representing 24% while vault management cost amount to ₦18.1 billion, representing 9% of the total cost of cash to the Nigerian financial system; the total cost of cash to both the Central Bank and other banks in 2009 resulted to startling figure of ₦114.5 billion. These statistical evidences actually provided the platform upon which the cashless policy was berthed. The CBN (2012) record shows that transaction volume from ATM withdrawals was 109,592,648; transaction volume from OTC cash withdrawals

amounted to 72,499,182; transaction volume with cheques was 29,159,960; POS was 1059,069 while web was 2,703,516. The CBN records also show that before the cashless policy, income to banks from ATM withdrawals was ₦547,963,240; with ₦5/mile bank changes; ₦362,499,060 and ₦5/mile from OTC withdrawal; ₦145,799,800 and ₦5/mile from cheques; ₦13,383,362.5 from POS while ₦189,246,120 from web. The aggregate income prior to the cashless policy as reported by the CBN in 2013 was₦1, 258,746,582.50.

According to Osazevbaru et al (2014), estimate of banks' income under a cashless policy appears quite different. For example, the study revealed that income to banks from ATM withdrawals was nil; the same for OTC cash withdrawals and cheques; POS was ₦2, 276,155750 while web was ₦189, 246,120.They reported that total income to banks from payment channels under the cashless policy was ₦2, 465,401,870 while prior to the cashless policy it was ₦1, 258,746,582.50.

Osezavbaru et al (2014) empirically determined that banking the unbanked will have a negative impact on banks' income. Prior to the estimation, they juxtaposed their views from the Nation (2014) reports which revealed that 36.3% of the country's adult population is served by the formal financial system. This revelation actually spurned them to find out if banking the outstanding percentage will impact negatively or positively on banks' income. They computed the total value of transaction from POS to be 502,385,386,600 while the income to banks was 46,279,817,325; web total value of transaction was

7,458,886,000 while the income to the banks was ₦522, 122,020.

The conclusion they drew was that banking the unbanked impacted positively on the income of banks given that the estimated income of the banks after the financial inclusion of the percentage bankable adults increased significantly from ₦2,465,401,870 to ₦6,801,939,345.The CBN (2011) reports had the cost of banks operation was expected to reduce by 30% in a cashless regime and the estimate of the total cost of operation of banks in a cash based economy was ₦450,000,000. Osazevbaru et al (2014) pointed out that the reduction in the cost of banks' operation had significant impact on the profit of banks after the full inclusion of the unbanked population into the formal banking system.

By implication, if cashless policy increases bank total income, the profitability can also be positively influenced given that every other factor is held constant. Theoretically, the cashless policy should enhance the volume of banking transaction; and consequently engender the financial performance. In Nigeria, the amount of profits banks churn out on early, half – yearly end quarterly basis is quite bewildering going by the stiff global challenges the economy is faced with. Nonetheless, the increase in profitability is deemed to be influenced by trading volume, high level of customer deposits influence of globalization, amongst other.

Osazevbaru and Yomere (2015) empirically examined the benefits and challenges of Nigeria's cashless policy. To address

the issue, secondary data were collected and analysed by means of content analysis. The study found that banks' income was higher in cashless setting than in cash based arrangement. The study concludes that cashless policy offers immense benefits to the banking sector; similarly, they recommended that appropriate infrastructures and legal support be provided to facilitate the implementation of the policy.

Itah and Ene (2014) determined the impact of cashless banking on banks' profitability in Nigeria. The study used proxies for cashless banking such as Automated Teller Machine (ATM), point of sale (POS) and web based transaction (WBT) to examine its impact on the aggregate return on equity (ROE) of deposit money banks in Nigeria through an ordinary least square (OLS) multiple regression method of analysis. The finding obtained indicates that ATM and POS are positively related to ROE, while WBT related negatively to ROE. The study attributed the mixed result to high rates of bank charges on online deposits.

CBN (2011) during the 24th NCS national conference through data reveals that 51% of withdrawal done in Nigeria was through ATM, while 33.6% was through over the counter (OTC). Cash withdrawals and 13.6% through cheques, payment system was also done through point of sales (POS) machine which accounted for 0.5% and web 1.3%. Therefore, if the introduction of ATM in Nigeria cash withdrawals system reduced OTC withdrawal; then it will implies that introduction of cashless policy supported by application of information technology can

achieve more to reduce over dependent on cash payment in Nigerian Economic System (Ezeamama et al., 2014).

In assessing the role of central bank in a cashless society, Claudia and De Grauwe (2001) stressed that central banks gradually lose their monopoly position in the provision of liquidity combined with its subsequent small size which makes it hard to control the short-term interest rates. On the contrary, Marco and Bandiera (2004) argue that increased usage of cashless banking instruments strengthens monetary policy effectiveness and that the current level of e-money usage does not pose a threat to the stability of the financial system. However, it does conclude that central banks can lose control over monetary policy if the government does not run" a responsible fiscal policy.

Hernado, MacCario and Zazzara (2006) examined the impact of cashless policy (e-banking) of a transactional website on financial performance using a sample of 72 Spanish commercial banks over the period of 1994 – 2002 and ascertained a positive impact on profitability which was similar to De Young, Lang and Nolle (2007), who found that internet banking are more profitable than non-internet banks, though no specification were made as to time of significant reality.

Onay, Ozsoz and Heivacroglu (2008) examined the impact of internet banking on banks' profitability of Turkish over the period 1995 – 2005. The study found that internet banking starts contributing to banks' ROE with a time lag of two years thus

confirming the empirical findings of Hernando et al (2007), while a negative impact was observed for one year lagged duming.

Malhotra and Singh (2009) examined the impact of internet banking on performance and risk tracing the experience of Indian commercial banks during June 2007. The study ascertained that the profitability and offering of internet (cashless policy) banking does not have any significant association; which corresponded with the finding of De Young (2005).

Mohammed and Saad (2011) empirically examined the impact of cashless policy on the performance of Jordanian banks over the period 2000 – 2010 using OLS regression. The study found that electronic banking otherwise refers to as cashless policy in the context of this study has a significant negative impact on banks performance.

Abaenewe, Ogbulu and Ndugbu (2013) empirically examined cashless policy and bank performance in Nigeria. The profitability performance of the banks was measured in terms of return on equity (ROE) and return on assets (ROA). The analysis was made using the standard statistical technique. The finding showed that the electronic banking has positively and significantly improved the return on equity (ROE) of Nigerian Banks on the contrary the study ascertained that e-banking has not significantly improved the return on assets (ROA) of Nigeria banks. Suluvan (2000) in an empirical investigation took sample of banks that are located in tenth Federal Reserve District that

155

have adopted electronic banking and those that have not. He compared their financial performances and risk positions and observed that the profitability and risks of these grouped banks were similar.

Kurawish and Al-Sa'di (2011) examined cash less policy and bank profitability in Jordan. For banks that applied electronic services for less than two years, they found that there was no significant effect on the Return on Assets (ROA) and Return on Equity (ROE). The study further showed that such services made significant impact on the profit margin of the concerned banks. Alsmadi and Al-wabel (2014) study on cashless policy and bank performance showed that banks' financial performance was negatively affected by the influence of cash less banking.

Shehu, Aliyu and Musa (2013) investigated electronic banking products and performance of Nigerian listed deposit money banks. The study finding indicates that e-mobile and ATM transactions has strongly and significantly impacted on the performance of Nigerian banks while on the other hand, it revealed that e-direct and SMS alert have not significantly impacted on the performance of the banks. Given the paucity of empirical study on the nexus between cash less policy and banks financial performance in the Nigerian context, this study in its novelty seeks to empirically determine and report the impact of the cash less policy on banks' financial performance in Nigeria for the purpose of contribution to knowledge and policy perspective.

3.0   Methodology

3.1   The Method of Data Analysis (i.e Panel unit root model and Panel least square model) and Data Sources

Data for this study were generated from Central bank of Nigeria (CBN) economic report and the Nigeria Deposit Insurance Corporation (NDIC) various issues while a sample period of 2007 to 2016 was used. The study employs the panel least squares regression to undertake the data analysis. This was effectuated after the unit root tests and diagnostic tests were carried out. However, the deterministic and stochastic forms of the models employed to achieve the main objective of this study are stated below:

The deterministic form of the regression model:

Financial performance = F (cashless policy)………………..(1)

The above mathematical model is further stated in stochastic forms as:

$$ROAt = \beta_0 + \beta_1 ATMVL_t + \beta_2 POSVL_t + \beta_3 WEBVL_t + \beta_3 SIZE + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..(2)$$

Where

ROA = Return on assets, a proxy of banks' financial performance and is the dependent variable.

β_1 to β_4 = represents coefficient of the parameters of estimation and t is the period in question.

ATMVL = Volume of automated teller machines in the banks in the period under investigation.

POSVL = Volume of point of sales.

WBTVL = Volume of web based techniques in the banking industry.

SIZE = Bank size, proxy as number of banks.

β_0 = the intercept.

μ_t = stochastic disturbance term acting as a surrogate.

4.0   Empirical Analysis

Table A
Levin- Lin Chin Panel Unit Root Test Results

Variables	Adjusted t-statistics	Adjusted t-critical value	Remark
ROA	29.1916	0.0000	Stationary at level
ATMVL	7.00257	0.0000	Stationary at level
WBTVL	24.2944	0.0000	Stationary at level
POSVL	49.0914	0.0000	Stationary at level
BSIZE	31.1582	0.0000	Stationary at level

Source: Researcher Computation from E-views 8.0 Version (2017).

The table above presents summary results of the unit root test at 5% using Levin-Lin- Chu version of the stationary test. The Levin-Lin-Chu adjusted statistic result is compared against the t- critical values at 5%. Given this, it can be observed the result shows that at level all the variables were all stationary.

4.1   Diagnostic Tests Result

The diagnostic table in the appendix A **(see Appendix A)** shows that the variance inflation factor statistic is less than 10 (centered VIF< 10) for each of the variables. This indicates absence of multicollinearity among the explanatory variables. The ARCH (Harvey) Heteroskedasticity test shows the presence of homoscedasticity (0.0268< 0.05), thus confirming the constant variance assumption of the ordinary least square estimator. The

Breusch-Godfrey serial correlation LM test result of 0.1591> 0.05) points out the absence of higher order correlation. The Ramsey Reset Test result of (0.1113 > 0.05) substantiate validity of the regression model.

Table B
Pearson Correlation Statistic

	ROA	ATMVL	POSVL	WBTVL	SIZE
ROA	1	0.057	0.329	-0.286	-0.336
ATML	0.057	1	0.275	0.293	-0.280
POSVL	0.329	0.275	1	0.068	-0.875
WBTVL	-0.286	0.293	0.068	1	-0.001
SIZE	-0.336	-0.280	-0.875	-0.001	1

Source: E-View 8.0

The table above depicts the Pearson Products Moment Correlation coefficient for all the variables used. The correlation results shows that all the explanatory variables have both positive and negative associations with the return on assets in the period   evaluated. For example ATMVL is positively associated with ROA. POSVL and ATMVL are positively related (r=0.068 and r=0.293). WBTVL is negatively correlated with SIZE (r= -0.286, r= -0.336). In a nutshell, it can be said that all the variables re-enforce in a mutual perspective.

Table C
Descriptive statistics

	ROA	ATMVL	POSVL	WBTVL	SIZE
Mean	16.06500	203.7000	5.780000	3.110000	23.30000
Median	19.89000	211.1000	2.350000	3.100000	24.00000
Maximum	24.11000	375.5000	14.90000	7.200000	25.00000
Minimum	-9.280000	15.70000	0.400000	0.900000	21.00000
Std. Dev.	10.05705	117.5502	5.867765	1.670296	1.702939
Skewness	-1.761155	-0.116053	0.529923	1.349922	-0.492342
Kurtosis	5.109058	2.019968	1.498059	4.907590	1.610913
Jarque-Bera	7.022829	0.422640	1.407959	4.553358	1.207985
Probability	0.029855	0.809515	0.494613	0.102624	0.546625
Sum	160.6500	2037.000	57.80000	31.10000	233.0000
Sum Sq. Dev.	910.2976	124362.5	309.8760	25.10900	26.10000
Observations	10	10	10	10	10

Source: E-View 8.0

The result above indicates that the financial performance of banks in the Nigeria banking sector occasioned by the cash less policy in the period considered is 24% approximately on the maximum average while Jarque- Bera result shows the data is statistically significant and was normally distributed. The volume of ATM on the maximum average was about 375.5000units.

The Jarque- Bera statistic value showed it is significant and normally distributed in the period. The maximum average volume of POS was 14.90000units and based on the J-B value it was statistically significant and normally distributed. WBT has a maximum volume of 7.200000units and was normally

distributed judging by the result of the Jarque- Bera statistic. Maximum bank size in terms of number on the average was 25 and the data was significant and normally distributed in the period. All these statistical descriptions have ways of engendering banks' financial performance in Nigeria.

Table D
Ordinary Least Square Regression Result
Dependent Variable: ROA

Variables	Coefficient	Prob. value
C	0.719*****	
	(0.656)	
	[1.096]	0.275
ATMVL	0.001*****	
	(0.021)	
	[-1.389]	0.010
POSVL	0.049*****	
	(0.027)	
	[1.788]	0.150
WBTVL	0.007*****	
	(0.006)	
	[1.244]	0.021
SIZE	-0.085*****	
	(0.095)	
	[-0.863]	0.389
R-square =0.870		
Adjusted R-square = 0.780		
F-statistic = 9.051		

Prob.(F-statistic) = 0.000		
Durbin-Watson stat = 2.406		

******Coefficient values

( ) *standard error in bracket

[ ] * T- statistic value in parenthesis

E-views 8.0 Output

The table above the model determined about 78% systematic variation in the dependent variable, financial performance of banks in the Nigeria banking sector using the adjusted coefficient of determination, leaving about 22% unaccounted for due to stochastic error term. It indicates the goodness of fit of the model and that the components of the cash less policy have significantly increased banks financial performance in Nigeria generally. It suggests that the cash less policy has enhanced the financial performance of banks in the period considered; and this finding is intriguing. It is a pointer that the policy has benefitted the banks largely. The F – Statistic value of 9.051 with p-value of 0.000 reveals that all the explanatory variables put together are statistically significant at 99% level.

It is not out of place to assert here that the policy by the apex bank appears lope sided in the sense that it is much more skewed in favour of the banks and less to bank customers and other stakeholders. The individual coefficients indicated that a unit change in ATMVL and POSVL increase banks financial performance by 0.001units and 0.049 units respectively in the long -run and however not statistically significant at 95% level

except ATMVL. A unit change in WBTVL is observed to cause an increase in banks' financial performance by 0.007 units and was statistically significant at 95% level while a unit change in SIZE results to a decrease by 0.0389 units and was not statistically significant at 5% level. The Durbin – Watson statistic value of 2.406 shows a presence of grey area of serial Autocorrelation in the time series data; and of course this level of autocorrelation is expected in this kind of study because the shortness of the period covered could cause it so and in econometric analysis this is not uncommon if the time series are considerably not lengthy enough.

4.2   Discussion of Findings

The empirical investigation of the cash less policy and banks financial performance at this period the Nigerian nation is going through economic turbulence is quite timely and of essence. The policy was implemented by the Nigeria apex bank with the intention to shift from cash based to cash less based one; although it does not imply absence of physical cash in circulation. Since the inception of the policy, a lot of persons have benefitted from it, including corporate bodies.

The policy seems to be driving the success of business climate in Nigeria despite pockets of challenges associated with it. The result from the above analysis revealed that the volume of Automated Teller Machine (ATMVL), WBTVL and Point of Sales (POSVL) were positive and increased banks financial performance though not statistically significant except volume of automated teller machine. The non- significance of the volume

of point of sales may be adduced to the nature of the time series used. For instance the period examined was quite short. Similarly it could be that a large number of persons are yet to embrace the use of POS and even the ATMs in Nigeria perhaps due to some challenges associated with its usage such as frauds, cybercrime and other related issues. We may also add here that the cost implication of having to maintain these Automated Teller Machines and POS could another factor why more volumes of them are not circulated by banks to encourage the cash less policy in Nigeria.

The empirical finding is quite in tandem with Osazevbaru and Yomere (2015), Osazevbaru et al (2014), Itah and Ene (2014), Ogbulu and Ndugbu (2013). Bank size as a control variable was found to cause a decrease in banks financial performance; meaning correlation does not even exist between the cash less policy and bank size at positively influencing the financial performance of banks in the Nigerian banking sector. Bank size has over the years observed not to enhance banks performance hence the need for further consolidation in Nigeria (e.g see Igbinosa and Ogbeide, 2016).

5.0   Conclusion and Recommendations

The study has examined the cash less policy and how it engenders the financial performance of banks in Nigeria. The intriguing findings are the cash less policy significantly enhances the financial performance of the banks. Particularly volume of Automated Teller Machines (ATMVL), volume of web based

technique (WBTVL) and point of sale (POSVL) have increased part of the income generation of banks and by implication the financial performance of the banks in Nigeria in the period considered. Only bank size did not contribute to the financial performance of banks. The study therefore suggests that the Nigeria apex bank should review the recent policy mandating banks to charge 1.5% on every cash deposits and withdrawals of five hundred thousand naira (N500, 000) across the counter.

It is absolutely a sort of policy summersault. This is so because such harsh policy has the tendency to adversely affect perception and enthusiasm of stakeholders in the Nigerian banking industry and much more the financial inclusion policy pursuit in Nigeria as earlier advanced by the CBN.

Premised on the empirical findings above, this study recommends that more ATM centers be opened in order to enhance the success of the cash less policy. This is suggested in that ATM contributes positively to the success of the cash less policy and income generation, consequently the financial performance of the banks in the Nigerian banking sector.

Caution should be exercised by the apex bank in Nigeria at influencing the cash less policy in favour of banks as this could make the policy one way sided. The interest of myriad stakeholders with regards to the policy should be carefully considered before further decision on it is undertaken by the Federal Government through the regulatory authority.

Point of sales (P.O.S) should be encouraged by organizations and other businesses at effectuating business transactions as this would enhance its contribution to the cash less policy in Nigeria. Furthermore, future researchers need to examine the impact of the cash less policy on banks performance on pre and post basis. This would assist them to know and report on the empirical front how the policy has done fairly well in the periods.

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Appendix A
Diagnostic tests

Variance inflation factors (VIFs)		
	Coefficient of variance	centered VIF
C	14941.67	NA
ATMVL	0.001384	1.197828
POSVL	2.026975	4.370518
WBTVL	6.412756	1.120394
SIZE	24.33257	4.419010
Breusch – Godfrey – serial correlation LM test		
F-statistic = 3.608083	Prob. F(2, 3)	0.1591
Obs * R-squared = 7.063477	Pro. Chi-square (2)	0.5721
Heteroskedasticity test Harvey		
F-statistic 7.138446	Prob. F(4, 5)	0.0268
Obs * R-squared 8.509855	Prob. Chi-square 0.0746	
Ramsey Reset Test		
t-statistic = 2.037180	Df = 4	0.1113
F-statistic = 4.150103	Prob. F(1, 4)	0.1113

Source: Researchers' Computation from E-view 8.0 (2017)