

Payment Systems, Cashless Policy and Economic Growth in Nigeria: Product-Moment Correlation Coefficient Analysis

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Abstract

This study seeks to appraise Payment systems, Cashless policy and Economic growth in Nigeria. The study adopted a survey design and data were collected using a questionnaire structured to conform to the 'Item-Specific Response Options (ISRO)' strategy. Data were analyzed using Pearson Product-Moment Correlation Coefficient (PPMCC) denoted by (r) and Coefficient of Determination, (r^2). The findings show that (r) value for the variables Payment systems and Economic growth stood at 0.5380 and r^2 at 28.94%. Thus, the existence of a linear relationship was established through the strength of the relationship appears moderate. The findings for the variables Cashless policy and Economic growth show that (r) stood at 0.1593 with r^2 at 2.54%, indicating an extremely weak relationship and so, a very negligible impact was concluded. It counters apriori expectation. The observed truth from the trend of responses is that the adoption of most of the electronic payment systems is low possibly for fear of sharp practices prevalent in their usage. Therefore, we recommend that deliberate measures must be instituted by economic stakeholders to fortify the security system in banking payment channels cumorganizing training, workshops and seminars for their

clients to sensitize them on the use of banking appliances to enhance payment systems operations and forestall over-reliance on cash.

Keywords: Payment Systems, Cashless Policy, Economic Growth, Product-Moment Correlation Coefficient, Nigeria.

1.0 INTRODUCTION

The Payment system is an integral component of the global financial system as it facilitates the settlement of business transactions through the conveyance of pecuniary or monetary values in financial instruments from one business unit to another. The Payment System is complex because it is made up of diverse and varied components such as financial markets, instruments and institutions, concordats, rules, technologies that facilitate exchanges, procedures and people that interact in instituting business deals. It involves all the mechanisms of transmitting and settling payment orders from one economic unit to another in domestic and international transactions. For financial institutions, the systems also facilitate intermediation, the process in which excess funds from surplus economic units, usually savers are transferred to deficit economic units who are major investors who need funds for productive purposes. In this case, banks serving as intermediary institutions play very vital roles because accounts of businesses are domiciled in them and they provide liquidity for settling the transactions. Nnanna and Ajayi, (2005) affirmed that the payment system is the channel through which liquidity and credits are transferred from an economic unit or institution to another domestically or globally.

Payment systems have been for ages; from the ancient use of commodities such as salt and cowries as means of payment to barter system where goods were directly exchanged for goods and presently to modern innovative Information and Communication Technology (ICT) facilitated systems. Alade (2005), summed this

up that 'from cowries to salt, silver to gold, primitive barter system of exchange to present electronic system, the role, function and importance of dynamic and efficient payment systems have been closely monitored, boosted and promoted by monetary authorities in all countries. Modern banking started with a somewhat traditional payment system that uses majorly paper payment instruments collectively referred to as negotiable instruments such as cheques, drafts, certified bank cheques, dividend warrants, interest warrant, Letter of Credit, et cetera. With the advent of ICT facilitated electronic payments, the prevalent payment systems uses electronic cards and machines such as Debit and Credit cards, Automated Teller Machines (ATM), Point of Sale (POS), Automated Clearing House (ACH), Electronic Fund Transfer (EFT), Real-Time Gross Settlement (RTGS), et cetera. So, the Payment system in Nigeria has metamorphosed over the ages with the emergence of new innovative technologies and some socio-economic factors accompanying modern businesses. Likewise, the payment systems in developed and commercially advanced countries and some emerging economies have changed with changing systems, technologies, instruments, institutions, customer preferences, et cetera. Hilili, (2005), posits that EFT products have been in use in Nigeria for domestic and large-value funds transfers particularly for securities settlements in the Automated Clearing House. Real-Time-Gross-Settlement (RTGS) systems have also been employed. Internationally, EFT is powered by Society for Worldwide Interbank Financial Telecommunication (SWIFT) network.

Presently in the Nigerian economy, the use of 'Cash' - legal tender currency (notes and coins) is core in the payment system. A very large proportion of business transactions are carried out in Cash. Virtually all small-value exchanges are cash-driven. So, Cash has become the most popular method of payment in the Nigerian system, though it appears to be the most costly instrument of payment and least profitable. The reason for the preference for Cash transactions is dominant as a result of the high level of dishonesty exhibited by cheque issuers. The situation has been made worst with the non-enforcement of the Dud Cheque Act which criminalizes the issuance of cheques on unfunded accounts (Ughulu, 2008). It is indeed on this note that the 'Cashless Policy' was enacted in Nigeria in 2012 to reduce the volume of cash transactions.

This brings us to the discussion on the Cashless policy introduced by the Central Bank of Nigeria (CBN). CBN Report(2012), introduced a new policy with regards to the handling of cash-based transactions. It stipulates that 'cash handling charges' on daily withdrawal that exceeded N500,000 for individual and N3,000,000 for corporate bodies will be paid by defaulters. The handling charge applies only to the amount with which the daily free limits are exceeded. From the monetary authority point of view, the policy was aimed at reducing, not eliminating physical cash (notes and coins) transactions. It means that the policy was aimed at encouraging more electronic-based transactions. From a socio-economic viewpoint, the Cashless policy was also aimed partly to curb some core vices or disadvantages associated with large cash usage. These vices include financial loss through robberies incidents associated with handling huge sums of cash, high cost of printing and minting notes and coins respectively which eventually leads to subsidizing the cost of Currency incirculation.

Other vices include leakages from the banking system that limit the ability of monetary policy in combating inflation, curbing money laundering amongst other fraudulent practices and prominently, distortion of the populace from imbibing banking habits that would allow the system to foster economic growth rapidly. From the foregoing, it is obvious that the policy was aimed at improving the Nigerian economy and creating a positive path for growth. It is not an exaggeration that over-dependence on cash for transactions implies that there are huge sums of currency either in circulation and or hoarded. These excess funds outside the banking system reduce the ability of banks to grant credit facilities to the productive sector and create deposit money that helps to invigorate economic activities. From this perspective, it is obvious that a nation that depends largely on Cash transactions is very likely to face many economic vices that have the potency to reduce the growth rate of the economy. How much influence the Cashless policy has had on Economic growth since its implementation is a core factor that this study seeks to explore.

The wealth of a nation depends largely on the state and the growth of its economy. It is a fundamental fact that economic growth attests to how efficiently the resources of the nation are being employed in productive activities. Amadeo (2019), posits that Economic growth is an increase in the production of services and goods over a specific period. To be very precise, the measurement of economic growth is in terms of Gross Domestic Product (GDP) and must exclude the effects of inflation to arrive at the most accurate measurement of growth. Economic growth so measured is referred to as real GDP, that is, the increase in market value (after adjustment of inflation) of all products (goods and services) produced for sale during a

specific or definitive time duration, usually one year.

GDP as a measure of the proportion of economic growth takes record of the entire output in goods and services in a country's economy. It is important to note that the sales of goods and services that constitute the output of a country are carried out via the payment system. Thus, efficient payment systems can facilitate higher sales that culminate into more output in terms of GDP. It is against this backdrop that this study seeks to appraise the relationship of Payment Systems, Cashless Policy and Economic Growth in Nigeria. In other words, it attempts to determine whether or not the Payment system and Cashless Policy are serving as authentic tools for economic growth in Nigeria.

1.1 Hypotheses Formulation

The central objective of the study is to empirically determine the relationship between the Payment Systems and Cashless Policy and Economic Growth in Nigeria. The relationship may help to infer or conclude the possible impact of these variables on economic growth. To enable this investigation, we formulate and specify below two null hypotheses.

HO1: The Payment Systems has no significant relationship with Economic growth in Nigeria

HO2: The Cashless Policy has no significant relationship with Economic growth in Nigeria.

1.2 Significance of the Study

The study explored the Payment systems, Cashless policy and Economic growth in Nigeria to analyze the relationship between the variables in the Nigerian economy. Though the scope of this research may be limited to Nigeria, the findings are of general application to world economies. Stakeholders in the economy,

Investors, Governments and members of Academia will find the research findings relevant in so many aspects. It is also hoped that the study will contribute immensely to the existing literature in this field of study.

2.0 REVIEW OF RELATED LITERATURE

Payment systems generally involve the settlement of trade dealings and claims domestically and internationally. It is perceived that the system has a far-reaching effect on socio-economic activities and particularly for the well being and economic goals of a nation. A strong and effective payment system can influence prices positively, reduce business transaction costs, enhance the operational efficiency of commerce and thus can improve the general productivity in the economy. Sharma (2015), averred that a strong payment system always facilitates effective economic growth. Somehow, this has been established beyond doubts in most highly developed nations and some emerging economies of the world. The impact of an effective and potent payment system on the economy lies in the consumption relationships or patterns. Economies with broad and all-embracing activities are capable of boosting the payment system to serve as a channel for circulating a large number of funds hitherto kept idle in the system. These funds stimulate the process of intermediation that enables the creation of deposit money by financial institutions. The availability of investible funds so derived will, in turn, invigorate economic activities through diversifications into otherwise unknown business frontiers. Overall, new ideas in businesses and investments emanate from diversifications and the growth process of the economy is fostered. With the advent of Information and Communications Technology (ICT), the Payment system has been somewhat

sub-divided into two categories, namely: the traditional payment system consisting of mostly paper instruments collectively referred to as 'Negotiable instruments' and the electronic payment system (e-payments) consisting of electronic cards and automated machines. The operations of these systems are interwoven in every economy, so our discussion is considering the effect of both systems on economic growth in Nigeria.

Without mincing words, the Nigerian economy is predominantly cash-based. 'Cash' is the most accepted and surest payment instrument and so it is the most widely used payment method. The cash phenomenon has dire implications for the economy. Large sums of money withdrawn to meet daily payment demands constitute serious leakage from the banking system and so hinder the intermediation process and banks' ability to create deposit money. Besides, cash is costly to print and distribute. So, large demand for it for daily transactions creates difficulties for monetary authorities particularly to provide enough of it to meet withdrawal obligations both in ATM stands and over-the-counter withdrawals. These are some of the reasons that informed the formulation of the Cashless policy in Nigeria. We highlight or bring to fore some of the cardinal goals of the policy as follows. CBN (2012) posits that the Cashless policy goals are aimed to:

- i. Drive the modernization and development of the payment system to meet Nigeria's vision 2020 economic goal.
- ii. Reduce the cost of rendering banking services particularly, the cost of credit and also invigorate financial inclusion by providing efficient transaction options.

- iii. Improve the efficacy or effectiveness of monetary policy in controlling inflation and stimulating economic growth.

We deduced from the above goals that the Cashless policy of the apex bank was primarily aimed to serve as an enabler or facilitator of economic growth in Nigeria. Indeed, efficient payment systems with reduced cash usage such as those found in the developed economies are positively correlated with vibrant economic growth and development. This attests to the fact that the Cashless policy can serve as a veritable tool of economic growth if effectively and efficiently implemented. World Bank Report (2012) affirmed that 'non-cash payments facilitate easier and faster transactions, enables businesses to trade on goods and services quickly and help to supply money into the system faster thereby contributing hugely to economic growth, otherwise, GDP increase'. Hasan, et al (2012) examined the fundamental relationship between electronic retail payment and economic growth and concurred that migration to efficient electronic retail payment stimulates overall economic growth, consumption and trade. Oginni, et al (2013) studied 'Electronic Payment System and Economic Growth' and the result of the study indicates that the e-payment system significantly and positively contributes to economic growth in terms of real GDP per capita.

The Nigerian payment system has been transforming and changing over the past decades like most other payment systems globally. These changes are largely in response to changing economic environments, and majorly to emerging innovative technologies. Indeed, the changing processes have not only induced growth in the economic activities but have also brought about innovations in financial operations and particularly in monetary

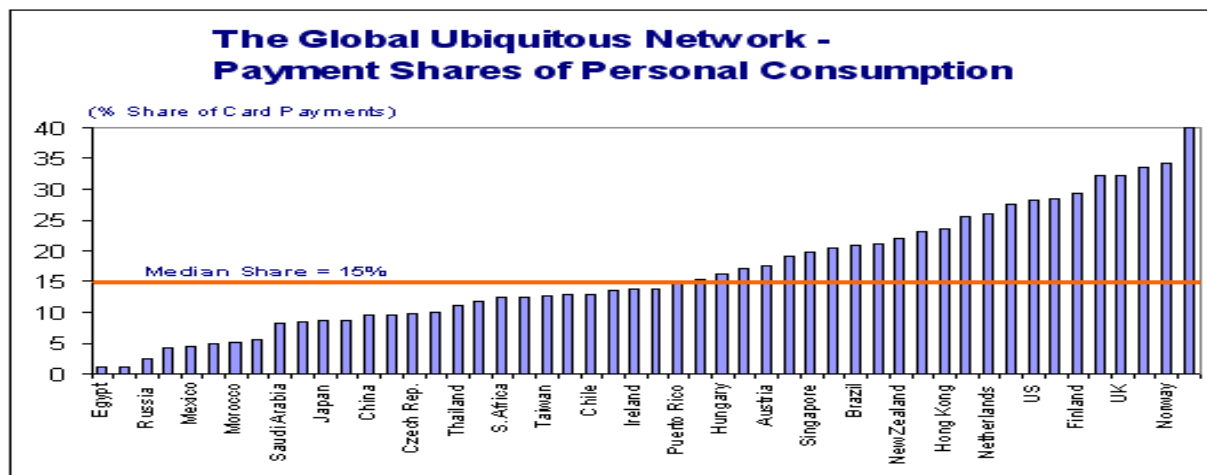
management. It is obvious that emerging technological innovations in electronic payments (e-payments) have provided competitive advantage opportunities to some businesses and easy expansion to others; all of these have bearings on economic growth. Be that as it may, the volume of cash transactions is still on the high side of the economy. Cash (currency – notes and coins) dominates the payment system options in Nigeria. Thus, Ughulu (2008), opined that as we now live in a technological-driven world, it is high time that the Nigerian business community begin to recognize the value that the new technological systems deliver when it comes to payment offerings. Presently, the adoption of electronic-based payment systems is growing fast in the Nigerian economy. E-payment electrical instruments and gadgets such as Automated Teller Machines (ATMs), Point of Sales (POS), Electronic Fund Transfers (EFT), Mobile banking facilities et, Cetera are everywhere. Following the Cheque Truncation System adopted in the banking system Automated Clearing House (ACH), the Real-Time-Gross-Settlement (RTGS) system is in operation for settling large-value payments. The RTGS system has been particularly useful in liquidity management in banks, settlement account monitoring, settlement processes, et, Cetera. The EFT system is powered by Nigeria Inter-Bank Settlement System (NIBSS) and so, it is referred to as NEFT. Internationally, EFT is powered by the Society for Worldwide Interbank Financial Telecommunication, (SWIFT) which caters for the network that empowers financial institutions globally to effect transfers and payment orders.

There are no doubts that several challenges are facing the adoption of e-payment in Nigeria; the major one being the fact that the economy to a very great extent is more on cash-driven transactions. It reflects business owners'

preference for cash against other forms of payment systems. This is so because several fraudulent practices have been associated with paper-based systems such as deliberate issuance of dud cheques, et cetera. The frequency of dud cheque issuance appears unabated because though the promulgation of 'Dishonoured Cheque (Offence) Decree No 44 of 1977 is in place, enforcement has been bureaucratically distorted. Even the e-payment systems have also been associated with so many sharp practices that are somewhat constituting a breach of confidence in the system. Besides, the infrastructural facilities notably electricity supply, ageing and dilapidating foreign appliances, machines, network and communication systems are in a deplorable state.

Globally, the benefits of Cashless transactions which are fast replacing the traditional paper-based systems are helping to re-shape the world economies. Markus, Sullivan, Strauß and Khan (2019) argued that Cash is no longer king, that economies that are more cash-intensive tend to grow slowly and miss out on significant financial benefits and that economies that switch to digital are more successful. The switch can boost annual GDP by as much as three percentage point. Global Insight and Visa International (GIVI) (2003), presented a study titled, *'The Virtuous Circle: Electronic Payments and Economic Growth*, at a meeting of the United Nation's Economic and Social Council in Geneva. Figure 2.1 exhibits the global ubiquitous network – payment shares of personal consumption in some of the countries studied.

Figure 2.1: The Global Ubiquitous Network - Payment Share of Personal Consumption.



Source: Global Insight and Visa International (GIVI); <http://www.ihsglobalinsight.com>

Global Insight and Visa International (GIVI) (2003) further argued that an analysis of 50 countries universally found that on average, an increase of just 10% in the existing share of card payments in a country would stimulate a 0.5% increase in consumer spending; that the use of electronic payments increases the efficiency and velocity of payments and has the potential to create cost savings of at least 1% of a country's GDP annually over a paper-based system.

3.0 RESEARCH METHODS

This section contains the research methods and techniques adopted in carrying out the empirical estimation of the study. Primarily, the section includes Research Design, Population and Sample Size; Data Analysis techniques, Theoretical Framework and Model Specification.

3.1 Research Design, Population and Sample size.

In this study, we adopted the 'Survey Design' as our research design. The target population of the study consists of professionals in financial

Institutions especially employees of Banking Institutions in the top and middle executive levels in Nigeria. However, a Sample population was studied to enable us to make logical inferences of general application to the target population. So, a sample size of five hundred (500) respondents made up of finance professionals and bank employees were randomly drawn from financial institutions, especially banking institutions selected from the six geo-political zones in Nigeria. The 'Random Sampling Techniques' was employed in sourcing our data because it is considered as the most appropriate method to obtain a fair view of the study population.

The sampling instrument employed is structured questionnaires that were randomly administered to the sample population. Each questionnaire contains two distinct segment tagged 'A' and 'B'. The segment labelled 'A' consists of the demographic data of each respondent and the segment labelled 'B' contains questions with answer options structured to conform to the 'Item-Specific-Response-Options (ISRO)' strategy. The ISRO strategy allows each set of

response options to conform to the specific survey question. There is now a consensus amongst researchers that the ISRO five-point rating scale is less bias-prone than the five-point Likert scale (Wronski, 2018). The ISRO five-point answer options range from: ‘Very affirmative; Somewhat affirmative; Neither affirmative nor negative; Somewhat negative and Very negative’. For this study, the answer options are weighted 5, 4, 3, 2 and 1 respectively.

3.2 Data Analysis Techniques, Theoretical Framework and Model Specification

Data obtained from the field survey which represent the frequencies of respondent’s responses to specific answer options were first presented in percentages in a tabular form. These data were represented using a pie chart to clearly distinguish their magnitude. However, the data analysis technique adopted for this study is Pearson’s Product-Moment Correlation Coefficient (PPMCC) denominated by ‘r’. PPMCC (r) is a remarkably employed method of calculating the correlation coefficient between linearly related variables. It defines the extent or strength and direction of the relationship that exists between two or more variables. In other words, ‘r’ measures the strength and gives the direction of the linear relationship between the variables. While the strength may be represented by a numeral or percentile, the direction may be positive or negative. Positive direction means that an increase or decrease in the numeric quantity or percentile of one variable leads to a corresponding increase or decrease in the numeric quantity or percentile of the other variable. The negative direction means that while one variable increases in the numeric quantity or percentile the other variable decreases and the reverse is the opposite. According to (Oaikhenan and Udegbuma; 2004), positive values of ‘r’ portends a positive linear relationship while negative values portend

a negative linear relationship. Thus, for two variables represented by X and Y, the Pearson’s Product-Moment Correlation Coefficient (PPMCC) or ‘r’ is given in equation 1 as:

$$r = \frac{\sum (X - \bar{X})(Y - \bar{Y})}{\sqrt{\sum (X - \bar{X})^2 \sum (Y - \bar{Y})^2}} \quad \dots \quad (1)$$

Where r = Pearson’s Product-Moment Correlation Coefficient (PPMCC)

X = Weighted response options

Y = Frequency of response options

\sum = Summation sign

\bar{X} = Mean of weighted response options

\bar{Y} = Mean of frequency of response options

Equation 1 as displayed appears cumbersome to manipulate numerically. To ease the derivation of ‘r’, Oaikhenan and Udegbuma (2004) provided a less complex equation as shown in equation 2. Therefore, the value of ‘r’ in this study is computed using equation 2 given as:

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} \quad \dots \quad (2)$$

Where $x = X - \bar{X}$ and

$y = Y - \bar{Y}$

3.2.1 Decision guide:

- ◆ Depending on the strength and direction of the linear relationship, PPMCC or ‘r’ may assume values from -1 to 1 (i. e., $-1 \leq r \leq 1$).
- ◆ If $r = 0$, then it is zero correlation and no relationship between the variables.

- ◆ When r is 1, it indicates a perfect linear relationship. The closer r is to 0, the weaker the linear relationship. When r is less than 1, it indicates a negative relationship.
- ◆ If r is squared, the product is the Coefficient of determination (r^2) which gives information about the goodness of fit of the model.

4.0 DATA PRESENTATION AND ANALYSIS OF RESULTS

4.1 Presentation of Data

We formulated two hypotheses in section 1 that are tested in this section to enable us to make valid inferences. Structured in line with Item-Specific Response Options (ISRO) strategy, five hundred (500) questionnaires were distributed; however, four hundred and twenty copies (420) were retrieved constituting a response rate of 84%.

Question three (3) in the structured questionnaire relates to ‘Payment systems and Economic growth in Nigeria. The question is considered appropriate to test hypothesis 1 (Ho1). It states as follows:

‘How satisfied or dissatisfied would you say that the Payment systems are serving as veritable tools for enhancing Economic growth in Nigeria?’

Table 4.1: Response frequencies to Payment Systems and Economic growth in Nigeria.

Response Options	Response Frequency	Percentage (%)
Very satisfied	90	22%
Somewhat satisfied	260	62%
Neither satisfied nor dissatisfied	10	02%
Somewhat dissatisfied	30	07%
Very dissatisfied	30	07%
Total	420	100%

Source: Field Survey, December 2020.

The response frequencies in the figure and percentage are shown in table 4.1. The data obtained as response frequencies were first presented in a tabular form and represented with a Pie chart for clarity. The Pie chart representation of the above table is displayed in figure 4.1. The table and the chart revealed that 22% of respondents are ‘Very satisfied’, meaning that the Payment systems in Nigeria are serving as veritable tools for Economic growth. This proportion compared to total respondents appears moderate. However, 62% of them are ‘Somewhat satisfied’, so the total proportion of satisfied respondents stood at 84%. This proportion of respondents is high enough to reject the null hypothesis and affirm that the Payment system is impacting positively on Economic growth in Nigeria.

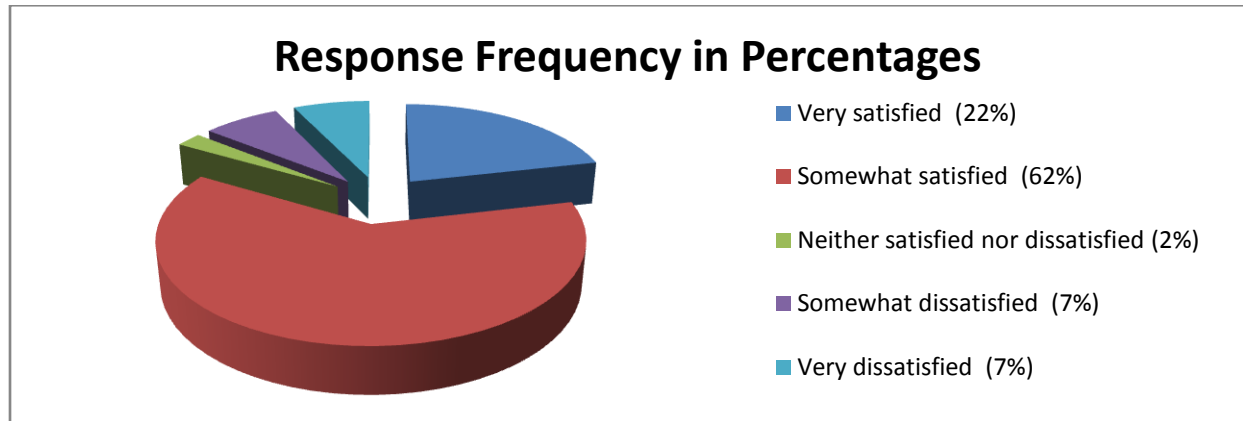


Figure 4.1: Pie Chart Representation of Payment Systems and Economic growth in Nigeria.

Source: Researchers’ computation using field survey data, December 2020.

Question Eight (8) in the questionnaire relates to the ‘Cashless policy and Economic growth in Nigeria. The question is also considered appropriate to test hypothesis 2(Ho2). It states as follows:

‘How satisfied or dissatisfied would you say that the Cashless policy is serving as a veritable tool for enhancing Economic growth in Nigeria?’

The response frequencies and percentages of response options to ‘Cashless policy and Economic growth’ in Nigeria are shown in table 4.2.

Table 4.2: Response frequencies to Cashless Policy and Economic growth in Nigeria.

Response Options	Response Frequency	Percentage (%)
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Very satisfied	32	08%
Somewhat satisfied	198	47 %
Neither satisfied nor dissatisfied	92	22%
Somewhat dissatisfied	08	02%
Very dissatisfied	90	21%
Total	420	100%

Source: Field Survey, December 2020.

The data percentages of response frequencies shown in table 4.2 for Cashless policy and Economic growth in Nigeria are represented in a Pie chart as displayed in figure 4.2.

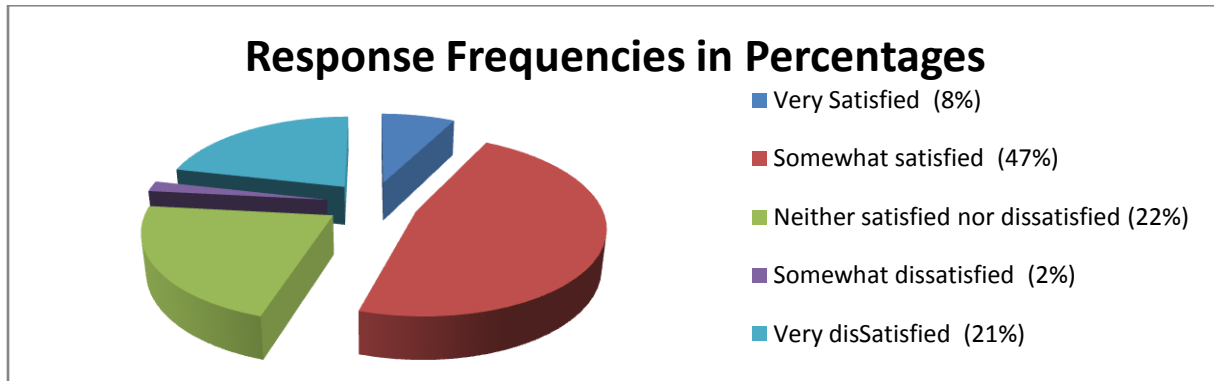


Figure 4.2: Pie Chart Representation of Cashless Policy and Economic growth in Nigeria

Source: Researchers’ computation using field survey data, December 2020.

The table for the variables, Cashless Policy and Economic growth in Nigeria shows the proportions of respondents who are very satisfied and somewhat satisfied to be 8% and 47% respectively. Together, both stood at 55%. The results show that the total proportion of those satisfied is just fairly above the total proportion of those in doubt or neutral, somewhat dissatisfied and very dissatisfied which stood at 45%. This outcome of result led us to conclude that the Cashless policy has only moderately or averagely enhanced Economic growth in Nigeria. This is because just a fair proportion of respondents are of the view that the Cashless policy has enhanced economic

growth in Nigeria. This result is rather unique and though positive it is not as much as we had expected. However, the finding seems relevant because transactions in the Nigerian economy still appear to be more cash-based, though electronic payment systems are already put in place.

4.2 Data Analysis and Hypotheses Testing

4.2.1 Testing Hypothesis 1 (Ho1):

The derivation of products of variables for the computation of PPMCC, ‘r’ for Payment systems and Economic growth is as shown in table 4.3.

Table 4.3: Derivation of products for the variables: Payment systems and Economic growth.

	X	Y	$x = X - \bar{X}$	$y = Y - \bar{Y}$	XY	x^2	y^2
Very satisfied	5	90	2	6	12	4	36
Somewhat satisfied	4	260	1	176	176	1	30976
Neither satisfied nor dissatisfied	3	10	0	-74	0	0	5476
Somewhat dissatisfied	2	30	-1	-54	54	1	2916
Very dissatisfied	1	30	-2	-54	108	4	2916

Total (Σ)	15	420	00	00	350	10	42320
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Source: Researchers' computation, December 2020.

The data in table 4.1 and equation 2 of our specified model are utilized to compute the Pearson's Product-Moment Correlation Co-efficient (PPMCC) denominated by 'r' for Payment systems and Economic growth in Nigeria. Computation of PPMCC, 'r' is shown below and the result will enable us to appraise and analyze the relationship between the variables.

$$\text{Since } \bar{X} = \frac{\sum X}{n} = \frac{15}{5} = 3$$

$$\text{and } \bar{Y} = \frac{\sum Y}{n} = \frac{420}{5} = 84$$

From equation 2;

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{350}{\sqrt{10 \times 42320}} = \frac{350}{650.54} = 0.5380$$

Therefore the Coefficient of Determination (r^2)
= $(.5380)^2 = 0.2894$ or 28.94%

From the above results, the Pearson's Product-Moment Correlation Co-efficient (PPMCC) denominated by 'r' for the variables Payment systems and Economic growth stands at 0.5380 and the Coefficient of Determination (r^2) is 0.2894. The implications of these results are discussed in section 5.1 below.

4.2.2 Testing Hypothesis 2(Ho2)

The data in table 4.2 and equation 2 of the specified model were employed in computing Pearson's Product-Moment Correlation Co-efficient (PPMCC) or 'r' for Cashless policy and Economic growth in Nigeria. The product will enable us to interpret the level of the linear relationship between them. Table 4.4 shows the derivation of products of variables for Cashless Policy and Economic growth.

Table 4.4: Derivation of products for the variables: Cashless Policy and Economic growth.

	X	Y	x = X - \bar{X}	y = Y - \bar{Y}	XY	x²	y²
Very satisfied	5	32	2	-52	-104	4	2704
Somewhat satisfied	4	198	1	114	114	1	12996
Neither satisfied nor dissatisfied	3	92	0	8	0	0	64
Somewhat dissatisfied	2	08	-1	-76	76	1	5776
Very dissatisfied	1	90	-2	6	-12	4	36

Total (Σ)	15	420	0	0	74	10	21576
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Source: Researchers’ computation, December 2020.

The computation of PPMCC or ‘r’ for Cashless policy and Economic growth in Nigeria is as follows:

$$\text{Since } \bar{X} = \frac{\sum X}{n} = \frac{15}{5} = 3$$

$$\text{and } \bar{Y} = \frac{\sum Y}{n} = \frac{420}{5} = 84$$

$$\text{From equation 2; } r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{74}{\sqrt{10 \times 21576}} = \frac{74}{464.50} = 0.1593$$

Therefore the Coefficient of Determination (r^2) = $(.1593)^2 = 0.0254$ or 2.54%

The above results mean that the Pearson’s Product-Moment Correlation Co-efficient (PPMCC) or ‘r’ of Cashless policy and Economic growth stands at 0.1593 and the Coefficient of Determination (r^2) is 0.0254 or 2.54%. The implications of these results are interpreted as per the discussions below.

5.0 DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion of Findings

This study appraised the Payment systems, Cashless policy and Economic growth in Nigeria. It is aimed to determine whether or not the explanatory variables, Payment systems and Cashless policy are veritable tools for Economic growth in Nigeria. For this purpose, two null

hypotheses were formulated, tested and analyzed using a Pie chart, Pearson Product-Moment Correlation Coefficient (PPMCC) ‘r’ and Coefficient of Determination (r^2). We wish to reiterate that the parameters ‘r’ and r^2 attest to the extent of a linear relationship and the degree of variation that the explanatory variables can explain in the dependent variable respectively. For hypotheses 1 (H01), the Pie chart showed that 22% of respondents were very satisfied and 62% of respondents were somewhat satisfied that the Payment systems in Nigeria are serving as veritable tools for enhancing economic growth. This shows that the total proportion of respondents that are in the ‘Satisfied’ category is 84%. It suggests that the Payment systems are improving economic activities and thus enhancing economic growth in Nigeria. The magnitude of this result is high enough to reject the null hypothesis and accept the alternate hypothesis that the Payment systems have a strong and positive relationship with Economic growth in Nigeria. On the other hand, the estimated value of Pearson’s Product-Moment Correlation Co-efficient (PPMCC) or ‘r’ for the variables Payment systems and Economic growth stood at 0.5380. The ‘r’ coefficient as displayed exhibits a positive sign and with a value of 0.5380, it implies a relatively strong positive relationship between the variables. From our decision guide, it could be said that the relationship between Payment systems and Economic growth in Nigeria is on average or fairly strong. The Coefficient of Determination (r^2) stood at 0.2894, meaning that the Payment systems were only able to explain 28.94% variation in Economic growth in Nigeria.

The results of hypotheses 2, (H02) showed different characteristics. The total percentages of respondents who are ‘Very satisfied’ and

'Somewhat satisfied' stood at 8% and 47% respectively. Thus the 'Satisfied' categories of the two mentioned options put together give a total of 55% of respondents that are positively attesting to the fact that the Cashless policy in Nigeria is serving as a significant tool for enhancing economic growth. The remaining 45% is made up of those in doubt – 'Neither satisfied nor dissatisfied' (22%), 'Somewhat dissatisfied' (2%) and 'Very dissatisfied' (21%). Besides, the Pearson's Product-Moment Correlation Co-efficient (PPMCC) 'r' and the Coefficient of Determination (r^2) stood at 0.1358 and 0.0185 respectively. From our decision guide, we noted that the closer r is to 0, the weaker the linear relationship. We, therefore, deduce from this that the linear relationship between Cashless policy and Economic growth in Nigeria is rather very weak, meaning that the impact of Cashless policy on economic growth is very negligible. Besides, the explanatory variable, namely Cashless policy was only able to explain a 1.85% variation in Economic growth. These results counter a priori expectation as the Cashless policy variable failed the test of significance. Based on this result, it could be affirmed that Cashless policy may not be relevant in formulating policies that would affect Economic growth in Nigeria.

5.2 Conclusion.

We based our conclusion on the findings from this research study. We deduced from reviewed literature that efficient Payment systems and a well-implemented and managed Cashless policy could serve as authentic tools to boost Economic growth in any nation's economy. Indeed, evidence from the response frequencies for hypotheses 1 (H_01) displayed in a Pie chart showed that 84% of the total proportion of respondents are satisfied that Payment systems in Nigeria are facilitating and promoting Economic growth. This degree or magnitude of

respondents led us to reject the null hypothesis of no relationship and accept the alternate hypothesis. Thus we concluded that there is a linear relationship between Payment systems and Economic growth in Nigeria.

More importantly, the Pearson's Product-Moment Correlation Co-efficient (PPMCC) denominated by 'r' had a mid-point value of 0.5380. This suggests to some extent that the linear relationship between the Payment systems and Economic growth may be moderate. The overall model Coefficient of Determination (r^2), stood at 0.2894 meaning that the variable - Payment systems were only able to explain 28.94% variation in Economic growth in Nigeria. This led us to conclude that there is a positive linear relationship between Payment systems and Economic growth in Nigeria, though the strength of the relationship appears moderate owing to the magnitude of the Coefficient of Determination or (r^2).

Secondly, the evidence from hypotheses 2 (H_02) displayed in a table and a Pie chart appears to suggest that the impact of the Cashless policy on Economic growth in Nigeria is relatively low. Specifically, the total percentages of respondents who are 'Very satisfied' and 'Somewhat satisfied' stood at 8% and 47% respectively, thus making a total of 55% of respondents that are positively attesting to the fact that the Cashless policy in Nigeria is serving as veritable tools for facilitating and enhancing economic growth. Besides, the Pearson's Product-Moment Correlation Co-efficient (PPMCC) 'r' and the Coefficient of Determination (r^2) stood at 0.1358 and 0.0185 respectively. Since the closer r is to 0, the weaker the linear relationship, we, therefore, concluded that the linear relationship between Cashless policy and Economic growth in Nigeria is relatively weak; that the impact of Cashless policy on Economic growth in Nigeria

is very negligible and to some extent insignificant.

5.3 Recommendations

Based on the findings from this study, we bring forward the following recommendations with the hope that their implementation or application would impact positively the economy. We concluded that there is a strong linear relationship between Payment systems and Economic growth in Nigeria, but the strength of the relationship appears moderate. What then could be responsible for this situation? We deduced from the study that efficient fraud-free Payment systems are capable of invigorating economic activities. In practice, however, it has been observed that Payment systems especially the electronic systems in Nigeria are prone to fraud. The obvious truth is that the adoption of most of the electronic payment systems is with mixed feelings of fear of sharp practices prevalent in their usage. Indeed, many economic agents in Nigeria do not accept the transfer of funds as a means of settlement or payment for goods and services as several fake transfers have been reported. This may explain the moderate performance revealed in the study. Therefore, our first recommendation is that deliberate measures must be put in place by economic stakeholders to fortify the security system in banking payment channels. It is hoped that meeting the securities required to keep clients funds safe will alleviate fear and this will ultimately help users to build confidence in the system and possibly enhance and encourage more usage.

Secondly, physical cash transactions are still on the high side. The payment system is still cash-based, thus limiting the effects of the Cashless policy. Withdrawals at ATM stations far exceed POS transactions or local EFT transactions. The excessive use of cash hinges on a lack of trust, integrity and confidence amongst economic

agents. Excess cash held by members of the public constitutes leakages in the financial system with accompanying vices. It constrains financial institutions ability to create deposit money, results in cash hoarding, encourages robbery acts and other fraudulent vices in society. To curb these serious and limiting vices against the Payment system and Cashless policy, we recommend the enforcement of punitive measures on defaulter of Cashless policy guidelines either by government or monetary authority by instituting and effecting the enabling laws and statutes.

Thirdly, financial institutions transactions are now automated, complex to some degree and appear efficient and fast. These innovations appear to have grown faster than most banking clients – the users' knowledge. This has hindered the adoption of banking applications with a resultant effect on the Payment systems and Cashless policy. Most importantly, most clients have not imbibed banking culture to rely solely on the system for all transactions, to make use of cheques always or being able to manipulate complex banking appliances that the present modern innovation require. We, therefore, recommend that financial institutions should organize workshops and seminars for their clients to educate and sensitize them on the effective use of banking appliances. This may boost especially the usage of electronic payment systems and increase the adoption of Cashless policy. This has a positive bearing on economic activities and ultimately, it would lead to positive growth in the economy.

We have no doubts that the results in this research study will add to the body of knowledge in the field of Management because the findings have important policy implications for economic stakeholders in Nigeria and of general applications in global economies.

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