THE IMPACT OF CRYPTOCURRENCY ON THE NIGERIAN ECONOMY: AN ANALYSIS OF ACCEPTANCE AND REGULATORY CHALLENGES

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ABSTRACT

This article explores the concept of cryptocurrency and its impact on the Nigerian economy. It highlights the origins of cryptocurrency and its emergence during the global financial crisis in 2008. The article discusses the challenges faced by cryptocurrency, including its association with illegal activities. It also examines the acceptance and adoption of cryptocurrency in Nigeria, highlighting the lack of regulatory frameworks from the Central Bank of Nigeria (CBN) and the growing popularity among Nigerians. The potential benefits and risks associated with cryptocurrency are discussed, including its potential to bypass traditional financial systems and the need for regulatory responses. The article presents data from a survey conducted among Nigerian crypto-currency traders, using Google questionnaires, regression analysis, bar charts, percentage analysis and students t test which provides insights into the acceptance and usage of cryptocurrency in the country. The findings reveal a significant number of active cryptocurrency users in Nigeria. The article concludes by emphasizing the need for the Nigerian government to develop policies and regulations to address the challenges and harness the potential benefits of cryptocurrency for the economy.

Keywords: Cryptocurrency, Nigerian economy, regulatory challenges, digital currency, financial market, tax implications.

INTRODUCTION

The crypto currency concept was introduced 46 days after the bankruptcy of the Lehman Brothers, the event marks the beginning of one of the biggest financial crisis in the human history (Arvind(2016)), and it took a long time ignored by the general public before being accepted and understood. During the time when many executives, law makers and managers were trying to define effective and preventive measures or practices to bring the economy back to a stable state, a small group of engineers decided to bring the crypto currency idea to reality. Unfortunately, a group of bad peoples also emerged since they realized that there is a huge value proposition for illegal practices offered by the new concept. In January 2009, Bitcoin was created by pseudonymous developer Satoshi Nakamoto. It used SHA-256, a cryptographic hash function, in its proof-of-work scheme. In April 2011, namecoin was created as an attempt at forming a decentralized DNS. In October 2011, Lite-coin was released which used script as its hash function instead of SHA-256. Peer-coin, created in August 2012, used a hybrid of proof-of-work and proof of stack.

ChineduAnannaya, (2021) in his work opined that the universal financial system absolutely accepted the current evolution from physical currency to almost virtual currencies through the medium of technology. However, there have been many attempts at producing a digital currency during the 90s tech boom. Bitcoin idea was introduced in early 2009 by a group of programmers under the alias Satoshi Nakamoto. Cryptocurrency is described as a digital record keeping device that uses balances to keep track of trading obligations, which is publicly known to many cyrpto traders. Some of the forms of crypto currencies include Ethereum, Bitcoin, solana etc. However, since the introduction of Bitcoin in 2009, several private cryptocurrencies have been introduced, but Bitcoin has been generally adjudged as the most successful one (Chika (2021)).

Crypto-currencies are mainly designed to function without independent regulation and are protected from being exposed to government authorities for control. Moreover, many central banks begin to discover the adoption of block chain technologies and crypto-currency for retail and large-value payments. Admission of crypto-currency into the Nigerian financial sector is gaining wide popularity but with the fears and

doubt about its functionality since no regulatory framework from the apex bank exists. But there is a broad call for Central Bank of Nigeria to begin a proper regulatory action. Nevertheless, it is appropriate to note that the Central Bank of Nigeria financial policy restrictions on foreign exchange have steered Nigerians to modernize bitcoin to access foreign exchange. Hence, eliminating the currency would be seen as unreasonable and unworthy of a country that seeks to promote domestic innovation.

According to Ciupa (2019) the concept has been around since 2008, and thousands of new constructs was created since, it is still a highly nascent and undiscovered area. The continuously growing complexity has not prevented new traders from entering the crypto-currency market. This caused the popularity of crypto-currencies to soar high especially during the 2015-2017-time period, and pushed their prices to unimaginable levels, with Bitcoin price reaching almost USD 20,000 at the end of 2017. Typical characteristics of crypto-currencies such as decentralization, their inherit global character, anonymous or pseudo-anonymous nature, together with the initial lack of any regulations for their field of operation, have led to the situation in which crypto-currencies started being considered as an interesting mechanism for those wishing to bypass the law and commit illicit acts such as money laundering, dark market payments, even terrorist financing and illegal transactions. As a result, various governing bodies on national and international levels, added crypto-currencies to their agendas, trying to define measures which should be undertaken in order to stop this illicit usage and to provide some guidelines, allowing for their sustainable and legal development. But while crypto-currencies moved from garage laboratories to international conferences and board meetings, being discussed by representatives of private and public sectors as well as individuals, it still largely remains an open topic and not much clarity has been proposed so far.

Crypto is a digital currency that does not rely on any central authority to uphold or maintain it. Instead, transaction and ownership data is stored in a digital ledger using distributed ledger technology, typically a block chain. However, when a crypto currency is issued by a single issuer or minted or created prior to issuance, it is generally considered centralized. Despite the name, crypto currencies are not considered to be currencies in the traditional sense and while varying treatments have been applied to them, including classification as commodities, securities, as well as currencies, crypto currencies are generally viewed as a highly asset class in practice. Unlike paper money, crypto currency does not exist in physical form and is typically not issued by a central authority. Crypto currencies typically use decentralized control as opposed to a central bank digital currency (CBDC). Traditional asset classes like currencies, commodities, and stocks, as well as macroeconomic factors, have modest exposures to crypto currency returns. The first modern crypto currency was Bitcoin, which first released as open-source software in 2009. As of March 2022there were more than 9,000 other crypto currencies in the marketplace, of which more than 70 had a market capitalization exceeding $1 billion.

The rising nature of crypto-currencies and its prospect is causing some concern to stakeholders such as the banks, the government and its agencies, companies, practicing accountants, and some individuals. The emergence of crypto-currencies presents some moments of thought in Nigerians and the government. This made the Central Bank of Nigeria (CBN) to caution Nigerian citizens against embracing privately issued crypto-currencies in Nigeria. Though there are some potential benefits for the use of crypto-currencies for the Nigerian economy. There are various types of crypto-currencies circulating in the world but the two largest and widely used crypto-currencies are Bitcoin and Ethereum. Crypto-currencies are the main objectives of the study because it is becoming most widely used and accepted as a means of payments.

The crypto-currency scheme carries attributes of a payment system in that it facilitating the transfer of value between two or more parties. Unlike traditional payment system which typically involves the transfer of value denominated in sovereign currency such as the Naira, crypto currency has its own metric for value. In essence a crypto-currency is an electronic token without reference to any underlying commodity or sovereign currency. The use of crypto currency has an implication and a threat to central banks historical exclusive right to issue money and control the money supply which ability has the benefit of ensuring an efficient monetary policy transmission mechanism. If the demand for

crypto-currencies increases significantly, it would lead to the creation of a parallel and ultimately fragmented monetary system which would not be good for the CBN. Also the crypto-currency's environment is exposed to potential financial and consumer risks, hence the need for government to develop a policy and regulatory response to crypto assets activities. However, Bitcoin and other crypto currencies perform similar financial sector activities without the need for third-party intermediary and with adequate safety mechanism with the aid of the cryptography technology. More than 3 million people (three times previous estimates) are estimated to be actively using cryptocurrencies like Bitcoin, finds the first global crypto currency benchmarking study by the Cambridge Centre for Alternative Finance (Tania Ziegler(2020). The report shows that crypto currencies is broadly defined as digital assets using cryptography to secure transactions between peers without the need for a central bank or other authority performing that role – are increasingly being used, stored, transacted and mined around the globe. The Global Crypto currency Benchmarking Study gathered data from more than 100 crypto currency companies in 38 countries, capturing an estimated 75 per cent of the crypto currency industry.

Prior to this research, little hard data existed on how many people around the world actively use crypto currencies. The conventional wisdom has been that the number of people using bitcoin and other crypto currencies was around 1 million people; however, based on newly collected data, including the percentage of the estimated 35 million crypto currency "wallets" (software applications that store crypto currencies) that are in active use, the CCAF research team estimates that there at least 3 million people actively using crypto currency today. While Bitcoin remains the dominant crypto currency both in terms of market capitalization and usage, it has conceded market cap share to other crypto currencies has declining from 86 per cent to 72 per cent in the past two years. The creation of crypto-currency as a cybernetic currency has been generating reactions in the global economy such as a country like Nigeria. There has been countless advantage and disadvantage discourse on crypto-currencies' importance on the Nigerian economy. However, the Nigeria government through its governing agencies such as the Central Bank of Nigeria and the Securities and Exchange Commission has tried to place a ban on crypto-currency. However, its legal status remains unclear, unlike in countries like Morocco and Algeria where there is an explicit prohibition on trading in Crypto-currencies such that a breach attracts fines and possibly jail terms. The cautions are primarily designed to educate the citizens about the difference between accepted currencies issued and guaranteed by the state and crypto-currencies, which are not following the moves taken by the Central Bank of Nigeria and the Securities and Exchange Commission, lawmakers have also advised the regulatory authorities to bring up efforts in presenting a legal regulations for crypto currencies in Nigeria.

Economy with an underdeveloped financial market, the activity of crypto currency may be challenging to regulate and as such may provide the platform for investors, both individuals and corporate bodies to stop paying tax thereby resulting in a low-income generation for government relative to the level of activities in the market which could affect the budgetary plans of the government. However, in an economy with a highly developed financial market, the suitable management of crypto-currency might result in an increase in revenue generation through a tax which would enhance the budgetary plans of the government. Moreover, crypto-currencies operate alongside official currencies. The current volumes are small and do not challenge the position of official money as the main currency. But as algorithms improve to limit the volatility of crypto-currencies, their popularity and use tend to increase every day. This would lead to coexistence with other official currencies. The relations between crypto-currencies and central bank monetary policy is treated in detail by Vaishnavi B, Aditya (2018). Their theoretical model predicts that the central bank and private money's existence movement on the monetary policy the former follows. In specific, privately-issued currencies would have be used if the official currencies do not ensure price stability but would lose their value as a medium of exchange when the central bank credibly guarantees the real value of money balances. Nonetheless, from a practical viewpoint, central banks could face certain risks from the advent of crypto-currencies as relevant mediums of exchange with stable purchasing power due to their high volatility level.

This study was conducted online through the use of Google form across Nigeria crypto traders and the aim is to determining the effect of crypto-currency on the Nigerian economy with the objectives of determining the acceptance of

crypto-currency in Nigerian and to also determine the relationship between the Nigeria economy and trade of crypto-currency.Rizviet al (2022) evaluate the safe haven properties of various financial assets including Green financial products, Islamic assets, and Cryptocurrencies, along with traditional safe haven assets like Gold, Silver, and Treasuries. The study finds that US Treasury, cryptocurrencies, and gold emerged as safe-haven assets under bearish or extreme volatility periods, while Green and Islamic Bonds only act as a safe haven during normal market conditions.Ahmed (2022) investigates the robustness of various factors that affect the price of Bitcoin using extreme bounds analysis. The findings suggest that crypto market forces of supply and demand, public interest, and economic policy uncertainty are the only variables robust to all possible variations in the conditioning information set.Rathore (2022) proposes a new model called Fbprophet for predicting the future price of bitcoin, which is superior in functionality as compared to LSTM and ARIMA models. The model is constructed by fitting the seasonality and smoothing, which can be useful for real-world use cases. Shin & Rice (2022) critically assess the sociopolitical ramifications of cryptocurrency and identify key features and conceptualize issues to unlock opportunities to guarantee a sociotechnical approach to blockchains. The authors argue that cryptocurrency is a sociotechnical system that constitutes new and important objects of social inquiry that must be addressed beyond the myopic context of a financial asset.

In their paper,Hsieh & Brennan (2022) discuss the challenges and risks associated with auditing crypto asset transactions. It provides an audit framework for addressing these issues and is a valuable resource for auditors engaged in crypto asset transactions.The paper by Marthinsen & Gordon (2022) proposes the creation of a customized cryptocurrency called HACC (Hyperinflation Alternative Cryptocurrency) with specific attributes designed for nations suffering from hyperinflation to transition to a more stable monetary environment. The HACC would curtail a central bank's ability to finance government deficits and incentivize them to manage their financial risks more prudently.Kok et al (2022) propose a Pre-Encryption Detection Algorithm (PEDA) that can detect crypto-ransomware at the pre-encryption stage, before any encryption has been done. PEDA provides two levels of detection, one using a signature comparison with a known cryptoransomware's signature and the other using a Learning Algorithm (LA) that can detect crypto-ransomware based on pre-encryption application program interface (API). A paper proposes a multidimensional, holistic conceptual framework of trust in crypto-tokens decentralized applications (DApp) from the perspective of the consumer. The framework can be used by policymakers, educators, exchange platforms, DApp developers, and entrepreneurs to develop strategies that cultivate on the drivers of trust, and create value with crypto-tokens and Web3.0 economies (Toufaily, 2022). The paper by Benigno et al (2022) analyzes a two-country economy with complete markets, featuring two national currencies as well as a global (crypto)currency. The authors show that if the global currency is used in both countries, the national nominal interest rates must be equal and the exchange rate between the national currencies is a risk-adjusted martingale, which implies the risk of approaching the zero lower bound or the abandonment of the national currency.Scharnowski (2022)analyzes the market reaction of cryptocurrency investors to central bank speeches regarding central bank digital currencies (CBDCs). The results suggest that traders do not view CBDCs as a threat to cryptocurrencies, and positive stances on CBDCs are interpreted as favorable signals for other forms of digital currencies as well.

Materials and methodology

CHI-SQUARE

The Chi-square test of independence (also known as the Pearson Chi-square test, or simply the Chi-square) is one of the most useful statistics for testing hypotheses when the variables are Nominal, as often happens in clinical research. Unlike most statistics, the Chi-square (χ^2) can provide information not only on the significance of any observed differences, but also provides detailed information on exactly which categories account for any differences found. Thus, the amount and detail of information this statistic can provide renders it one of the most useful tools in the researcher's array of available analysis tools. It is express as

$$\chi^2_{cal.} = \sum_i^n \sum_j^k \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

REGRESSION ANALYSIS

Regression analysis is the study of the relationship between two variables. The relationship is shown with a scatter diagram on

which line or Curve of best fit can be drawn. The line or curve can be drawn using an equation known as regression equation. It is through the regression equation the nature of the relationship between the two variable are known.

The linear regression Model is given by:

$$y_i = a + bx_i + e_i$$

$\hat{a}$ and $\hat{b}$ are called parameters of the model is called the order of the model. They are estimated as:

$\hat{a} = \bar{y} - \hat{b}x$

$\hat{b} = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2}$

INDEPENDENT SAMPLES T-TEST

The independent samples t-test, also known as the two-sample t-test or the unpaired samples t-test, is the most commonly used form of the t-test. It is used to compare the means of two sets of data. When the independent samples t-test is used to compare two samples from the same population, the means of both are generally identical. However, when used to compare samples taken from different populations, the means of the samples often differ. This test, therefore, helps researchers determine whether or not there is a difference in the mean of two samples, as well as the extent of the difference between them; t test is given as:

$$t = \frac{(\bar{X}_1 - \bar{X}_2) - (\mu_1 - \mu_2)}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

A Confidence interval for the difference between two means specifies ranges of the values within which the difference between the means of the two population may lie. The difference between the means of the two population can be estimated based on the following formula:

Difference in population means = Difference in sample means +/- T*standard error.

$$(\bar{X}_1 - \bar{X}_2) \pm t_2^{\alpha}.v\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}$$

Where $v = n_1 + n_2 - 2$

In above formula, the standard error is the square root term

DATA ANALYSIS

Fig.1: The chart below shows the percentage of age distribution of the respondent's

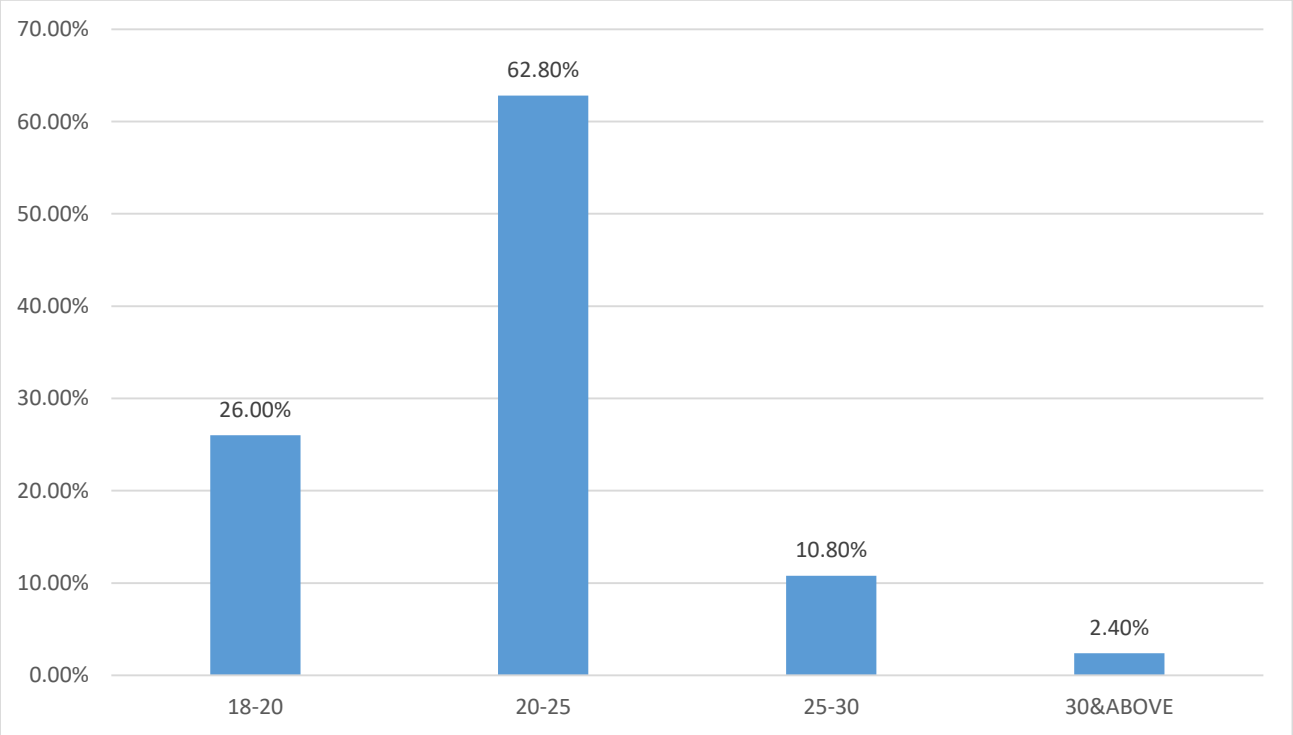

Fig.1 chart of Age distribution and acceptance of crypto currency

From the above chart of age distribution, its revealed that (62.8%) are respondentsbetweenages20-25years,(26%) are respondentsbetweenages18-20 years (10.8%)arerespondentsbetweenages25-30years, and(2.4%) are respondents above 30years. This show the modal age of the respondents is within age 20-25.

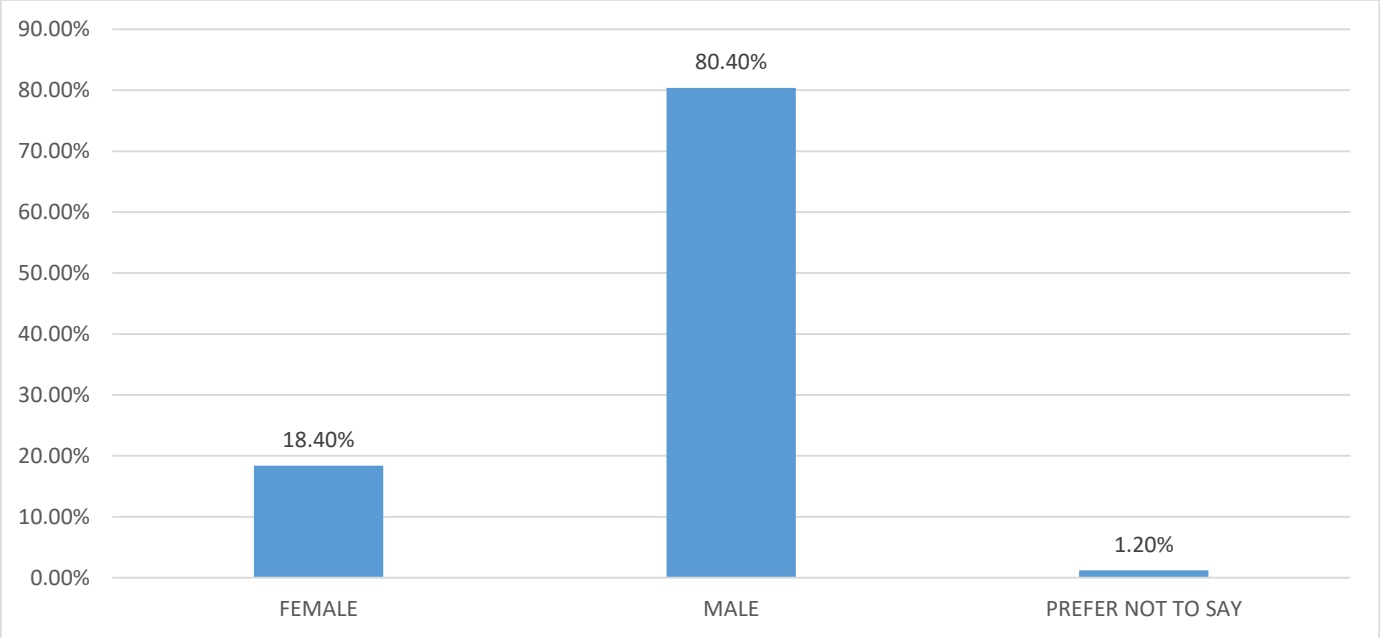

Fig.2: Chart percentage of gender distribution of the respondents

The distribution of gender reveals that male respondents were (80.40%), female respondents were (18.40%), and (1.20%) prefer not to say their gender as shown above. Despite the 62% difference between the two genders, data obtained represents a poor and unbalanced opinion of both genders.

Table 1: the table below shows the percentage and frequency of the respondents based on the question asked through questionnaire

Items	YES	NO
Do you own any crypto currency	234(93.60%)	16(6.4%)
Is crypto currency wildly accepted in Nigeria	68(27.20%)	182(72.80%)
Do the apex banks accept crypto currency as a mean of payment	31(12.40%)	219(87.60%)
Do some companies in Nigerian accept payment in form of crypto currency	101(40.40)	149(59.60)
Has crypto currency help reduce the rate of unemployment in the nation	170(68.00%)	80(32.00%)
Will you rather save in crypto currency or the Nigeria currency	234(96.80%)	8(3.20%)
Do crypto currency contributes more to illicit financial flow	149(59.60%)	101(40.40%)
Do you think the government needs to regulate the flow of crypto for it to influence the Nigeria economy	148(59.20%)	102(59.80%`)
Do you think the government will allow fully trading with crypto currency	153(61.20%)	97(38.80)

Table one above reveals that when respondents were asked if they own any crypto currency, most of the respondents answered positively to the statement. The analysis in the table shows that 234 (93.60%) respondents agreed that they own a crypto currency and 16 (6.4%) disagree. In determining the association between age distribution and acceptance of crypto-currency using chi-square

TEST STATISTIC

$$\chi^2_{cal.} = \sum_i^n \sum_j^k \frac{\left(O_{ij} - E_{ij}\right)^2}{E_{ij}}$$

Table 2: the table below showing chi-square distribution between age and acceptance of crypto-currency.

Age	No	Yes	Total
18-20	54	11	65
20-25	103	49	152
25-30	21	6	27
30 above	4	2	6
Total	182	68	250

Pearson chi2 (3) = 5.8661 Pr = 0.118

Since the p-value is less than ά-value, i.e. (0.118 > 0.05) therefore we statistically do not reject the null hypothesis and concluded that There is no association between age and acceptance of crypto currency Nigerian at 5% level of significance. Analyzing the data to test for relationship between gender and acceptance of crypto-currency using regression analysis.

Table 5: The table showing regression analysis between gender and acceptance of crypto-currency

Source	SS	df	MS			
				Number of obs	=	250
				F(1, 248)	=	3.94
Model	28.0382194	1	28.0382194	Prob > F	=	0.0483
Residual	1765.23778	248	7.11789428	R-squared	=	0.0156
				Adj R-squared	=	0.0117
Total	1793.276	249	7.20191165	Root MSE	=	2.6679

var1	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
var2	.0001603	.0000808	1.98	0.048	1.22e-06	.0003195
_cons	22.213	.1797559	123.57	0.000	21.85896	22.56704

Y = $\alpha + \beta_x + e$ gives the model for the relationship.

$\hat{y} = \hat{\alpha} + \hat{\beta}_x$

$\hat{Y}$= 22.123 + 0.0001603_X

From the model above, there is a positive relationship between age distribution and trade of crypto-currency i.e the model show that an increase of x there will be a, corresponding increase on y

HYPOTHESIS STATEMENTS

H_0: $\beta = 0$

H_1: $\beta > 0$

TEST STATISTICS

t = $\frac{b-0}{\sqrt{S^2 b}}$

Since p-value (0.0483) $< \alpha - \text{value}\,(0.05)$, we reject null hypothesis and conclude that β is significant.

Discussion of results, conclusions and recommendation

The Nigeria citizen are already taken the advantages of the diversification of her economy by buying into crypto-currency, however there is need to research on the acceptability and availability of the crypto-currency in Nigeria.

From fig 1 and 2, the bar charts reveal the age distribution of the people that have knowledge and uses crypto-currency and the age distribution between 20-25 are more knowledgeable and uses crypto-currency for transaction. Also the male gender uses the crypto-currency more than their female counterpart with percentage of 80.40% male to 18.40% female. From table 1, it is observed that 93.60% of the respondents own crypto currency. While 6.4% do not own any. 72.80% believed crypto-currency is not widely acceptable in Nigeria, and 27.20% of the respondents believed that the apex banks do not accept the method and means as a mode of payment. Hence, the reduction in the acceptability of crypto-currency in the country. The χ^2 test of association shows that there is no dependency between age distribution and acceptability of crypto-currency. The regression analysis shows the modeling of the relationship between acceptability of crypto-currency and age distribution with P=0.048 < α = 0.05. this shows that β is significant.

In conclusion, from the summary of the results obtained. It is obvious that crypto-currency is not widely accepted in the country. There is therefore needs for the government to educate both male and female of different age groups the importance of this means of transaction, as this will control the rate of illicit financial flow. The central Bank of Nigeria (CBN) needs to also educates the commercials banks via seminars and workshops on the needs to accept crypto-

currency as a means of transaction in the nation's economy.

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