
**AN ASSESSMENT OF THE ADOPTION OF CRYPTOCURRENCY AS A
MODE OF PAYMENT BY SMES IN KIAMBU COUNTY, KENYA**

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ABSTRACT

Technology advancement has affected almost all the spheres of operation in the world today forcing people to move from the traditional ways of doing business. The evolution has now moved from the traditional payment methods to the virtual payment methods such as the use of Bit-coins and cryptocurrency. The study sought to assess the extent to which SMEs have adopted the use of cryptocurrency as a mode of payment in Kenya with specific focus on SMEs within Kiambu County. The study used Descriptive survey design where 344 SMEs were sampled from a target of 3250 registered Smes in Kiambu County. Primary data was collected with the help of a self-administered questionnaire and analyzed descriptively while secondary data was collected through literature review from online journals. The study found out that the respondents were positive towards adoption of cryptocurrency as a method of payment. Majority of them would not only prefer it compared to the cash based methods of payment but also would do so soonest and given the opportunity they would even request the government for it. On the basis of these findings the study concluded that Kenya is a fertile ground for the new payment technologies especially among the SMEs in the service sector owned by men. Thus the study recommends that the government should accept this new technology based methods of payment and create awareness so that the informal sector would know how they work and the benefits associated with their adoption as a method of alleviating the challenges associated with the cash based methods of payment.

Keywords: Adoption, Cryptocurrency, Bitcoin, Cashless payment, Digital currency

1.0 INTRODUCTION OF THE STUDY

1.1 Background of the Study

The current innovations in financial technology have brought about tremendous evolution in the world economies especially in the financial sector and hence affecting how people buy and sell their goods and services. This has seen the mode of payment for goods and services evolve from the historical barter trade where goods were exchanged for goods to the cash systems where goods are exchanged for agreed amount cash as predetermined by the economic system of a country. In addition to the cash system the credit system is also used to play a key role where the buyers and sellers do not have the needed amounts of cash at hand. Cash system provides better precision about how much something is worth which is contrary to the barter trade system in which is not easy to determine the value of some goods and services, it is also used to measure the value of debt (Luther, 2015). The cash currency today is governed by a centralized authority such as the government and financial institutions.

Cryptocurrencies are a new digital form of currency that operates differently from the cash based systems of payments, this form of currency is outside the control of central authority nor within the tracking system of the financial institutions. Each digital currency is supported by a blockchain which is a peer-to peer network which ensures that all the cryptocurrencies are kept tracked through either a digital wallet or it is used in trading. The Bitcoin was the first form of cryptocurrency to trade in the market which allows transactions to be made between a buyer and a seller through a digital ledger system allowing for accuracy and transparent manner but at the same time ensuring anonymity of the parties involved. According to Hileman and Rauchs (2017) the ledger is not owned by anybody instead it is decentralized without interference of the parties

The Bitcoin currency has been in existence since 2009, but many people have not taken interest to learn how it works or even its importance (Luther, 2015). Globally, Bitcoin currency is being used in 96 countries with a market capitalization on \$115,235,661,834 (CoinMarketCap, 2018). This new payment technology has grown from an obscure computer algorithm to a globally recognized and accepted method of payment (Luther, 2015). Statistics have shown that the use of Bitcoin is growing exponentially with an estimated 29,579 transactions per hour which gives a transaction volume of approximately 709,882 Bitcoin every day (CoinMarketCap, 2018). This tremendous growth in the adoption of Bitcoin as a form of payment calls into question the extent of its adoption in less developed countries and in particular in Kenya. Hence, the purpose of this study which sought to investigate the extent to which Smes' would adopt cryptocurrency as a mode of payment in Kenya.

1.2 Statement of the Problem

People are skeptical about new technologies and cryptocurrencies are not an exception, the adoption of this new digital technology has been met with a considerable level of doubt and fear by business professionals both in the developed as well as developing countries'. The academicians also have their reservations on how likely people will accept cryptocurrency as a method of payment, Luther (2015.) He further argued that cryptocurrencies will primarily function as a niche currency, predominantly in countries with weak economies. A study by Cheah and Fry (2015) associated the use of Bit coins with a potential and probable presence of bubbles in Bitcoin markets, which could contribute up to 52% of Bit coin's observed price. Similar findings were recorded by a study carried out by Cheung, Roca, and Su (2015) which confirmed that Bit coins have the potential of leading into the presence of both short- and long-lived bubbles within the Cryptocurrency market.

Despite the great amount of uncertainty, insecurity and risk issues reported around cryptocurrencies, the future is still bright for this new technology. With the advent of online businesses, the use of virtual currency has gained some level of prominence. Several business owners both in the brick and mortar retailers and online businesses ranging from small to large have adopted cryptocurrencies as a method of transacting (Lee, Long, Mcrae, Steiner, & Handler, 2015). Research shows that Cryptocurrencies are now being accepted by more than 15,000 merchants worldwide, these include global icons such as Virgin Group Ltd (Bohme, Christin, Edelman, & Moore, 2018). Hence, the purpose of this study which sought to investigate the extent to which SMEs would adopt the use of Cryptocurrency as a method of payment in Kenya.

1.3 Research Objective

The general objective of this study was to establish the extent to which Smes would adopt the use of Cryptocurrency in Kenya.

1.4 Significance of the Study

The findings of this study are of significance to the policy makers who are expected to formulate policies to guide the use of the new currencies in the country. The findings could be of importance to consumers and investors as it will provide accurate information and a true reflection of Cryptocurrencies in the country. The findings will be a basis for researchers and academicians as it will provide literature on this new area of study.

2.0 LITERATURE REVIEW

2.1 Empirical Review

The theoretical roots of the use of cryptocurrency can be traced back to Nakamoto (2009) who invented the use of Bitcoin being inspired by the desire to create a more open and transparent peer to peer digital payment platform that could offer privacy and at the same time avoid the use of regulated financial institutions as intermediaries. Hayek (2013) connected the invention of digital currency to the criticism surrounding the use of fiat currency as the greatest cause of massive inflation witnessed globally.

Globally there has been a tremendous growth in the adoption of cryptocurrency as an innovative method of payment. Crypto trading has been a big topic in much academic research which has tried to assess the trend in cryptocurrency as well as the magnitude of its adoption. This new innovation has been highly popularized in western and Asian continent. Korea has been considered one of the highest traders in cryptocurrency accounting for 30% of the total crypto trading globally in 2018 (Cindicator report, 2018). This has been attributed to the support from the government which has not only recognized but also has allowed crypto trading through regulated exchanges. Other early adopters of these new fintech payment technologies include Germany with 9.2% adoption rate (Research Lab, 2018), it is also in the process of developing regulations to facilitate crypto trading. Japan has an average 11% of the global trading volume in Bitcoin and it is considered a global leader in crypto acceptance, regulation and legalization with about 3.5million people who were trading in cryptocurrencies in 2017.

The breakdown in trade relations among countries is a major contributor to the adoption of alternative payment methods. Turkey's adoption to cryptocurrency was attributed to the breakdown of internal relations with USA which led to failed financial system and massive devaluation of currency hence the need to for the citizens to hedge their wealth to a more stable and secure digital currency (Andersen, 2014). Hyperinflation in countries like Argentina high Inflation rate (50%, 2017) saw a massive slump in the economy pushing citizens into Bitcoin and other cryptocurrencies to hedge their hard earned wealth. In addition to inflation infamous corrupt governments and failing banking system led to crypto currency trade exceed that of gold in Brazil in the year 2018 with most investors being the youth between 20-25 years old. In the US even though the adoption is slow, a survey by the finder (2018) shows a drastic rise from 8% in 2018 to 14.4 % in 2019 with 36million people owning cryptocurrencies. Even though majority of the developed countries have high adoption rate others are struggling with the new innovations. The UK has an adoption rate of 3% with over 70% of the people attesting that they have never heard about cryptocurrency hence a non-issue for the regulators to worry about.

In developing countries, the hype surrounding cryptocurrency and block chain has not spared Africa. Use of cryptocurrency for cross border transactions is seen a solid solutions to the poor banking system, poor infrastructure and regulations, unstable national currencies and high unemployment rates which has hindered intra-African trade (PWC, 2014). A report by Citibank (2018) shows that Nigeria ranked 3rd globally for the highest amount of Bitcoin holders per capita with Kenya and South Africa ranking 5th and 6th respectively. This confirms the high popularity of digital use in Africa. Bitcoin, could be the increase financial inclusivity and improve the financial infrastructure in Africa.

Despite of the positive outlook in the future of cryptocurrency adoption, research shows that there are many challenges that are hindering its growth. In some countries lack of government support has been the greatest hindrance. In India, the government imposed a total ban to the use of cryptocurrency and a jail term of 15 years to any person found holding any form of cryptocurrency (Elwell, 2013). The increased Bitcoin scams, high volatility of the market, lack of awareness of how they work and its total dependency on internet connectivity are some of the reasons cited for low adoptions rates and lack of support from the governments (Ford, 2013).

3.0 RESEARCH DESIGN AND METHODOLOGY

3.1 Research Design

A research design is the blueprint that a researcher utilizes to conduct their research study by providing an outline of how the research will be guided and controlled without interfering or influencing the study environment. A descriptive survey research design was adopted as it is considered one of the best methods available for conducting social research for the purpose of describing the characteristics of a population that is too big to observe directly (Mutiria, 2017).

3.2 Target Population

Sekaran & Bougie (2013) defines a target population as the entire group of people, events or things of interest that a researcher wishes to investigate. The target population for this study was 3250 managers or owners of the registered SMEs in Kiambu County (Kiambu County, 2017).

Table 3.1: Population Distribution

Sector	Number of SMEs	Percentage (%)
Manufacturing	279	8.6%
Services	937	28.8
Trading	2034	62.6%
Total	3250	100

Source: (Author, 2019)

3.3 Sampling Procedures

Cooper and Schindler (2012) define a sampling technique as the method that a researcher employs to pick a sample size from the entire population. This study adopted a stratified random sampling technique which is ideal for heterogeneous population which can easily be grouped into distinct stratum. The respondents were grouped into sub counties and into the categories according to the type of business. Random sampling was used to select the respondents to participate in the study.

3.4 Sample Size

Sekaran & Bougie (2013) define a sample size as an element under study that represents the actual target population. For the purpose of this study, Krejcie and Morgan (1970) formula was used to determine the sample size as follows $S = \frac{\chi^2 NP(1-P)}{d^2(N-1) + \chi^2 P(1-P)}$

Where:

S – Required Sample Size

χ – The table value of Chi-Square for 1 degree of freedom (3.841)

N – The population size

P – The population proportion (assumed to be .50)

d – the degree of accuracy expressed as a proportion (.05)

$$\begin{aligned}
 \text{Sample Size Calculation} &= \frac{3.841 \times 3250 \times .50(1 - .50)}{0.05^2(3250 - 1) + 3.841 \times .50(1 - .50)} \\
 &= \frac{3120.8125}{8.1225 + 0.96025} \\
 &= 343.597754 \\
 &= 344
 \end{aligned}$$

Table 3.2: Sample Size Distribution

Sector	Population	Sample Size	Percentage Distribution
Manufacturing	279	30	8.7%
Services	937	99	28.8%
Trading	2034	215	62.5%
Total	3250	344	100%

3.5 Data Collection Instrument and Procedures

Cooper & Schindler (2012) define data collection procedures as the mechanisms employed by a researcher to collect data from sampled respondents in order to answer the research questions. Self-administered questionnaires were used to collect primary data, while secondary data was collected through review of literature from selected journals and online books. The questionnaires were administered through a drop and pick later procedure which allowed the respondents' time to answer the research questions at their own time.

3.5.1 Piloting of Research Instruments

Once the research permit was granted, the researcher piloted the questionnaire using 10% of the research sample which was 35 SMEs in the Central Business District of Nairobi County which had a similar profile to SMEs to ensure validity and reliability. This represented 10% of the identified sample. Feedback received from the pilot exercise was used to adjust the questionnaire accordingly.

3.5.2 Validity of Findings

According to Joppe (2000), validity is explained as the extent to which the research instrument measures that which it is expected to be measured. Content validity is a measure of the extent to which the collected data using a specific instrument stands for a specific domain or content for a specific content and was utilized in this study. Cohen and Morrison (2007), state that in qualitative data, validity might be addressed to the honesty, depth, richness and scope of the data achieved. To ensure the validity of the research instruments questions were rechecked to ensure honesty, depth, richness and scope of the responses.

3.5.3 Reliability of Research Instruments

According to Ogula (2006), reliability of an instrument refers to the extent to which a research instrument produces measures that are consistent each time it is administered to the same individuals. The split half method was used to assess the reliability of the questionnaire. This method involved dividing the tool items into two, even and odd items then computing their Cronbach's Alpha values.

3.6 Data Analysis and Presentation

Cooper & Schindler (2012), define data analysis as the process which raw data is converted and summarised in a way that make sensible meaning to the users of the research findings. The collected was cleaned, edited and input into the Statistical Package for Social Studies (SPSS)

which was used to analyze descriptive statistics (means, standard deviations, frequencies and percentages). The analysed data output was presented in form of tables and figures.

4.0 RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

The study sought to explore the extent to which Smes have adopted cryptocurrencies as a method of payment in Kiambu County. A set of 5-point Likert questions were presented to the respondents with 1 being strongly disagree and 5 being strongly agree. Each of the responses was coded into a numerical value used to measure their attitude with regards to the study.

The scores “strongly disagree” and “disagree” were combined to represent a variable having a mean of 0 to 2.4 on the continuous Likert scale. The scores “Don’t Know” was taken to represent a variable with a mean score of 2.5 to 3.4 on the continuous Likert scale and the scores of “Strongly Agree” and “Agree” combined to represent a variable with a mean score of 3.5 to 5.0 on the continuous Likert scale.

4.2 Demographic Characteristics

4.2.1 Respondents Gender

The gender of the respondents are presented on table 4.1 below,

Table 4.1: Respondents Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	161	64	64	64
	Female	90	36	36	100.
	Total	251	100.	100.	

The findings above show that majority of the respondents (64%) were male while the minority (36%) were female indicating that men are attracted by the new technology more compared to the ladies owning businesses in the county.

4.2.2 Respondents Age Group

The respondents age groups are presented on 4.2 below

Table 4.2: Respondents Age Group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-30 yrs	50	19.9	19.9	19.9
	31-40 yrs	125	49.8	49.8	69.7
	41-50 yrs	49	19.5	19.5	89.2
	51-60 yrs	22	8.8	8.8	98.0
	Over 60 yrs	5	2.0	2.0	100.0
	Total	251	100.0	100.0	

From the findings it was noted that majority of the respondents were of the age group 31-40 years with a response rate of 49.8% while minority were in the age bracket of over 60 years and 51-60 years with a response rate of 2.0% and 8.8% respectively. The age group 18-30 years gave a response rate of 19.9% while the age group 41-50 years gave a response rate of 19.5% and the two groups were noted as neither being the minority nor the majority. This implies that the owners of Smes below the age of 40 years were curious to adopt new technologies compared to those above the age 40 years.

4.2.3 Respondent SME Sector

When respondents of the study were asked to indicate the SME sector they were engaged in. The findings revealed that 61.8% were in the services sector, 15.5% were in the Manufacturing sector, 8% were in trading and 14.7 were operating SMEs in other minor sectors. These findings imply that those in the service sector are proactive to adopt new methods of doing business compared to those in other sectors. The findings are summarized in Table 4.3 below.

Table 4.3: Respondents SMEs Sector

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Manufacturing	39	15.5	15.5	15.5
	Services	155	61.8	61.8	77.3
	Trading	20	8.0	8.0	85.3
	Other	37	14.7	14.7	100.0
	Total	251	100.0	100.0	

4.3 Descriptive findings

4.3.1 Adoption of cryptocurrency

The study sought to determine the extent to which the respondents agreed or disagreed with statements related to adoption of cryptocurrencies as a method of payment. The findings are summarized in table 4.4 below.

Table 4.4: Adoption of cryptocurrency

	SD	D	N	A	SA	Mean	Standard Deviation
I want to use Cryptocurrency instead of Traditional Payment systems	12	20	10	80	129	4.1713	1.13072
	4.8%	8.0%	4.0%	31.9%	51.4%		
I have a plan to use cryptocurrency in near future	23	0	21	67	140	4.1992	1.19673
	9.2%	0.0%	8.4%	26.7%	55.8%		
I prefer using cryptocurrency for payments	44	41	50	39	77	3.2550	1.48011
	17.5%	16.3%	19.9%	15.5%	30.7%		
If cryptocurrency is not available as a method of Payment, I will request for it	15	25	25	94	92	3.8884	1.18132
	6.0%	10.0%	10.0%	37.5%	36.7%		

The study findings show that majority (83.3%) of the respondents agreed that they would want to adopt cryptocurrencies as method of payment instead of the traditional payment methods (mean= 4.2), while 12.8% of the respondents opted for the traditional methods of payment only 4.0% were neutral with regard to which method of payment they would prefer.

Regarding the statement whether they planned to use cryptocurrency in the near future, majority (82.5% with a mean of 4.1992), of the respondents agreed that they would wish to adopt cryptocurrency as a method of payment with a minority group (9.2%) disagreeing with the statement while 8.4% were neutral. While 82.5% agreed with the statement.

When asked whether they prefer using cryptocurrency for making payments, 33.8% disagreed with the statement, 19.9% neither agreed nor disagreed and 46.2% agreed with the statement. This produced an mean of 3.2550 with a standard deviation of 1.48011 indicating that respondents had neutral feelings on the statement.

The findings show that 16.0% of the respondents disagreed, 10.0% neither agreed nor disagreed and 74.2% agreed that if cryptocurrency was not available as a method of payment, they would

request for it. This presented an average mean of 3.8884 and a standard deviation of 1.18132 indicating that respondents agreed with the statement.

4.4 Discussion of Research Findings

Interest in virtual currencies is increasing across the globe with high adoption rates being witnessed in many developed countries. Africa has not been left behind with countries like Zimbabwe, South Africa Botswana, Ghana, Nigeria and Kenya have started to see the promise of using the digital currencies especially among the small business entrepreneurs (Benzinga, 2019). Despite of the potential risk of encouraging money laundering, lack of financial stability, lack of consumer protection due to high volatility there is evidence of growing interest in the adoption of cryptocurrencies as a method of payment.

The current study findings show that in Kenya among the sampled SMEs majority 83% are positive about accepting cryptocurrencies as an alternative payment method, with 74% claiming that they would request for crypto currencies if they were not available. This desire could be attributed to limited access to traditional banking methods especially among the young entrepreneurs who may not have the required security for bank loans. This is evidenced by the majority (70%) of the respondents being less than 40 years with 64% of them being male entrepreneurs. Weru (2019) asserts that Bitcoin have the potential to transform the financial sector among African countries.

Increased internet connectivity and smart phone use especially among the young could also be a contributor to the increased desire to join the virtual currency use. In Kenya the case of digital currency is strong considering that most of the money and corresponding transactions are already in electronic form. Proponents of digital currency argue that this new financial currency has the power to transform any country's economy through improved, systematic and transparent conduct of monetary policy as well as improved the tax collection.

5.0 SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

The study sought to investigate the perception of Smes on adoption of cryptocurrency as an alternative mode of payment in Kenya. The findings of the study show that the respondents not only would wish to adopt the new payment technology but would even wish to so within the next twelve months and if it is not available they would request for it. The young entrepreneurs showed higher preference in adopting this approach as compared to the older generation which could be attributed to their high levels of technology. On the other hand the male entrepreneurs had high levels of adoption compared to female entrepreneurs of the sampled respondents a

proof that women are less proactive to new technologies. The entrepreneurs in the service sector had high preference to adoption of cryptocurrency compared to those in trade and manufacturing.

5.2 Conclusion and recommendations

On the basis of the above findings the study concludes that there is a fertile ground for the adoption of cryptocurrency as an alternative method of payment among the entrepreneurs in Kenya as it is in many developed and developing countries. On this basis the study recommends that the financial regulators can allow its use as an accepted method of payment addition to the monetary payment methods. It also recommends that the government should create awareness especially among the start-ups so that people are made aware of how the technology works and the benefits associated with its use.

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