International Journal of Business, Economics and Management
2019 Vol. 6, No. 3, pp. 159-173
ISSN(e): 2312-0916
ISSN(p): 2312-5772
DOI: 10.18488/journal.62.2019.63.159.173

AN EMPIRICAL EVALUATION OF CASHLESS SYSTEMS IMPLEMENTATION IN GHANA

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Article History
Received: 7 February 2019
Revised: 15 March 2019
Accepted: 29 April 2019
Published: 27 June 2019

Keywords
Cashless system
Electronic payment
Effectiveness
Banking industry
Mobile financial services
Implementation
Technology innovation.

JEL Classification:
O32; O33, N27; G29.

ABSTRACT

This study aims to evaluate cashless systems as a means of payment and receipt in Ghana. Specifically, the study sought to identify the modes of cashless systems in use and evaluate the level of implementation. A quantitative approach was adopted and primary data was gathered from 345 respondents knowledgeable in cashless systems using a structured questionnaire. Secondary data on cashless systems transactions between 2013 and 2017 were obtained from the Bank of Ghana. Data were analysed quantitatively using SPSS and presented using tables and charts. The findings reveal that the value of transactions made through cashless systems is on the rise. The use of cheques continues to be the dominant system in place at the end of 2017. The study found that mobile money services are penetrating the market at a pace faster than all other cashless payment and receipt modes. Internet banking is another emerging area that is also fast gaining ground. Debit/credit cards, E-zwich and Electronic funds transfers are not fully used in day to day transactions. Point of Sale terminals are rarely available at local shops to promote the use of cards in making purchases. The study found convenience, time savings and security from physical attacks to be the key benefits of cashless systems. Low literacy serves as major challenge to cashless system implementation. Based on these findings, it is recommended that local shops and supermarkets be assisted to adopt cashless receipt systems. The ease of finding shops that accept e-payments for items will reduce the desire in carrying cash for transactions.

Contribution/Originality: This study is one of few studies that have assessed the effectiveness of cashless system implementation in Ghana. The study adopted a mix of research approaches and strategies aimed at exploring the level of implementation, benefits, drivers and challenges of cashless systems as a means of transaction.

1. INTRODUCTION

The conduct of business and personal transactions is the key to development in every economy. Prior to the influx of technological advances, cash remained the primary means of conducting these transactions (Tee and Ong, 2016). This traditional method has been criticized as inefficient, risky and lacking in convenience on the part of both the sender and the receiver. The emergence of cashless systems has been envisaged by researchers and practitioners alike as the solution to the problems created by the traditional modes of business transactions or payment (Paul and Friday, 2012). Given the risks of carrying cash around as well as delays in visiting banks to withdraw cash, cashless systems have been recognized as convenient and quick, assisting in the conduct of business and personal

transactions in real time. However, several issues have surfaced with regard to these cashless systems and their real influence on development of economies.

Most studies have found that the introduction of cashless systems has a positive impact on trade and development in economies (Akara and Asekome, 2018; Ikpefan *et al.*, 2018; Asiedu and Boateng, 2019). That notwithstanding, several challenges of implementation and sustenance have been encountered in the attempt to adopt cashless systems (Kida and Goyal, 2018). These factors range from infrastructural challenges to cultural issues (Oyewole *et al.*, 2013; Armey *et al.*, 2014). Several governing bodies, world authorities, and researchers have published studies on the best practices and critical success factors of cashless systems implementation (Basu, 2018).

However, it is evident that the factors that enhance or undermine the success of cashless systems adoption are area specific and that local authorities must conduct self-assessments before rolling out cashless systems. For instance, whilst most developed nations have succeeded in creating a nearly total cashless system, developing economies, especially those in Africa, are still struggling to get half their populations to subscribe to these platforms. Thus, there is the need for country specific assessments of the key challenges and available opportunities for implementing cashless systems. For the benefits that accrue to a nation and its citizens from the adoption of cashless systems, it is really important that the current studies probe deeper into the current situation of cashless systems in Ghana, in order to help suggest strategies for improvement.

Humphrey *et al.* (2000) found that most businesses in Ghana have demonstrated an interest in adopting electronic transaction systems by investing in information technology infrastructure that will provide the foundation for future roll outs of cashless systems. 19 years after Humphrey's study, there is still no sign of a fully cashless Ghana. This suggests that there are several other factors that impact the implementation and adoption of cashless systems aside from investment in IT infrastructure.

Arora *et al.* (2016) identified issues of security in the cyber space, inadequate network infrastructure, socio cultural challenges, location issues, a lack of proper regulatory structures, high illiteracy rates among the populace and internet related problems as major challenges to the cashless system implementation. While studying the feasibility of cashless systems in Africa, Wondwosson *et al.* (2005) identified behavioural challenges, the insufficiency of legal framework to guide the sector and a lack of good telecommunication systems as key challenges to the implementation of cashless systems.

As more technological platforms break out in support of electronic transactions, the use of cash, especially in business to business transactions is gradually becoming unattractive. Some economies set limits on trades and trade totals for which the non-electronic transfer of funds is utilized. The Bank of Ghana, in 2014, set the limit of over the counter withdrawal involving third parties to GHS 5000. This point of confinement was set to fit in with the Bank of Ghana's endeavours to support the utilization of non-money methods of doing transactions and diminish the opportunities for misrepresentation that are related to physical cash transactions. This study is therefore designed to assess the effectiveness of the cashless systems implementation in the Ghanaian economy.

2. OBJECTIVES OF THE STUDY

The main objective of the study is to provide an empirical evaluation of the effectiveness of cashless systems implementation in Ghana. The specific objectives are:

1. To ascertain the modes or types of cashless systems known and adopted in Ghana.
2. To determine the level of implementation of cashless systems in Ghana
3. To examine the benefits and drivers of cashless systems in Ghana.
4. To assess the challenges associated with implementation of cashless systems in the Ghanaian economy.

3. RELEVANT LITERATURE AND CONCEPTUAL FRAMEWORK

From the review of the pertinent literature, the implementation and sustenance of cashless systems depend on a several interrelated factors that work together to create a system of belief, trust and cultural acceptance of the new system. Osho *et al.* (2016) analyzed Nigeria's attempt to create a cashless society which was piloted in Lagos state in January 2012. The authors questioned the readiness of the Nigerian government and the general public in embracing the cashless system prior to implementation. The findings revealed that government did not do enough, in terms of creating awareness of the cashless policy and that the necessary infrastructure was not adequately in place before the policy implementation commenced in 2012. Most respondents also felt that the country's cyberspace was not secure enough to support the kick-off of the implementation. The authors noted that for an effective implementation of a cashless society, there is the need for continuous and more intense creation of awareness, increasing and improving existing infrastructures, and strengthening the security of the cyberspace. Several other factors are responsible, albeit simultaneously for the effective implementation of cashless systems.

First, the existence of IT infrastructure is of key relevance. This infrastructure provides the foundation for the system, without which there is no option of a cashless system. The description of implementing a cashless system in every economy depends on the extent to which automated teller machines, electronic cheques, personal computer banking, electronic point of sale devices, debit and credit cards, telephone banking, online banking, E-Zwich and mobile money systems can be put into effective use. A lack of infrastructure limits the ability to conduct cashless transactions and leads to a movement backwards to the traditional transaction systems. For instance, Haruna (2012) argued that frequent network and machine breakdowns, slow service process delivery, long queues and a low number of point of sale devices after banking hours are some challenges that face the implementation of the E-zwich system in Ghana.

The adoption of cashless systems requires changes to several aspects of transactions, which create cultural issues and requirements for change to customary trade modes. Therefore full behavioural change in individuals and corporations is necessary to embrace cashless systems.

The technology acceptance model (TAM) (Davis, 1989) proposes that people and organisations will only adopt new technology when they perceive it to be useful and easy to use. Technologies that are new will not cover a large size of the market unless consumers trust that their confidentiality won't be breached and their fears about adequate security are allayed (Taddesse and Kidan, 2005).

For the implementation of cashless systems to be successful, there should be a general consensus of its potential impact on individuals and corporations as well as the entire economy. Myths must be debunked and open mindedness encouraged. People must have trust in the systems and be willing to experiment. Therefore, patronage of cashless systems, from the viewpoint of the TAM, rests on the expectations of benefits in the form of increased security, convenience, speed of transactions on the side of individuals and reduced labour cost and increased service rate on the art of business etc. Essentially, positive attitudes, which beget positive reactions must be cultivated to embrace cashless systems.

Security challenges have long been touted as a major weakness in cash transactions. Cash transactions make parties prone to theft, robbery, fire, loss of money etc. Therefore it is expected that the introduction of cashless systems will help deal with this challenge. Indeed, the cashless system has solutions to all the problems of the traditional system but for the activities of cyber criminals. The increase in digital transactions mean cyber security is the main challenge for public, institutions and government (Wazid *et al.*, 2019). Phishing attacks, spoofing, identity theft, deliberate virus attacks, key loggers and cracking encryption channels supposed to safeguard electronic transaction systems are all actions in the cyberspace that stifle the development and effective implementation of cashless systems (Osho *et al.*, 2016). As people move towards the cashless systems, there is the need for security in cyber space to sustain the interest of participants. For any economy, the increased ability of fraudsters to dupe victims on cashless platforms increases the risk of moving backwards to the traditional system.

Thus, cyber security is important in the quest to move towards cashless systems. There must be a constant and consistent review of security protocols and procedures.

The adoption of cashless systems often requires the use of technological gadgets. The level of education of the populace directly affects the success of implementing cashless systems. In economies with high literacy rates, the ability to effectively use cashless system infrastructure is high and the reverse is also true. As noted by Annon (1999) the details required in some electronic funds settlement transactions dishearten less instructed clients to disparage its utilization. Thus, lot of education and training is required for a successful implementation of cashless system. Government support is required to ensure the sustenance of the cashless economy.

There is the need for a policy framework to guide the implementation of the cashless system. The framework states the vision and outlines the various interventions by government to sustain the cashless system. Government is also required to enact laws that will govern transactions in the cashless system, including standards and procedures, as well as punitive measures for fraudsters. It is expected that government enforces all laws governing cashless systems to ensure compliance and prevent crime.

The conceptual framework presented in Figure 1, diagrammatically demonstrates the relationship between factors required for the successful implementation of cashless systems. In order to ensure effectiveness of a cashless system in Ghana, the authors argue that the availability of infrastructure, behavioral readiness, cyber security compliance, education and training of users as well as government support will contribute a great deal in guaranteeing implementation success.

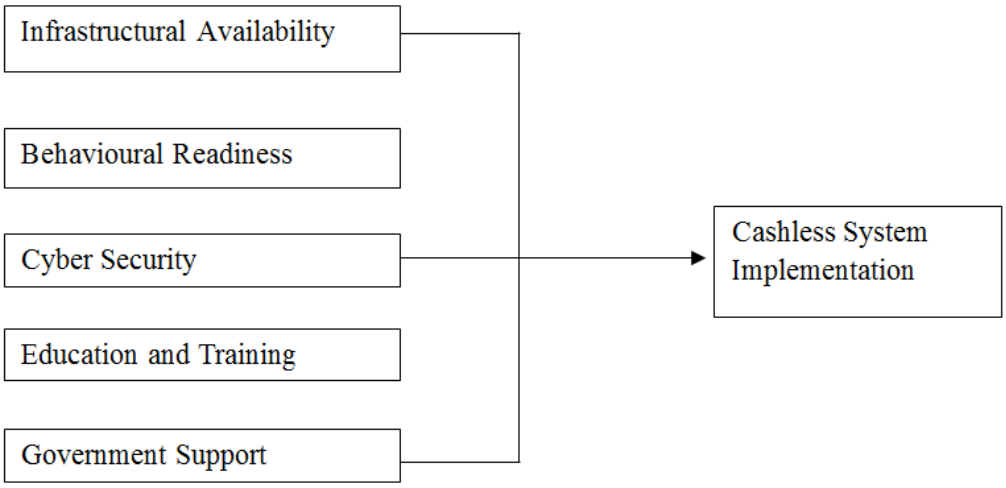

Figure-1. Conceptual Framework for the study.

Source: Authors' Construct 2019.

4. METHODOLOGY

4.1. Research Design

According to Bhattacherjee (2012) the research design is the "blueprint" for empirical research which aims at finding answers to the research questions or testing the study's hypothesis. It should specify at least the following processes: (1) the data collection process, (2) the instrument development process, and (3) the sampling process. Saunders *et al.* (2011) classifies the purpose of conducting research into exploratory, descriptive and explanatory research. Singh (2006) argue that these classifications are not mutually exclusive, such that one study can incorporate a combination of the types. An exploratory study seeks to" throw light" on a phenomenon on which there is less information. This study combines the descriptive and explanatory approaches to answer the study's objectives. The study seeks to describe the various cashless systems in use in the country and how effective their implementation has been. The explanatory approach is used predict the future trend of the various cashless systems.

4.2. Research Approach

This study adopted a purely quantitative approach. The type of objectives set in this study require numerical assessments of the transactional values of cashless systems. There is also a lot of research on the variables of the study, allowing the researcher to develop numerical constructs to measure the variables reliably. Most explanatory studies must also essentially be quantitative to allow rigorous testing of the relationships among the variables using statistical procedures, in this case trend analysis, for future projections on cashless systems.

4.3. Research Strategy

There exist several strategies for conducting research in the social sciences. Popular strategies include experiments, case studies, ethnography, survey, grounded theory, archival research and action research (Saunders *et al*., 2011). The study adopted the survey approach. Singh (2006) describes a survey as a method for conducting research with the use of standardized questionnaires and/or interviews to collect data from people about their preferences, reactions, thoughts and behaviours in a systematic manner.

4.4. Sources of Data

This study made use of both primary and secondary data sources. Yin (2003) defines primary data as data observed or collected directly from first-hand experience. This study employed the use of questionnaires in gathering primary data. Questionnaires were administered to random sampled individuals who are customers of the banking sector. Secondary data was also collected from the Bank of Ghana and Ghana Interbank Payment and Settlement System (GhIPSS) on the transaction values of the various cashless systems in Ghana. Cooper and Schindler (2006) define secondary data as data gathered for purposes other than the completion of a research project.

4.5. Study Population and Sampling

The population of the study includes all customers of the banking sector that have general knowledge of the various cashless systems in the country. The secondary data for the study is the value of transactions made via the various cashless systems between 2013 and 2017.

All endeavours were made to guarantee that the specimen decided for this study was illustrative of the objective populace. In light of this goal, purposive sampling was used. Purposive sampling is a non-arbitrary inspecting strategy in which the researcher requests people with particular qualities to take part in a research study (Johnson and Christensen, 2004). A total of 345 respondents were used in the study. The criterion for selection was that respondents must be account holders in a bank and have some general knowledge of the various cashless systems in the country.

4.6. Instrument for Data Collection

The main instrument employed for the information accumulation for the study was primary and secondary data. This secondary data was obtained from the registries of the Bank of Ghana and the Ghana Interbank Payment and Settlement System (GhIPSS). Along with the secondary data, a questionnaire was also used for information accumulation for the study. A questionnaire is a set of questions prepared by the researcher and administered to secure information needed for an examination. The questionnaire was designed to fulfil the research objectives. The questionnaire was structured and all questions were closed ended. The aim was to provide a common ground for the responses to act as a baseline for comparison and statistical analyses.

4.7. Data Analysis

Responses from the respondents were collected for analysis. The Statistical Package for the Social Science (SPSS) was used in the analysis of the data. All data collected, both primary and secondary, were analysed quantitatively. Trend analysis and projection was used to analyse the secondary data on the values of cashless system transactions made between 2013 and 2017. The results from the primary data were analysed and presented in tables using descriptive statistics like mean and standard deviation.

5. RESULTS AND DISCUSSION

5.1. Demographic Profile of Respondents

This part of the research instrument collected information on the profile of respondents. Information gathered from the respondents included their age, gender, educational level, income level and their frequency in visiting the the bank. 225 of the respondents (about 65%) are males whiles the remaining 120 respondents are females. The age distribution can be described as relatively young since all the 345 respondents were aged 45 years or younger. Table 1 also presents the educational level of the respondents matched against the average number of times they visited the banking hall. Even though the researcher does not hypothesize that there is any direct relationship between the two variables, the distribution could reveal an underlying pattern of relationship albeit indirect, between the two variables. In Table 1, the majority of the respondents have at least a bachelor's degree (91.3%). Only 30 respondents have not achieved this feat. On the frequency of visits, the majority of the respondents visit the bank between one and five times on average per month. 33 respondents visit the bank more than five times in a month. Interestingly, 36 respondents indicated that they do not visit the bank.

Table-1. Demographic profile of respondents.

Characteristics	Response	Frequency	Percentage
Gender	Male	225	65.2
	Female	120	34.8
Age	18 – 25	45	13
	26 – 35	195	56.5
	36 – 45	105	30.5
Education	JHS/MLSC	15	4.4
	SHS	15	4.4
	Bachelor	75	65.2
	Master	225	26
Frequency of Banking Hall visit	Never	36	10.5
	1 to 5 times	276	80
	6 to 10 times	12	3.4
	11 to 15 times	18	5.3
	More than 15 times	3	0.8
Income Level (GHS)	101-500	75	21.7
	501-1000	15	4.4
	1001-2000	165	47.8
	2001-5000	75	21.7
	Above 5000	15	4.4
Subscription to Cashless systems	Cheque	165	47.8**
	E-zwich	105	30.4**
	Debit/Credit Cards	150	43.4**
	Internet Banking	135	39.1**
	EFT	30	8.6**
	Mobile Money	339	98.2**

** Multiple response item. Total count expressed as a percentage of respondents.

The study collected data on the average monthly income of the respondents in Ghana Cedis. About 240 out of the 345 respondents, representing about 70%, earn above GHS 1000 per month. Fifteen respondents refused to answer the question. Despite the researchers taking steps to ensure anonymity and confidentiality of responses, these respondents likely found the question on income level quite sensitive and refused to answer. However,

respondents were asked to indicate the cashless payment systems to which they have subscribed and ever used in transactions. Respondents were encouraged to tick as many options that applied to their subscription to cashless systems. Table 1 below presents a summary of the responses gathered. The count refers to actual number of respondents that have subscribed or used a particular cashless system. The responses reveal that almost all the respondents have subscribed to mobile money services.

Also, the use of cheques, debit/credit cards and internet banking as well as E-zwich system remains quite significant as cashless systems from the viewpoint of the respondents. The data shows that only 30 out of the 345 respondents indicated having subscribed to or ever used electronic funds transfer. Thus, EFT can be described as an unpopular payment system among the study's respondents.

5.2. Modes of Cashless Systems in Ghana

This objective sought to find out the various platforms available to individuals and corporations for undertaking cashless transactions. The data was obtained from the Bank of Ghana on the value of transactions made through the various payment systems. Table 2 and Figure 2 below present the data collected from 2013 to 2017. The use of cheques continues to be the dominant system in place at the end of 2017. All other forms of cashless systems keep rising in value at different rates as the years go by. An interesting notice on the chart is the increase in mobile money systems. In 2013, the transaction value of automated clearing systems was almost three times higher than mobile money transactions.

Table-2. Transaction values of the various cashless systems.

PAYMENT SYSTEM	TRANSACTION VALUE IN MILLION GHANA CEDIS				
	2013	2014	2015	2016	2017
ATM			5,876.48	13,135,61.	18,542,95
CHEQUES	81,144.33	113,698.39	131,189.70	152,390.42	179,555.47
INTERNET BANKING			2,286.70	6,779.21	9,739.34
CREDIT AND DEBIT CARDS			85.58	173.34	355.86
E-ZWICH	217.20	272.70	922.90	2,362.96	3,431.49
MOBILE MONEY	2,652.47	12,123.89	35,444.38	78,508.90	155,844.84
AUTOMATED CLEARING HOUSE	6,355.52	10,846.69	15,145.98	19,372.66	24,453.54

Source: Bank of Ghana (2019).

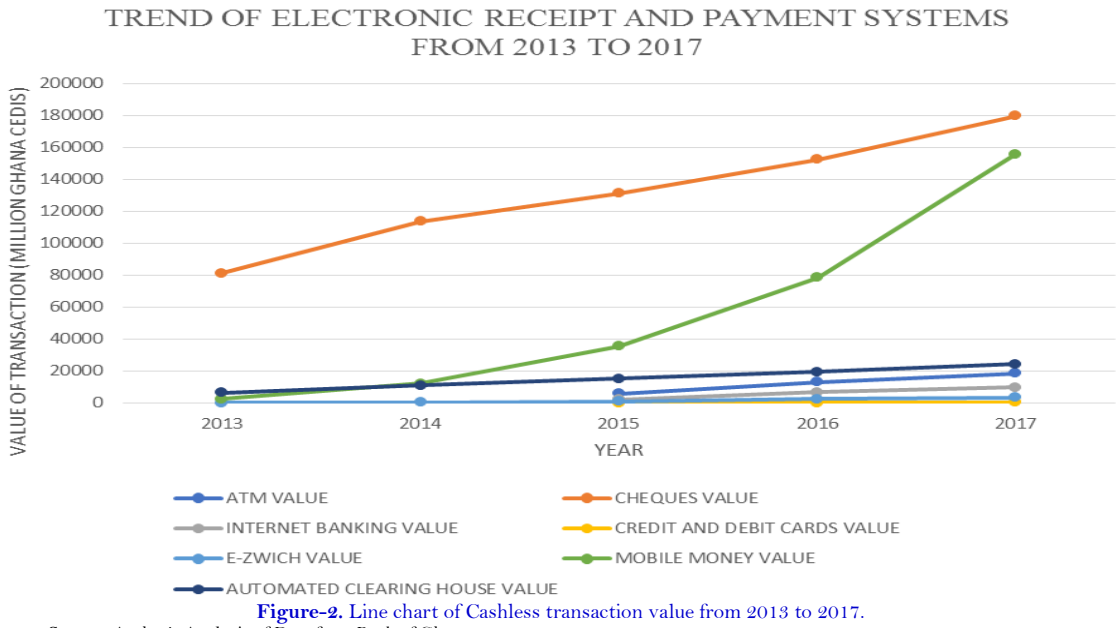

Figure-2. Line chart of Cashless transaction value from 2013 to 2017.

Source: Author's Analysis of Data from Bank of Ghana.

At the end of 2017, mobile money transactions were up to five times higher than automated clearing houses. Aside from cheques, the use of mobile money systems is dominant. Even though the values are rising, the use of debit and credit cards is still not popular in the country. When compared to all other systems, debit and credit card transactions are excessively low. This could be due to the security issues associated with transacting with this system. Credit card fraud is a big issue with online transactions and POS terminals. The E-ZWICH system is gaining grounds as a cashless system in the country. This is shown by a close to 45% increase in its transaction value between 2016 and 2017.

5.3. The Future of Cashless System

Based on the data gathered, a five year linear trend line was fit to the data to predict the performance of cashless systems from 2018 to 2022. The data with the trend line is shown in Figure 3 below. As expected, the trend line shows that the transaction value of cashless systems will keep rising in the foreseeable future. The interesting observation is that at the rate of rising, it is expected that mobile money systems will overtake the use of cheques as a cashless transaction system in the next five years. For a country like Ghana, this is readily understandable as the coverage of telecommunication networks is wider than that of the banks. The mobile money system is also very convenient and quicker, with agents spread all over the country. Many people (especially individuals and small businesses in the informal sector) would prefer to receive and make payments through this system, as opposed to receiving bank cheques. The use of ATMs is expected to increase in transaction value. This will be influenced by the fact that ATMs have increased in functionality over the years. ATMs are now able to take deposits, withdraw huge sums and undertake a couple of other value adding activities.

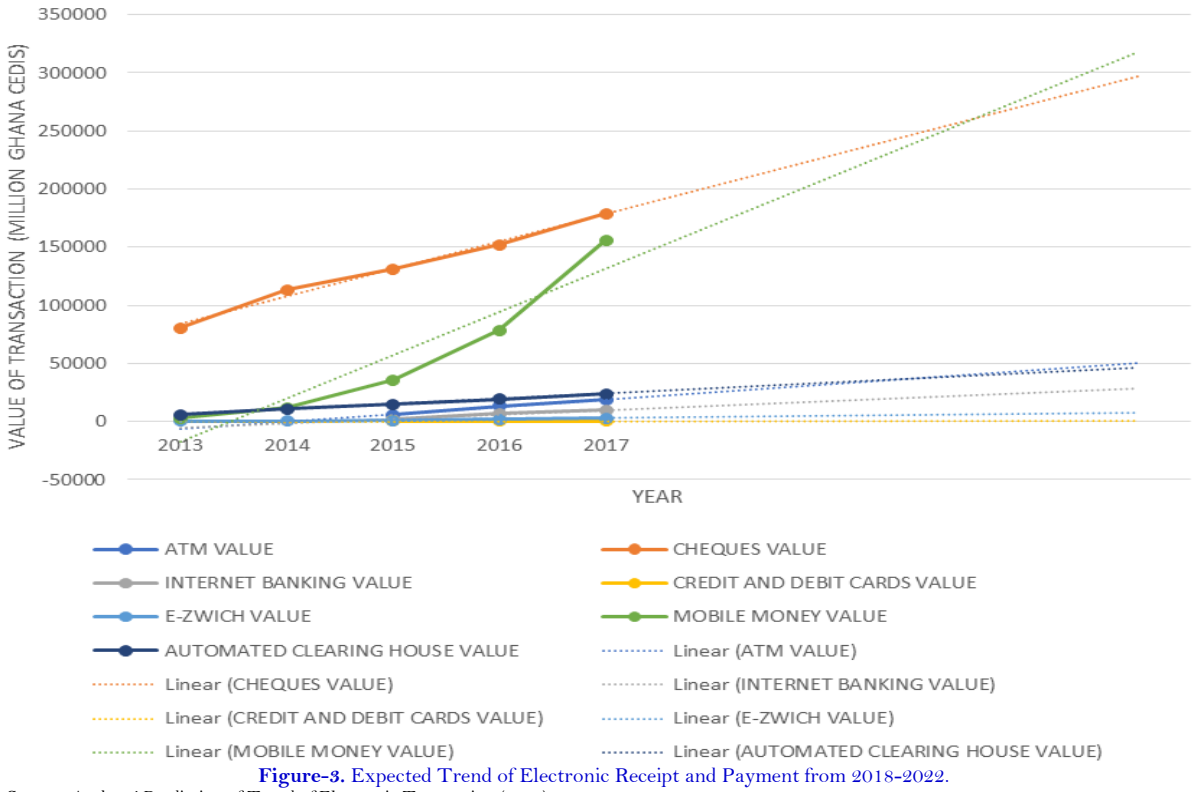

Figure-3. Expected Trend of Electronic Receipt and Payment from 2018-2022.

Source: Authors' Prediction of Trend of Electronic Transaction (2019).

5.4. Level of Implementation of Cashless Systems

This objective of the study sought to assess the implementation of cashless systems in Ghana. The aim is to evaluate from the viewpoint of the respondents, the extent to which the various cashless systems have been developed, accepted and implemented in Ghana. Respondents were asked to rate on a scale of 1 to 7, the

effectiveness of cashless systems in payment and receipt based on their personal and business dealings, as well as their observations of transactions in their surroundings. On the scale: 1 = not available, 2 = available but not used, 3 = available and used but not fully developed, 4 = not sure, 5 = somehow used, 6 = effectively used and 7 = fully developed and accepted.

The responses have been presented in Table 3 below. To allow for easy interpretation and comparison, the mean scores have been arranged in descending order. The responses show that mobile money services are the most used cashless system (Mean = 5.74, SD = 0.229).

This finding is not surprising since mobile network penetration continues to surge in the country. According to the 2016 report of the National Communications Authority, mobile penetration in Ghana is estimated at 75%, which means that 75 out of every 100 Ghanaian adults own a mobile phone. At the moment, almost all the telecommunication networks in the country operate mobile money services. The recently launched interoperability system is expected to further strengthen the use of mobile money as a payment and receipt mechanism for transactions since there are no more restrictions for dealing with others using different service providers.

The implementation of mobile money services has particularly been effective because it is relatively easy and convenient to subscribe to and begin usage. Several agents of the different service providers are scattered across the country, providing hands on assistance to customers. Even though the implementation has been effective per the responses, the Mean score of 5.74 shows that respondents do not believe mobile money services have been implemented at their full potential. Like any other service, there is a need for continuous improvement. One such area is in the security of the system. Mobile money subscribers have recently been the target of fraudsters and the service providers seem to be at a loss in dealing with the issue. Even though mobile money usage is prevalent in the country, it has also not really been used for end user transactions. In business transactions, mobile money is often used for online transactions and payments/ receipts to and from clients in different parts of the country. However, purchases from local markets, supermarkets etc. are still done with cash. Due to the convenience and ease of use, it is expected that mobile money services will be used to facilitate such transactions in the future.

The use of cheques as a payment and receipt system has existed as long as the banking sector itself. The responses from the study show that cheques are still somewhat used (Mean = 4.91, SD = 1.6). Given the popularity of cheques in the banking service as a means of payment and receipt, the finding seems to have understated its level of implementation in the country. However, cheques have often been issued in business to business transactions and rarely are they used in personal transactions. Even though there are individuals who use cheques as payment systems, these individuals must be current account holders of a bank and they often use cheques when dealing with institutions. Thus, the use of cheques is not widespread in personal transactions and even among small businesses.

Internet banking services are on the rise and is a new area banks are offering valuable service offerings in to their customers. The responses show that internet banking services are being implemented, albeit with more potential for growth. Despite the many benefits they present to customers in the form of convenience and ease of transacting businesses, there are a few issues that hinder the development and full implementation of internet banking systems. Persistent internet network challenges will often make it difficult to rely on internet banking to conduct real time business. There are also concerns about the security of the systems, both on the customers' end and the banking sites that must be resolved. Notwithstanding these few hurdles, internet banking subscriptions are on the rise and subscription is expected to plummet in the years to come.

The responses show that debit and credit cards, even though they are available, have not been fully used as a system for payment and receipt (Mean = 3.78, SD = 2.17). Actually, the usage of credit cards has not been popular in the Ghanaian context as a means of payment and receipt. This is largely due to the fact that the use of cards was not promoted in our "cash based" economy. However, this is changing as some banks such as he Bank and Zenith Bank have begun issuing credit cards to its customers.

Debit cards, on the other hand have been available, but have primarily been used to withdraw cash from the ATM machines. The trend is beginning to change as most of the current debit cards issued by banks are on the VISA, MASTERCARD and other inter-payment systems that support account to account transfers and online transactions. It is expected that the use of debit and credit cards will increase especially when local shops begin to accept them as means of payments.

Point of sale terminals are electronic devices used to process card payments at retail locations. Essentially the availability of POS terminals promotes the use of credit and debit cards in retail transactions. The mean finding of 2.32 reveals that POS terminals are rarely available in retail businesses across the country. Thus, local shops scarcely offer the means of making payments through debit and credit cards.

The E-zwich system was introduced in 2008 to provide a medium for receipt and payment for goods and services with a long term vision of promoting a cashless society. The responses from this study reveal that this has yet to materialise as the system is yet to be fully used even though it is available (Mean = 3.3, SD =1.90). To date the E-zwich system is not popular as a payment and receipt system.

This is in consensus with the observations (Antwi *et al.*, 2015) that after many years, the interest as well as assessment seem to have reduced significantly despite the initial euphoria that surrounded the introduction of the E-Zwich system. The researcher argues that the system would have otherwise collapsed but for the fact that is it used as the means of paying the allowances of national service personnel in the country. The observation is that most of these NSS personnel immediately withdraw their allowances from the system and transfer it to their bank accounts if the amount is not for immediate use. Most people also do not use their E-zwich cards after they complete national service because it is of no use. Even though the major reasons for the inability of the system to be fully implemented cannot be expressly identified by the researcher, there is the general belief that a lack of education, coupled with infrastructure challenges, have a major role to play here.

Table-3. Level of Implementation of Cashless system in Ghana.

Cashless Systems	N	Minimum	Maximum	Mean	Std. Deviation
Mobile Money Services	345	3	7	5.74	0.229
Cheques	345	3	7	4.91	1.647
Internet Banking	330	2	7	4.32	1.827
Debit and Credit Cards	345	1	7	3.78	2.176
Electronic Funds Transfer	330	1	7	3.64	2.278
E-zwich system	345	2	7	3.30	1.929
Point of Sale Terminals	330	1	5	2.32	1.526
Valid N (listwise)	315				

Source: Field study, 2018.

5.5. Benefits of Cashless Systems Implementation

The views of respondents were sought on their perception and experience on the benefits and drivers of the adoption of cashless systems. Respondents were presented with a list of benefits and drivers of cashless systems compiled from the literature. On a scale of 1 to 7, where 1 = strongly disagree and 7 = strongly agree, respondents were asked to rate their level of agreement or disagreement with the statements presented. The responses obtained from the study respondents are presented in Table 4.

The findings reveal that respondents recognise the benefits of adopting a cashless transaction system. These include the convenience of making and receiving payments irrespective of one's location (Mean = 6.13), time savings from having to visit the bank to withdraw or deposit money (Mean = 6.09) as well as the safety and security from physical attacks which are high risks when handling physical cash. The benefits identified support the observations of Oyewole *et al.* (2013) that the use of electronic payments for transactions has continuously been increasing as a result of how convenient, safe and quick the payment mode is.

Other recognised benefits include the fact that it improves efficiency in the conduct of business transactions since payments and receipts can be made in real time. Business deals will be closed and opened more effectively. All the technological platforms that support cashless transaction systems also keep accurate records that help individuals and organisations to track and effectively analyse information about their financial transactions. Even when not requested, these systems are designed to keep a log of all transactions so it can be useful for future analysis and detection of possible problems.

For instance, if Trader X and Y are retailers, one that that uses mobile money systems as a means of paying supplier can easily generate a report of their monthly transactions whiles the other will have to refer to manually written records which can easily be elusive. This does not in any way nullify the use of manual records in small businesses however the point is that the electronic systems always provide a backup which may be needed in the future. It is noted that respondents are not really enthused about the cost savings from the printing of currency notes (Mean = 4.25) as compared to the others. This is understandable in the sense that this is not a benefit that is readily available to the individuals in comparison to the others. It is likely that most respondents are not abreast with the expense of printing of paper currencies.

Table-4. Benefits of Cashless systems Implementation.

Benefits	N	MIN	MAX	Mean	SD
Increase the convenience of payment and Receipt of funds	345	1	7	6.13	1.367
Saves time and hustle of visiting banking halls	345	1	7	6.09	1.322
provides safety and security in payment and receipts	345	1	7	5.78	1.388
Improves efficiency of business transactions	345	1	7	5.78	1.255
Provides easy access to information about transactions	345	1	7	5.43	1.415
Reduces the use of cash and saves the economy from cost of printing currency notes and coins	345	1	7	4.25	1.867
Valid N (list wise)	345				

Source: Field study, 2018.

5.6. Drivers of Cashless Systems

Drivers of cashless systems refer to specific infrastructure, policies, orientation and or structures that have aided and have potential to significantly support cashless system development. Respondents were asked to rate on a scale of 1 to 7 the extent to which they agree or disagree with the potential drivers of cashless systems presented in the research instrument.

The findings reveal that any advancement in technology that has simplified cashless systems is a major driver pushing the agenda. This has directly impacted on the ease of enrolling in or subscribing to and using these systems. Among the Ghanaian banks, the time from the customer request to the bank's issue of debit cards has reduced drastically from in excess of 30 days to as low as same day delivery by some banks. This has likely reduced the frustration of customers applying for the cards and improved subscription and usage. The ease of registering and using mobile money services has already been discussed in this study.

In this information age, the use of cashless systems has become less stressful due to the availability of information from service providers, aided by the generous storage capacity of the internet. All it takes is a google search for one to find general information on how to purchase goods online with a debit/credit card or make payments with mobile money services. Service providers also dedicate a lot of effort into advertising the steps required to fully use their product offerings. Due to the potential benefits often advertised by the service providers and opinion leaders alike, people, especially the elite in the society are often curious to use these systems as a means of enhancing the conduct of their transactions. The perception of benefits drives people's intention to subscribe to cashless systems.

The findings further reveal that the level of education is a major driver of the cashless system agenda. It is often expected that highly educated people will be the early birds in the adoption of new cashless systems. While

this may not always be the case, the likelihood of enrolling and pushing the agenda for cashless systems is higher for literates than their illiterate counterparts. This is because the use of cashless systems often requires knowledge and a level of skill in the operation and understanding of a technological system, which comes easier to literates. In developing the TAM (Davis (1989) argued that a person develops positive intentions towards a new system when they perceive it to be useful and easy to use. It is likely that educated people will find cashless systems easier to use than others. Thus, the subscriptions to cashless systems are driven by people's perception of how easily they can adapt to the requirements of the system and that will be a function of their education. Once again, the results bring to the fore, the importance of education in every economy. Arguably, in achieving a cash lite economy, through the implementation of a cashless or electronic payment system, education will play a major role. Table 5 provides detailed responses of the study respondents.

Table-5. Drivers of Cashless systems.

Drivers	N	MIN	MAX	Mean	SD
Advancement in technology that has simplified the systems	300	5	7	6.30	.718
Availability of information on the use of E-systems	300	5	7	5.95	.744
Ease of enrolling and using the systems	315	2	7	5.71	1.081
Cheaper cost of transactions	315	3	7	5.57	1.300
Trust in electronic transaction formats	315	3	7	5.57	1.224
Curiosity to experiment with new systems	315	4	7	5.43	1.008
Expected benefits from the systems	315	1	6	5.43	1.099
Users level of education	315	2	7	5.33	1.432
Valid N (listwise)	315				

Source: Field study, 2018.

5.7. Challenges of Cashless Systems

Despite its projected benefits, cashless systems have been fraught with several challenges that hinder its full development. In this section, respondents were asked to rate on a scale of 1 to 7, the extent to which they agree or disagree with a list of challenges identified from the literature. 1 on the scale represented strongly disagree whiles 7 represented strongly agree. The detail responses of respondents are presented in Table 6.

The summary of findings reveals that the literacy level in the country poses a major challenge to the full implementation of cashless systems (Mean = 6.33, SD = .645). As already indicated, a person's level of education directly impacts on their willingness to subscribe to technology based systems, which provides the foundation for a cashless system. For cashless systems to be fully developed, all sellers and buyers must be willing and have the requisite skill to cope with the requirements. The major challenge to this is how to ensure that local market sellers (most of who do not have much formal education) and even local supermarkets as well as smallest scale service providers develop the capacity to use cashless systems. Despite the increasing popularity of mobile money services as a means of sending and receiving money, it is still not being used as a means for local transactions in the places aforementioned. As indicated by Annon (1999) the details required in some electronic funds settlement transactions discourage less educated clients who may disparage its use.

The responses further reveal that poor mobile and internet connections are key challenges that must be overcome to ensure that cashless systems are fully developed (Mean = 6.14, SD = 1.08). In its development, mobile money networks were often jammed and left users frustrated. There is no doubt that this has improved in recent times, however, service providers still have some work to do to ensure continuous availability of the service.

A major challenge to the development, acceptance and full implementation of cashless systems is the emergence of "electronic robbers" who are always devising new means of defrauding innocent people using these systems to conduct their transactions. Earl (2000) noted that perhaps one greatest scourge to customers has got to do with the danger that results from fraudulent activities, process mistakes, system disruptions, or different unforeseen incidents which ends with the inability of the institutions to deliver merchandise or services. The fact that the

service providers and law enforcement agencies struggle to bring these criminals to book means subscribers will always have to worry about the security of their transactions.

The responses reveal a major challenge in the form of reduced trust in electronic payment and receipt procedures (Mean = 5.76, SD =0.77). This is likely not due to their lack of belief in the accuracy and relevance of the cashless systems, but rather a result of the security lapses that could be exploited by hackers in the cashless transaction space. Brian (2013) had earlier asserted that in terms of security, if no means were taken to anchor web saving money business exchanges, the trust of general society in web managing an account in Indonesia would slide, which will result in traders dismissing exchanges.

The respondents of the study however, did not agree that complicated procedures, apathy of people, electric power outages and high cost of transactions are challenges for cashless systems (Mean values below 4.0). Interestingly, all these challenges were identified from the literature. This means that there is improvement in the development of cashless systems to the extent that some initial challenges have been overcome. For instance, the use of most systems have been simplified with interactive applications that provide end users with lots of information, support and cautions when conducting transactions. Thus, the complexity of payment and receipt procedures is not a challenge anymore, or at least does not carry the weight it used to in the development stages. When compared to the risk of carrying cash around and the competition among service providers, the cost of transactions is on the downside and thus transaction cost is not a major challenge to cashless systems.

Table-6. Challenges of Cashless Systems.

Challenges	N	MIN	MAX	Mean	SD
Low literacy level of some sellers and buyers	315	5	7	6.33	.645
Poor internet and mobile networks	315	4	7	6.14	1.087
Lack of trust in electronic payment and receipt systems	315	5	7	5.86	.777
Increased activities of fraudsters	315	1	7	5.76	1.638
Poor customer service provision by financial institutions and Telcos	315	2	7	5.67	1.291
Complicated payment and receipt procedures	315	2	7	3.81	1.630
Poor attitude of people towards the systems	315	3	7	3.73	1.536
Frequent power outages making systems unavailable sometimes	315	1	7	3.62	2.181
High cost of transferring and receiving money	315	1	7	3.24	2.101
Valid N (listwise)	315				

Source: Field study, 2018.

6. CONCLUSION AND POLICY RECOMMENDATION

The Ghanaian economy has witnessed the use of cashless services within the last couple of years due to improvements in information and communication technology. This has revolutionized the entire economic space. The era of the cashless system where businesses and individuals can perform e-banking via the cashless system has come to stay. This involves financial transfers and transactions electronically through computers, mobile phones, point of sales devices and mounted terminals on a 24-hour basis.

This study has assessed the current situation of the various cashless systems in the country and made projections for the near future. Several benefits, drivers and challenges of the emerging cashless system have been discussed. To this end, the government and corporate sector in Ghana must recognize the indispensable role played by the cashless system in ensuring an effective and efficient way of meeting economic and personal needs through the establishment and sustenance of electronic banking and transaction systems.

Based on the findings of this study, it is recommended that the government and industry players must join efforts to improve the infrastructure base to support the various cashless systems. The existence of proper network structures is key to ensuring the growth of the various modes of cashless systems.

Local shops and supermarkets must be assisted in adopting cashless receipt systems. This assistance should come from government in the form of policies that provide incentives for these small businesses to start incorporating cashless systems in receiving payments for the goods and services they offer. To adopt a truly

cashless system, purchases of daily items, which forms a huge part of the spending of households must be done through electronic means. Thus, the availability of point of sale terminals in local markets/shops to allow purchases with debit/credit cards, mobile money acceptance etc. is required. The ease of finding shops that accept electronic payment for items will reduce the desire of most people to carry cash around for the same transactions.

To realise a full cashless system in the future, government must create a policy of compulsory formal education at least up to the Junior High School Level. The free compulsory basic education (FCUBE) policy must be strictly monitored and there should be consequences for defaulting parents. The compulsory education will provide a long term benefit of ensuring that the future generation will have the basic literacy skills that will be required to fully adopt and use cashless systems.

A major concern of subscribers to electronic payment and receipt systems is security. Service providers must liaise with law enforcement agencies to reduce the vulnerabilities of cashless networks and instill confidence in users. For instance, credit card fraud is a persistent problem that causes many people to shy away from subscribing to its use. Essentially, improving the security of payment systems and making it difficult for hackers and others with malicious intent to dupe customers will improve the attitudes and intention of people towards cashless payment systems.

Funding: This study received no specific financial support.
Competing Interests: The authors declare that they have no competing interests.
Contributors/Acknowledgement: All authors contributed equally to the conception and design of the study.

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