Addis Ababa University
School of Commerce

Analyzing Factors Affecting E-Payment Adoption in Ethiopia

Prepared by: Kirubelawit Sahlu G/Selassie

A Thesis Submitted to the School of Graduate Studies of Addis Ababa University School of Commerce in Partial Fulfilment of the Requirements for the Master of Arts in Marketing Management

Advisor: Temesgen Belayneh (PHD)

May 2018
Addis Ababa, Ethiopia

Approval Sheet

Addis Ababa University School of Commerce,

Graduate Studies Program Department of Marketing Management

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By

Kirubelawit Sahlu G/Selassie

Approved by Board of Examiners

Temesgen Belayneh (PhD)	_____	_____	
Advisor	Signature	Date	
Mulugeta G/Medhin (PhD)	_____	_____	
Internal Examiner	Signature	Date	
Mihiret B.	_____	_____	
	External Examiner	Date	

DECLARATION

I Kirubelawit Sahlu, hereby declare that *"Analysing Factors Affecting E-Payment Adoption in Ethiopia"* is my own work and it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text. It is submitted for the degree of Master of Arts in Marketing Management to Addis Ababa University School of Commerce post graduate program.

Declared by

Kirubelawit Sahlu ..... May 2018
Student Signature Date

Confirmed by

Temesgen Belayneh (Ph.D) ..... May 2018
Advisor Signature Date

Acknowledgement

Firstly, I must express my very profound gratitude to my parents and my husband for providing me unfailing support and encouragement throughout my years of study and through the process of writing this thesis. My kids, I have no words to express my feelings and gratitude for having such an understanding kids, “mom do you have class today?” “Study mom, so you will be super”. Thank you for sparing your precious time.

I would also like to express my sincere gratitude to my advisor Temesgen Belayneh (PHD) for his continuous support, his patience and guidance that helped me all the way through the time of working on this paper.

Finally, I thank all the people that contributed in one way or the other to the completion of this thesis, in particular, PSS staff, E-banking departments of banks for helping me distribute and timely collect my questionnaires.

Abstract

E-Payment system was introduced in Ethiopia and has been gradually growing as it is no doubt that it has competitive advantage. However, the process of expanding e-payment to replace or minimize cash transactions is yet to achieve its objectives due to various reasons. Hence, for the purpose of analysing factors affecting the adoption of E-payment in Ethiopia, a questionnaire was developed and distributed to cardholders of banks in Ethiopia. From the distributed 384 questionnaire, 339 questionnaires were completed and returned while 331 were usable for the analysis making the questionnaire response rate 86%. The collected data was analysed using SPSS version 21 and hypothesises were tested based on the analysis output. Accordingly the finding of the study show that convenience, attitude, change readiness and perceived behavioural control have significant relationship with e-payment adoption on POS in Ethiopia where the respective hypothesises where accepted. The hypothesis made for perceived risk was also accepted as the finding of the analysis showed that perceived risk has a negative and significant relationship with e-payment on POS in Ethiopia which was in line with the assumption. However, the finding of the study shows that trust and relative advantage have no significant relationship with e-payment adoption on POS in Ethiopia which led to the rejection of their respective hypothesises. The findings of the study are important to banks and other stakeholders of e-payment to identify focus area in their effort to expand point of sale acceptance and enhance adoption of e-payment on POS.

Key Words: Point of Sale, E-Payment, Convenience, Trust, Relative Advantage,

Perceived Behavioural Control, Change Readiness, Attitude, Perceived Risk,

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List of Abbreviations and Acronyms

POS …….. Point of Sale

E-Payment…… Electronic Payment

M-Payment……Mobile Payment

MCIT…… Ministry of Communication and Information Technology

SPSS……..Statistical Package for Social Science

PBC……...Perceived behavioural Control

CR…….Change Readiness

PR…….Perceived Risk

RA……Relative Advantage

TAM……Technology Acceptance Model

TPB…….Theory of Planned Behaviour

TPP…….Third Party Payment Processor

TRA…….Theory of Reasoned Action

GOFA…….Government Finance Officers Association

ITU……. International Telecommunication Union

GSMA…… Global System Mobile Association

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Chapter One

INTRODUCTION

1.1. Background

Commercial transactions always involve the exchange of value between buyers and sellers. Value exchange holds its contemporary form starting from a barter system in old days. Today people use several alternatives to effect payments while buying goods and services.

In this regard, the advent of advancement in the information and communication tecnology has contriubted to the availability of various payment options. In the past decades the world has entertained major payment system innovation because of computer technology advancement and also the deregulation of the financial market which create many alternative of payments in addition to cash while transacting businesses. (Felicia Schardof-Lamptey, 2012)

Now a days, though cash is still the most widely used form of payment especially in the developing part of the world like Ethiopia, the technology growth is bringing other modern payment mechanisms such as plastic cards, (like debit credit and prepaid), Point of Sale Terminal, e-commerce and m-commerce. There is uneven variation on spread of e-payment among countries because of differences in factors affecting the growth such as infrustructure and quality of regulation framework among others.(Karamjeet Keur & Dr. Ashutush Pathak, 2015). E-Payment in most African countries is practical in limited circumstances or is non existance because of lack of infrustructure and proper legal or regulatory framework. (Wondwossen T & Tsegai G., 2005)

Although there is a strong momentum in adopting electronic payment, there will be a decline of paper based payment, emergence of payment methods and growth of corporate financial management technology where the new technologies play increasingly an important role in the management of payments. (Treasury Management Article, 2015)

Currently, Ethiopian commercial banks and other fianncial instituions are highly investing on technology to modernize their services and provide electronic payment services to their cusotmers. One of the priorly implemented electronic payment services is deployment of Point of Sale terminal at merchant locationw so that customers can pay with their card for the goods and services they bought.

The pages that follow hence, discusses about E-payment in general and payment on Point of Sale Terminal specifically and try to identify factors that affect its adoption by Ethiopian cardholders.

1.2. Statement of the Problem

Going through many steps, starting from barter to today's electronic means, various modes of payments exist while transacting businesses. All the payment systems had their own pros and cons where the cons of the previous payment method became the reason for the birth of the next generation payment method.

Whithin this procesess, the limitations of accepting cash for payment leads to the introudction of e-payment which is currently growing faster as it facilitates business transactions by reducing transaction costs and adding convinience and other benefits to participants. Electronic Payment enhances efficiency of operations and increase productivity level through expedient payments and reciept of funds. It also adds on speed and convinience of accessing account from any place at any time. (Aziz A., 2008)

One of the meanses of accessing an account is having a payment card (debit, credit or prepaid) where one can make payments at merchants' using Point of Sale terminal deployed at placse of trade. Point of Sale terminal is one of the e-payment meanses where people can pay for goods and services using cards. This method of payment is widely used in the developed countries and is rapidly expanding in the developing countries as well. Making payments at merchants' has an important impact in transforming the socieity as cashless.

In Ethiopia, there are 15 banks that provide card payment service. The number of debit card and Point of Sale Terminals as at June 2016, as per the MCIT Situational Report (2016) , was 3.6 million and 7787 respectively where the number of point of same terminal has an increase by 33% from the proceeding year showing a promise of growth in the coming years. The point of sale terminals are deployed at various merchant places like hotels, supermarkets, hospitals, jewelery shops, restaurants, cafes, and other shops. Wondwossen T. & Tssegai G. (2005), cash is found to be the dominant means of payment in Ethiopia. They further explained the limitation of cash as follows:-

- Cash can easily be stolen
- Cash is not convinient for large amount of transaction
- Cash doesn't provide a float
- The physical presence of the buyer and the seller is required while making cash payment

Carrying cash for large volume transactions has a great risk like vulnerability to theft, fraud and corruption in addition to incurring in expense for moving the cash. (Ogoti Eligah, 2015)

"However, the Ethiopian economy remains cash based thus card acceptance at POS is very limited representing less than 1% of the overall card payment transaction. The majority of transactions are undertaken by international cards (cards issued by foreign banks) in the travel and hotel merchant sector" (MCIT, 2016: 489). The report puts share of all busness payment modalities as follows which shows paying with card has lesser share with only 5%.

Payment Modalities	**Percentage Sahre**
Check Payment	34%
Cash	27%
e-Bank Transfer	18%
Traditional Bank to Bank Transfer	16
Payment with Card	5%

Source: MCIT (2016)

Of the total 5% payment made with card, only 1% is made by local card where the remaining 99% is made by international card issued by foreign banks. (MCIT, 2016)

The report further states that the dominant payment means is cash where only 0.7% of wage recepients receive their wage payment through an account and almost all make utility payments exclusively in cash. This entails the payment development for ethiopia to be very low as compared with sub-saharan and low income economies. The World Payment Report, 2016, confirmed that card payment led the grwoth of non cash transaction globally with 45.7% share in the year 2014 out of the total 387.6 Billion non cash transaction in the year.

The use of cash for payment also has impact on countries' economy as governments need to print new cash notes and also regularly replace torne out notes.

Several Researchers have studied factors that affect the effective deployment and adoption of E-payment in different countries including Ethiopia. The studies mostly focus on E-payment in general or E-commerce and Online Payment in specific where less focus was given to payment on point of sale terminal. Most of the studies were also made from organization/implementation perspective where the users/cardholders side was not covered well enough. Tennyson O. & Mercy E. (2014) have found usefulness, ease of use, accessibility and trust to affect adoption of E-payment in general. Others like Nakhumua N. (2013), Bultum A. (2014) and many others have studied factors that affect adoption of e-payment, e-banking and e-commerce.

Alemayehu B. (2017) has made a study on adoption of Mobile payment in Ethiopian case while Adbib M. (2013) and Takele Y. and Sira Z. (2013) made study on adoption of E- banking by banks and customers specific to Ethiopia. However, less focus was given to payment on Point of Sale terminal specially in the Ethiopian context where payment on point of sale terminal can be said the wide spread e-payment method counting more than 12 years in the country unlike mobile payment which is a recent phenomenon and E-commerce is almost non-existent. Although the issue is very important to all that have stake in the POS acquring industry, the student researcher has found very few studies made on the adoption of e-payment on Point of Sale terminal specific to Ethiopian case.

Therefore, this study intends to investigate factors that affect the adoption of e-payment on Point of Sale Terminals by cardholders/customers with special reference to attitude, perceived risk, trust, relative advantage, convinience, perceived behaviour control and change readiness which most of them are factors mentioned on various theories of innovation adoption.

1.3. Basic Research Questions

- What are the factors affecting the adoption of e-payment on Point of Sale Terminal by Cardholders/Customers?

The study will further focus on the following sub-question to analyze the situation.

1. What is the effect of attitude on customers' adoption of e-payment on POS in Ethiopia?
2. What is the effect of perceived risk on customers' adoption of e-payment on POS in Ethiopia?
3. What is the effect of trust on customers' adoption of e-payment on POS in Ethiopia?
4. What is the effect of relative advantage customers' adoption of e-payment on POS in Ethiopia?
5. What is the effect of convineince on customers' adoption of e-payment on POS in Ethiopia?
6. What is the effect of perceived behavioural control on customers' adoption of e-payment on POS in Ethiopia?
7. What is the effect of change readiness on customers' adoption of e-payment on POS?

1.4. Objectives of the Study

1.4.1. General Objectives

To achieve the goal of e-payment adoption in the country, it is useful to understand factors that affect the adoption of e-payment by cardholders. Therefore, the purpose of this study is to investigate various factors that contribute to the adoption of e-payment on Point of Sale Terminal (POS) in Ethiopia.

1.4.2. Specific Objectives

- To determine if attitude has impact on Cardholders/customers to adopt of e-payment on POS
- To determine if perceived risk has impact on cardholders/customers to adopt of e-payment on POS
- To determine if trust has impact on cardholders/customers to adopt of e-payment on POS
- To determine if relative advantage has impact on Cardholders/customers to adopt of e-payment on POS
- To determine if convineince has impact on Cardholders/customers to adopt of e-payment on POS
- To determine if percieved behavioural control has impact on cardholders/customers to adopt of e-payment on POS?

- To determine if change readiness has impact on cardholders/customers to adopt of e-payment on POS

1.5. Scope of the Study

"In principle, e-payment may be defined as all payments that are initiated, processed and received electornically" (Monica E. Hartman, 2006:7). E-Payment refers to payments that are effected electornically over the intenet or other electronic modes without the actual involvement of cash notes or other paper based payments. However, this study focuses only on e-payment

where retail payment are made by cardholders/customers to merchants on point of sale terminals in Ethiopia based on the factors stated in the statement of the problem section. In addition, only cards issued by Ethiopian Commercial Banks (Local Cards) are considered for this study purpose while cards that are issued outside of Ethiopia are excluded from the study.

1.6. Significnace of the Study

This study can be used by all stakeholders of e-payment system to enhance the adoption of payment on POS and work towards the effective implementation of the system in Ethiopia by addressing the concern of cardholders/customers. It can be used by policy makers and regulatory parties to develop workable regulatry frameworks, plicies and directives that can support the effective implementation and adoption of e-payment on POS. The service providers/financial instituions can also use the study to develop and imlement effective strategy to enhance the POS acquring service through an increased number of active cards on POS.

Further, researchers can use this study as a source of review of litrature as there are only few researches done specific to e-payment adoption on POS in the country.

1.7. Limitation of the Study

The study was conducted on conveniently selected cardholders of banks that commence the merchant acquiring business as the nationwide interoperability is not yet introduced except the six banks that uses each other's POS through a third party payment processor . Therefore, as getting the complete list of cardholders from these banks was difficult; cardholders that have experience of using their card to make payment were selected conveniently so that a valuable data can be collected for the study.

1.8. Definition of Terms

E-Payment was defined by Mohammed Auwal Kabir et. Al as a collection of components and processes that enables two or more parties to transact the exchange monetary value via electronic menases.

Ben Fung et. al. (2014) have also defind e-payment as electronic payment methods that allow users to access funds in their deposit or credit accounts in financial institutions to initiate payments; for example, debit and credit cardds, Internet banking and some mobile payment schemes.

Point of Sale:- "A retail location where payments are made for goods or services". Mobile Money Definitions (2010).

1.9. Structure of the paper

The paper is organized in five chapters. Chapter one discusses the introduction and the road map of the research while chapter two covers the review of related literatures which provides a comprehensive discussion about e-payment in general and e-payment on POS specifically. Chapter three discusses the analysis and interpretation of the data collected from respondents and addresses the results of the empirical analysis of the data. Finally, chapter five covers the summary and conclusion emanating from the result obtained from the study and proposes recommendations.

Chapter Two

LITERATURE REVIEW

2.1. Introduction

In the history of mankind, several payment mechanisms were observed ranging from traditional barter system to todays modern electronic payments. 'A payment is a transfer of a monetary value from one party to another, often as a compensation for a good or a service.' (Bjorn Segenorf and Thomas Jansson). The payment can be made through cash, traditional way, or by card or other EFT (Electronic Fund Transfer) meanses which is the modern way of paying.

"E-Payment system refers to the automated process of exchanging monetary value among parties in business transaction and transmitting their value over the ICT Networks" (Ayo K. & Ukpres I, Unpublished:41)

The process of e-payment is represented by the transfer of funds among cusomters, banks, bill payments, pension and other payments electronically. The common e-payment channels are Payment Cards, Web Portals, Point of Sale Terminas, Authomated Teller Machines, Mobile Phones, Automated Clearing Houses and Real Time Gross Settlement. (Nnaka, 2009. Cited in Ayo K. & Ukpre I. (Unpublished)).

The Progress in information and communication technology availes the possiblitiy of adopting the existing payment methods and also the introduction of fundamentally new concepts for payment initiation, processing and reciept. (Hartman E., 2006). The ICT and digital innovation era has lead to a change in the business environment where payments for transacion are made more electronically than cash based payments. The occurance of this change in the business environment has forced organizations to automatically switch from paper based transaction to an electronic payment system called e-payment system. (Kabir A. Et al, 2005)

The e-payment has immense benefit to the economy where is saves up to 1% of GDP by shifting from paper based to e-payment. Further researches have also shown e-payment

promots consumption spending and also ehance financial inclusion by extending financial services to the unbanked communities. (Aziz A., 2008)

Electornic transactions involve a payer and a payee and financial institutions action as issuer and acquirer where the issuer gives card for the payer and the acquirer provides the payment devise/method to the payee. In most part of the world, e-payment is replacing the cash based payment as people prefer the saftey and convinience of the e-payment system over paper money. As per the World Payment Report (2017), non cash transaction volumes grew at 8.2% in 2014 to reach 387.3 billion, the highest growth since the yearly report first published in 2005. As per the report the increase was due to the growth recorded in developing market which is 16.7% increase in 2014 while the developed grew by 6.0%. The report further states that, payments with card has recorded the highest share from global non cash transaction which is 45.7% in 2014 which is the fastest growing payment instrument in 2014. (World Payment Report, 2017)

2.2. Benefits of E-Payment

E-Payment enables individuals, government and businesses to make payments for goods and services cashless through internet, card, mobiles which reduces cost, saves time and increase sales. The benefit of convinience is achieved as payments can be made from anywhere for goods and services bought or consumed at any place. There won't be a queu for payment.

Generally, E-payment has a paramount importance to many stakeholder, in many ways. It has a benfit to the economy, financial institutions, the Government itself and the society as a customer or user.

2.1.1. Benefit to the Economy

The Various modes of payment evolved in the economy has their own benefit contributed to the growth of once economy. One of the recent phenomenan in payment is electronic payment which brought with it more economic efficiency and productivity. The two basic concepts which supports the theory of imroved efficiency generates ecomonic growth are the

response of economic agents like consumers, producers and investors to incentives through reduced costs and the "Equation of Exchange" which notes that the product of quantity of money and its turnover rate equals the total volume of activity that can be supported. (The Perryman Group 2015).

"The electronic payment system enhances efficieny by making payments faster and easier. As a result, consumer spending has been enhanced, production has been facilitated, and the US economy has been able to grow at a faster pace than it would have otherwise.' The Perryman Group 2015. As per the report, the electornic payment system and associated efficiencies have increased the size of the US economy by 12% personal consumption expenditures by almost 17% and employment by 20%. (The Perryman Group, 2015)

The examination done on 70 countries around the globe over a five year period between 2011- 2016 to see the impact of e-payment shows that E-payment added USD 296 billionn to GDP in the 70 countries. This is equivalent to the creation of about 2.6 million or 0.4% of the total jobs on average per year of the five year period. (Zand M. Et al., 2015) There is a positive relationship between transaction made by cards and economic growth, where an increase of one percentage point in the penetration of electronic payment could generate an increase of between 0.035% and 0.045% in per capita GDP, which indicates the significant impact of e-payment of GDP if emerging econimies begin to move towards high penetration of e-payment. (MasterCard Worldwide, 2013).

The result of a model constructed to study the impact of online payment of 17 European countries over five years shows 1% contribution of online payment to the total EU27 GDP, or Euro 125 billion in 2012. (Deliotte, 2013)

2.1.2. Benefit to Government

As per GFOA (2014), the use of electronic payment by governments eliminates the handling, processing and storage of paper checks, reduces reconcilliation time and avoids fraud. In addition, it enhances internal control of high volume small dollar procurement. Further GFOA (2014) states, electronic collection by government accelerate receipts and availability of funds in addition to adding convinience to paying customers.

"E-Payment is no longer a matter of choice or debate for Bangladesh or other countries to improve governance standards" Hasam M. Et al (2015) They further states that in Asia, E-payment has brought important transformations so that governments provde efficient services to citizens and businesses, whch enable them respond to citizen's needs and demands faster and more efficiently. (Hasam M. Et al, 2015). They also explains the benefit of e-payment to governance through transparency, boosting investors' confidence, reducing scope for corruption, boosting the private sector and lead to a more efficient governance.

The E-government hand book (2012) states that e-government enhances the transparency, interoperability, record management, education, and public/private competition/collaboration for the government. (The e-government hand book, 2012)

2.1.3. Benefit to Financial Institutions.

Mobile Payment benefits finacial instituions in a way that it is cost effective in delivering financial services to mass market and generates mulitple sources of revenue. In addition, it enables low cost fund mobilization hence reducing overall cost of funds. (International Finacial Corporation, 2014)

2.1.4. Benefit to Customers

Within the e-payment process, cusomters are made access their account 24 X 7 from anywhere at anytime. Customers can pay for goods and services bought without holding cash in their pocket. This addes on convinience and saftey of not holding cash in the pocket.

2.3. Modalities of E-Payment

Payments are called to be electonic if they are made without the existance of physical cash and if the account of the payee is credited and debit is made to the payee account electronically. For this to happen, there needs to be instruments used by the payer and also deviceses used by the payee that works electroniccally. The e-instruments that are usually used by the payers are payment cards like debit, credit and prepaid and mobile wallet. The

payee use payment accepting machines such as website, mobile and point of sale terminal. Although many tools are attached to these devises and payment metods are varied, the payment accepting devices are basically the same.

However, there are mediators between the payer and the payee, usually financial institutions or payment processors, that issue the payment means to the payer and provide the payment accepting devise to the payee. These are called issuer and acquirer which sometimes can be one bank.

There are three types of e-payment modalities where people can pay without the involvement of paper money. These are:-

1. Mobile Payment
2. Online Payment
3. Payment on Point of Sale Terminal

2.1.1. Mobile Payment

"A movement of value that is made from a mobile wallet, accrues to a mobile walet, and/or is initiated using a mobile phone. Sometimes, the term mobile payment is used to describe only transfers to pay for goods or services, either at point of sale (retail) or remotely (billpayment)." (Mobile Money for the Unbanked, 2010)

"Mobile wallet is defined as an account that is primarly accessed using a mobile phone"

In the earlier times mobiles were used only to make calls, send messages or to take pictures. However, the current technological advancement enables phones to make payments using the wallet created in it. The Mobile Money can support services such PSP (person to Person) transfers, among others, which add significant value for emerging economices. (The Mobile Money Revoltuion, 2013)

As per the World Payement Report (2016), mobile devices have canibalized online payment while this is very unlikely to be the case in the corporate space where mobile devices are expected to be the mainly used supplement online channel. It further states that one third of

retail banking customers globally say they use mobile devices for banking and payments at least once a week. However, more than 90% of the industry executives surveyed online for the purpose of 2016 World Payment Report agreed that adoption of mobile devices for payment by corporates is very low.

The mobile wallet market is expected to reach USD 53 billion in 2019 from USD 3 billion in 2013. In countries such as India and most African coutnries experienced strong mobile payment adoption. (World Payment Report, 2016)

2.1.2. Online Payment

Online Payment is a payment made electronically through internet for a purchased goods or services online. Payment instruments in this case do not need to be swiped or read by payment accepting machine.

"Online payment methods refer to the way shoppers can pay for their purchases over the internet." (E-commerce Payment methods report, 2016) It further states that the online payment method is presented at the payment option page of the merchant website. The adoption level of online payment vary from country to country because of differences in regulatory frame works, IT infrustructure development, economic and social conditions. (Sumanjeet S. 2009). Globally, e-commerce sales grew by 17.9E in 2011 and are estimated to grow by 20.7% annually to reach 963 billion USD. (Govol S., 2016)

2.1.3. Payment on Point of Sale Terminal

Point of Sale Terminal (POS) is defined as 'The site where a customer makes payment via credit or debit cards. Generally terminals are at the cash register but mobile terminas at restaurants, parks and computer stores are available." (First Data, 2010) . The latest development in point of sale technology is the movability of the terminal to take wherever the cusomter is. (First Data, 2010)

At Merchant locations, payments are accepted in different ways. One of the recent occurance in accepting payments is through point of sale terminal. Customers are given the option of paying with card while transacting at merchants. The card can be swiped through magnetic reader or inserted through chip reader or can be read contactless (NFC). Paying by point of sale terminal, which is the very concern of this paper is one of the e-payment methods, where payments are made without the involvement of physical cash. Replacing cash with electronic payment like POS (point of sale terminal) has a considerable cost saving. Merchant acquiring was commenced as a promotion to credit card to be used as a consumer payment method where issuing financial institutions worked to get cards into customers' wallets and thereby increase the number of merchant locations at which these cards were accepted. (Bradford T. & Hung C., 2008)

As per the Digital Payment Report (2016) forecast, digital payments in India will be in the range of USD 500 billion by 2020, approximately 10 times from the current level and from this, person to merchant transaction driven by point of sale terminal is expected to be major contributor of the growth. The distribution of POS terminal accross the country has a great impact on the accessibility and usage of POS. In this regard, Australia takes the first rank when POS per population is compared globally by availing 1 POS per 27.9 people and Netherlands comes next with 1 POS per 29.7 people in 2014. From African counries, South Africa has a good performance with 145.9 people per 1 POS. (Benchmarking Newzealand's Payment Systems, 2016)

In terms of transaction processing in 2014, Sweden, that has one POS per 49.3 people, takes the first place by processing 12,000 transaction per POS while Netherlands, with one POS for 59.7 people, stands second by processing around 10,500 transaction per POS in 2014. (Benchmarking Newzealand's Payment System, 2016). In Nigeria Payment at point of sale has a share of 0.49% of total payments made, which shows that the economy is heavily cash based.

2.1.3.1. Key Participants and their Respective Role in Payment at Point of Sale Terminal.

The acquiring part of the payment industry involves many stakeholders with distinct responsibilities and benefits. Among the participants are Merchants, Acquiring banks, Third

Party Payment Processors and Card Associations. Acquiring is the integral part of the overall payment card industry where the merchant industry is shaped by the relationships between the merchant and the acquirers. Merchant acquirers enable merchants to accept cards for payment and help increasing sales by accepting different brand cards with highest purchasing power of cash only available in a pocket. The acquiring transaction processing contains a network of participants that handle card transactions via authorization, clearing and settlement, dispute management and others.

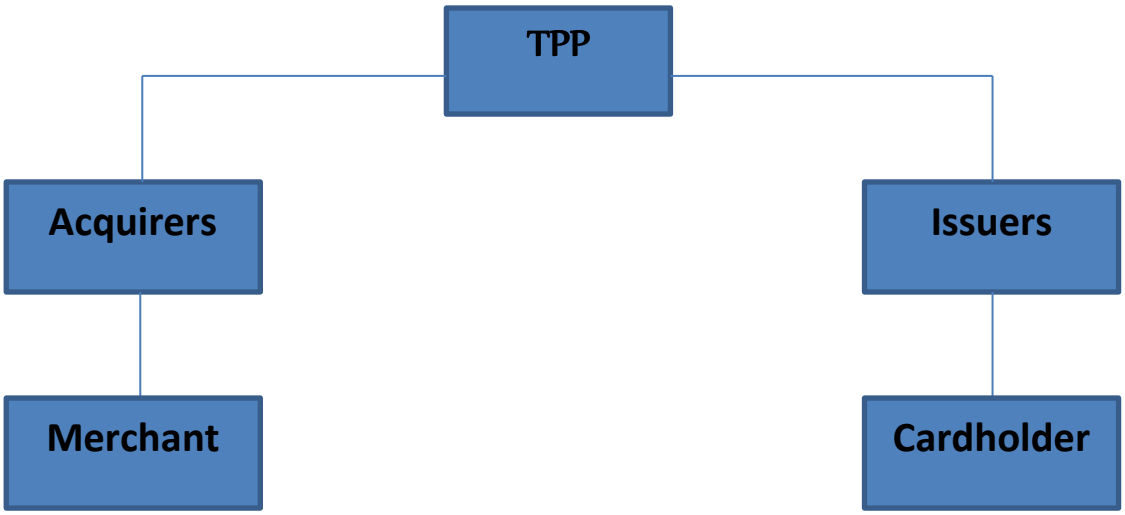


Fig. 2. 1: Participants in POS Transaction Processing

The payment industry comprises many different entities that perform various tasks in the process. The card issuer gives cards to the customer and the acquirer signs up merchants to accept cards for payment. Therefore, the relationship is always cardholders with issuers and merchants with acquirers at all times and not otherwise. On the other hand processors like PSS handle the transaction processing electronically by routing authorization request from the point of sale to the acquirer then to issuer and bring back authorization responses from the issuer to the acquirer and then finally to the point of sale. However, processors are included as a participant if the acquirer performs the processing through a third party processor.

2.1.3.2.Participants' Role

a. Acquiring Banks

The acquiring bank signs up the merchant and provides payment processing services to the merchant to enable them accept payments by card. The bank levies a merchant service charge

on every transaction processed by the point of sale terminal which is usually set in percentage of the total transaction volume as a payback to the services rendered and the benefit the merchant enjoyed.

b. Merchant

Merchants enter into an agreement with an acquiring bank to accept payments with card expecting more sells, better cash and sales management and other related benefits.

c. Cardholders

Customers who prefer card over cash pays for goods and services to merchants by card. Cardholders enjoy the convenience and better accessibility of their funds in a bank account than the limited cash amount in a pocket.

d. Third Party Processors

TPPs provide transaction processing and other related services to acquirers as they possess economies of scale and advanced technological systems for cost effective processing. Processors charge fees for the services provided to institutions based on the type of pricing agreement.

e. Card Associations

International card associations like VISA, MasterCard and Union Pay act as a link between the issuing bank and the acquiring bank on off-us transactions depending on the type of the brand on the card. The associations validate the fund availability with the issuing bank and communicate same to the acquiring bank. Therefore, it charges fees for processed transactions through its network.

2.1.3.3.Key Functions in POS Acquiring

i. Merchant Signing and Setting up

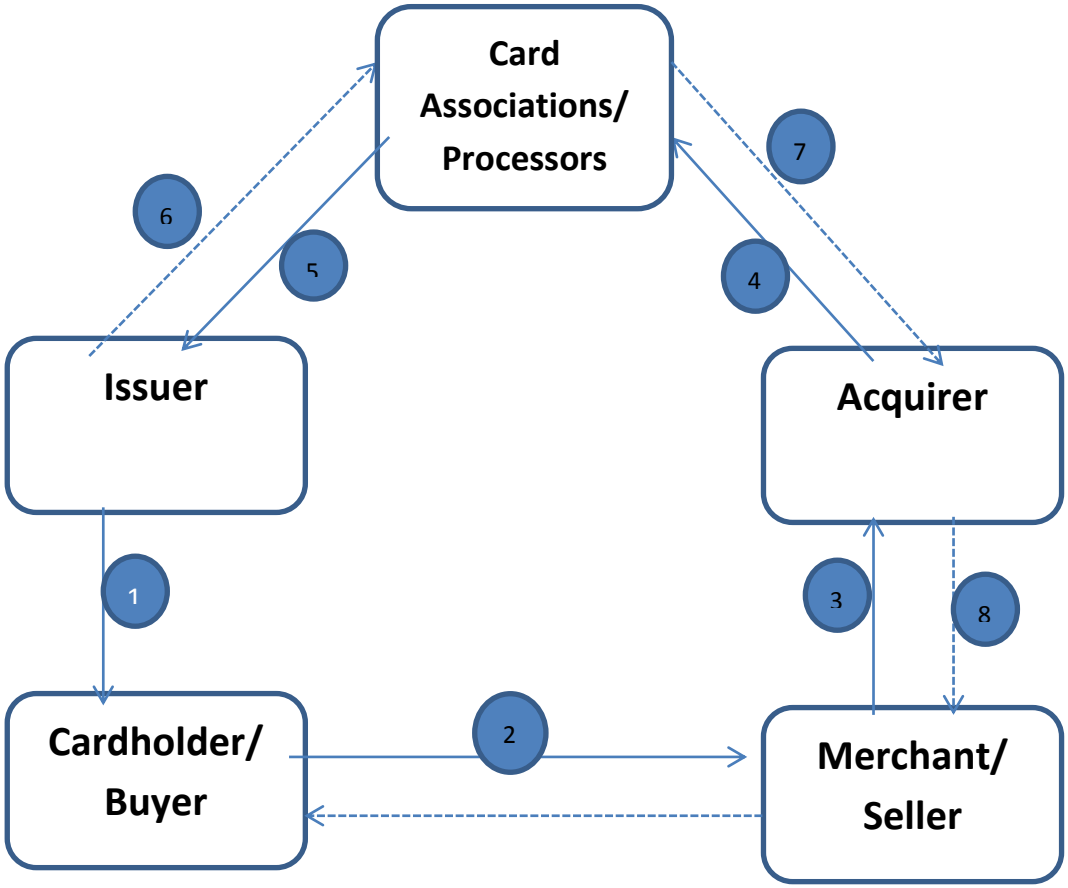
The first step for merchant acquiring is for the merchant acquirer to sign an agreement with the merchant to accept payments with card. Then the merchant is provided with POS

terminal and other services specified in the merchant agreement. The process of signing up a merchant to adopt card acceptance is the first step that is followed by underwriting them and following them up throughout the process. (Bradford T. & Hung C., 2008).

ii. Transaction Authorization

Acquirers give authorization to the merchant by ensuring that the payment for the authorized transaction is guaranteed. These authorizations are given by the acquirer itself if the transaction is on-us and by other issuers through different card associations if transactions are off-us.

Fig. 2. 2: POS Transaction Process flow



1. Issuer Bank gives card to its customer
2. Cardholder presents card to the merchant for payment
3. Merchant sends card data to its acquirer looking for authorization
4. Acquirer bank sends transaction data to card associations,
5. Card Association sends the transaction data to the issuer bank for authorization
6. The necessary validation is done by the issuer and Authorization response is sent to card associations
7. Card associations send authorization response received from issuer to the acquirer
8. Acquirer sends authorization response received from card associations to the Merchant

iii. Clearing and Settlement

The acquiring bank transfers the sales data received from the merchant to the issuer by the sending clearing file to the card association. Then the issuing bank deducts the transaction amount from the cardholder and sends the fund to the acquirer through the card association.

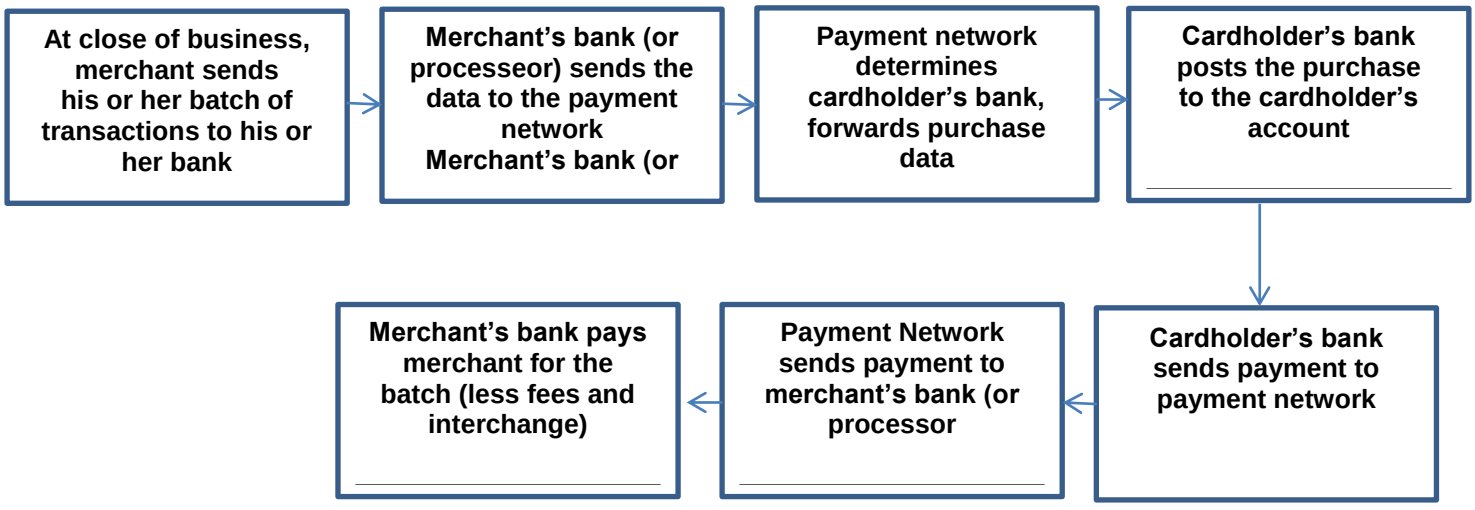


Fig. 2. 3: Clearing and Settlement process

Source:- Kossler T. (2013)

iv. Dispute Management

Not all transactions processed by merchants are honored by cardholders. Hence, any dispute request by cardholders through their issuers is entertained by the acquiring bank procedurally.

2.4. POS Acquiring In Ethiopia

The acquiring business was introduced in the country back early 2003 G.C. along with issuing business. Most of the banks involved in the modern payment system issue cards with certain brand and acquire cards with different brands. Most of the banks issue cards with same brands although there is no interoperability among them. This is to mean that every bank acquires its own card whether it is a same brand with other banks. However, the late introduction of the interoperability by Premier Switch Solutions among the six banks has changed the scenario and take the industry one step up with regard to sharing infrastructure.

The architectural presentations of the two scenarios with and without interoprability are as follows:-

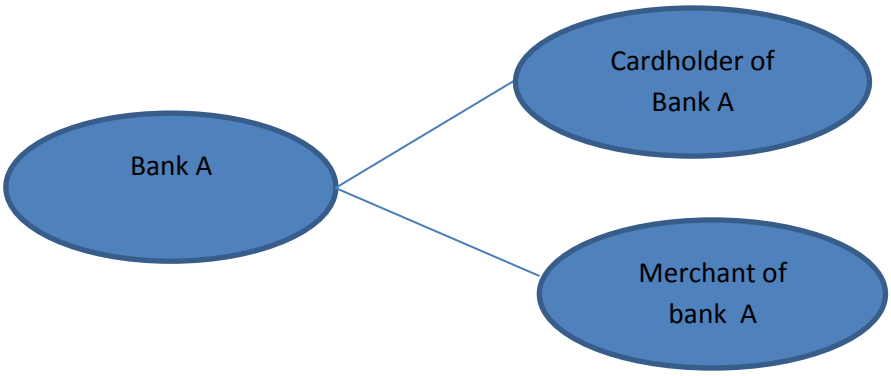


Fig. 2. 4: Three-Party Network

The three-party network exists when the issuer and acquirer bank is the same on a single transaction.

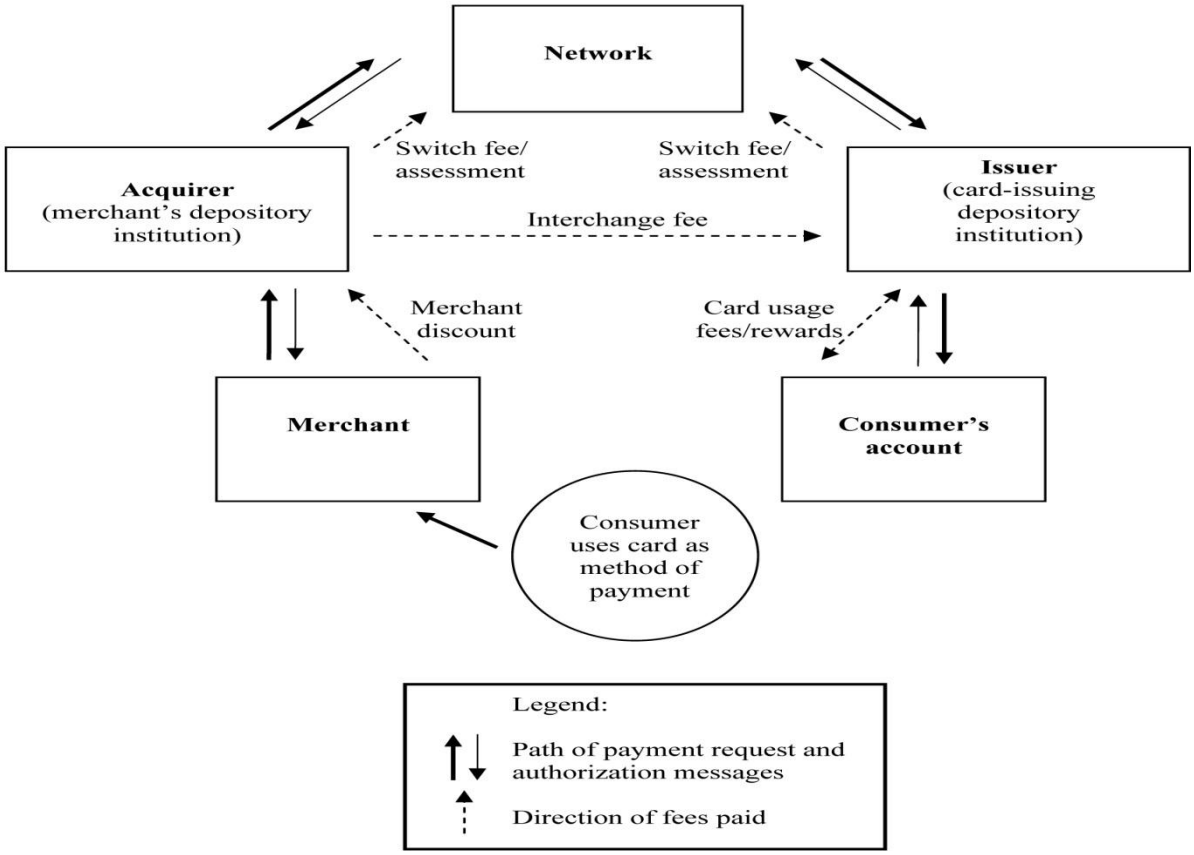


Fig. 2. 5: Four-Party Network

Source: Prager A. et al (2009)

The four-party network exists when the issuer and acquirer banks are different on a single transaction connected to card associations. (Lev S. et al 2016)

The number of POS terminal in the country as at 2016 was 7787 increasing by 33% from the preceding year. Of the total number of POSs, the Biggest government bank CBE has 80% share where the reminaing is shared by the rest of the banks. The coverage of the POS accross the country shows a ratio of 10.9 POSs for every 100,000 adult population. (MCIT, 2016). With regard to paument card, 15 banks in Ethiopia issue cards to their customers where debit card takes the largest share of issued cards. As at June 2016, the number of cards has reached 3.6 million which grew by more than 12.5% from the preceding year. These cards are restricted for international usage due to the FCY regulation of the country. (MCIT, 2016)

The card usage in the country is mostly limited to getting cash access on ATMS where more than 99% of over all card transactions are made on ATMs imiplying that card payment **usage** is still very limited. (MCIT, 2016) The reason for limited card payment is stated by the report as:-

- Limited awarness of customers about the benefit and simplicity of card usage at POS.
- Cncentration of POS at Travel and Entertainnment Merchants
- Mis-conceptually associating card payment with elite and high income life style
- Frequent down time which creates bad past experience
- Lack of trust in the system

The report has also put convinience as a leading factor for consumer adoption of e-payment which indicates payment anywhere and anytime. (MCIT, 2016)

2.5. Challenges of POS (point of Sale) Acquiring

The innovation in merchant acquiring has simplified the process of paying funds securly as payments can be transfered electronically from the payer to the payee. But this doesn't happen without a challenge. The innovation in acquring business has created new options for both the merchant and the customer to securly exchange transaction funds through point of sale terminal and online. (Govol S., 2016)

1. Security

Ensuring the security of data transmitted through the payment system has paramount importance as not doing so may lead to fraud. Several data compromises have taken plce at different merchant locations. (Kjos A., 2007)

2. Language Barrier

The Language used in the payment system is usually foreign language as the system is developed abroad and does not consider local languages. Language being the very essential part of communication among business stakholders to conduct business, it is important to consider working with native language of one's country since it is the easiest way of understanding each other. (Tekab Sintayehu et. al). They further state that point of sale terminals operate only in limited language which is hinderance for efficient operation. (Tekab Sintayehu et. al)

3. Infrastructure

For point of sale payment functionality, a connectivity means is a must to have as the terminal needs to send message and receive response from the main server. This connectivity infrastructure needs to be efficient and cost effective to ensure merchant and acquirers profitability and the effectivness of the entire POS payment eco system. The appropriate connectivity infrastructure for point of sale terminal are ethernet, GPRS, PsTN and ADSL to be implemented as appropriate based on the location and type of the merchant. The uninterrupted availability of this connecivity is mandatory to ensure the smooth functioning of the POS payment system.

4. Regulatory and Legal Frame work

Regulations that govern the activities carried out by POS Payment participant is important to make sure that all participant getthe intended benefit from system. Regulations on operation standard, pricing specially on interoperability and other standard are mandatory to smoothly operate in the system. A comprehenisve legal frame work that 'facilitates' rather than 'strictly regulating' e-payment is a pre-requisite for e-payment growth. (Wondwosen T. & Tsegi G., 2005). **Pasin A. & Lisanework A**. Also states the adoption of e-banking needs legal and regulatory framwork that facilitates its adoption by customers.

5. Investment Cost

The investment required for the implementation of POS payment system and maintenance cost is usually high as it requires vast software and hardware as an input. In addition the cost of the point of sale terminal itself, its operating cost, and merchant servicing cost is high which requires an intense study and marketing strategy to benefit from the investments.

6. Awarness Creation

Awarness is the major concern of acquirers to push cardholders to merchants and ensure readiness of merhcants to accept cards.

7. **Socio Cultural**

Resistance to change specially change related to technology is a challenge that hinders the expanssion and development of e-payment. This is usually attributes to lack of awarness, not knowig the benefit, fear of risk and sticking to the existing system rather than looking for a change and others. **(Wondwossen T. & Tsegi G., 2005).** They further states that Dashen Bank, Total Ethiopia and Commercial Bank of Ethiopia have faced some problem related to socio-cultural attitude which they found while they interview respresentatives from this companies.

2.6. Innovation Adoption

Innovation adoption is expressed as time consuming process which consists five stages:-

- **Awarness**

In this stage of adoption process, individuals are simply aware about the existance of the innovation from different sources. (Karlsson C, 1988)

- **Interest**

After being aware of the existance of the innovation and having enough information about the innovation, they develop interest if the innovation helps them in some way. (Karlsson C, 1988)

- **Evaluation**

After developing interest, indivduals examine the gathered information if the innovation actually impact their day to day activity in a better way. (Karlsson C, 1988)

- **Trial**

In this stage, individuals test the innovation in small scale to see if their expectation matches with what the innovation actually provides. (Karlsson C, 1988)

- **Adoption**

The final stage of the process is adotpion that happen if individuals like the innovation tried in samll scales. The individuals will keep using the innovation and become advocate for it. (Karlsson C, 1988)

Adoption, being a major process in the diffusion of innovation, has many stages where individuals pass through to reach at a decision to continue or discontinue using a new product. (Andualem G. Et al, 2015). They described the stages of the adoption process that are:-

Awarness- Consumers exposure to innovation

Interest:- Developing interest and searching for information

Evaluation:- "Metal trial" of innovation

Trial:- Using the product on limited basis as a test

Adoption/Rejection:- Decision made after trial eigher to continue using the innovation or rject it' (Andualem G., et al, 2015)

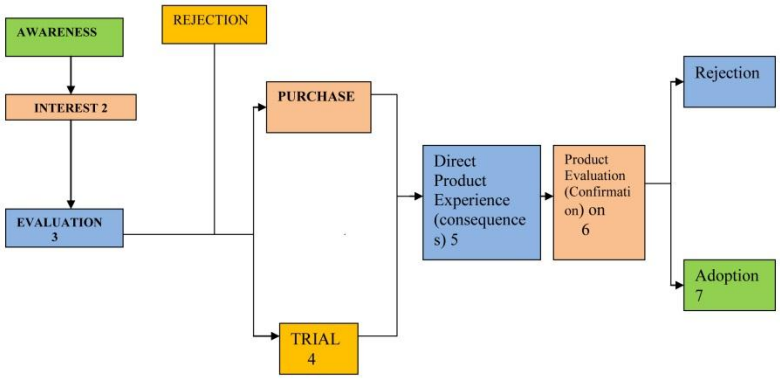


Fig. 2. 6: Enhanced Trial Adoption Process

Source: Andualem G. et al (2015)

2.7. Theoretical Review

2.7.1. Convenience

With the continuous and dynamic change in technology, how fast are the new technology adopted by consumers depends on various factors, of which convenience is one. (Lai P., 2017). The level of convenience in new technology may determine the frequency of usage or choice of usage of new technology. In a study made to find the role of convenience in E-payment usage by Taylor V. and Arango C. (2009), it is found that convenience is a significant factor for e-payment usage. The technology acceptance Model ™ that was introduced by Fred Davis in 1986, uses the dimensions of convenience that perceived usefulness and perceived ease of use as a variable to determine attitude of people towards using a technology. (Lai P. 2017).

Perceived usefulness measures if the technology contributes to the enhancement of users' performance while perceived ease of use measures how easy the technology to use by users is. (Mourad M and Sherif F., 2015). Perceived usefulness reflects how users perceive or see technology with regard to benefit and value gained out of the new technology.

In this regard on an empirical study made on E-payment technology adoption in emerging economy by Mourad M. and Sherif F. (2015), has found perceived ease of use and perceived usefulness which are the dimensions of convenience significant factors for e-payment adoption. In another study made to find determinants of customers' acceptance of electronic payment system in India by Sinha I. and Roy S. (2014), perceived ease of use and perceived usefulness have significant impact on E-payment adoption.

2.7.2. Relative Advantage (RA)

"Relative advantage is the degree to which an innovation is perceived as better than the idea it supersedes." (Rogers, 2003:15). Roges (2003) also states that individuals pass through innovation decision process by seeking information to decrease uncertainty about relative advantage of an innovation and to know the degree to which a new idea is better than an existing practice. Many scholars have found that relative advantage is the best predicator of innovation adoption. A study made by Mknongoro G. (2014), on factors influencing customers' adoption of mobile baking service in Tanzania, shows that relative advantage has a positive and significant impact for mobile payment adoption.

2.7.3. Attitude

As per Culberston M. (1968), attitude involves at least three thing which are attitude object (something as defined by attitude holder and not a physical thing independent of the holder), a set of belief (object is good or bad) and a tendency to behave (towards the object so as to keep or get rid of it). Culberston (1968) further states that there are a number of ideas which go beyond this simple notion of attitude. The first one is, knowing how intensely a person feels about the attitude and how deeply committed he/she is to adopt a new practice. The other one is knowledge level of the audience about

the new practice while the third one is resistance to change where strong attitudes are like 'blocks of granite 'and others are easier to change.

Attitude was found to be significant factor for e-payment adoption by Dasta I. and Gurler C. (2016) in an empirical study made to identify factors affecting the adoption of mobile payment systems. Further Sinha I. and Roy S. had studied determinants of customers' acceptance of electronic payment system in India and found that among other variables, attitude is a significant factor for e-payment adoption. Takele Y. and Sira Z. (2013) have also found attitude to have significant impact on e-banking channel adoption.

2.7.4. Perceived Behavioral Control (PBC)

Perceived behavioral control is the perception of ability to perform a given behavior which is determined by the presence of factors that may facilitate or hinder performance of a behavior. Perceived behavioral control was proposed by the theory of planned behavior as a factor that affect innovation adoption behavior having self-efficacy, technology facilitating factors and resource facilitating factors under its construct.

Perceived behavioral control was found to have significant relationship and impact on e-banking adoption study made by Takele Y. and Sira Z. (2013). Further, similar result was found by WEI S. in a study made to identify factors affecting adoption of E-payment where self-efficacy, one of the construct of perceived behavioral construct, have significant impact on intention to adopt e-payment.

2.7.5. Change Readiness (CR)

'Readiness to change is a latent psychological state of willingness to undertake a new pattern of behavior or behaviors within a specific tie period' (Andereasen R.,1991:139).

Individuals' readiness to change varied depending of many factors. Individuals change if the change can meet specific needs or if the change can be a solution to a current and major problem. Andreasen R. (1991) has discussed five components of change readiness based on various empirical evidences. The first component is general enduring readiness to change where the general personality characteristic drives for change while the second one is category specific readiness to change, finding of much of the innovation adoption literatures, where the change varies by behavioral category. The third one is life status

specific readiness to change which may occur as a result of individual's general circumstance or as a response to situational changes. The fourth category is decision stage specific readiness to change where individual need to decide to at in some way for the behavior change to occur.

2.7.6. Perceived Risk (PR)

Perceived risk is customers' belief where they fear that negative consequences may occur as a result of using specific service or technology which may lead them to avoid them by not using the service or technology. (Mourad M. & Sherif F. 2015). Perceived risk by customers usually are relate to the dimension of risk that are financial risk, time risk, performance risk, privacy risk, source risk and psychological risk.

Sina I. and Roy S. (2014) had made a study to figure determinants of E-payment in India and found that perceived risk has a negative impact on E-payment adoption. In addition Taylor V. and Arango C. (2009) have carried out a study to find the role of convenience and risk in consumers' means of payment and their finding suggests that the risk perceived by the public an significantly affect the use of e-payment.

In a study made by Suwunniponth W. (2016) on customer intention to use electronic payment system for purchasing, perceived risk was found to have significant impact on e-payment adoption. Further, Takele Y. and Sira Z. (2013) have also found that perceived risk have negative and significant impact on E-banking adoption in Bahirdar city.

2.7.7. Trust

Mcknight D. (1998) defines trust as a belief in and willingness to depend on another party. The definition of trust was also explained as broad by Williamson (1993) as revealed by different literature on trust.

Acting as a guideline to influence one's behaviour within a relationship, trust increases the likelihood of trusting behaviour by alleviating concerns with regard to possible negative consequences. (Kim K. and Prabhakn D. 2009). Trust is basically divided into initial trust and on-going trust where the need for previous knowledge and a period of

time being the main difference between the two. (Al-Jaafreh et. Al. 2011). In both sub categories, trust is a basic input for people to develop confidence in using new technology an encourage adoption where having trust on something is a way of alleviating worry of failure or negative consequences.

"Trust and innovation are inevitably interlinked" Herting R. (2002). Herting further states that understanding the linkage between trust and innovation has a paramount importance to any organization that dream for success. Although the findings were said to be preliminary, the empirical findings from the survey data suggest the possibility that trust may correlate with innovation. (Herting R., 2002).

The finding of a study made by Wahab A. (2012) also shows that lack of trust in non-cash payment was supported by 74% of the respondents which kept it as a hindrance for the adoption and use of electronic payment system in Ghana.

2.8. Theories of Innovation Adoption

Many theories had tried to explain consumers' acceptance of new technologies and the intention they show to use it thenafter. Of these theories are:-

Diffusion of Innovation Theory (Rogers 1995)

The Theory of Reasoned Action (TRA) (Fishben and Ajzen 1975)

Theory of Planned Behaviour (TBP) (Ajzen 1985/91)

Decomposed Theory of Planned Behaviour (Taylor and Todd, 1995)

The Technology Acceptance Model (TAM)

2.8.1. Innovation Diffussion Theory

This theory was developed by Roges M. In 1962 and then edited in 1971, 1983 and last in 1995. The theory argues that the five variables which are percieved attributes of innovation, types of innovation decision, communicationc hannels, nature of the social system and extent of change agents' promotion effort influence the rate of adoption of innovation. (Rogers M. 1995). It further explains the percieved attributes of innovation such as relative advantage, compatability, complexity, triability and observability have impact on the rate of addoption of innovation.

Nature of the social system like norms, degree of network and interconnectedness also influence the rate of adoption of innovation.

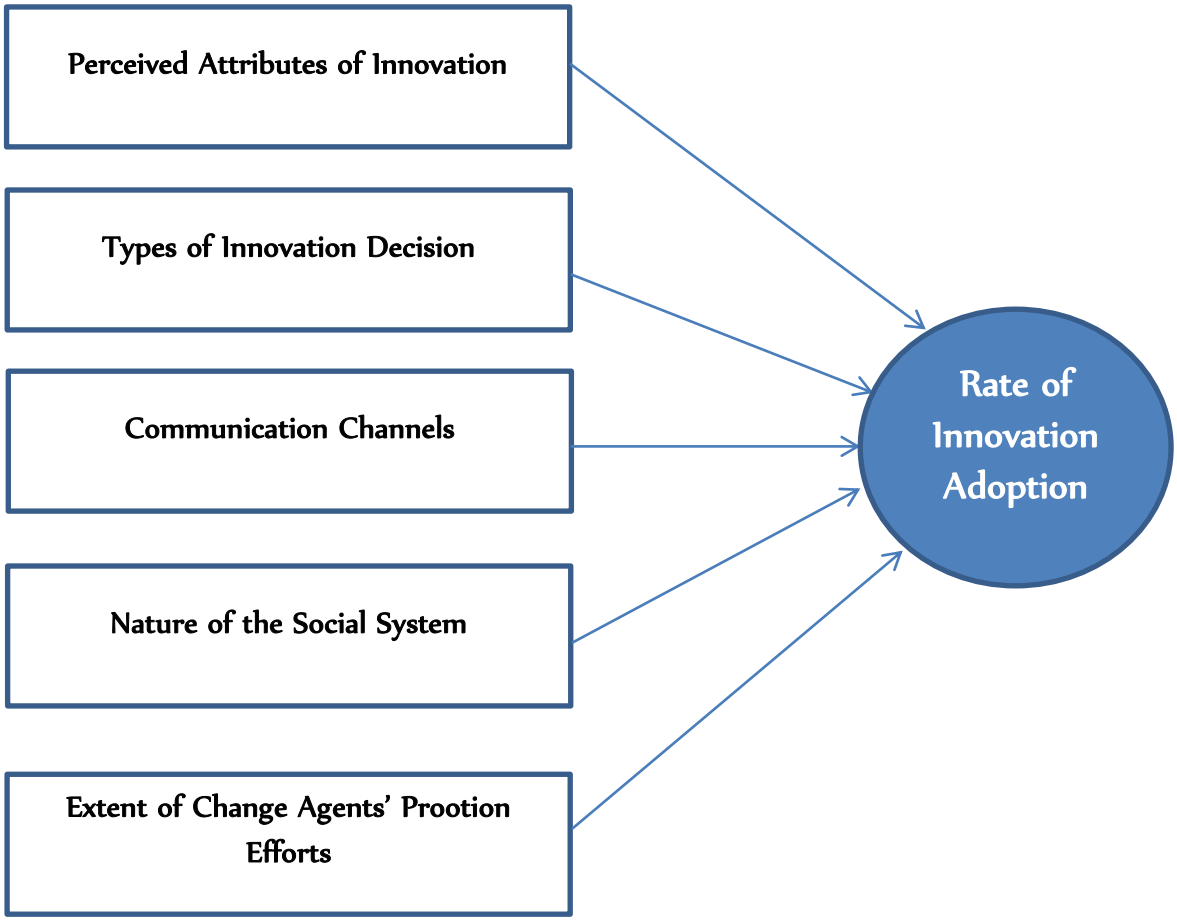


Fig. 2. 7: Innovation Diffusion Theory Model

Source:- Roges M., 1995

2.8.2. The Theory of Planned Behaviour

This theory is an extension of theory of Reasoned action that has a limitation with regard to dealing with human behaviour where peopoe have incomplete volitional control. In this theory the central factor is intention to do a given behaviour where intention are assumed to capture the motivational factor which influences behaviour. (Ajzen I, 1991). The theory further states that perceived behavioural control and behavioural intention can be used to direcly predict behavioural achievement. (Ajzen I., 1991)

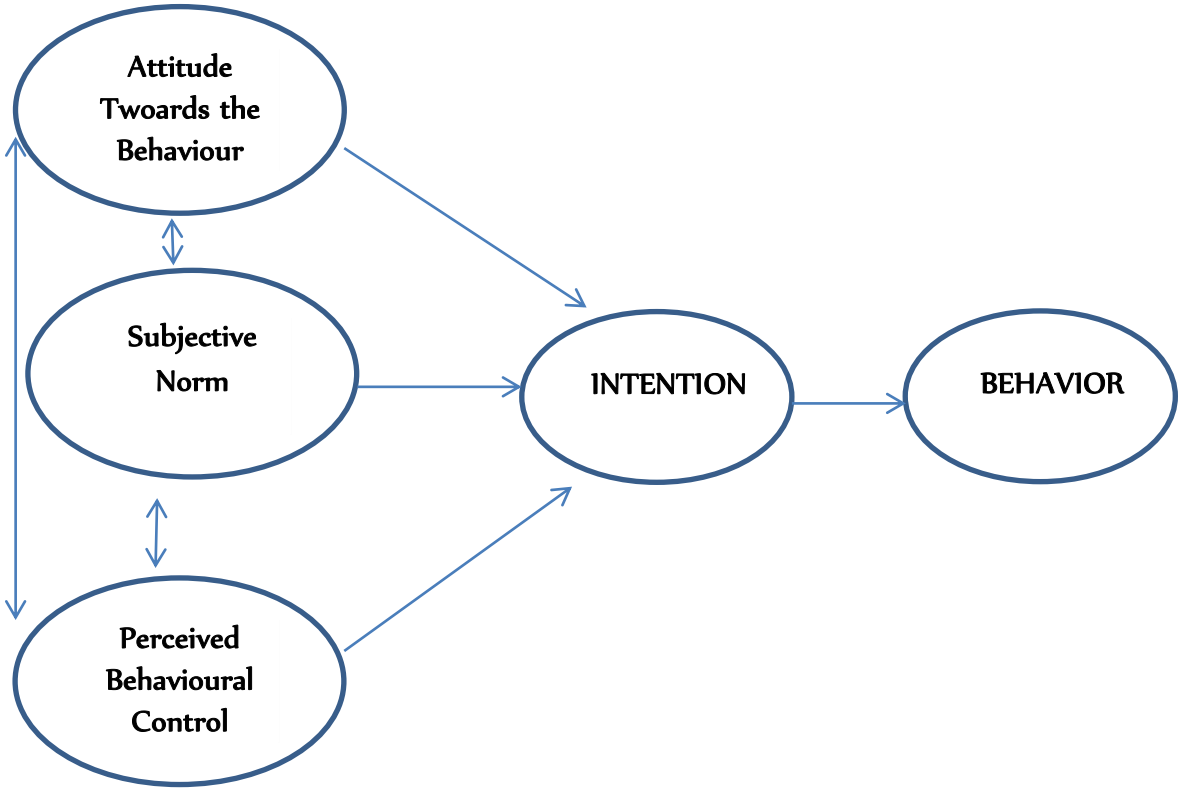


Fig. 2. 8: Theory of Planned Behaviour

Source:- Ajzen I., 1991

2.8.3. The Decomposed Theory of Planned Behaviour

An alternative model was established by decomposing the belief structures in the theory of planned behaviour which gives the Decomposed Theory of Planned Behaviour. In the latter theory, attitudinal, normative and control beliefs are decomposed into multi dimensional belief constructs. (Taylor S. & Todd P, 1995). This will make the relationship between the monolitic belief structures representing a variety of dimensions and the antecendents of intention more clear. The decomposition overcomes the disadvantage of the traditional model by providing a stable set of beliefs that can be applied accross variety of setting.

In addition, the focus in specific beliefs make the model very relevant to managers by pointing to specific factors that may influence adoption and usage. Although decomposed TPB provides the same advantage with TAM, it differs in a way that it introduces a larger number of factors that may influence usage which makes it appropriate to understand IT usage relative to TAM. (Taylor S. & Todd P. 1995)

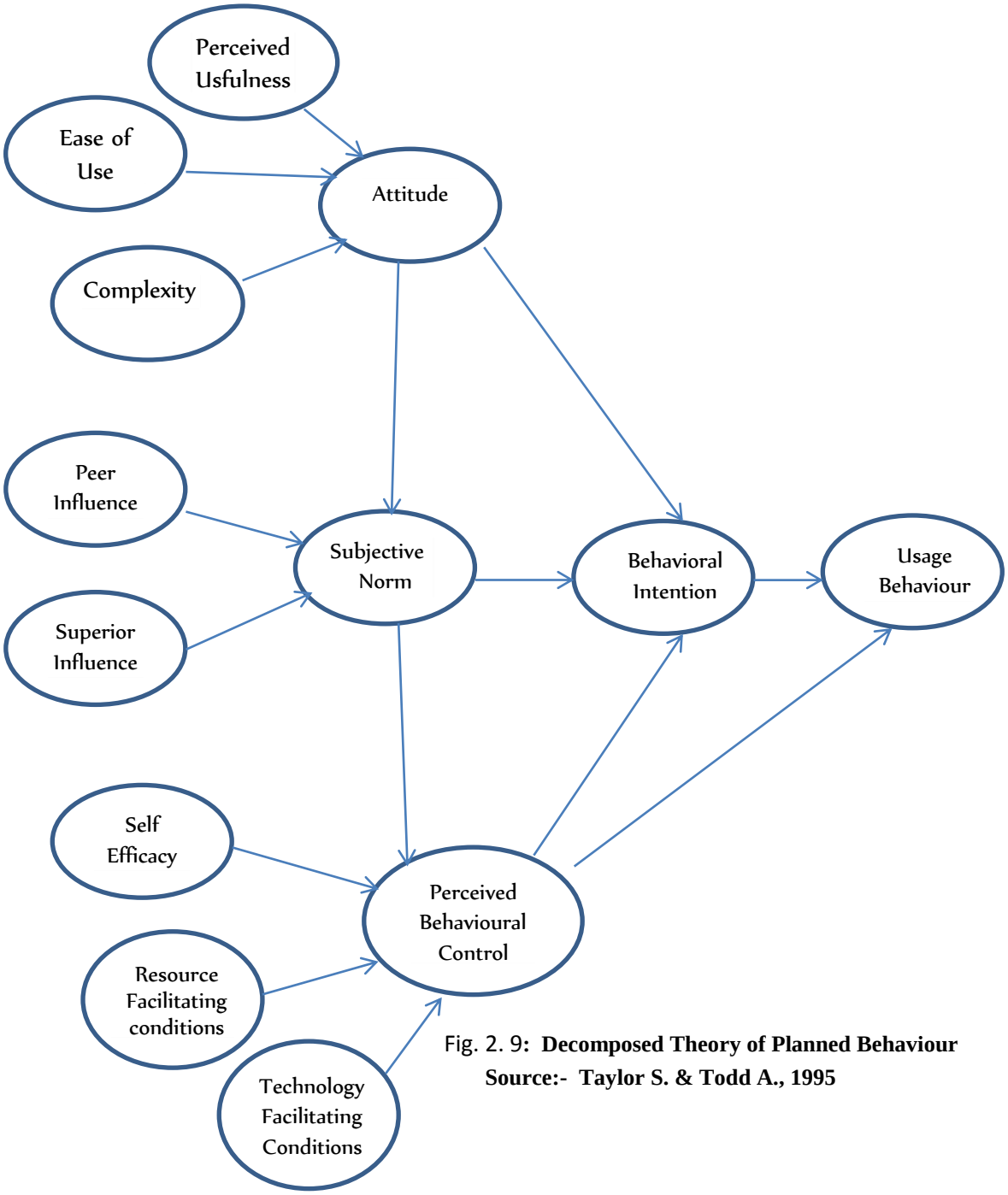


Fig. 2. 9: **Decomposed Theory of Planned Behaviour**
Source:- Taylor S. & Todd A., 1995

2.8.4. Technology Acceptance Model

Technology Acceptance Model (TAM) makes TRA (Theory of Reasoned Action) as a theoretical base to specify the linkage between perceived usefulness and perceived ease of use and users attitudes, intention and adoption behaviour. (Davis D. Et al., 1989). It was introduced by Davis (1986) with a purpose of providing a basis for tracing the impact of external factors on internal beliefs, attitudes and intention by identifying few fundamental variables suggested by previous research that deals with the cognitive and affective

determinants of compute acceptance andusing TRA as a theoretical base. (Davis D. et al., 1989).

TAM puts perceived usefulness and perceived ease of use as factors that influence computer acceptance behariours. As per Davis (1989) Perceived usefulness refers to a person's belief that using a particular system would support his/her day to day activity and enhance performance. In the other hand, Perceived ease of use is a person's belief that using a particular system reqires very less or no effort. (Davis D. et al 1989)

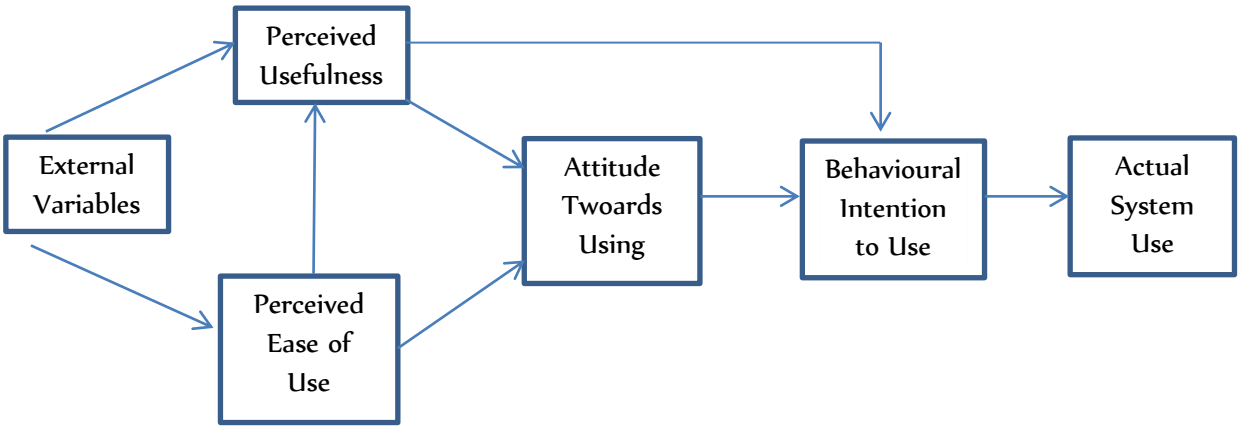


Fig. 2. 10: Technology Acceptance Model

Source:- Davis D.et. al 1989

2.9. Empirical Studies

Wondwossen T. and Tsegai G. (2005) had studied the challenge and opportunities of E-payment in Ethiopia with the objective of identifiying e-payment practices in developed and developing countires like Ethiopia by interviewing employees with open-ended questions and making onsite observations in addition to reviewing related litratures. The authors found that lack of customers trust is an obstacle for the developement of e-payment in Ethiopia.

Pasha A. & Amare L. (2017), have assessed the opportunities and challenges of Ethiopian banking in adopting e-service with the objectives of identifying opportunities and investigate challenges to adopt and implement e-banking including the delivery of sevices to customers and also find main challenges and benefits obtained by CBE customers on using E-services. The authors applied self administered questionnaire and interviewed employees of E-banking

department of CBE. The result of their study shows, basic challenges in adoption of any new technoogy in least developed countries like ethiopia are lack of awarness on the benefit of new technolgies, fear of risk, tendency to be content with the existing strucyures and fear of cyber security issues. Low litracyrte was also found as a challenge for the adoption of E-service in Ethiopia as it also requires knowing basic ICT litracy in addition to reading and writing skill.

Birjandi H. Et al (2015) had studied factors influencing adoption of electronic payment cards in urban micro payments by implementing field study susch as questionnaires to identify the factors affecting e-payment adoption for micropayment by distribting 450 questionnaires. The result of their study shows that ease of use, usefulness, compulsion and satisfaction and norms have significant impact on adoption of e-payment.

Mallat N. (2007) Had explored consumer adoption of Mobile payments and electronic payment ststems by making focus group discussion with six naturally forming groups where the members know each other as friends, classmates, co-workers or through a common hobby. The result of the study shows that relateive advantage gained from e-payment meanses like mobile payment is important for its adoption by customers.

Ayana G. (2014) had studied factors affecting adoption of electronic banking system in ethiopia by doing survey, interview and document analysis and also by distributing 160 questionnairs to e-payment department staffs of banks. The result of the study reveals that security risk and trust on technological systems are the major barriers for adoption of e-payment.

Wahab Y. (2012) has studied the adoption and use of electronic payment systems in Ghana using questionnaires with open and closed ended questions for 144 respondants. Accordingly, the result shows that level of education, risk factors (Security, Safety and ease) and personal preference affects the level of adoption of e-payment system.

Takele Y. and Sira Z. (2013) had analyzed factors that influence cusotmers intention to the adoptionof E-banking service channels in Bahir Dar City by integrating TAM, TPB and PR. The authors finding shows that the seven factors included in the models (attitude, subjective norm, perceived behavioural control, perceived usefulness, perceived ease of use and percieved risk were significant in affecting users intention ot use e-payment.

2.10. Conceptual Framework

As shown in the below figure, Convenience, Relative Advantage, Attitude, Perceived Behavioural Control, Change Readiness, Perceived Risk and trust are the independent variable that affect the adoption of card payment on Point of Sale Terminal.

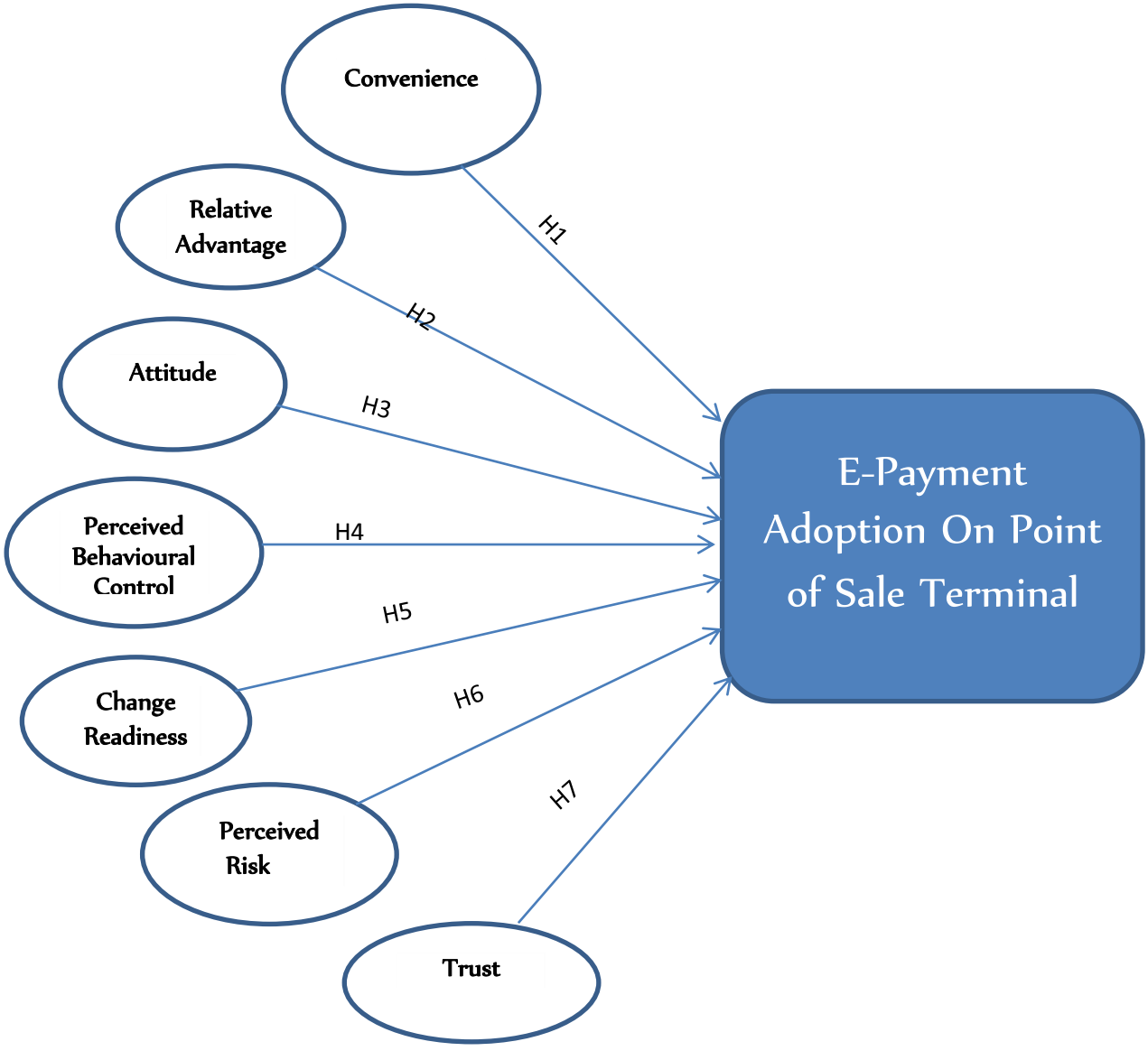


Fig. 2. 11: Conceptual Framework
Source:- Makongoro G. (2014) & Author

2.11. Research Hypothesis

H1: Convenience has a positive and significant impact on cared usage at point of sale terminal in Ethiopia.

H2: Relative advantage has a positive and significant impact on card usage at point of sale terminal in Ethiopia.

H3: Attitude has a positive and significant impact on card usage at point of sale terminal in Ethiopia.

H4: Perceived Behavioural Control has a positive and significant impact on card usage at point of sale terminal in Ethiopia.

H5: Change Readiness has a positive impact on card usage at point of sale terminal in Ethiopia

H6: Perceived Risk has a negative impact on crd usage at point of sale terminal in Ethiopia.

H7: Trust has a positive and significant iimpact on card usage at point of sale terminal in Ethiopia.

Chapter Three
RESEARCH METHODOLOGY

3.1. Research Approach

There are three types of research approaches applied while conducting a research. The first one is qualitative research which majorly depend upon the collection of qualitative data that helps to find evidences and see peoples attitude which can not be easily understood from available litratures. The other one is the quantitative type which primarly depend on the collection and measurement of quantitative data which can be applied on issues that can be expressed interms of quantities. The last approach is the mixed research where both the quantitative and qualitative approaches are applied together. According to Creswell (2009) selecting research approach is based on the research problem, personal experiences of the researcher and the audiences for whom the report will be written.

For the purpose of this research hence, the researcher has followed the quantitative approach to respond to the research questions by collecting quantitative data from cardholders/customers. Quantitative approach is prefered as the relationship between the dependent and independent variables were measured quantitatively. In addition the effect of factors mentioned on various theories and included in this study that are attitude, perceived risk, trust, relative advantage, convienence, perceived beharioural control and change readiness were measured quantiatively to find whether these factors affect customers to adopt e-payment on POS.

Saunders M. et.al. (2009) stated that research design will be the general plan of how to answer the research question. The research method of this study was basically explanatory as it tries to figure out the impact of the independent variables (Attitude, perceived risk, trust, relative advantage, convinience, perceived behavioural control and change readiness) on the dependent variable which is e-payment adoption on POS.

3.2. Sources of Data

The required data for the study were collected both from a primary and secondary sources. The primary data has been collected from sample respondents through questionnaire. The secondary data were collected from various published and unpublished reports of banks, financial sector regulatory parties, third party payment processors (TPP) and government and non-government companies that have stake in the e-payment industry. As per Hox J. And Boeije R. (2005), using secondary data helps researchers to find a number of characterstic problems.

3.3. Target Population

"A population is all the individuals or units of interest; typically, there is not available data for almost all individuals in a population" Hanlon B. And Larget B. (2011).

For this study purpose, the population was defined as all individuals that are issued with cards by banks in Ethiopia.

3.4. Sampling procedure and technique

Respondents for this study have been taken from all banks that issue cards to their customers. As per the MCIT Situational Report (2016), there are more than 3.6 million cards issued by banks. This number is a total number issued by all banks that issue cards to their customers and are expected to use their cards on Point of Sale Terminal for Payment. Therefore, as finding the complete list of the population which are cardholders of various banks is very difficult, the research has applied non random sampling. Also, this number increases on daily basis as production of cards is a daily operation undertaken by banks. In addition it is less expensive and often it can be implemented more quickly. Non random sampling is often used by individual researchers because of its relative advantage of time and money inherent in it. (Kothari R., 2004)

The target population of the study are unevenly dispursed accross the country. Therefore, convinience sampling was used to select respondents based on ease of accessing a cardholder believing that not all cardholders use their card for payment at point of sale.

3.5. Sample Size Determination

The sample size for the study is determined using the following formula which is extracted from research advisors website which is applicable for determination of sample size from infinite population. This is because the exact number of cardholders/customers as of the current date is unknown. (www.research-advisors.com/documents/samplesize-web.x/s)

$$\text{Sample Size} = \frac{(\text{Z-Score})^2 \times \text{Std.dev}(1-\text{std.dev})}{\text{Confidence Interval}^2}$$

Therefore:-

$$\text{Sample Size} = \frac{(1.96)^2 \times 0.5(1-0.5)}{0.05^2}$$

$$\text{Sample Size} = \frac{3.841\ (0.25)}{0.0025} = 384$$

3.6. Methods of Data Collection

The data were collected through self administered questionnaire from the sample respondents upon their concent. The questions were prepared based on the research questions which highlights the impact of some factors on e-payment adoption on POS. The questionnaire was composed of both closed and open ended questions as required.

3.7. Reliability and Validity of Data Collection Instruments

"Reliability and validity are ways of demonstrating and communicating the rigour of research process and the trustworthiness of research findings" (Roberts P. Et al 2006: 41)

i. Reliability

As per (Roberts P. Et al 2006), reliability describes how far a research tool such as questionnaires and others will produce the same result in different situations assuming nothing else has changed. Reliability refers to "The consistency of the results obtained from a piece of research". (Nunnan, 1999: 14)

In general reliability deals with the consistency and replicability of results using the same tool at different places, time and situations. Therefore, to make sure that the tool is reliabile, the

researcher has checked the Cronbach's alpha which is the most widely used method for estimating reliability. Cronbach's alpha provides a measure of the internal consistency of a test or scale and is expressed by a number between 0 and 1. Further, internal consistency describes the extent where the variabiles in the test measure the same concept or construct or to make sure that all the variables are interrelated within the test. (Tavakol M. & Dennick R., 2011). Accordingly if the items are interrelated, the value of alpha is increased which indicates the existance of internal consistency.

ii. Validity

As per Nunnan (1999), there are two types of validity which are internal and external validity where the internal is concerned with the interperetability of the research while the external is concerned with the generalizability of the result from the sample to the population. To validate the research tool hence, the researcher has made a pretest or pilot testing on target groups selected for the pretesting purpose. As per Baker (1994), stated by Hazzi A and Maldaon S. (2015), 10 to 20% of the main sample size is generally accepted as a reasonable number of conducting a pilot study which is very important in providing the quality and efficiency of the main study. The process of doing so, has helped the researcher to identify questions that don't make sense to participants or eliminate questions that might lead to biased answers. In addition, prestesing is very essential in reducing measurement error which can damage the statistical estimates at the population level and thus endangers comaprability accross population in multiregional, multinational and multicultural surveys. (Caspar R. Et al, 2016). Accordingly, the researcher has validated the instrument by making a pilot testing on 10% of the total sample size.

3.8. Methods of Data Analysis

The researcher has used both descriptive and inferential statistical tools for data analysis. The data analysis was supported by using software called Statistical Package for Social Science (SPSS) Version 21.

Descriptive and inferential statistics were carried out to analyze the collected data. Descriptive statistics is concerned with summarizing and describing a body of data while inferential statistics is the process of reaching generalizations about the whole by examining the portion (Salvatore D. & Reaggle D. 2002: 1).

Accordingly, the research has employed descriptive statistical analysis tools such as mean and standard deviation to summarize the data collected and also inferential statistical analysis tools such as Pearson Product Moment Correlation Coefficient and Regression analysis were employed to carry out the analysis. By using Pearson Product Moment Correlation Coefficient the researcher has identified the magnitude, direction and strength of relationship between the various variables.

Regression analysis is used to test hypotheses about the relationship between the dependent variable and the independent variable (Salvatore D. & Reaggle D. 2002: 128). Hence, the study has employed regression analysis to predict the relationship between the variables in the study.

3.9. Ethical Considerations

As the study has involved the collection of information from various sources, the confidentiality matter was strictly considered where not information was exposed without the consent of the owner of the information. Respondents were allowed not to include their name in the questionnaire where they can provide their information freely and anonymously with prior knowledge of the purpose of the study. All other information included in the study were extracted from various publication by giving due consideration to confidentiality.

Chapter Four

DATA ANALYSIS, PRESENTATION and INTERPRETATION

This chapter is divided into two sections. The first section summarizes and describes the analysis of the biographical data of respondents and the second section is concerned about the inferential analysis of questions addressed to test the hypotheses.

4.1. Reliability Test

The reliability or consistency of the test items used in this study is measured using Cronbach's alpha to make sure that the measurement is consistent enough to measure the concept. Peterson A. (1994) explained that of the many recommendations given regarding the minimally acceptable reliability, the below Nunnally's (1967, 1978) are the most widely referenced recommendations.

Nunnaly (1967, P. 226)	**Preliminary Research**	**.5-.6**
	Basic Research	**.8**
	Applied Research	**.9-.95**
Nunally (1978, pp. 245-246)	**Preliminary Research**	**.7**
	Basic Research	**.8**
	Applied Research	**.9-.95**

Source:- Peterson A. (1994)

Accordingly, the Cronbach's alpha coefficient measure of each variable on E-Payment adoption on Point of Sale Terminal ranges from .763 to .948 indicating an acceptable result that shows the reliability of each construct. The Cronbach's Alpha for the model as a whole is .949 which is within the acceptable range.

Table 4. 1: **Reliability Statistics**

For Individual Variables		
Variable	**Cronbach's Alpha**	**No. of Items**
Convenience	.779	6
Trust	.809	6

For the Model	
Cronbach's Alpha	No of Items
.949	38

Perceived Risk	.790	7
Relative Advantage	.805	3
Attitude	.866	4
Perceived Behavioural Control	.763	3
Change Readiness	.948	4
E-Payment Adoption on POS	.896	5

Source: SPSS Output (2018)

4.2. Respondents' Demographic Information Summary

The demographic information collected from the respondents' shows that 55% of them are male and 44.7% are females with 0.3% did not reveal their gender.

Regarding age group of respondents, the age group 26-35 constitutes the highest with 55%, followed by age group 36-45 and 18-25 with 18% & 17.8% respectively. Age group 46-55 and 56 and above representing the least percentage with 7.4% and 1.8% each.

The table shows that out of the total respondents 1.5% are PhD holders. The highest number of respondents is those with BA Degree constituting 64.8% followed by Masters Degree holders with 18.9% and Secondary/TVET graduates with 14.8%.

Table 4. 2 :- **Demographic Profile of Respondents**

Gender		
	Frequency	**Percent**
Female	**151**	**44.7**
Male	**186**	**55.0**
Total	**337**	**99.7**
Missing	**1**	**.3**
Total	**338**	**100.0**
Age		
	Frequency	**Percent**
18-25	**60**	**17.8**
26-35	**186**	**55.0**
36-45	**61**	**18.0**
46-55	**25**	**7.4**
56 and above	**6**	**1.8**

Total	**338**	**100.0**
Educational Level		
	Frequency	**Percent**
Secondary/TVET	**50**	**14.8**
First Degree	**219**	**64.8**
Masters Degree	**64**	**18.9**
PHD	**5**	**1.5**
Total	**338**	**100.0**
Monthly Income		
	Frequency	**Percent**
Below 2000	**19**	**5.6**
2001 to 4000	**22**	**6.5**
4001 to 10000	**136**	**40.2**
10001 to 20000	**117**	**34.6**
Above 20000	**44**	**13.0**
Total	**338**	**100.0**

Source: SPSS Output (2018)

Referring to the income distribution of respondents, 40.2% of them earn a monthly income of between 4,001 to 10,000 Birr while 34.6% of the respondents earn from 10,001 to 20,000 Birr monthly income. Further, of the respondents 13% earn more than 20,000 birr per month while 6.5% earn between 2,001 to 4,000 and 5.6% earn below 2,000 per month.

4.3. Respondents' Card Type and Usage Information Summary

From the information collected it can be seen that most of the cards that are issued to customers are debit cards constituting 90% of the response. The remaining 9.2% of the respondents have prepaid cards. The difference between the two types of cards is that debit cards are linked to saving or checking accounts of customers and can only be used as long as the account has balance while the prepaid card is linked to a virtual account created for the purpose and a predefined amount is loaded on the card. Most of the cards, as can be seen from the summary, are used for both cash withdrawal and payment purpose which takes 59.5% even though most of them use their card for payment only once in a while. 38.8% of the respondents use their card for cash withdrawal where some of these respondents use their card for payment once in a while and the remaining 1.5% use their card for payment at POS.

Regarding frequency of card usage, 40.2% of the respondents use their card for payment once in a while and 35% of them use their card once in a month. The remaining which are 12.1%,

10.9% and 0.9% of the respondent use their card once in a week, many times a month and daily respectively.

Table 4. 3 Card Type and Usage Information of Respondents

Type of card you have		
	Frequency	**Percent**
Debit	**307**	**90.8**
Prepaid	**31**	**9.2**
Total	**338**	**100.0**
For What purpose do you use your card		
	Frequency	**Percent**
Cash Withdrawal	**131**	**38.8**
Payment at POS	**5**	**1.5**
both	**201**	**59.5**
other	**1**	**.3**
Total	**338**	**100.0**
How Often Do you use your card for payment at merchants		
	Frequency	**Percent**
Daily	**3**	**.9**
Once a Week	**41**	**12.1**
Once a Month	**121**	**35.8**
Many Times in a Month	**37**	**10.9**
Once in a While	**136**	**40.2**
Total	**338**	**100.0**

Source: SPSS Output (2018)

4.4. Relationship between Demography and Adoption

Table 4. 4: **Trust Related Adoption Behavior**

		I trust that I am safe to access my account by card to pay for goods and services I buy from merchants				
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Gender	**Female**	1.3%	6.0%	15.3%	56.7%	20.7%
	Male	2.2%	11.3%	15.6%	44.1%	26.9%
Age	**18-25**	0.0%	8.3%	26.7%	46.7%	18.3%
	26-35	1.6%	8.1%	14.6%	50.8%	24.9%

	36-45	4.9%	8.2%	11.5%	44.3%	31.1%
	46-55	0.0%	12.0%	8.0%	56.0%	24.0%
	56 and above	0.0%	33.3%	0.0%	66.7%	0.0%
Highest Level of Education	**Elementary Education**	0.0%	0.0%	0.0%	0.0%	0.0%
	Secondary/TVET	2.0%	14.0%	8.0%	50.0%	26.0%
	First Degree	2.3%	7.8%	16.5%	48.6%	24.8%
	Masters Degree	0.0%	9.4%	18.8%	51.6%	20.3%
	PHD	0.0%	0.0%	0.0%	60.0%	40.0%
Monthly Income ETB	**Below 2000**	0.0%	15.8%	0.0%	47.4%	36.8%
	2001 to 4000	4.5%	4.5%	27.3%	50.0%	13.6%
	4001 to 10000	2.2%	7.4%	19.3%	46.7%	24.4%
	10001 to 20000	.9%	9.4%	13.7%	51.3%	24.8%
	Above 20000	2.3%	11.4%	9.1%	54.5%	22.7%

Source: SPSS Output (2018)

In the above table, it is indicated that 77% of the female and 67% of the male respondents trust that they are safe to access their account by card while buying goods and services. Regarding age, 65% of the respondents between the age of 18-25, 75% of between 26-35, and 36- 45, 80% of between 46 – 55 and 66.7% of above the age of 55 trust the safety of accessing their account by card to effect payment. This shows that there is an increased trust from the age of 26 to 55 and it decreases above the age of 55%.

Looking into Education of the respondents that complete secondary school, 76% trust their safety while from respondents with first degree, Masters Degree and PHD, 73%, 72% and 72% respectively trust the safety of accessing account by card. Here, no significant difference is seen among respondents with different education level. When it comes to income, 84% of the respondents with monthly income of below Birr 2,000 have trust in accessing account by card for payment while of the respondents with monthly income of Birr 2001-4000, Birr 4001 to 10000, Birr 10001 to 20,000 and above 20,000, 64%, 71%, 76% and 77% respectively trust the safety of accessing account by card for payment.

Table 4. 5: Convenience Related Adoption behavior

	I feel the convenience of paying with card while I buy goods and Services

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Gender	Female	.7%	10.6%	17.2%	51.0%	20.5%
	Male	.5%	11.8%	19.9%	45.2%	22.6%
Age	18-25	0.0%	11.7%	20.0%	45.0%	23.3%
	26-35	0.0%	10.8%	21.0%	45.7%	22.6%
	36-45	3.3%	6.6%	11.5%	57.4%	21.3%
	46-55	0.0%	20.0%	16.0%	48.0%	16.0%
	56 and above	0.0%	50.0%	16.7%	33.3%	0.0%
Highest Level of Education	Elementary Education	0.0%	0.0%	0.0%	0.0%	0.0%
	Secondary/TVET	0.0%	14.0%	12.0%	52.0%	22.0%
	First Degree	.9%	11.9%	16.9%	47.9%	22.4%
	Masters Degree	0.0%	9.4%	31.3%	40.6%	18.8%
	PHD	0.0%	0.0%	0.0%	80.0%	20.0%

Source: SPSS Output (2018)

In the above table, it is indicated that 72% of the female and 68% of the male respondents feel the convenience of paying by card. Regarding age, 68% of the respondents between the age of 18-25 and 25-35, 79% of between 36-45, 64% of between 46 – 55 and 33% of above the age of 55 trust the safety of accessing their account by card to effect payment. This shows that the convenience decrease for respondents above the age of 46.

Looking into Education of the respondents that complete secondary school, 74% feel the convenience while from respondents with first degree, Masters Degree and PHD, 70%, 59% and 100% respectively feel the convenience of paying by card.

Table 4. 6: Card Usage Behavior

		I use my card to pay on Point of Sale Terminals when I buy goods and services				
		Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Gender	**Female**	3.3%	17.9%	25.8%	45.0%	7.9%
	Male	4.8%	17.7%	26.9%	41.9%	8.6%
Age	**18-25**	5.0%	8.3%	41.7%	38.3%	6.7%
	26-35	2.7%	17.2%	26.3%	45.7%	8.1%
	36-45	8.2%	19.7%	16.4%	44.3%	11.5%
	46-55	0.0%	36.0%	16.0%	40.0%	8.0%
	56 and above	16.7%	50.0%	16.7%	16.7%	0.0%

Highest Level of Education	**Elementary Education**	0.0%	0.0%	0.0%	0.0%	0.0%
	Secondary/TVET	2.0%	20.0%	28.0%	46.0%	4.0%
	First Degree	5.0%	16.0%	25.1%	45.7%	8.2%
	Masters Degree	3.1%	21.9%	31.3%	31.3%	12.5%
	PHD	0.0%	40.0%	0.0%	60.0%	0.0%
Monthly Income ETB	**Below 2000**	10.5%	10.5%	36.8%	42.1%	0.0%
	2001 to 4000	4.5%	4.5%	40.9%	45.5%	4.5%
	4001 to 10000	1.5%	16.2%	29.4%	47.1%	5.9%
	10001 to 20000	3.4%	22.2%	20.5%	40.2%	13.7%
	Above 20000	11.4%	22.7%	20.5%	38.6%	6.8%

Source: SPSS Output (2018)

In the above table, it is indicated that 52% of the female and 51% of the male respondents agree that they use their card for payment while buying goods and services. Regarding age, 45% of the respondents between the age of 18-25, 54% of between 26-35, 56% of between 36-45, 48% of between 46 – 55 and 17% above the age of 55 use their card for payment. This shows that generally there is a decreased usage trend with increased age.

Looking into Education of the respondents that complete secondary school, 50% use their card for payment while from the respondents with first degree, Masters Degree and PHD, 54%, 44% and 60% respectively use their card for payment. When it comes to income, 42% of the respondents with monthly income of below Birr 2,000 use their card for payment while of the respondents with monthly income of Birr 2001-4000, Birr 4001 to 10000, Birr 10001 to 20,000 and above 20,000, 50%, 52%, 54% and 45% respectively use their card for payment. This shows that middle income group, according to income classification of this study, use their card for payment.

Table 4. 7: **Belief in benefit of E-Payment Adoption**

		I believe that I benefit from adopting card payment on Point of Sale Terminal				
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Gender	**Female**	4.0%	4.0%	13.2%	48.3%	30.5%
	Male	0.0%	7.5%	16.7%	42.5%	33.3%
Age	**18-25**	0.0%	3.3%	21.7%	50.0%	25.0%
	26-35	1.6%	5.4%	14.0%	49.5%	29.6%
	36-45	4.9%	8.2%	14.8%	37.7%	34.4%
	46-55	0.0%	12.0%	8.0%	24.0%	56.0%
	56 and above	0.0%	0.0%	16.7%	33.3%	50.0%
Highest	**Elementary Education**	0.0%	0.0%	0.0%	0.0%	0.0%

Level of Education	**Secondary/TVET**	0.0%	4.0%	18.0%	46.0%	32.0%
	First Degree	1.8%	7.3%	16.4%	43.4%	31.1%
	Masters Degree	3.1%	3.1%	9.4%	54.7%	29.7%
	PHD	0.0%	0.0%	0.0%	0.0%	100.0%

Source: SPSS Output (2018)

In the above table, it is indicated that 78% of the female and 75% of the male respondents belief in the benefit of adopting e-payment on POS. Regarding age, 75% of the respondents between the age of 18-25, 79% of between 26 – 35, 72% of 36-45, 80% of between 46 – 55 and 100% of above the age of 55 belief that the benefit out of adopting e-payment on POS.

Looking into Education of the respondents that complete secondary school, 78% feel the convenience while from respondents with first degree, Masters Degree and PHD, 74%, 84% and 100% belief that adoption e-payment on POS has a benefit.

Table 4. 8: **Frequency of Usage**

		How Often Do you use your card for payment at merchants				
		Daily	Once a Week	Once a Month	Many Times in a Month	Once in a While
Gender	Female	.7%	15.2%	38.4%	9.3%	36.4%
	Male	1.1%	9.7%	33.3%	12.4%	43.5%
Age	18-25	0.0%	13.3%	28.3%	13.3%	45.0%
	26-35	1.6%	13.4%	35.5%	12.9%	36.6%
	36-45	0.0%	11.5%	42.6%	3.3%	42.6%
	46-55	0.0%	4.0%	48.0%	12.0%	36.0%
	56 and above	0.0%	0.0%	0.0%	0.0%	100.0%
Monthly Income ETB	Below 2000	0.0%	10.5%	15.8%	5.3%	68.4%
	2001 to 4000	0.0%	9.1%	27.3%	0.0%	63.6%
	4001 to 10000	.7%	21.3%	31.6%	11.0%	35.3%
	10001 to 20000	1.7%	6.0%	43.6%	14.5%	34.2%
	Above 20000	0.0%	2.3%	40.9%	9.1%	47.7%

Source: SPSS Output (2018)

Looking into the usage frequency table, majority of female respondents (38%& 36%) use their card once in a month and once in a while respectively while majority of the male respondents (44& and 33%) use their card once in a while and once in a month respectively.

Regarding age and income, majority of respondents use their card once in a while. This shows that the difference in age and income has no impact on frequency of card usage at Point of Sale.

4.5. Descriptive Statistics

4.5.1. Convenience of E-Payment of POS

Table 4. 9:- Descriptive Statistics of Convenience on E-Payment Adoption on POS

	Mean	**S.Deviation**
Most of the Merchants I transact with have Point of Sale Terminal	2.51	1.080
Paying with card on Point of Sale Terminal is convenient than paying with cash	3.63	1.089
Using my card for payment at Point of Sale Terminal enables me access my account not to be restricted up to the amount I have in my pocket	3.73	.972
Using my card for payment at POS enables me to transact at any time of the day	3.78	1.091
Holding the card is more convenient than carrying large amount of paper money	4.29	.938
I feel safer while I have my card in my pocket than carrying money in my pocket	4.14	1.049
Overall Mean= 3.68 Number of Respondents= 331		

Source: SPSS Output (2018)

As shown in the above table, the overall mean score for the variable is 3.68 which shows that respondents moderately agree in that paying with card at Point of Sale Terminal is more convenient enabling cardholders access their account at any time without the need of carrying cash their pocket which makes them feel safer. The overall mean score is described as low based on Akmaliah Z. (2009) classification of mean score.

4.5.2. Trust of E-Payment Adoption on POS

Table 4. 10: Descriptive Statistics of Trust on E-Payment Adoption on POS

	Mean	**Standard Deviation**
Ability of POS (Point of Sale) terminal operators at merchant site has impact on using card for payment at point of sale	3.81	.970
Integrity of the merchant has an impact in using my card for payment at point of sale	3.99	.786
Confidence in the functionality of point of sale terminal has impact on presenting my card for payment at point of sale	4.02	.869
My past experience while using my card for payment has impact on using my card for payment at Point of Sale	3.78	.942

Banks that issue card to customers and provide POS to merchants are trustworthy enough to make payment by card at point of sale	3.94	.841
Merchants are trust worthy enough to give cards for payment	3.79	.924
Overall Mean= 3.88 Number of Respondents= 331		

Source: SPSS Output (2018)

Heffernan et al (2008) as cited by Roy et al (2011) have identified three dimensions of trust that are credibility, integrity and benevolence. Hence, the questions for this variable are constructed based on the above dimensions of trust. Consequently the overall mean score of the responses for questions related to the variable, as can be seen on the above table, is 3.88 which indicate high level of agreement (Akmaliah Z., 2009) with the ability and integrity of merchants, confidence in the functionality of POS and their past experience while paying by card has impact on their card usage for payment. In addition, there is moderate level of agreement in trusting their bank from where they take their card and merchants where they use their card for payment.

4.5.3. Perceived Risk of E-Payment Adoption on POS

Table 4. 11: Descriptive Statistics of Perceived Risk on E-Payment Adoption on POS

	Mean	Standard Deviation
There might be potential loss if transaction is not successful	3.44	1.123
There might be potential loss if the system is hacked and card information got in the wrong hand	3.73	1.062
Fraud may be attempted by card at merchant locations	3.20	1.030
The POS terminal system may fail while processing transaction	3.70	.924
People may think less of me if I use my card for payment at point of sale	2.71	1.140
My bank account and card information may be accessed by other people	2.68	1.215
I may waste time if he POS couldn't work and the operator takes too much time to fix the problem	3.68	1.120
Overall Mean= 3.31 Number of Respondents= 331		

Source: SPSS Output (2018)

Referring to various literatures, Kumar P. (2016), summarized dimensions of perceived risk for online payment as financial risk, performance risk, time risk, privacy risk, source risk and psychological risk. Accordingly, questions for this variable are constructed considering the above dimensions of perceived risk. The summary of the response of respondents in this construct as per the above table shows an overall mean score of 3.31 which tells there is low level of agreement about the risk of paying by card at point of sale. For questions related to

psychological and social risk, there is low level of agreement with mean score 2.71 and 2.68 respectively. The mean scores are described based on Akmaliah Z. (2009) classification of mean score.

4.5.4. Relative Advantage of E-Payment Adoption on POS

Table 4. 12: Descriptive Statistics of Relative Advantage on E-Payment Adoption on POS

	Mean	Standard Deviation
I believe Paying with card at point of sale is less expensive than paying with cash	2.77	1.243
I save my time while I pay with card at Point of Sale Terminal	3.53	1.115
Using card for payment enables purchase at any time as long as the merchant is open	3.84	1.043
Overall Mean= 3.38 Number of Respondents= 331		

Source: SPSS Output (2018)

The above table shows an overall mean score of 3.38 for responses regarding relative advantage of E-Payment adoption on POS. The score is described as low as per Akmaliah Z. (2009) mean score classification. Looking into individual mean score of questions we can see that respondents have low level of agreement (mean score of 2.78) with the concept that paying with card is less expensive than paying by cash. Further they have moderately agreed (mean score of 3.52) that paying by card saves time while they highly agree (mean score of 3.83)that using card for payment enables them purchase at any time as long us merchants are open.

4.5.5. Attitude towards E-Payment Adoption on POS

Table 4. 13: Descriptive Statistics of Attitude on E-Payment Adoption on POS

	Mean	Standard Deviation
Paying with card at point of sale is very useful to facilitate the day to day activity	3.95	1.020
Paying with card is an easy processes that can be performed by anyone that has a card	3.85	1.015
POS terminal system is not a complex system to adopt payment with card	3.87	.911
Paying with card has various benefits for the cardholder as it saves time and cost	3.93	.963
Overall Mean= 3.9 Number of Respondents= 331		

Source: SPSS Output (2018)

Questions for this variable is constructed by considering the three components of attitudinal responses that are affective, cognitive and behavioural (Kroenung J. & Echkhardt A., 2011) which are central to the attitude concept. Accordingly as per the summary in the above table the overall mean score of the responses given by the respondents is 3.9. This indicates that most of the respondents agree in that paying with card is useful to facilitate the day to day activity as it has various benefits. The process is also believed not to be complex by most of the respondents which can be operated by anyone that has card.

4.5.6. Perceived Behavioural Control on E-Payment Adoption on POS

Table 4. 14: Descriptive Statistics of Perceived Behavioral Control on E-Payment Adoption on POS

	Mean	Standard Deviation
I believe I can operate the POS as requested by the merchant	3.73	1.008
I am willing to give time to the POS operator if the POS takes time to connect to the main system	3.40	1.053
There is enough POS distribution at merchant locations where I usually visit to buy goods and services	2.46	1.160
Overall Mean= 3.2 Number of Respondents= 331		

Source: SPSS Output (2018)

On the decomposed theory of planned behaviour, perceived behavioural control has three components that are self-efficacy and resource and technology facilitating conditions. (Taylor S. & Todd A. 1995) The questions for this variable are constructed taking its components into consideration. Accordingly, as per the above table, the overall mean score for this variable is 3.191 which indicates that respondents have low level of agreement with the concept as per Akmaliah Z. (2009) classification of mean score that states mean score of below 3.2 is described as low.

Looking into individual questions for this variable, respondents have moderate level of agreement for question related to capability operating the POS machine as requested by merchants showing a mean score of 3.72. Similarly for the question related to giving time to the POS operator if the POS takes time to connect to the main system, respondents have moderate level of agreement having 3.41 mean score. As per Akmaliah Z. (2009) mean score of between 3.4 - 3.79 is described as moderate. For the last question which is related to POS distribution at

mostly visited merchant outlet, respondents have low level of agreement with 2.45 mean score which contributes much to the low level of agreement for the variable. According to Akmaliah Z. (2009) mean scores less than 3.39 are described as low.

4.5.7. Change Readiness on E-Payment Adoption on POS

Table 4. 15: Descriptive Statistics of Change Readiness on E-Payment Adoption on POS

	Mean	Standard Deviation
I am comfortable with paying by card than cash for my various purchases	3.56	1.120
I do consider payment by card as modernization	4.09	1.010
I promote the benefit of paying with card at Point of Sale Terminals whenever I get the chance to do so.	3.67	1.005
I am willing to change my payment method to electronic means and pay by card if merchants avail the Point of Sale Terminal as payment option	4.00	.913
Overall Mean= 3.83 Number of Respondents= 331		

Source: SPSS Output (2018)

As can be seen from the above table, for this variable the respondents' response have an overall mean score of 3.83 which shows a high level of agreement as per Akmaliah Z. (2009) mean score classification. Accordingly respondents highly agree about the comfort of paying by card than cash and also consider payment by card as modernization. Further respondents highly agree that they are willing to change their payment method to electronic means and pay by card if the option is widely available.

4.5.8. E-Payment Adoption on POS

Table 4. 16: Descriptive Statistics on E-Payment Adoption on POS

	Mean	Standard Deviation
I trust that I am safe to access my account by card to pay for goods and services I buy from merchants	3.86	.948
I feel the convenience of paying with card while I buy goods and Services	3.79	.920
I use my card to pay on Point of Sale Terminals when I buy goods and services	3.37	.968
I regularly pay by card at Point of Sale Terminal when I buy goods and services	2.72	1.041
I believe that I benefit from adopting card payment on Point of Sale Terminal	4.02	.899
Overall Mean= 3.55 Number of Respondents= 331		

Source: SPSS Output (2018)

The above table shows that the overall mean score of respondents' responses for the questions related to e-payment adoption on POS, is 3.533 which indicates a moderate agreement of respondents as per Akmaliah Z. (2009) mean score classification. Looking into the mean score of the individual questions under the variable, we can see that respondents have highly agreed with three of the questions which are trust on safety of accessing account by card (Mean score of 3.8), Convenience of paying with card (mean score of 3.8) and belief in the benefit of adopting card payment on POS (mean score of 4) as per Akmaliah Z. (2009) mean score classification.

However, respondents show low level of agreement regarding using card for payment at point of sale terminal while transacting with merchants with mean score of 3.33 and regularly paying by card at point of sale with mean score of 2.70. According to Akmaliah Z. (2009) mean score of below 3.39 is described as low.

4.6. Analysis Inferential Statistics

4.6.1. Test of Parametric Statistical Assumptions

4.6.1.1. Multicollinearity Test

To measure the inflation in the variance of the parameter estimates due to multicollinearity caused by correlated predictor, multicollinearity was assessed using the variance inflation factor (VIF). Multicollinearity is a situation where two or more explanatory (predictor) variables in a multiple regression model are related to each other and also with the response variable. (Akimande O. et al, 2015). Akimande O. et al (2015) also states that one way to estimate multicollinearity is VIF where VIF = 1 means there is no multicollinearity among repressors. In addition they stated the below:-

- If VIF is greater than 1, the repressor may be moderately correlated.
- If VIF is between 5 and 10, high correlation that may be problematic
- If VIF goes above 10, it can be assumed that the regression coefficients are poorly estimated due to multicollinearity.

Accordingly, the below table shows that a VIF of less than 5 for all variables used in this study which tells that regressors may be moderately correlated but won't be problematic for the regression result.

Table 4. 17: Multicollinearity Statistics

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	**VIF**
1	Convenience	.670	1.492
	Relative Advantage	.601	1.663
	Attitude	.498	2.009
	Perceived Behavioural Control	.788	1.270
	Change Readiness	.554	1.804
	Perceived Risk	.958	1.044
	Trust	.852	1.174

a. Dependent Variable: Adoption of E-Payment on POS

Source: SPSS Output (2018)

4.6.1.2. Outliers Test

An outliner is a data that is very unusual or markedly far from the norm for a variable which may arise from different causes. (Achugamonu P. et al, 2013). The presence of outliers in a regression analysis can be detected from a scatter plot or by seeing the standard residual value of the data. (Pallant J., 2005). According to Fidel (2001) as cited by Pallant J (2005), outliers are defined as cases that have a standardized residual value of more than 3.3 or less than -3.3. It is also stated that it is not uncommon to find a number outlying residuals with large sample and may not necessarily need to take action if they are few in number.

According to the table below hence, the standard residual value of the data is between the acceptable ranges and there are no significant outliers in the data.

Table 4. 18: Residuals Statistics

Residuals Statistics[a]

	Minimum	**Maximum**	**Mean**	**Std. Deviation**	**N**

Predicted Value	1.7988	4.6913	3.5505	.49425	331
Std. Predicted Value	-3.544	2.308	.000	1.000	331
Standard Error of Predicted Value	.028	.159	.065	.022	331
Adjusted Predicted Value	1.7988	4.7070	3.5500	.49399	331
Residual	-1.29360	1.24404	.00000	.43546	331
Std. Residual	-2.939	2.826	.000	.989	331
Stud. Residual	-2.990	2.874	.001	1.002	331
Deleted Residual	-1.33877	1.28637	.00047	.44696	331
Stud. Deleted Residual	-3.027	2.907	.001	1.006	331
Mahal. Distance	.355	41.865	6.979	5.750	331
Cook's Distance	.000	.044	.003	.006	331
Centered Leverage Value	.001	.127	.021	.017	331

a. Dependent Variable: Adoption of E-Payment on POS

Source: SPSS Output (2018)

4.6.1.3. Normality Test

This test indicates the existence of no major deviation from normality in order to make valid inferences from the regression results.

According to Garson (2012), both skewness and kurtosis should be within +2 and -2 range for a data to be normally distributed. The skwness measures the symmetry of the data while skewness measures the peakedness or flatness of the distribution. Hence, looking into the below table the skewness and kurtosis of all the variables are within the acceptable range which indicates that the data are normally distributed.

Statistics

		Convenience	Relative Advantage	Attitude	Perceived Behavioral Control	Change Readiness	Perceived Risk	Trust	Adoption of E-Payment on POS
N	Valid	331	331	331	331	331	331	331	331
	Missing	0	0	0	0	0	0	0	0
Skewness		-.763	-.362	-.774	-.181	-1.125	-.018	-.791	-.118
Std. Error of Skewness		.134	.134	.134	.134	.134	.134	.134	.134
Kurtosis		.694	.004	.392	.619	1.714	.229	1.665	.349
Std. Error of Kurtosis		.267	.267	.267	.267	.267	.267	.267	.267

Chart 4. 1: Skewness and Kurtosis

Source: SPSS Output (2018)

4.6.1.4. Homoscedasticity Test

Homoscedasticity tests whether the residuals are equally and randomly distributed among all values. The standardized residuals should roughly rectangular distributed in a scatter plot with most of the scores concentrated in the center and without a clear of systematic pattern.

Looking in the below scatter plot, we can say that the data is homoscedastic with only few violation in the left side of the rectangle.

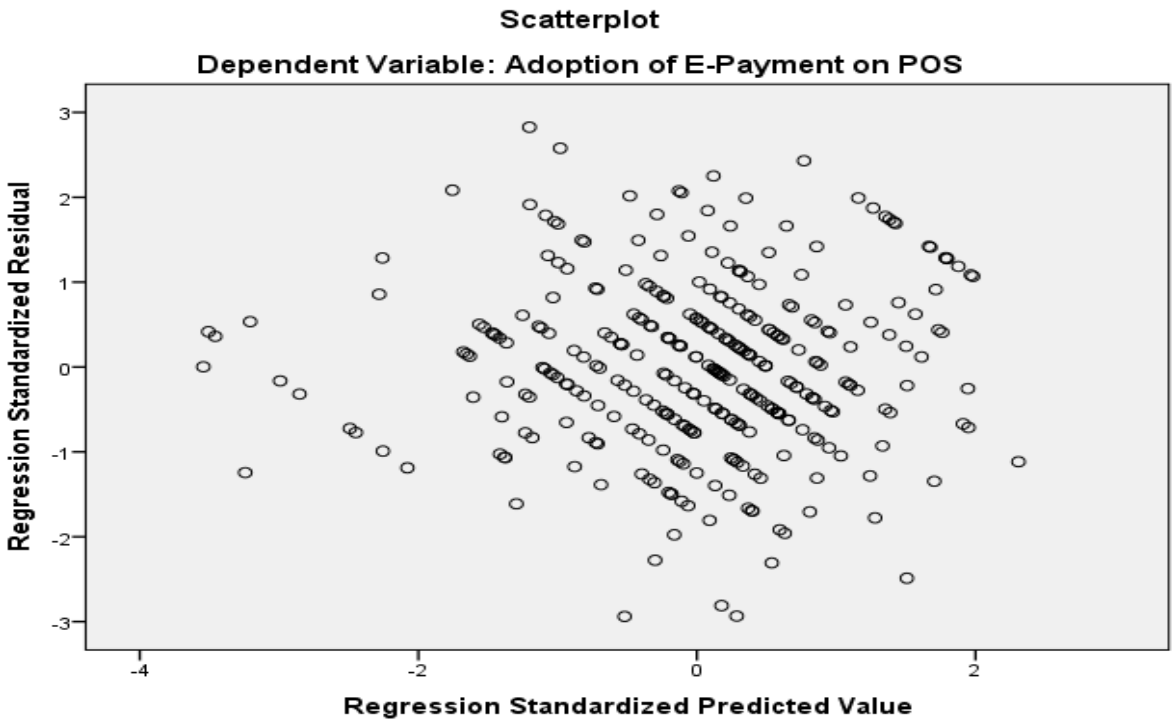


Chart 4. 2: Homoscedasticity Test

Source: SPSS Output (2018)

4.6.2. Correlation Analysis

Table 4. 19: **Correlation between Variables & E-Payment Adoption on POS (SPSS output)**

		Convenience	Relative Advantage	Attitude	Perceived Behavioural Control	Change Readiness	Perceived Risk	Trust	Adoption of E-Payment on POS
Convenience	Pearson Correlation	1	.442**	.483**	.250**	.456**	-.091	.291**	.498**
	Sig. (2-tailed)		.000	.000	.000	.000	.099	.000	.000
	N	331	331	331	331	331	331	331	331

Relative Advantage	Pearson Correlation	.442**	1	.586**	.210**	.473**	-.099	.139*	.471**
	Sig. (2-tailed)	.000		.000	.000	.000	.073	.011	.000
	N	331	331	331	331	331	331	331	331
Attitude	Pearson Correlation	.483**	.586**	1	.338**	.581**	-.042	.265**	.590**
	Sig. (2-tailed)	.000	.000		.000	.000	.445	.000	.000
	N	331	331	331	331	331	331	331	331
Perceived Behavioural Control	Pearson Correlation	.250**	.210**	.338**	1	.424**	-.036	.239**	.468**
	Sig. (2-tailed)	.000	.000	.000		.000	.515	.000	.000
	N	331	331	331	331	331	331	331	331
Change Readiness	Pearson Correlation	.456**	.473**	.581**	.424**	1	-.112*	.220**	.652**
	Sig. (2-tailed)	.000	.000	.000	.000		.041	.000	.000
	N	331	331	331	331	331	331	331	331
Perceived Risk	Pearson Correlation	-.091	-.099	-.042	-.036	-.112*	1	-.162**	-.162**
	Sig. (2-tailed)	.099	.073	.445	.515	.041		.003	.003
	N	331	331	331	331	331	331	331	331
Trust	Pearson Correlation	.291**	.139*	.265**	.239**	.220**	-.162**	1	.184**
	Sig. (2-tailed)	.000	.011	.000	.000	.000	.003		.001
	N	331	331	331	331	331	331	331	331
Adoption of E-Payment on POS	Pearson Correlation	.498**	.471**	.590**	.468**	.652**	-.162**	.184**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.003	.001	
	N	331	331	331	331	331	331	331	331

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Source: SPSS Output (2018)

Correlation analysis is a measure used to evaluate relationship/association and direction of relationship between variables. In terms of strength, the value of the correlation coefficient ranges between +1 and -1. A value of ±1 indicates a perfect degree of positive or negative relationship while relationship gets weaker when the value goes towards 0. Pearson Correlation is used to explore the strength and relationship between two continuous variables that indicate both the direction (positive or negative) and the strength of relationship. (Pallant J. 2005). Therefore for this study purpose Pearson Correlation Coefficient will be applied.

According to Bartz (1999), as cited by Muhumed O & Ssekajuo D. 2015, the interpretation of correlation value is as follows:-

Between 0 to .20 → Very low correlation

Between .20 to .40 → Low correlation

Between .40 to .60 → Moderate correlation

Between .60 to .80 → Strong correlation

Between .80 to 1.0 → High correlation

Based on the classification, the result in the above table is interpreted as below:-

- There is moderate, positive and significant correlation between convenience and E-Payment adoption on POS **(r= .498** P ≤ 0.01)**
- There is low, positive and significant correlation between trust and E-Payment adoption on POS **(r = .184** P≤ 0.01)**
- There is moderate, Positive and significant correlation between Relative Advantage and E-Payment Adoption on POS **(r = .471** P ≤ 0.01)**
- There is moderate, positive and significant correlation between Attitude and E-Payment Adoption on POS **(r = .590** P ≤ 0.01)**
- There is moderate, positive and significant correlation between Perceived Behavioural Control and E-Payment Adoption on POS **(r = .468** P ≤ 0.01)**
- There is strong, positive and significant correlation between Change Readiness and e-payment adoption on POS **(r = .652** P ≤ 0.01)**
- There is a very low, negative and significant correlation between perceived risk and E-Payment Adoption on POS **(r = -.162** P ≤ 0.01)**

4.6.3. Regression Analysis

The correlation coefficient measures only the linear relationship between variable indicating the extent to which the variables move together. Therefore, to describe how an independent variable is numerically related to the dependent variable and to indicate the impact of a unit change in the independent variable on the dependent variable, it is necessary to do regression analysis. In addition, regression analysis is important to validate the hypothesis of the study.

Table 4. 20: **Model Summary**

Model Summary

Model	R	R Square	Adjusted R	Std. Error of the

			Square	Estimate
1	.750[a]	.563	.554	.44015

a. Predictors: (Constant), Trust, Relative Advantage, Perceived Risk, Perceived Behavioural Control, Convenience, Change Readiness, Attitude

Source: SPSS Output (2018)

From the above model summary, it can be seen that the R square, which measures the strength of the relationship between the model and the dependent variable, is 56%. This tells that 56% of the variance in the dependent variable is explained by the model.

The adjusted R Square for the model is 55%, which is the adjustment of R square when the sample size is small and the R square tends to be optimistic overestimation of the true value in the population. (Pallant J., 2005)

Table 4. 21: **ANOVA**

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	80.612	7	11.516	59.443	.000[b]
	Residual	62.576	323	.194		
	Total	143.187	330			

a. Dependent Variable: Adoption of E-Payment on POS

b. Predictors: (Constant), Trust, Relative Advantage, Perceived Risk, Perceived Behavioural Control, Convenience, Change Readiness, Attitude

Source: SPSS Output (2018)

ANOVA is used to assess the statistical significance of the result by testing the Null hypothesis that multiple R in the population equals 0. (Pallant J., 2005). The model of this study hence proves to be statistically significant by showing .000 significance. This also tells that the correlation between the model and dependent variables is statistically significant as the F-test is significant. In addition, since the P value of this model is less than significance level, it can be said that the sample data of the study provides sufficient evidence to conclude that regression model fits the data. (Pallant J., 2005)

Table 4. 22: Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Part Correlation
		B	Std. Error	Beta			
1	(Constant)	1.130	.278		3.707	.000	
	Convenience	.188	.049	.171	3.810	.000	.140
	Relative Advantage	.053	.038	.067	1.407	.160	.052
	Attitude	.192	.045	.220	4.227	.000	.155
	Perceived Behavioural Control	.186	.036	.211	4.093	.000	.187
	Change Readiness	.268	.040	.330	6.677	.000	.246
	Perceived Risk	-.129	.050	-.098	-2.595	.010	-.095
	Trust	-.092	.051	-.073	-1.823	.069	-.067

a. Dependent Variable: Adoption of E-Payment on POS

Source: SPSS Output (2018)

After seeing the fitness of the model in to the study using the ANNOVA, the next thing is to examine the contribution of each independent variable to the predication of the dependent variable. Looking into the coefficient table above, it is indicated that change readiness makes the highest contribution with β .330 or 33% and perceived risk has the smallest contribution with β -.073 or 7% for the predication of E-payment adoption on POS in Ethiopia.

The part correlation value of the model that represents the unique contribution of each variable, with any overlap removed is .16 or 16%.

4.6.4. Hypothesis Testing

H1: Convenience has a positive and significant impact on card usage at point of sale terminal in Ethiopia.

The result in the above table shows that convenience has a beta coefficient of .171 with a significant value of .001. This indicates that convenience makes a positive, statistically significant and unique contribution to the predication of E-payment adoption on POS. Therefore, controlling the variance explained by all other variables in the model; convenience contributes 17% to the variance explanation of the dependent variable.

Based on the result, considering convenience as an important factor for e-payment adoption on POS in Ethiopia, H1 is accepted. The result is in line with a result of an empirical study made by Mourad and Sheif (2015) on E-payment technology adoption where they found convenience to be a significant indicator for E-payment adoption. Shankar A. and Data B (2018) have also made a study on factors affecting E-payment adoption intention in India and found a result that conforms with the result shown in this study which is convenience is a significant indicator of E-Payment adoption. Sinha I. and Roy Sanghita (2014) and Makongoro G. (2014) also found convenience to be a significant indicator of E-payment adoption.

This indicates that customers use their card for payment for the benefit of convenience they get from the POS payment mode through unlimited access to cash in account and paying for purchases at any time anywhere.

H2: Relative advantage has a positive and significant impact on card usage at point of sale terminal in Ethiopia.

The result in the coefficient table shows that relative advantage has a beta coefficient of .067 with significance value of .160. This indicates that e-payment adoption on POS in Ethiopia is not dependent on relative advantage. OR relative advantage does not contribute to the prediction of E-payment adoption on POS in Ethiopia.

Based on the result hence, H2 is rejected as relative advantage has no significant impact on E-Payment adoption on POS in Ethiopia.

Similar result was found by Bashabsheh A. and Al-Majal . (2016) on a study made to find factors that affect commercial banks' customers intention towards electronic payment services in Jordan where relative advantage had a P-value of .721 indicating that relative advantage has no significant relationship with e-payment adoption.

H3: Attitude has a positive and significant impact on card usage at point of sale terminal in Ethiopia.

The result in the above coefficient table shows that attitude has a beta coefficient of .220 with significance value of .001. This indicates that attitude makes a positive, statistically significant and unique contribution to the prediction of E-payment adoption on POS. Therefore, controlling the variance explained by all other variables in the model, Attitude contributes 22% to the e variance explanation of the dependent variable.

Based on the result, considering Attitude as an important factor for E-payment adoption on POS in Ethiopia, H3 is accepted. The result is supported by the finding of a study made on determinants of customers' acceptance of electronic payment system in India by Sinha I. & Roy S. (2014)

H4: Perceived Behavioural Control has a positive and significant impact on card usage at point of sale terminal in Ethiopia.

As per the result in the above table, perceived behavioural control has beta coefficient of .211 with significance value of .001. This is an indication that perceived behavioural control makes a positive, statistically significant and unique contribution to the predication of E-Payment of adoption on POS. Further controlling the variance explained by all other variables in the model, perceived behavioural control contributes 21% to the variance explanation of the dependent variable.

As per the result, considering the significance of perceived behavioural control, H4 is accepted. The result has similarity with the finding obtained by Unsworth L. (2009) from a study made to develop an integrative model for understanding innovation adoption. The result shows that perceived behavioural control has significant impact on e-payment adoption. In addition, Datta B. and Shankar A. (2008) have also found self-efficacy, one of the dimensions of perceived behavioural control, as a significant factor for mobile adoption in India.

This indicates that the more POSs deployed across the country along with facilitating factors like enhanced technology, accessibility will increase which may lead to increased usage of cards for payment.

H5: Change Readiness has a positive impact on card usage at point of sale terminal in Ethiopia

As per the result in the above table, change readiness has a beta coefficient of .330 with significance value of .001. This indicates that change readiness makes a positive, statistically significant and unique contribution to the prediction of E-payment adoption on POS. Further, controlling the variance explained by all other variables in the model, change readiness contributes 33% to the variance explanation of the dependent variable. Consequently, considering the significance of change readiness to e-payment adoption on POS, H5 is accepted.

This is an indication that the willingness of customers to change their way of paying to electronic meanness have significant impact to the adoption of e-payment on POS.

H6: Perceived Risk has a negative impact on card usage at point of sale terminal in Ethiopia.

According to the result in the above coefficient table, perceived risk has a beta coefficient of -.098 with significance value of .010. This is an indication that perceived risk makes a negative, statistically significant and unique contribution to the prediction of E-payment adoption on POS. Therefore, controlling the variance explained by all other variables in the model, perceived risk contributes 10% to the variance explanation of the dependent variable. In other words, a single unit increase in perceived risk will have a 10% decrease in payment adoption on POS, keeping all other factors constant. This indicates that service providers like banks should give due consideration in securing their system so that risk is kept at a very minimal level where customers are protected from potential risks.

Based on the result hence, H6 is accepted by considering the significance of the variable on E-payment adoption on POS in Ethiopia. The result is supported by a similar result obtained from an empirical study made by Mourad and Sheif (2015) on E-payment technology adoption where they found that perceived risk is a significant indicator of E-payment adoption. Other researchers like Sinha I & Roy Sanghita (2014) and Makongor G. (2014) have also concluded that perceived risk has a negative and significant impact on E-payment adoption.

H7: Trust has a positive and significant impact on card usage at point of sale terminal in Ethiopia.

The result in the coefficient table shows that trust has a beta coefficient of -.073 with a significance value of .069. This indicates that, e-payment adoption on POS is not dependent on trust. OR trust does not contribute to the prediction of E-Payment adoption on POS in Ethiopia.

Based on the result, H7 is rejected as trust has on significant impact on E-payment adoption on POS in Ethiopia. The result is in conformity with a result found by a study made on factors influencing adoption of mobile banking services in Tanzania by Makongoro G. (2014). The finding of the study shows a beta coefficient of -.025 with significance value of P > 0.05 indicating that trust has negative effect on e-payment or trust is not a significant indicator of e-payment adoption.

In addition, similar result was found by Wei S. (2017) in a research made to see factors affecting adoption of E-Payment where the finding indicates that there is no relationship between trust and e-payment adoption as P value was 0.784 at P<0.05 and Beta coefficient of -0.014. Further Alemayehu B. (2017) has also made a study to find factors that affect mobile payment adoption in Ethiopia and found trust not to have significant relationship with m-payment adoption.

Table 4. 23: Hypothesis Result Summary

	Hypothesis	Coefficients		Sig	Result
		B	r		
H1	Convenience has a positive and significant impact on card usage at point of sale terminal in Ethiopia	.171	.498	.000	Supported
H2	Relative advantage has a positive and	.067	.471	.160	Rejected

	significant impact on card usage at point of sale terminal in Ethiopia.				
H3	Attitude has a positive and significant impact on card usage at point of sale terminal in Ethiopia.	.220	.590	.000	Supported
H4	Perceived Behavioural Control has a positive and significant impact on card usage at point of sale terminal in Ethiopia.	.211	.468	.000	Supported
H5	Change Readiness has a positive impact on card usage at point of sale terminal in Ethiopia	.330	.652	.000	Supported
H6	Perceived Risk has a negative impact on card usage at point of sale terminal in Ethiopia.	-.098	-.162	.010	Supported
H7	Trust has a positive and significant iimpact on card usage at point of sale terminal in Ethiopia.	-.073	.184	.069	Rejected

In the above summary, it is indicated that change readiness has the highest significance impacting the adoption of e-payment on point of sale terminal that implicates the need of working towards reducing resistance to accepting the technology and make customers ready to change. The next variable that has a high positive significance impacting the adoption is attitude of customers' which implicates the need for exerting effort towards building favourable attitude of customers' towards the use of POS for payment. Perceived Behavioural control has also a positive and significant impact implicating that attention should be given for building customers' confidence and also expanding acceptance point along with enhanced technology to operate the system. Further, convenience has a positive and significant impact on point of sale payment adoption which indicates that improving the convenience of the system helps to enhance the POS adoption in Ethiopia. In addition potential risk related to using POS for payment should be reduced to the possible minimum level and safety should be educated to customers' to comfort them while using their card for payment.

On the other hand, trust and relative advantage were found to have no relationship with adoption of e-payment on POS in Ethiopia.

Chapter Five
SUMMARY, CONCLUSION and RECOMMENDATION

5.1. Summary and Conclusion

This chapter summarizes, concludes and recommends the study based on the findings outlined the preceding chapter.

The study had included seven variables that are convenience, relative advantage, perceived risk, perceived behavioural control, change readiness and attitude to explain their impact on e-payment adoption on POS in Ethiopia. For the data collection purpose, questionnaire was prepared and tested for its validity through pilot testing. The validated questionnaire was then distributed to 384 samples drawn from all cardholders in Ethiopia 86% or 331 were collected. After screening the questionnaires for their completeness, the data were fed on SPSS for further descriptive and inferential analysis as applicable.

From the demographic data perspective, majority of the female respondents use their card on POS once in a month while the majority of male respondents use their card on POS once in a month. With regard to age and income, majority of the respondents use their card once in a while showing that the difference in age and income has no impact on frequency of card usage on POS.

The result of the multiple regression analysis shows that the model used in this study is statistically significant. Further analysis of the individual impact of the independent variables on the dependent variable, it is observed that convenience, attitude, change readiness and perceived behavioural control have a positive and statistically significant impact on e-payment adoption on POS in Ethiopia. This shows that people use their card if POSs are available at various merchant locations and also if the POS is easy to use and has some perceived usefulness. In addition the users self confidence in using their card for payment is also a factor for usage. Further, their attitude and readiness towards changing their payment mode from cash to electronic is also found to be an important factor for e-payment adoption on POS.

On the contrary, perceived risk was found to have a negative impact on e-payment adoption on POS as the perception of facing various types of risks affects their interest of using. If users fear that they may lose their money, or their personal account information may be compromised by fraudsters, they will refrain from using their card on POS to avoid the possible risks.

On the other hand the finding of the study further shows that trust and relative advantage has no relationship with e-payment adoption on POS.

5.2. Recommendation

Based on the findings in chapter four and the conclusion made thereafter, the researcher recommends the following:-

- For the e-payment adoption on POS to be achieved, point of sale terminals should be deployed at areas or merchant where local cardholders mostly visit for their purchases. As the absence of widespread acceptance of card for payment by merchants hinders the adoption of e-payment on POS, due attention should be given in adding more POSs across the country. Banks should study the purchasing behaviour of their customer and perform proper segmentation to focus on merchants that are mostly visited by their customers so that convenience can be presented as a benefit

- Interoperability among POSs of all banks should be realized that would create better level of acceptance of cards for payments so that cardholders would go to points of sale with confidence of utilizing their cards and this evidently would help realize the objectives of e-payment expansion.

- Cardholders should be properly informed as to where they should go if they prefer to pay by card and should also be educated on the use of card on POS so they will be at ease while presenting their card for payment.
- Awareness should be created on cardholders about the convenience and safety of using card rather than cash through different workshops, exhibitions, road shows and various promotion mechanisms to drive the cash based payment towards e-payment.

- Banks must encourage their cardholders to use their cards for payment through various campaigns, incentives and other motivating actions.

- Customers should be consistently educated about the security of the POS technology in addition to providing information on how to securely hold their card and how securely they can use it for payment at merchant location.

- For issuing banks, there are various channels to reach their customers with educational materials, including: card carriers, statement inserts, ATMs, branches, contact centers, internet, advertising, social media, email and direct mail.

- For acquiring service providers, usually banks, both the merchants and card holders are their customers. Conducting a comprehensive customer satisfaction survey would enable banks to know how their services are perceived in the eyes of both. This is based on the very principle that companies should satisfy their customers to achieve their goal. In this case satisfied customers usually return, buy more and pay by card, they tell other people about their experiences.

- As respondents shows willingness to change their mode of payment to electronic, banks should prepare a business model that can meet the requirement of cardholders, merchants and themselves to achieve the adoption through the change readiness of cardholders.

- Banks must work on enhancing the convenience of payment on POS by shortening transaction processing time and avoid long queue in close collaboration with the telecom service provider. This will also avoids resistance of usage because of prior bad experience due to failed transaction.

- Banks should ensure the safety of using card for payment so that cardholders feel safe while handing their cards over to the merchant staff.

5.3. Suggestion for Areas of Future Research

This study was made to analyse factors affecting e-payment adoption on POS by focusing only on local cardholders in Ethiopia. Respondents were selected conveniently as not all cardholders use their cards for payment. Therefore, future researchers may include non-users, merchants, banks, third party payment processors and regulating government agencies as all these have stake in the expansion and adoption of e-payment on POS.

Further, it would be better if researchers increase the sample size and include respondents from all stakeholder categories which may provide a better result as representation of the sample will be better.

Future researchers would also include other variables that affect e-payment adoption on POS that were not included in this study.

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Appendix I: Questionnaire

ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE
MARKETING MANAGEMENT PROGRAM

Dear Respondent,

I would like to extend my sincere appreciation for spending your valuable time to respond to the below questions and also thank you for giving your honest and prompt responses.

This questionnaire is designed to collect data related to factors that affect the adoption of e-payment in Ethiopia focusing on Point of Sale Terminal. The collected data will be used as a primary data for the research I am conducting as a partial fulfilment of Master Of Art in which the result is expected to contribute to the understanding of factors that affect e-payment adoption on Point of Sale Terminal.

Confidentiality

Please, rest assured that the information you provide here in will be used only for the purpose of achieving academic award from Addis Ababa University, School of Commerce.
Thank you in advance.

No.	Background information	
1	Gender	
	Male ☐	
	Female ☐	
2	Age	
	18-25 ☐	
	26-35 ☐	
	36-45 ☐	
	46-55 ☐	
	56 and Above ☐	
3	Highest Level of Education Attended	
	Elementary Education ☐	
	Secondary/TVET ☐	
	First Degree ☐	
	Master's Degree ☐	
	PHD ☐	
4	Work Status	
	Student ☐	
	Self Employed ☐	
	Employed ☐	
	Unemployed ☐	
	Retired ☐	
5	Monthly Income ETB	

	Below 2000	☐
	2001 to 4000	☐
	4001 to 10,000	☐
	10,000 to 20,000	☐
	Above 20,000	☐
6	What is the type of card you have?	
	Debit	☐
	Prepaid	☐
7	For What Purpose do you use your card	
	Cash Withdrawal	☐
	Payment at POS	☐
	Both	☐
	Other	☐
	_____	
8	How often do you use your card for payment at Merchants'	
	Daily	☐
	Once a Week	☐
	Once a Month	☐
	Many times a month	☐
	Once in a While	☐

Section II:- Five Point Liker Scale

Please answer the below questions by giving 1 to 5 where:-

1 stands for Strongly Disagree
2 Stands for Disagree
3 stands for Neutral
4 stands for Agree and
5 stands for strongly agree

No.	Issues to be Evaluated	Rating Point				
		1	2	3	4	5
	Convenience					
1	Most of the Merchants I transact with have Point of Sale Terminal					
2	Paying with card on Point of Sale Terminal is convenient than paying with cash					
No.	**Issues to be Evaluated**	**Rating Point**				
		1	**2**	**3**	**4**	**5**

3	Using my card for payment at Point of Sale Terminal enables me access my account not to be restricted up to the amount I have in my pocket					
4	Using my card for payment at POS enables me to transact at any time of the day					
5	Holding the card is more convenient than carrying large amount of paper money					
6	I feel safer while I have my card in my pocket than carrying money in my pocket					
	Trust					
7	Ability of POS (Point of Sale) terminal operators at merchant site has impact on using card for payment at point of sale					
8	Integrity of the merchant has an impact in using my card for payment at point of sale					
9	Confidence in the functionality of point of sale terminal has impact on presenting my card for payment at point of sale					
10	My past experience while using my card for payment has impact on using my card for payment at Point of Sale					
11	Banks that issue card to customers and provide POS to merchants are trustworthy enough to make payment by card at point of sale					
12	Merchants are trust worthy enough to give cards for payment					
	Perceived Risk					
13	There might be potential loss if transaction is not successful					
14	There might be potential loss if the system is hacked and card information got in the wrong hand					
15	Fraud may be attempted by card at merchant locations					
16	The POS terminal system may fail while processing transaction					
17	People may think less of me if I use my card for payment at point of sale					
No.	**Issues to be Evaluated**	**Rating Point**				

		1	2	3	4	5
18	My bank account and card information may be accessed by other people					
19	I may waste time if he POS couldn't work and the operator takes too much time to fix the problem					
	Relative Advantage					
20	I believe Paying with card at point of sale is less expensive than paying with cash					
21	I save my time while I pay with card at Point of Sale Terminal					
22	Using card for payment enables purchase at any time as long as the merchant is open					
	Attitude					
23	Paying with card at point of sale is very useful to facilitate the day to day activity					
24	Paying with card is an easy processes that can be performed by anyone that has a card					
25	POS terminal system is not a complex system to adopt payment with card					
26	Paying with card has various benefits for the cardholder as it saves time and cost					
	Perceived Behavioural Control					
27	I believe I can operate the POS as requested by the merchant					
28	I am willing to give time to the POS operator if the POS takes time to connect to the main system					
29	There is enough POS distribution at merchant locations where I usually visit to buy goods and services					
	Change Readiness					
30	I am comfortable with paying by card than cash for my various purchases					
31	I do consider payment by card as modernization					
No.	**Issues to be Evaluated**	**Rating Point**				

		1	2	3	4	5
32	I promote the benefit of paying with card at Point of Sale Terminals whenever I get the chance to do so.					
33	I am willing to change my payment method to electronic means and pay by card if merchants avail the Point of Sale Terminal as payment option					
	Adoption of E-Payment on Point of Sale Terminal					
34	I trust that I am safe to access my account by card to pay for goods and services I buy from merchants					
35	I feel the convenience of paying with card while I buy goods and Services					
36	I use my card to pay on Point of Sale Terminals when I buy goods and services					
37	I regularly pay by card at Point of Sale Terminal when I buy goods and services					
38	I believe that I benefit from adopting card payment on Point of Sale Terminal					

Thank you very much again.

Appendix II: SPSS Output

```
/DESCRIPTIVES MEAN STDDEV CORR SIG N

/MISSING LISTWISE

/STATISTICS COEFF OUTS R ANOVA COLLIN TOL CHANGE ZPP

/CRITERIA=PIN(.05) POUT(.10)

/NOORIGIN

/DEPENDENT AdoptionOfEPaymentSummary

/METHOD=ENTER ConvenienceSummary RelativeAdvantageSummary AttitudeSummary
PErceivedBehaviouralControlSummary ChangeReadinessSummary Risknew TrustNew4

/SCATTERPLOT=(*ZRESID ,*ZPRED)

/RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID)

/SAVE COOK ZRESID.
```

Regression

[DataSet1] D:\SPSS DATA\Working for perceived risk. & trust sav.sav

Descriptive Statistics

	Mean	Std. Deviation	N
Adoption of E-Payment on POS	3.5505	.65871	331
Convenience	3.6798	.59966	331
Relative Advantage	3.3787	.83058	331
Attitude	3.8993	.75602	331
Perceived Beharioral Control	3.1964	.74944	331
Change Readiness	3.8293	.81111	331
Perceived Risk	3.3048	.55665	331
Trust	3.8877	.51792	331

Correlations

		Adoption of E-Payment on POS	Convenience	Relative Advantage	Attitude	Perceived Beharioral Control	Change Readiness	Perceived Risk	Trust
Pearson Correlation	Adoption of E-Payment on POS	1.000	.498	.471	.590	.468	.652	-.162	.184
	Convenience	.498	1.000	.442	.483	.250	.456	-.091	.291
	Relative Advantage	.471	.442	1.000	.586	.210	.473	-.099	.139
	Attitude	.590	.483	.586	1.000	.338	.581	-.042	.265
	Perceived Behavioural Control	.468	.250	.210	.338	1.000	.424	-.036	.239
	Change Readiness	.652	.456	.473	.581	.424	1.000	-.112	.220
	Perceived Risk	-.162	-.091	-.099	-.042	-.036	-.112	1.000	-.162
	Trust	.184	.291	.139	.265	.239	.220	-.162	1.000
Sig. (1-tailed)	Adoption of E-Payment on POS	.	.000	.000	.000	.000	.000	.002	.000
	Convenience	.000	.	.000	.000	.000	.000	.049	.000
	Relative Advantage	.000	.000	.	.000	.000	.000	.036	.006
	Attitude	.000	.000	.000	.	.000	.000	.223	.000
	Perceived Beharioral Control	.000	.000	.000	.000	.	.000	.257	.000
	Change Readiness	.000	.000	.000	.000	.000	.	.021	.000
	Perceived Risk	.002	.049	.036	.223	.257	.021	.	.002
	Trust	.000	.000	.006	.000	.000	.000	.002	.
N	Adoption of E-Payment on POS	331	331	331	331	331	331	331	331
	Convenience	331	331	331	331	331	331	331	331
	Relative Advantage	331	331	331	331	331	331	331	331
	Attitude	331	331	331	331	331	331	331	331
	Perceived Beharioral Control	331	331	331	331	331	331	331	331
	Change Readiness	331	331	331	331	331	331	331	331

	Perceived Risk	331	331	331	331	331	331	331	331
	Trust	331	331	331	331	331	331	331	331

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Trust, Relative Advantage, Perceived Risk, Perceived Behavioural Control, Convenience, Change Readiness, Attitude[b]	.	Enter

a. Dependent Variable: Adoption of E-Payment on POS

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.750[a]	.563	.554	.44015	.563	59.443	7	323	.000

a. Predictors: (Constant), Trust, Relative Advantage, Perceived Risk, Perceived Beharioral Control, Convenience, Change Readiness, Attitude

b. Dependent Variable: Adoption of E-Payment on POS

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	80.612	7	11.516	59.443	.000[b]
	Residual	62.576	323	.194		
	Total	143.187	330			

a. Dependent Variable: Adoption of E-Payment on POS

b. Predictors: (Constant), Trust, Relative Advantage, Perceived Risk, Perceived Beharioral Control, Convenience, Change Readiness, Attitude

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.030	.278		3.707	.000					
	Convenience	.188	.049	.171	3.810	.000	.498	.207	.140	.670	1.492
	Relative Advantage	.053	.038	.067	1.407	.160	.471	.078	.052	.601	1.663
	Attitude	.192	.045	.220	4.224	.000	.590	.229	.155	.498	2.009
	Perceived Beharioral Control	.186	.036	.211	5.093	.000	.468	.273	.187	.788	1.270
	Change Readiness	.268	.040	.330	6.677	.000	.652	.348	.246	.554	1.804
	Perceived Risk	-.129	.050	-.098	-2.595	.010	-.162	-.143	-.095	.958	1.044
	Trust	-.092	.051	-.073	-1.823	.069	.184	-.101	-.067	.852	1.174

a. Dependent Variable: Adoption of E-Payment on POS

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions							
				(Constant)	Convenience	Relative Advantage	Attitude	Perceived Behavioral Control	Change Readiness	Perceived Risk	Trust
1	1	7.817	1.000	.00	.00	.00	.00	.00	.00	.00	.00
	2	.059	11.528	.01	.00	.16	.02	.00	.04	.24	.01
	3	.043	13.485	.00	.00	.15	.00	.65	.01	.05	.00
	4	.025	17.613	.01	.10	.25	.00	.21	.01	.23	.18
	5	.021	19.131	.00	.01	.24	.03	.12	.62	.07	.08
	6	.015	23.078	.00	.10	.11	.91	.00	.18	.00	.01
	7	.014	23.715	.01	.75	.07	.03	.03	.13	.01	.24
	8	.006	37.046	.96	.03	.02	.01	.00	.01	.40	.48

a. Dependent Variable: Adoption of E-Payment on POS

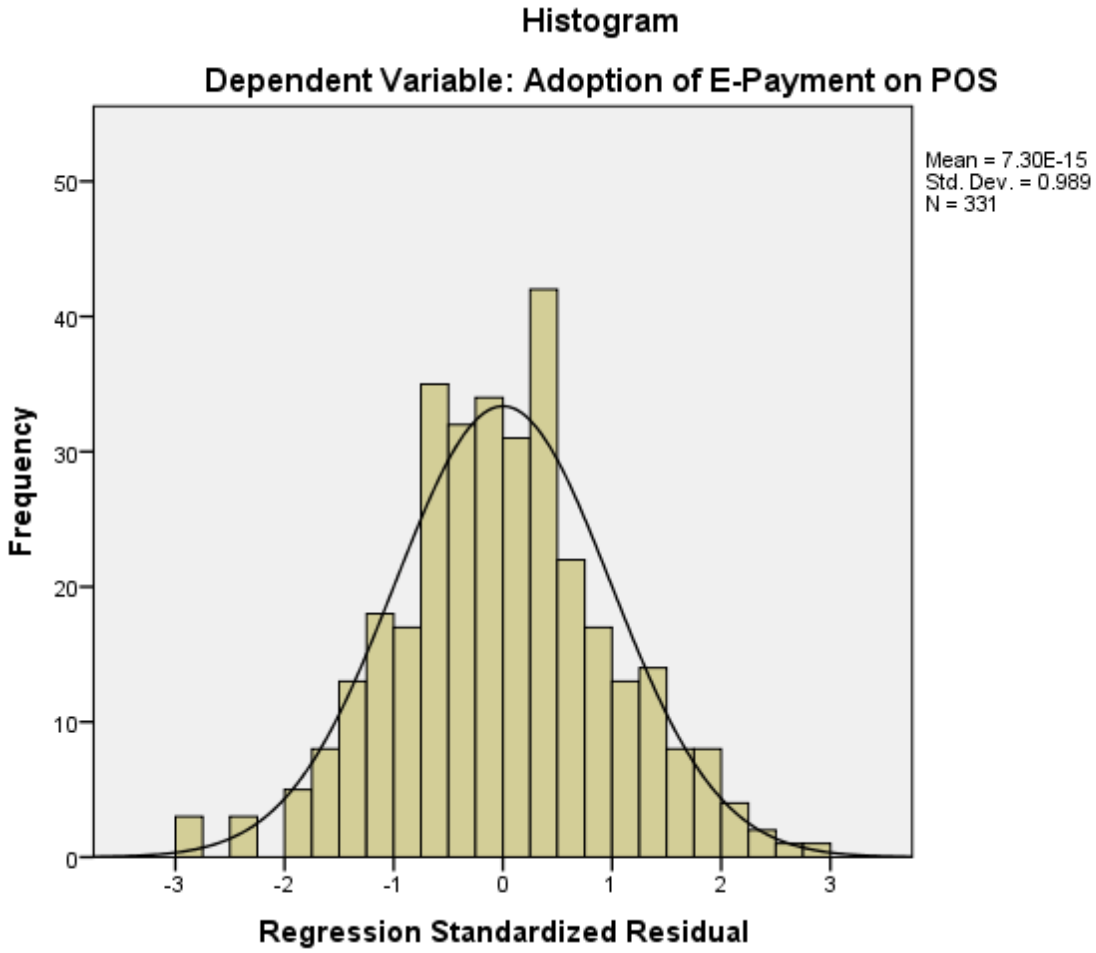
Residuals Statistics[a]

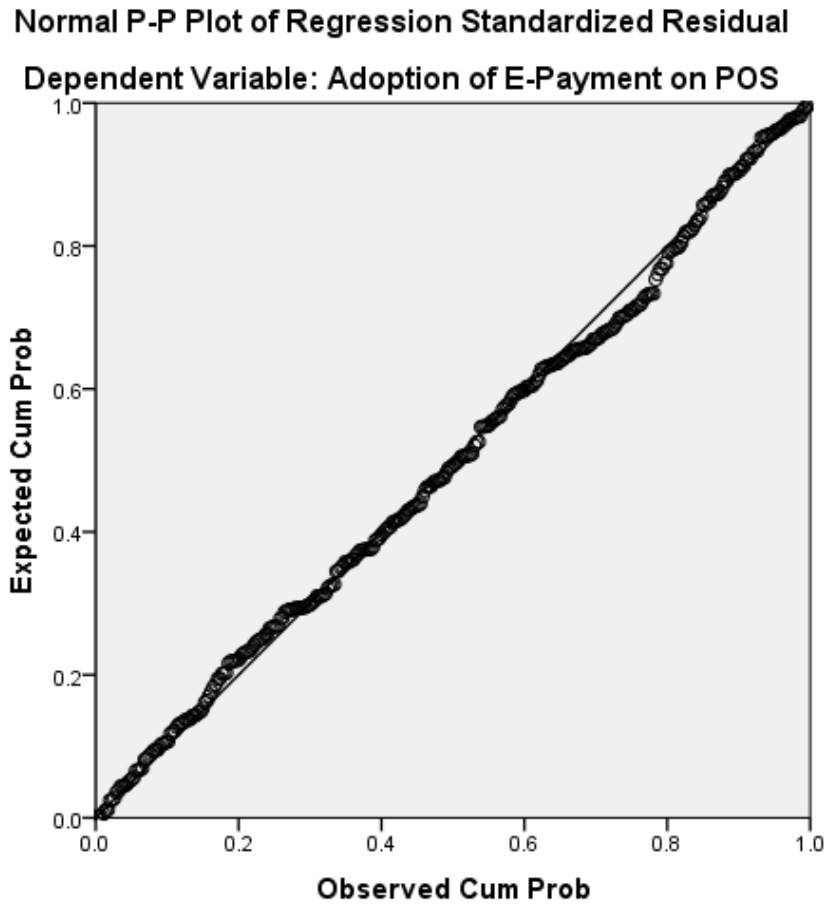
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.7988	4.6913	3.5505	.49425	331
Std. Predicted Value	-3.544	2.308	.000	1.000	331
Standard Error of Predicted Value	.028	.159	.065	.022	331
Adjusted Predicted Value	1.7988	4.7070	3.5500	.49399	331
Residual	-1.29360	1.24404	.00000	.43546	331
Std. Residual	-2.939	2.826	.000	.989	331
Stud. Residual	-2.990	2.874	.001	1.002	331
Deleted Residual	-1.33877	1.28637	.00047	.44696	331
Stud. Deleted Residual	-3.027	2.907	.001	1.006	331

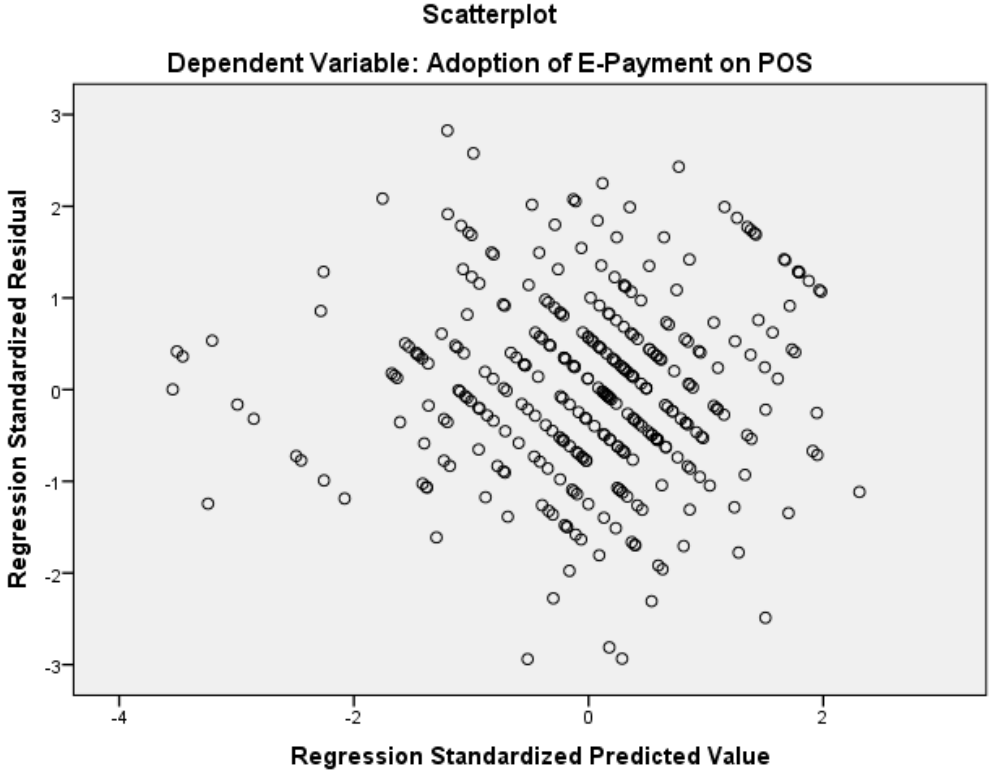
Mahal. Distance	.355	41.865	6.979	5.750	331
Cook's Distance	.000	.044	.003	.006	331
Centered Leverage Value	.001	.127	.021	.017	331

a. Dependent Variable: Adoption of E-Payment on POS

Charts




Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Adoption of E-Payment on POS
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0


Scatterplot
Dependent Variable: Adoption of E-Payment on POS
Regression Standardized Residual
Regression Standardized Predicted Value
3
2
1
0
-1
-2
-3
-4
-2
0
2