Determinants of Diffusion of Online Payment Systems in Addis Ababa

Addis Ababa University

College of Business and Economics

School of Commerce

Marketing Management Graduate Program Unit

By

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Research on

Determinants of Diffusion of Online Payment Systems in Addis Ababa

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This is to certify that the thesis entitled **Determinants of Diffusion of Online Payment Systems in Addis Ababa** is prepared by Yoseph Melka as part of the fulfillment required for the award of the Degree of Master of Arts in Marketing Management with the regulation of the University and the accepted standards with respect to originality.

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Declaration

I, Yoseph Melka, hereby declare that the thesis entitled **Determinants of Diffusion of Online Payment Systems in Addis Ababa** is the outcome of my own effort and study and that all sources of materials used for the study have been duly acknowledged. This study has not been submitted for any degree in this university or any other university. It is offered for the partial fulfillment of the requirement for the Master of Arts degree in Marketing Management at the school of commerce.

Yoseph Melka _____ **August, 2017**

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Certification

This is to certify that Yoseph Melka has carried out his thesis on the topic entitled: **Determinants of Diffusion of Online Payment Systems in Addis Ababa**. This work is original in nature and suitable for the award of Masters of Arts (MA) in Marketing Management.

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Getie Andualem (Ph. D)

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Abstract

This research was carried out with the objectives of examining the key Determinants of Diffusion of Online Payment Systems in Addis Ababa and the relationship among these key determinants in the case of potential adopter buyers and potential adopter sellers. It used the five characteristics of innovation – relative advantage, compatibility, simplicity, trialability and observability – of the Diffusion of Innovations Theory (DIT) by Everett M. Rogers. Questionnaires were distributed and 342 from potential adopter buyers and 96 from potential adopter sellers were finally used for analysis using SPSS software. Frequency distributions were checked to summarize demographic profiles, correlation analysis was used to examine the relationship among key determinants of diffusion and multiple regression analysis were used to check the effect of innovation attributes on the diffusion of online payment system in Addis Ababa. The results show that, for the case of potential adopter buyers, only compatibility, trialability and observability were found to be significantly determining diffusion of online payment system in a positive direction and for the case of potential adopter sellers, only relative advantage has shown a significant influence which was positive. The determinants were also found to have a positive relationship among each other. As a result, the researcher recommends that banks or other financial institutions that will be given the task to facilitate online payment system shall operate in accordance with the findings by focusing on compatibility, trialability and observability when designing marketing programs for potential adopter buyers and focus on relative advantage features when designing marketing programs for potential adopter sellers.

***Keywords**: Diffusion of Innovation, Innovation Characteristics, Online Payment System, Addis Ababa*

Contents

List of tables

Appendix Tables

List of figures

Appendix Figures

List of Acronyms and Abbreviations

ANOVA = Analysis of Variance

ATM = Automated Teller Machines

CIA = Central Intelligence Agency

CITC = Communication and Information Technology Committee

DIT = Diffusion of Innovation Theory

E or e (As in e-commerce, e-payment, E-Wallet) = Electronic

EPS = Electronic Payment System

ICT = Information and Communication Technology

NBE = National Bank of Ethiopia

OECD = Organization for Economic Co-operation and Development

P2P = Peer to Peer

PIN = Personal Identification Number

SHTML = Secured Hyper Text Markup Language

S.C = Share Company

TAM = Technology Acceptance Model

TRA = Theory of Reasoned Action

TOE = Technology-Organization-Environment

TTP = Trusted Third Party

Chapter One– Introduction

In this chapter, the reader will find background of the study, statement of the problem, basic research questions, objectives of the study, definition of terms, significance of the study, and scope of the study. It also includes other important sections that lay the ground work for the research.

1.1 Background of the study

Diffusion reflects the percentage of population that has adopted an innovation at a specific point in time (Hoyer and MacInnis, 2010). According to Rogers (2003), an innovation has five attributes or characteristics. These are (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability, and (5) observability. From 49 to 87 percent of the variance in rate of adoption is explained by these five attributes (Rogers, 2003).

And in any event, research on predicting an innovation's rate of adoption would be more valuable if data on the attributes of the innovation were gathered prior to, or concurrently with, individuals' decisions to adopt the innovation (Tornatzky and Fleischer, 1990, Rogers, 2003).

Relative advantage is the degree to which an innovation is perceived as being better than the idea it supersedes. The degree of relative advantage is often expressed in economic profitability, in status giving, or in other ways (Rogers, 2003).

Compatibility is the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters. An idea that is more compatible is less uncertain to the potential adopter. An innovation can be compatible or incompatible (1) with sociocultural values and beliefs, (2) with previously introduced ideas, or (3) with client needs for innovations (Rogers, 2003).

Complexity is the degree to which an innovation is perceived as relatively difficult to understand and use. Any new idea may be classified on the complexity-simplicity continuum. Some innovations are clear in their meaning to potential adopters while others are not. It is negatively related to its rate of adoption (Rogers, 2003).

Trialability is the degree to which an innovation may be experimented with on a limited basis. New ideas that can be tried on the installment plan will generally be adopted more rapidly than innovations that are not divisible (Rogers, 2003).

Observability is the degree to which the results of an innovation are visible to others. The results of some ideas are easily observed and communicated to others, whereas some innovations are difficult to describe to others (Rogers, 2003).

When we come to the topic of this research, online payment system, it has been started years ago. It has gained well acceptance over the world. These days, in most parts of the world, online transactions are very common. Consumers can order goods and services virtually anywhere, 24 hours a day and seven days a week without worrying about store hours, time zones or traffic jams (Li and Gery, 2000). The internet also offers new opportunities for marketers by offering them with innovative ways to promote, communicate and distribute products and information to their target consumers (Leelayouthayotin, 2004). In Ethiopia, however, such transactions are not common since customers do not have access to online payment system. Currently, at the finalizing of this report (May 2017), none of the different banks in Ethiopia have started providing this service. Their services are limited to online banking, mobile banking, ATM banking and the traditional common banking services which are given at the branch levels. According to the researcherôs experience, observation and interviewing for exploratory purpose, the currently provided online banking and ATM banking services are not any much better than the traditional branch-based banking services. The only difference they have is that you donôt have to go to brick-and-mortar (physical) banks to get bank services. For example, you cannot buy even a $1 book from Amazon.com using current banking services of Ethiopia while sitting at your home. Thus, online payment system has been one aspect of a hindrance to Ethiopian customers and also to Ethiopian marketing firms to buy and sell online internationally or even in local markets; from the simple buying and selling of a book to the complex buying and selling of industrial machinery.

In contrary to the above facts, we can say that some aspects of e-commerce have been started. According to Fraumeni et al. (2000) e-commerce is defined as ñany transaction completed over a computer-mediated network that involves the transfer of ownership or rights to use goods or services.ò A ñnetworkò can include open networks like the internet or proprietary networks that

facilitate data exchange among firms. Electronic commerce is more than ordering goods from an on-line catalog. Apart from the online payment system, there are organizations in Ethiopia that engage in the above mentioned e-commerce activities to some extent. This will lead us to internet transaction or electronic transaction which is the sale or purchase of goods or services, whether between businesses, households, individuals, governments and other public or private organizations, conducted over the internet. The goods and services are ordered over the internet, but the payment and the ultimate delivery of the good or service may be conducted on or off-line (OECD, 2011).

In such a globalized world, if Ethiopia wants to fully harness the advantages of E-commerce, the country shall start online payment system. Globalization and the advantages of completing transactions online will compel the country to be in uniformity with the world. In many developed countries the internet has been adopted as an important medium, offering a wide assortment of products within 24hours availability and wide area coverage (Javadi et al., 2012). Online shopping has received a considerable attention in the popular press as the future of in home shopping. The climb in online sales to consumers may reflect compelling advantage of internet shopping (Wang et al., 2010). Online shopping offers various benefits both to businesses and consumers. From business perspectives, the online shopping option gives cost effective and globally accessible distribution to market their product, increased sales and more effective marketing communication (Khan, 2008). For example, as of 2011, Amazonôs market value was over $79 billion, 40 percent higher than the combined value of two large and successful offline retailers, Target and Kohlôs, who have 2800 stores between them. Now, Amazon is the largest single bookseller (and sells many other products) (Lieber and Syverson, 2011). Barnes & Noble, while still large, has seen its market share diminish markedly. There are also many fewer bricks-and-mortar specialty bookshops in the industry where prices are even lower (Lieber and Syverson, 2011). Not surprisingly, the online channel is growing faster: nominal e-commerce sales grew by over 120 percent between 2002 and 2008, while nominal offline sales grew by only 30 percent (OECD, 2011).

A research by Yurovskiy (2007) discloses some of the advantages of shopping online with findings such as elimination of geographic barriers, reaches targeted customers more effectively, delivers better results, delivers immediate results, is cost effective, reaches a wider or even

international audience, its results are measurable, can be personalized, helps build relationships, is available 24/7.s Therefore, the beginning of online payment system should take the above points into consideration.

The usefulness of research on the attributes of innovations is mainly to predict *their future* rate of adoption (Rogers, 2003, Tornatzky and Klein, 1982). Innovation characteristics research studies should predict rather than simply explain in a post-hoc fashion, the critical events of the phenomenon: If prediction of innovation and adoption is the goal of this line of research, then the true predictive ability of a given innovation characteristic must be directly and explicitly tested (Rogers, 2003, Tornatzky and Klein, 1982). From a research design perspective this means that the assessment of an innovation attribute should be obtained prior to or concurrently with, a decision to adopt the innovation(s) (Tornatzky and Klein, 1982). One would expect raters of an innovationôs characteristic to rate the innovation favorably once they had adopted it. Adopters would rationalize their decisions by appraising the innovations favorably, even if they had not actually felt so positively prior to adoption, or even if the innovation had not performed as well as had been originally expected (Tornatzky and Klein, 1982). Most retrospective data gathering approaches are likely to give a distorted view of ñpredictionò (Rogers, 2003). Therefore, it is a wise decision to clear the stage for online payment system to be better diffused among the society by undertaking such a predictive research in advance.

The researcher studied factors that would influence the diffusion of online payment system. Diffusion reflects the percentage of population that has adopted an innovation at a specific point in time (Hoyer and MacInnis, 2010). The availability of such technology does not necessarily imply that people will use it. A report issued by the Saudi Arabiaôs Communication and Information Technology Committee (CITC) demonstrated that, even if the country is well equipped with infrastructure, only 6% of residents in Saudi Arabia have purchased online, only 16% of the internet users are planning to buy online, and only 15% have plans to sell online (CITC, 2011). Thus, one should also consider that the diffusion of this technology is also a major factor for the usage of it. Therefore, it will be a great startup for whoever would start the facilitation of online payment systems - financial institutions or banks ï to know what factors would promote the diffusion of online payment systems.

The government of Ethiopia is taking some initiative to start such service. According to informal resources, NBE had already prepared the rules and regulations to govern online payment system and is waiting for ratification. Dashen Bank had also signed an agreement with iVery, a South African E-payment technology company, for the introduction of mobile commerce and online payment system in April 21, 2009. According to the agreement, iVery Payment Technologies has licensed its Gateway and MiCard E-payment processing solution to Dashen Bank (Amanyehun, 2011). Their website, as viewed on 07/01/2017, also shows a link to credit card and when you click it for details, it shows a ñcoming soonò text. But, till now, NBE doesnôt allow the provision of online payment systems and this service could not be implemented.

1.2 Statement of the problem

This research tried to find out possible factors that would help in the diffusion of online payment systems as they will be started by banks or financial institutions.

Since online payment systems are not yet started in our country, no research has been made as to what factors would influence such diffusion. Only one research, (Taddesse and Kidan, 2005) on e-payment: challenges and opportunities in Ethiopia, was made and it was not a marketing research. This gap is more aggravated because the system has not yet been started in our country and probably everyone overlooked it due to its unavailability.

As stated earlier, according to Tornatzky and Fleischer (1990) and Rogers (2003), research on predicting an innovation's rate of adoption would be more valuable if data on the attributes of the innovation were gathered prior to, or concurrently with, individuals' decisions to adopt the innovation.

Even in some countries where it is started, people or even companies are not using it well and this fact can be seen from what is stated about Saudi Arabia in the background section of this proposal (even if the country is well equipped with infrastructure, only 6% of residents in Saudi Arabia have purchased online, only 16% of the internet users are planning to buy online, and only 15% have plans to sell online (CITC, 2011)).

To influence potential online payment system users to use such a new technology, much resource is needed for promotional and other activities. Such resources will be wasted if we donôt know where and how to invest them. Thus, if NBE succeeded anytime in ratifying the document and

online payment is started, we donât have any guarantee that people will use it. The five characteristics of diffusion of innovation, namely relative advantage, complexity, compatibility, trialability and observability can be key factors that may contribute a lot to the diffusion of online payment system. For example, if online payment is considered to be relatively more advantageous than other alternatives by potential users then it can be used to accelerate diffusion. The same will be true for all other variables.

If this gap cannot be filled and the service is started, it will take companies, banks or other financial institutions and even customers, longer time to get the benefits of the technology. For example, a bank may invest some amount to start the service of online payment system and expect its investment to be returned within a specific period of time. The life of the consumer in being able to buy online while at home or office will not be improved and cannot get benefitted from other advantages quickly if diffusion is not accelerated. They will keep using traditional methods such as going long distances to buy using traditional systems by wasting their time, energy and resources such as fuel or transportation fee. Companies will not get the possible profits and other benefits it provides quickly. As innovator and early adopter companies accept the payment system quickly, the rest will be far behind and be victims in competitive advantages. Financial institutions or banks will not make the possible profits quickly. The profits to be gained can be lost since there may not be enough customers who use the service so as to ensure the expected profits. Therefore, the diffusion of online payment system is a key dimension that needs to be accelerated for the benefits to be enjoyed by all the stakeholders.

1.3 Research question

The research tried to answer the following questions.

1. What diffusion of innovation characteristics would influence potential online buyers to accept buying using online-payment systems?
   More specifically
   - What is the effect of relative advantage on diffusion of online payment system by potential online buyers?
   - What is the effect of compatibility on diffusion of online payment system by potential online buyers?

- What is the effect of complexity on diffusion of online payment system by potential online buyers?
- What is the effect of observability on diffusion of online payment system by potential online buyers?
- What is the effect of trialability on diffusion of online payment system by potential online buyers?

2. What diffusion of innovation characteristics would influence potential online sellers to provide their offers using online-payment systems?

   More specifically

   - What is the effect of relative advantage on diffusion of online payment system by potential online sellers?
   - What is the effect of compatibility on diffusion of online payment system by potential online sellers?
   - What is the effect of complexity on diffusion of online payment system by potential online sellers?
   - What is the effect of observability on diffusion of online payment system by potential online sellers?
   - What is the effect of trialability on diffusion of online payment system by potential online sellers?

3. What kind of correlation is found among the diffusion of innovation characteristics, within themselves and with diffusion?

1.4 Research Objectives

1.4.1 General objective of the study

The objectives of this research were to identify the major factors that would influence the diffusion of online based payments for potential online buyers as well as potential marketing companies and see the correlation among these factors by making use of scientific methods in an ethical manner and present the results in acceptable formats.

1.4.2 Specific objectives of the study

The specific objectives of this research were:

i) To examine the possible **factors** that influence potential online **buyers** to buy using online-payment systems.
ii) To examine the possible **factors** that influence potential online **sellers** to sell using online-payment systems.
iii) To examine the possible correlation among these factors.

1.5 Hypothesis of the study

Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system. It is a special type of communication, in that the messages are concerned with new ideas. Innovations have five attributes. The five attributes of innovations are (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability, and (5) observability (Rogers, 2003).

1.5.1 Relative advantages

Research consistently found that the perceived relative advantages positively affected the usersô intention to use the system across different participants (Lee, 2007, Shih, 2007). Relative advantage was also found to have a significant and positive effect on customerôs usage of mobile banking. This suggests that if bank customers perceive mobile banking has a relative advantage over branch banking in accessing accounts from any location and at any time, and provides greater control and flexibility in managing their accounts, they will use it (Gezahegn, 2016). Accordingly, we expect such a phenomenon on online payment too. Thus, it was hypothesized:

H1a. Perceived relative advantage positively affects the acceptance of online payment systems by potential online buyers.

H1b. Perceived relative advantage positively affects the acceptance of online payment systems by potential online sellers.

1.5.2 Compatibility

According to Agarwal and Prasad (1998), there is a positive relationship between an individualôs prior compatible experiences and the new information technology acceptance. They found that the extent of prior experience with similar technologies was positively associated with an ease of use belief about an information technology innovation. According to Gezahegn (2016),

compatibility is found to have a significant positive association with mobile banking usage in Addis Ababa. Thus, we expected similar relationship for online payment too. Based upon the preceding findings, the following hypotheses were proposed:

H2a. Compatibility positively affects the acceptance of online payment systems by potential online buyers.

H2b. Compatibility positively affects the acceptance of online payment systems by potential online sellers.

1.5.3 Complexity

Prior investigations came up with evidences indicating that complexity had a significantly negative effect on the intention to use (Lee, 2007, Shih, 2007) which implies that ease of use will foster the diffusion of innovation. Abrazhevich (2004) concludes that a successful design of E-payment systems from the user standpoint is important to attract userôs acceptance toward E-payment. In short, content, design, bank image and management, and speed are very important characteristics leading to perceived ease of use and subsequently influence consumersô perception of E-payment systems (Wendy et al., 2013). Thus, based on the aforementioned studies, we propose the following hypotheses:

H3a. Ease of Use positively affects the acceptance of online payment systems by potential online buyers.

H3b. Ease of Use positively affects the acceptance of online payment systems by potential online sellers.

1.5.4 Observability

Studies found that observability has a positive impact on the usersô attitude toward the system and intention to use the system (Lee, 2007). Therefore, we proposed:

H4a. Observability positively affects the acceptance of online payment systems by potential online buyers.

H4b. Observability positively affects the acceptance of online payment systems by potential online sellers.

1.5.5 Trialability

(Lee, 2007) presented that some studies have empirically tested in understanding the association between trialability and the intention to use the system. They found that trialability had a positive effect on the intention to use the system. Accordingly, we proposed the following hypotheses:

H5a. Trialability positively affects the acceptance of online payment systems by potential online buyers.

H5b. Trialability positively affects the acceptance of online payment systems by potential online sellers.

1.6 Definition of Terms

1.6.1 Conceptual Definition

E-Commerce = is often thought simply to refer to buying and selling using the Internet; people immediately think of consumer retail purchases from companies such as Amazon. But e-commerce involves much more than electronically mediated financial transactions between organizations and customers. E-commerce should be considered as all electronically mediated transactions between an organization and any third party it deals with. By this definition, non-financial transactions such as customer requests for further information would also be considered to be part of e-commerce (CHAFFEY, 2009).

Internet = ǒThe Internetô refers to the physical network that links computers across the globe. It consists of the infrastructure of network servers and communication links between them that are used to hold and transport information between the client PCs and web servers (CHAFFEY, 2009).

Diffusion = reflects the percentage of the population that has adopted an innovation at a specific point in time (Hoyer and MacInnis, 2010).

1.6.2 Operational Definition

Determinants of Diffusion of Online Payment Systems = refers to the determinants that lead end users and companies to use online-payment systems.

Potential online payment buyers = refers to respondents who filled questionnaires as potential buyers. This is made in accordance with Rogers (2003) suggestion of Describing a hypothetical innovation to its potential adopters, and determine its perceived attributes, so as to predict its rate of adoption. They are considered potential because they buy things either for personal or other consumption and when they do they use available payment options.

Potential online payment Sellers = refers to respondents who filled questionnaires as potential sellers. Again, this is made in accordance with Rogers (2003) suggestion of describing a hypothetical innovation to its potential adopters, and determine its perceived attributes, so as to predict its rate of adoption. They are considered potential because they sell their offers with available payment options.

1.7 Significance of the study

The findings of this research have great use for banks and other financial institutions that have the legal and operational capacity to start the service of online payment system in Ethiopia. They can use these findings (factors that boost online-payment system diffusion) in their promotional campaign and other marketing mix programs so that their offer will gain a quicker acceptance both by potential online sellers and potential online buyers.

Besides such financial firms, potential online sellers would also be benefited from the outcomes since they can know what things would aid them to influence their customers in their future online offers.

Additionally, the potential online buyer who makes purchases using online payment system would start enjoying the benefits of online payment sooner that the case where the diffusion of it is prolonged.

Finally, the results of this research can be a base for future researchers as a material to review and add their contributions to the pile of concurrent research.

1.8 Delimitation/Scope of the Study

This investigation was delimited to the inquiry of the factors that influence the business-to-consumer (B2C) aspect of online payment system. It didnôt include the investigation of the

business-to-business (B2B) aspect which probably requires varying investigational approach and was left as a future area of investigation.

Rogersô diffusion of innovations theory is the most appropriate theory for investigating the adoption of technology (Medlin, 2001). Accordingly, this research was limited only to the Diffusion of Innovation Theory (DIT) by Rogers. The perceived attributes of an innovation are one important explanation of the rate of adoption of an innovation. From 49 to 87 percent of the variance in rate of adoption is explained by this five attributes: Relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003). Therefore, other theories and models such as the Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA) etc. were not considered in undertaking the investigation. If they were used in combination with the Diffusion of Innovation Theory, the researcher would have many more variables to consider and the outcome of the research would also base itself in much more pillars. Again, this was left as a future area of investigation so as to confine the research to a manageable form and size.

Geographically, this research was limited to Addis Ababa only. This was due to two major reasons. One was because of time, money and experience shortage from the side of the researcher to make a countrywide research. The second was because, according to Jensen (2003), most countries in Africa, except South Africa, have internet infrastructure only in their major cities and usage is highly limited to urban areas due to know-how and infrastructural factors. Being the capital and most populated city of the country, Addis Ababa is one of the few major cities in Ethiopia. Thus, a sample drawn from this city would be most likely representative of the population that makes use of the internet.

1.9 Organization of the Research Report

This research report contains and is organized in the following manner.

- **Chapter -1:- Introduction: -** This chapter contains background of the study, statement of the problem, basic research questions, objectives of the study, definition of terms, significance of the study, and scope of the study.
- **Chapter -*2:*- Literature review**: - This chapter dealt with the literature relevant to the investigation of the online payment systems. Useful literature related to e-commerce,

diffusion of innovation and other details were given due consideration. It includes an introduction, theoretical review, empirical review and the conceptual framework of the study.

- **Chapter -3:- Research Methodology: -** This chapter states the type and design of the research, the subjects of the study, the sources of data, the data collection instruments employed, the procedures of data collection and the methods of data analysis to be used.
- **Chapter -4:- Data analysis, interpretation and Presentation**: - This chapter summarized the findings of the study and interpreted and/or discussed them in line with the literature reviewed.
- **Chapter-*5:*-Summary, conclusion and recommendation: -** This chapter is composed of four sections, which are summary of findings, conclusions, limitations of the study and realistic and practical recommendations in accordance with the results of chapter four.

Chapter Two – Review of related literature

2.1 Introduction

This chapter deals with the literature relevant to the investigation of the online payment systems. Useful literature related to e-commerce, diffusion of innovation and other details are given due consideration. It has an introduction, theoretical review, empirical review and the conceptual framework of the study.

2.2 Theoretical Review

2.2.1 E-Commerce and Online Payment

E-Commerce in its simplest sense is *trading electronically*. It offers consumers and merchants convenience and speed. The success and growth of e-commerce, however, depends on efficient electronic payment (e-payment) system. The slogan ó*it is no e-commerce, if you can't get paid'* witnesses the importance of e-payment for e-commerce. E-payment, the transfer of value electronically, in turn depends on secure ICT infrastructure, efficient legal and regulatory regime, and widespread awareness among the public and business (Taddesse and Kidan, 2005).

The realization of e-commerce at national or international level like any other transaction depends on a proper e-payment system. The nature and type of means of transferring value obviously have a bearing on the speed, convenience, and hence success of transactions and overall performance of the economy (Taddesse and Kidan, 2005).

Conventional payments are enabled through cash, check or credit card whereas electronic payments are carried out by means of software, payment cards and electronic cashes. The major components of e-payment system are money transfer applications, network infrastructures, and rules & procedures governing the use of the system. Customers and merchants are the major actors of e-payment systems. Most of the time, banks and trusted third party (TTP) or intermediaries may also participate in e-payment systems (Taddesse and Kidan, 2005).

E-payments greatly increase payment efficiency by reducing transaction costs and enabling trade in goods and services of very low value. They may also increase the convenience of making

payments by enabling them to be made swiftly and remotely from various devices connected to global networks (Taddesse and Kidan, 2005).

2.2.2 Advantages of E-Commerce

E-Commerce can give a competitive advantage. It can help strengthen market position and open up new business opportunities with the potential to improve profits. Benefits of e-Commerce can arise in the following ways: (Duncombe and Heeks, 2006)

Cost Reduction Benefits:

- **Reduced travel costs**: by using a mobile phone, email and other ICTs to substitute for journeys.
- **Reduced cost of materials**: more information means better choice of suppliers and more competitive prices.
- **Reduced marketing and distribution costs**: for example, publishing a brochure online can reach an unlimited number of potential export customers and allow regular update.
- **Reduced sales costs**: the Internet provides unprecedented opportunities for businesses to reduce the costs of trade locally and, even more, across borders.
- **More efficient supply chain management**: can eliminate the need for middlemen leading to lower transaction costs (including marketing, sales, transaction processing), reduced overhead, and reduced inventory and labor costs.
- **Improved internal functions**: cutting down on meetings, improving the exchange of critical knowledge, eliminating red tape, and streamlining communications.

Market Benefits:

- **Greater reach***:* a web presence can allow entrepreneurs to reach out to customers far beyond their immediate location.
- **More brand awareness***:* offering new avenues of promotion for products and services.
- **Improved customer service***:* providing more responsive order taking and after sales service to customers; This, in turn, can lead to *increased customer loyalty*.
- **Increased market awareness***:* entrepreneurs can become more aware of competition within their market and more aware of market changes, which can lead to *product/service innovation* or *quality improvement*.

Other Competitiveness Benefits:

- **Increased efficiency***:* e-Commerce not only reduces costs but it can also increase the speed of transactions in both buying and selling.
- **Continuous trading***:* suppliers and customers, if they wish, can access a 24hour/7day sales service ï particularly important when trading through time zones.
- **Specialization***:* e-Commerce can help entrepreneurs focus their activities ï making it easier to build relationships with other enterprises and communicate their needs to support agencies.

Thus, to lean away from e-commerce is to lean away from all the above benefits. And once more, ά*t is no e-commerce, if you can't get paid'. For this reason, we need online payment systems (Taddesse and Kidan, 2005).*

2.2.3 What really is Online Payment?

Online payment is when the customer or buyer makes his payment transactions for the goods or services purchased with the use of the Internet ï to be online. ñThis type of payment lowers the costs for businesses as the more payments made electronically (online or offline) the less they spend for paper and postage. Also, it helps on improving customer retention as he is more likely to return to the same e-commerce site where his or her information has already been entered and stored.ò With online payment, it is not necessary for the payer to be in a long queue as payment is made in just a click of a mouse (Acosta, 2008).

2.2.4 Online Payment Methods

In developed countries, for the purchases done online, most likely you will also make payments online. In this section, you will find the different methods on making online payments.

3.2.5.1. Credit Cards. This has been the dominant form of online payments when purchasing online. However, many people still resist the appeal and simplicity of credit-card transactions due to security concerns. Until now there is a high risk for stolen cards, identity theft thus customers fear credit-card fraud by merchants and other parties. Yet, there are some credit card issuers who have features that provide online fraud protection (Acosta, 2008).

3.2.5.2. Virtual Credit Cards. This virtual credit card is an innovation in online credit cards. Credit card issuer provides a special number that can be used in place of the regular credit card number to make online purchases. This allows the user to use a credit card online without disclosing the actual number. Additionally, the user gives a transaction number instead of the credit card number ï example is *Private Payment* by American Express (Acosta, 2008).

3.2.5.3. Debit Cards. With the debit card, the money for a purchased item comes directly out of the holderôs checking account. The actual transfer of funds from the holderôs account to the merchantôs takes place within 1 or 2 days (Acosta, 2008).

3.2.5.4. Smart Cards. This card looks like any plastic payment card but it has a microchip embedded on its face. This can hold more information than ordinary credit cards with magnetic strips. Rather than holding only cardôs information, it can also hold information for such as health care, transportation, identification and banking, and others. This enables information for different purposes to be stored in one location. The smart card can be used to make purchases over the Internet with the use of a card reader to read the card details necessary for payment and secure sending of data over the Internet (Acosta, 2008).

3.2.5.5. E-Checks. An e-Check is an electronic version or representation of a paper check. It contains the same information as a paper check and based on the same legal framework. It works the same as the paper check however they are faster, cheaper and more secure (Acosta, 2008).

3.2.5.6. Digital Cash. Digital cash is an example of a digital currency, where it allows people who do not have credit card to shop online. It is similar to a traditional bank account: consumers deposit money into their digital cash accounts to be used in the purchase online. This is often used with other technology such as digital wallets (Acosta, 2008).

3.2.5.7. E-Wallets. An e-wallet is a software component that a user downloads to their desktop and in which the user stores credit card numbers and other personal information. When a user shops at a merchant who accepts e-wallet, the user clicks the e-wallet and the forms are automatically filled in with all the necessary

information in just one click. Credit card companies such as Visa and MasterCard also offer this e-wallet (Acosta, 2008).

3.2.5.8. Peer-to-Peer Payments. P2P payments are one of the fastest-growing online payment schemes as they enable the transfer of funds between two individuals. PayPal is one of the first companies to offer this service. A user will open an account with the username, password and also an e-mail address as well as the payment card or bank account number. Then the user adds funds to their account and once account has been funded, the money can be sent to the recipient who also has an account at PayPal, for instance. The e-mail that is sent to the recipient contains a link back to the serviceôs (PayPal) website and can transfer the money from the PayPal account to their credit card or bank account (Acosta, 2008).

3.2.5.9. e-Billing. E-Billing is also called *electronic bill presentment and payment (EBPP).* This enables the presentment, payment and posting of bills via the Internet. Presentment means taking the information that is typically printed on a bill and hosting it on a bill-presentment web server. Once the bill is available, the customer can view it with the browser, review and then pay online. When the payment is received, it is posted into the billerôs account receivable system and the payment is transferred from the customerôs account. It is said that online payments are expected to grow to more than 15% of 19 billion bills by 2011 (Acosta, 2008).

2.2.5 Online payment in Africa and Ethiopia

The African e-business environment has a crucial missing component, electronic payment. Electronic payment is very limited in Africa (Taddesse and Kidan, 2005) and Ethiopia is one of such countries. Thus, we can say that ecommerce can be considered as very poor in Ethiopia since the online transactions do not support online payment system. As it has been said earlier, ó*it is no e-commerce, if you can't get paid'.*

2.2.6 Banking Industry in Ethiopia

History is a good thing but we must know how to utilize it. Financially, according to modern banking, Ethiopia has a good history. Modern banking service was started in 1905 with the entry of foreign owned Bank of Abyssinia, which based on 50 years franchise agreement with the Anglo-Egyptian National Bank. Moreover, two other foreign banks (named Banque de lô

Indochine and the Compagniede lô Afrique Oreintale) and a new development bank (societe nacionale dõEthiope Pourle Development lôAgriculture et du Commerce) were established in 1915 and 1908, respectively. Since all of these banks were wholly foreign owned, they were criticized and as a result the Bank of Abyssinia was purchased by the Ethiopian government in1931, which was re-named as the Bank of Ethiopia- the first nationally owned bank on the African continent (Alemayehu and Jacqueline, 2011).

The first privately owned company in banking business was the Addis Ababa Bank S.C., established in 1964. 51% of the shares of the bank were owned by Ethiopian shareholders, 9% by foreigners living in Ethiopia and 40% by the National and Grindlays Bank of London. The Bank carried out typical commercial banking business. Banco Di Roma and Banco Di Napoli also continued to operate. Until the end of 1974, there were state owned, foreign owned and Ethiopian owned banks in Ethiopia. (AbyssiniaLaw, 2015).

Following the 1974 Revolution, on January 1, 1975 all private banks and 13 insurance companies were nationalized and along with state owned banks, placed under the coordination, supervision and control of the National Bank of Ethiopia. (AbyssiniaLaw, 2015).

From 1975 to 1994 there were four state owned banks and one state owned insurance company, i.e., the National Bank of Ethiopia (The Central Bank), the Commercial Bank of Ethiopia, the Housing and Savings Bank, the Development Bank of Ethiopia and the Ethiopian Insurance Corporation (AbyssiniaLaw, 2015).

After the overthrow of the Dergue regime, the Transitional Government of Ethiopia was established and the New Economic Policy for the period of transition was issued. This new economic policy replaced centrally planned economic system with a market-oriented system and ushered in the private sector (AbyssiniaLaw, 2015).

Currently, there are 19 banks under operation as listed by the NBEõs (National Bank of Ethiopia) website (NBE, 2017). According to the World Economic Forumõs Global Competitiveness Report 2016-17, Ethiopia ranked 102 out of 138 countries with respect to financial-market development. The country didnõt live up to its historical performance.

2.2.7 Ethiopian Banks and Online Payment

Information and communication technology (ICT) is knocking the front-door of every organization in the world, where Ethiopian banks would never be exceptional. In the face of rapid expansion of electronic payment (E-payment) systems throughout the developed and the developing world, Ethiopianôs financial sector cannot remain an exception in expanding the use of the system (Gardachew, 2010). According to Turban (2008), technological innovations play a crucial role in banking industry by creating value for banks and customers, that it enables customers to perform banking transactions without visiting a brick and mortar banking system. On the other hand E-banking has enabled banking institutions to compete more effectively in the global environment by extending their products and services beyond the restriction of time and space.

All banks in Ethiopia are late to move with technological advancement and they should clearly chart out the time schedule for their integration and technological advancement. Some of the banks even today do not have good websites which can help them to provide easily updated information on financial services offered by them.

According to Jensen (2003), most countries in Africa, except South Africa, have internet infrastructure only in their major cities. Lack of suitable legal and regulatory framework for E-commerce and E-payment is another impediment for the adoption of new technology in banking industry.

None of the Ethiopian banks currently give any form of online payment option including credit card payment system.

2.2.8 Payment Systems in Ethiopia

2.2.8.1 Traditional Payment Instruments

Cash

Cash is a legal tender defined by the National Bank of Ethiopia (NBE) to represent values and used as major instrument of payment. NBE has authorized *Birr* to be used as a legal tender throughout the country. Like in other African countries, in Ethiopia also cash is a dominant means of payment (Taddesse and Kidan, 2005).

Cash can easily be stolen and is usually not convenient for large amount of transactions (e.g. you cannot easily buy a house with cash). Cash also does not provide a float (the period of time between a purchase and actual payment for the purchase). It also forces the payer and the payee to physically present them. Thus cash is not a convenient means of payment for e-commerce (Taddesse and Kidan, 2005).

Checking Transfer

Checking transfer is a fund transferred directly via a signed draft or check from a consumerós checking account to a merchant or other individual. Checking transfer is the second most common form of payment in terms of number of transactions in Ethiopia (Taddesse and Kidan, 2005).

2.2.8.2 Electronic Payment Instruments

SWIFT

SWIFT (Society for Worldwide Interbank Financial Telecommunication) is a closed TCP/IP network used by banks and other financial institutions throughout the world. SWIFT provide a messaging service that enables to settle majority of high value payments internationally (Taddesse and Kidan, 2005).

Banks in Ethiopia currently settle their foreign transaction payment through SWIFT. Connection to SWIFT network is done only through a dialup connection. Banks must make a dialup call to a SWIFT server found in Brussels. This international dialup connection is costly making usage of SWIFT expensive (Taddesse and Kidan, 2005).

Money Transfer

Money transfer using methods such as western union, FastCash, DHABSHIL, etc. are used to transfer money from aboard to Ethiopia only (Taddesse and Kidan, 2005).

2.2.8.3 Card Based Payments

TOTAL Fuel Card

In 2005, TOTAL Ethiopia has introduced Abyssinia Card, a smart card used for fuel payment. Out of one hundred-twenty TOTAL fuel stations found in Ethiopia the card can be accepted at any of the stations scattered throughout Ethiopia. Fuel stations that give card payment service communicate to the main office through telephone line once a day to pass payment information. Card recharging is done by paying cash at the main office (Taddesse and Kidan, 2005).

Mobile and Electric Prepaid Card Payment System

The mobile phone and electric bill prepaid card payment system are successful instance of card payment system in Ethiopia. Currently they are in use by prepaid mobile phone users and customers of Ethiopia Electric. Users have to charge their card account to get the respective service (Taddesse and Kidan, 2005).

Credit Card

Currently the usage of credit card in Ethiopia is very low. There is no issuer of local and international credit cards. But there are some business firms (e.g. Hotels, supermarkets, etc) that accept international credit card. Dashen Bank currently gives encashment services to VISA and Master Card users. This payment system is mainly used by foreigners and Ethiopians residing abroad as they come to Ethiopia and want to get money using their credit card. Dashen Bank only acts as a merchant accepting credit card issued by banks outside Ethiopia. But the bank is finalizing its preparation to start issuing payment cards. These cards are international payment cards like VISA and Master Card. This move, we believe, will pave the way to introduce e-payment in Ethiopia (Taddesse and Kidan, 2005).

Credit Card in Ethiopian Airlines

The Ethiopian Airlines currently provides an option for its customers to buy flight tickets online using their credit card. These credit cards are international credit cards such as Master Card and Visa. Customers who prefer to pay online using credit card are required to submit their credit card upon online registration. After the customers have completed their flight details online, their credit card will be charged. Tickets can be delivered by mail, collected at the airport or issued at the city ticket office (Taddesse and Kidan, 2005).

Since credit card is not issued in Ethiopia, this service is not widely available for Ethiopians.

Automatic Teller Machine (ATM)

ATMs enable customers to withdraw limited amount of money from their account at any time. The ATMs also enable customers to check their account balance, transfer to other account holders of the same bank and some perform local money transfer (e.g. Abyssinia). But depositing money through ATM is not currently possible. In order to get ATM services, customers need ATM cards and secrete PIN codes. The ATM card is a smart card used for security purpose only. The ATM card coupled with a PIN code provides state-of-the-art authentication scheme called two-factor authentication (Taddesse and Kidan, 2005).

Mobile Banking

This is a banking service where customers can gain banking services by using their mobile phone. This can be by using USSD codes, SHTML links etc. It is highly dependent by network quality. By using this service, customers can: - Inquire balance; Request a mini-statement; View daily exchange rates; Make fund transfers and Follow up on loan accounts (ZemenBank, 2017)

Internet Banking

Internet Banking gives you control of your finances, accessing your account information 24 hours a day, 7 days a week. Customers will be able to:

View balance; View, download account statements and export to other accounting formats; Transfer Funds; Control your loan progress; Enquire daily currency exchange rates; Request cheque and much more (ZemenBank, 2017).

2.2.9 Diffusion of Innovation

Innovation is an offering that is perceived as new by consumers within a market segment and that has an effect on existing consumption patterns. Diffusion refers to the percentage of the population that has adopted an innovation at a specific point in time (Hoyer and MacInnis, 2010).

The following are the five characteristics of diffusion of innovation (Rogers, 2003).

1. Relative advantage is the degree to which an innovation is perceived as better than the idea it supersedes. The degree of relative advantage may be measured in economic terms, but social

prestige, convenience, and satisfaction are also important factors. It does not matter so much if an innovation has a great deal of objective advantage. What does matter is whether an individual perceives the innovation as advantageous. The greater the perceived relative advantage of an innovation, the more rapid its rate of adoption will be (Rogers, 2003).

2. Compatibility is the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters. An idea that is incompatible with the values and norms of a social system will not be adopted as rapidly as an innovation that is compatible. The adoption of an incompatible innovation often requires the prior adoption of a new value system which is a relatively slow process (Rogers, 2003).

An example of an incompatible innovation is the use of contraceptive methods in countries where religious beliefs discourage use of family planning, as in Moslem and Catholic nations (Rogers, 2003).

3. Complexity is the degree to which an innovation is perceived as difficult to understand and use. Some innovations are readily understood by most members of a social system; others are more complicated and will be adopted more slowly. New ideas that are simpler to understand are adopted more rapidly than innovations that require the adopter to develop new skills and understandings (Rogers, 2003).

4. Trialability is the degree to which an innovation may be experimented with on a limited basis. New ideas that can be tried on installment plan will generally be adopted more quickly than innovations that are not divisible. An innovation that is trialable represents less uncertainty to the individual who is considering it for adoption, as it is possible to learn by doing (Rogers, 2003).

5. Observability is the degree to which the results of an innovation are visible to others. The easier it is for individuals to see the results of an innovation, the more likely they are to adopt it. Such visibility stimulates peer discussion of a new idea, as friends and neighbors of an adopter often request innovation-evaluation information about it. Solar adopters often are found in neighborhood clusters in California, with three or four adopters located on the same block. Other consumer innovations like home computers are relatively less observable, and thus diffuse more slowly (Rogers, 2003).

2.3 Empirical Framework

Ever since, there is no research made in Ethiopia regarding factors that influence the diffusion of online payment methods. Besides, a highly related prior investigation could not be found or accessed by the researcher which implies unavailability or inaccessibility. The collections of research found are made either with some other banking service or adoption from a different angle. According to Rogers (2003), so as to make a predictive diffusion of innovation research, one of the suggested methods is to extrapolate from the rate of adoption of past innovations into the future for the other innovation. Past similar innovations include ATMs, mobile banking and internet banking Let us have a look at of what we had come across.

We can begin with the research by Qatawneh et al. (2015), the Adoption of Electronic Payment System (EPS) in Jordan: Case Study of Orange Telecommunication Company. It aimed to investigate and examine the main factors that affect the EPS methods in the telecommunication sector. Specifically, its aim was to understand the EPS methods adoption behavior of Jordanian companies, to investigate and examine the factors that could motivate or inhibit the use of EPS methods in Jordanian companies and to provide theoretical recommendations for Jordanian telecommunication companies and for decision makers in this sector. The factors they considered were system characteristics (Security and Privacy and Simplicity) and organizational aspects (Organization Culture and Top Management Support). They didnôt make use of any diffusion model. Rather, they came up with their own factors. Their result indicated that the whole model predicted 45.7% variance in the dependent variable (Adoption of EPS) this result also indicates that the impact of the system characteristics and organizational aspects in the adoption of EPS was weak because it is less than the percent of 50% and 54.3% of variance in the independent variable was attributed to other factors. On the other hand, the relation between these independent variables and the dependent variable was positive which means that the more simplicity and top management support, the more the adoption of EPS. But the value for the dependent variable, security and privacy, was negative which means that the less in security and privacy, the more in adoption of EPS. This research did not use any known model. Rather, they came up with their own model and worked on it.

The second research observed is a research done on the adoption of Automatic Teller Machines in Nigeria: an application of the theory of Diffusion of Innovation (Olatokun and Igbinedion,

2009). The research used the five attributes of an innovation (Relative advantage, complexity, compatibility, observability and trialability). According to their findings, Relative Advantage of using ATMs; how hard it was to use ATMs, how compatible ATMs were with the lifestyle of the users; how much has been registered (observed) about ATMs by the users and whether ATMs could be tested before consistent use, were issues that influence usersô attitude towards intention to use ATMs. They used somewhat similar model with this research but their research was for ATM.

The next study (Gemechu, 2012) aimed at investigating the main barriers and drivers of adopting E-banking in Ethiopia. To achieve the proposed objective two basic frame works were used by the researchers. These are the Technology-organization-Environment (TOE) and Technology Acceptance Model (TAM). Two of the factors were level of ICT infrastructure and lack of legal frame works at NBE, which can initiate banking industry to implement the system. In addition to the above two basic factors affecting adoption of E-banking in Ethiopia, Result of the study also shows that security risk and lack of trust on the use of technological adoption are other major barriers for the system. The level of security risk associated with E-banking product or service, such as ATM, internet banking, mobile banking and others, pose different challenges to different banks. According to the study results, technical and managerial skills available in Ethiopian banks for the adoption of E-banking are also limited. This is influencing the choice of technology in Ethiopian banks.

On the other hand, the study revealed that the benefits of technological innovation are well known to the banks and represent a formidable force to drive adoption of the system. In general perceived Ease of use is one of the basic benefits for E-banking, in which it enables bank staff to perform banking activities in a simple way. The other driving force for the adoption of the system is perceived usefulness, in which, it is used for time saving and cost reduction.

Another research made was a research on key factors that determine adoption of internet banking in Ethiopia (Yohannes, 2010). This research considered three of the five attributes of diffusion of innovation and it came up with the following findings with regard to every attribute.

Relative advantage: On the basis of the results of this study, in comparison to non-users, users perceived internet banking to make a positive contribution to their finances, saving time and making communication with banks more comfortable. The greater the perceived advantage of

using internet banking, the more likely that internet banking would be adopted; hence the perceived relative advantage of internet banking is a significant factor in influencing consumers to adopt internet banking.

Compatibility: Based on the results of this study, internet banking users perceived internet banking to be more suitable to their life style and work style and more convenient to their lifestyle compared to non-users. This finding showed that consumers who feel that internet banking is more compatible with their values are more intent on using internet banking services. The more a customer uses internet banking, and the more he or she perceives internet banking to be compatible with his or her lifestyle, the more likely that customer will continue to use internet banking. Therefore, a perception of compatibility of internet banking is an influential factor in the use of internet banking.

Complexity: The results of this study indicated that the internet banking users perceived internet banking as not involving complex procedures. Users perceived the service to be easier, less complex and simpler than non-users did. This result suggested that the more complex internet banking is perceived to be, the less likely it is that internet banking will be adopted. Hence, the perception of complexity is a significant factor influencing the use of internet banking.

The next is Gezahegn (2016), factors influencing usage of mobile banking in Addis Ababa, Ethiopia. The general objective of the study was to assess the factors affecting usage of mobile banking in Addis Ababa, Ethiopia. She (Kalkidan Gezahegn) claimed to examine the effect of perceived ease of use on usage of mobile banking, to examine the association of compatibility with usage of mobile banking, and to find out how relative advantage influence customerôs usage of mobile banking. And in all the three factors mentioned, she found a positive relationship between the attributes and the dependent variable.

When we look at the above researches made in Ethiopia, none of them is regarding online payment system. The concepts ATM, internet banking, electronic banking etc. do not mean online payment at all. Thus we can say this is the first research to be made in our country regarding factors affecting diffusion of online payment system in Ethiopia, Addis Ababa.

The only online payment system investigation made in Ethiopia was the research of Taddesse and Kidan (2005). It was made some eleven years ago, quite early compared to the fact that our country has not started the service yet. The objective of their project was to study e-payment

practices in developed countries, Africa and Ethiopia, propose an e-payment model that is appropriate to Ethiopia and develop a prototype that demonstrates the proposed model.

More specifically their project objective was to

- Conduct general literature review of e-payment from global perspective
- Conduct literature review of e-payment from African perspective
- Study the case of Ethiopia by reviewing existing e-payment systems, investigate challenges to e-payment in Ethiopia and propose and test an e-payment system that can be used in Ethiopia.
- Make conclusion and recommendations

Their undertaking was more of an IT project and doesnôt look at things from the perspective of marketing, consumer behavior or more specifically Diffusion of Innovation. But their work is very resourceful and one can find much useful information about online payment.

From the above empirical review of literature, we can conclude that this research that we are undertaking is the first of its kind in our country.

2.4 Conceptual Framework

The conceptual framework tries to depict the proposed relationship between characteristics/attributes of an online payment system which are the independent variables with that of the dependent variable which is the diffusion of the online payment system. For the detailed hypothesis formulation, please refer to the hypothesis development section of chapter one.

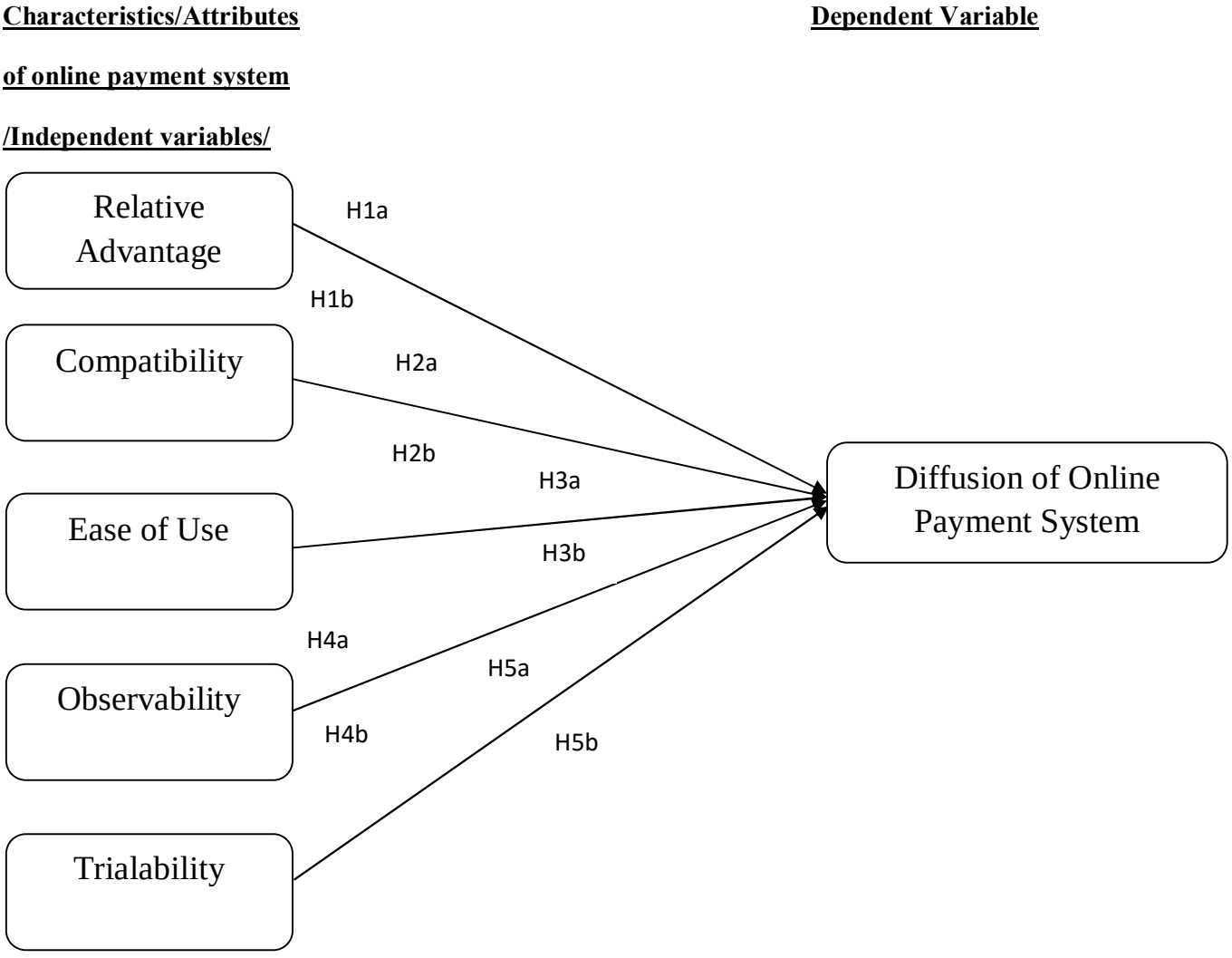


Figure 1: Conceptual Framework of the research.

Source: Adopted from E. M. Rogers (2003).

Chapter Three – Research Design and Methods

3.1 Chapter Overview

This chapter states the type and design of the research, the subjects of the study, the sources of data, the data collection instruments that were employed, the procedures of data collection and the methods of data analysis used.

3.2 Research Reasoning Approach

According to Saunders et al. (2009), there are two main research reasoning approaches: deduction and induction. With deduction a theory and hypothesis (or hypotheses) are developed and a research strategy designed to test the hypothesis. With induction, data are collected and a theory developed as a result of the data analysis.

In this research, deductive reasoning approach is used. First, the researcher developed hypotheses using the diffusion of innovation theory of Everett M. Rogers and then this was tested during the research.

3.3 Research Approach

In this research, quantitative research approach is adopted which involves the generation of data in quantitative form which can be subjected to rigorous quantitative analysis in a formal and rigid fashion (Kotari, 2004). Inferential quantitative approach and correlation analysis is adopted. The purpose of inferential approach to research is to form a database from which to infer characteristics or relationships of population. This usually means survey research where a sample of population is studied to determine its characteristics, and it is then inferred that the population has the same characteristics (Kotari, 2004). And correlation is used to see the relationship among the variables used.

3.4 Type of research

Research projects are undertaken for different purposes. These can be categorized as exploratory, descriptive and explanatory (Saunders et al., 2009).

An exploratory study is a valuable means of finding out ówhat is happening; to seek new insights; to ask questions and to assess phenomena in a new lightô. The object of descriptive

research is ćto portray an accurate profile of persons, events or situationsĉ. Studies that establish causal relationships between variables may be termed explanatory research (Saunders et al., 2009).

This research was both descriptive and explanatory in nature. It used frequencies and measures of central tendency to describe profiles and see average responses. On the other hand, the relationships between the factors that would influence the diffusion of online payment systems were checked and explained using inferential statistics methods and Pearsonĉs correlation.

3.5 Sampling design

The population under this investigation was seen from two different perspectives. The first is for the survey made on potential online buyers ï the residents of Addis Ababa in this case.

3.5.1 Potential Online Buyer Survey Sampling

According to CIAĉs website, the population of Addis Ababa was 3.238 million as estimated for 2015 (CIA, 2015). Obviously, the age group from 0-14 years old, which is 43.71% of the total population, is not our target due to minority (CIA, 2015). Therefore, we compute and subtract this much from the whole to get the total population, P.

P=Addis Ababaĉs population ï 43.71% * (Addis Ababaĉs population)

P=1,415,330 people (Rounded up since humans cannot be expressed in decimals)

According to Smith (2016), since this number is more than 50,000 people, the formula for unlimited population, which is $n=Z^2pq/e^2$, is recommended.

$n= (1.96)^2*(0.5)*(1-0.5)/ (0.05)^2$

n= 385

Where n is the sample size

Z refers to the desired confidence level, which in our case is at 95%. Z=1.96

p is the variability that would adopt the practice. Here we use 0.5. According to Smith (2016) this is the most forgiving number & ensures that your sample will be large enough

q is 1-p and

e is the margin of error allowed. +/- 5% confidence interval.

We get a sample size of 385 respondents for the survey made on potential online buyers.

3.5.2 Potential Online Seller Survey Sampling

The second is from potential online sellersô perspective who probably will sell online. According to an exploratory interview made to an ICT staff of the Ministry of Trade, there are around 250,000 (two hundred fifty thousand) traders out of whom at least 60,000 (sixty thousand) have not yet renewed their trade license for the year 2009 Ethiopian Calendar. Since the number 250,000 is again above 50,000, we will use the above formula for infinite population. But here, we use a confidence level of 90% for Z, which is 1.645 and a margin of error of 10%. The rationale behind this is because we expect that not all the remaining traders will renew their licenses in the penalty renewal time. Besides, even from those who already had renewed, many businesses will not use online payment system due to the nature and type of their business. This may include service givers such as hairdressers, car washers, healthcares, baby daycares, non-distance education schools etc. whose services are hard to sell online and traditional retailing shops and other businesses in every village of the city which doesnôt have the know-how, the capacity or the nature to engage in ecommerce and online payment system.

Thus, by using the formula for unlimited population above, we get

$n=Z^2pq/e^2$,

$n= (1.645)^2*(0.5)*(1-0.5) / (0.1)^2$

n= 68

We get a sample size of 68 respondents.

But a sample size of 68 respondents is not sufficient to do regression analysis. According to Mooi and Sarstedt (2011), to test the overall relationships between the independent and dependent variables, the number of observations should at least be 50 + 8 k, where k is the number of independent variables. In our case, both for the potential online buyer and seller sample size, we have 5 independent variables. Thus, k=5 gives us a minimum of 50+5*8=90 observations. To fill this gap and ensure larger response, a total of 100 questionnaires were distributed by oversampling 11% and 96 were finally used in analysis.

Therefore, we have 385 potential online buyer respondents, and

100 potential online seller respondents

The sampling method used was stratified random sampling. Addis Ababa is divided into 10 sub cities. Each sub city is treated as a stratum. So we have 10 strata. Thus, 38 questionnaires for the

potential online buyer survey and 10 questionnaires for the potential online seller survey were distributed to each stratum on a convenience basis.

3.6 Data source

Since much is not investigated in our country in this aspect previously, our sources of inquiry were dominated by primary sources. The researcher only referred to secondary sources so as to develop the literature review part, increase knowledge of the idea in concern and develop hypothesis. But, these were not used as findings in the analysis.

3.7 Research instrument

The research instruments were questionnaires (for the survey data from potential online sellers and buyers). Please refer to the attached questions in the appendix part. Amharic translation of the questionnaires which were approved by a legal translator were used to collect data.

3.8 Method of data collection

The method of data collection for both the questionnaires was in a face-to-face manner. The data collectors give the questionnaires to respondents and stay a bit away for the privacy of the respondents and they may contact them when they have any queries. Since predictive research had been used and Rogers (2003) suggestion of describing a hypothetical innovation to its potential adopters was followed, the demonstration part in the appendix section ï Lets surf shopping online ï was held by data collectors so as to describe the technology to the respondent.

3.9 Procedures of data collection

Addis Ababa is divided into 10 sub cities. Each sub city can be treated as a stratum. So we have 10 strata. Thus, 38 questionnaires for the potential online buyer survey and 10 questionnaires for the potential online seller survey were distributed to each stratum on a convenience basis.

Data from the potential online payment buyers were collected on a convenience basis, but in the following manner to minimize the disadvantages of such method. Addis Ababa has 10 sub cities. To make it representative of all, the researcher gave approximately 38 questionnaires to 10 of his contacts (including the researcher himself) who reside in the ten sub cities and were willing to assist him.

For the questionnaire gathered from potential online sellers, data was collected on a convenience basis. But, judgment of the researcher was applied to distinguish what kind of potential online sellers shall be included. For example, a supermarket is more likely to be included in the questioning than a traditional shop in a village. Addis Ababa has 10 sub cities. To be representative of all, 10 were distributed to one sub city. Again, this was done by the assistance of the researchersô contacts.

Chosen respondents were informed about the research and they were asked if they are willing to participate in the investigation and what time would be most appropriate to them. When they gave their consent, residents were given questionnaire to fill in the ñappropriate timeò and it was collected from them after they fill it.

3.10 Data analysis technique

The data collected were analyzed quantitatively. This is because, according to Saunders et al. (2009) quantitative data in a raw form, that is, before these data have been processed and analyzed, convey very little meaning to most people. These data, therefore, need to be processed to make them useful, that is, to turn them into information. Quantitative analysis techniques were used and the result was presented in tools such as graphs, charts and tables.

As proposed in the objective, the researcher wanted to examine the relationship between innovation characteristics (independent variables) and diffusion of online payment system (dependent variable) and also the correlation among all variables. Thus, quantitative analysis was made using the software package called SPSS. To make description on the profile of the respondents and examine mean values, descriptive methods such as frequency distribution and mean of variables were used. Inferential method ï multiple linear regression ï and correlation analysis were used to infer about the factors for the diffusion of online payment system from the responses and see the correlation among the variables. Multiple linear regression and correlation analysis were chosen because we are considering more than two variables.

3.11 Validity and Reliability

3.11.1 Validity

Content validity was insured by showing the draft questionnaire questions implemented to other 6 classmates of the researcher and to the advisor thereby making judgmental upgrading.

3.11.2 Reliability

1. Potential online buyer Survey

For potential online buyers survey, Cronbachôs Alpha method was used after distributing 39 questionnaires (10% of the 385 sample size) and 38 of the questionnaires were returned and used for pilot testing purpose and ensured reliability. The result is summarized in the following table with that of the potential online seller survey.

2. Potential online seller Survey

Even if the sample size is not appropriate to take 10% for Cronbachôs alpha test, (10 is very low), a pilot test on 30 respondents was made for the potential online sellers too and the result was as follows.

Table 1: Potential online buyer and Seller survey Cronbach's Alpha Summary

Summary of the two surveys Cronbach Alpha

Variable	Number of Items	Cronbach's Alpha Buyer Survey	Cronbach's Alpha Seller Survey
Relative Advantage	11	0.874	0.873
Compatibility	8	0.891	0.895
Simplicity	4	0.743	0.849
Trialability	3	0.703	0.814
Observability	4	0.790	0.832
Diffusion	3	0.788	0.891
All variables together	**33**	**0.926**	**0.959**

(Source: Researcher's survey, 2017)

According to Zikmund et al. (2010) scales with coefficient alpha between 0.6 and 0.7 indicate fair reliability, a Cronbachôs alpha score of .70 or higher are considered as adequate to determine reliability. As we can see from the above table, all the variables independently scored a value greater than 0.70. Thus, we can conclude that the instrument is adequately reliable for the investigation. The overall reliability of all the variables together, as can be seen from the above table, is 0.926 for potential online buyers and 0.959 for potential online sellers which shows a very high reliability.

3.12 Ethical Considerations

Generally, the researcher tried to maintain ethical issues as much as possible in the following manner.

- The participants of the research were informed with all aspects of the research task so that they would give their full consent and nothing goes on behind their back and no deceptive act would be made.
- No one, either directly or indirectly, was forced to participate in the research. The privacy of actual and potential participants was considered.
- Different entities such as marketing firms, banks and other financial institutions received formal letters that aware them with all aspects of the research task and ask their consent for the provision of required information.
- As the research takes place, any information given by companies, banks and other financial institutions were not and will not be disclosed to anyone.
- In addition to this, the responses of respondents will remain confidential and was used for the intended purpose only.
- Results were not misrepresented and exact facts were provided to any party who may make use of the findings of this research.
- Every aspect of legal and research liability were met to the most possible level.

Chapter Four – Data Analysis, Interpretation and Presentation

4.1 Chapter Overview

This chapter states the results and discussion of the research and presents the analysis and interpretation with the aid of illustrative charts, tables and description.

4.2 Response Rate

First, on the potential buyer side, a total of 385 questionnaires were distributed and 355 were returned. This gives 355/385 X 100 = 92.2 percent response rate. But, out of the 355, 13 were not filled properly and only 342 were chosen for further processing. Again, 342/385 X 100 = 88.83 percent response rate. According to Evans (1996), itôs preferable to get a high response rate (80% or higher) and response rates can soar past 85% (about 43 responses for every 50 invitations sent) when the respondent population is motivated and the survey is well-executed. Therefore, 88.83% response rate is a very good achievement.

On the potential online seller side, out of the 68 distributed, 66 were returned. This is without counting the shops which say they have lost the first questionnaire and retook another and filled up. Later, due to the need for regression, another 32 were added and this number reached up 96 completed questionnaires out of 100 distributed. This is a very high response rate (96%).

Table 2: Potential online buyer and Seller survey response rate

Survey	Distributed	Returned and used for further analysis	Response Rate
Buyer Survey	385	342	88.83%
Seller Survey	100	96	96%
Total	485	438	90.3%

(Source: Researcher's survey, 2017)

4.3 Descriptive Statistics

4.3.1 Demographic Profile Summary

The table below summarizes the demographic facts of the research. Detailed description is found in Appendix F: Demographic Profile Detail section. Please go to this part (Page X) of the appendices section for more discussion.

Table 3: Demographic Profile Summary

	Category, Frequency and Percentage					
Age Range	**18-25**	**26-35**	**36-45**	**46-55**		**Total**
Frequency (Buyer Survey)	150	139	40	13		**342**
Percentage (Buyer Survey)	43.9	40.6	11.7	3.8		**100**
Frequency (Seller Survey)	15	51	21	9		**96**
Percentage (Seller Survey)	15.6	53.1	21.9	9.4		**100**
Gender	**Male**			**Female**		**Total**
Frequency (Buyer Survey)	222			120		**342**
Percentage (Buyer Survey)	64.9			35.1		**100**
Frequency (Seller Survey)	51			45		**96**
Percentage (Seller Survey)	53.1			46.9		**100**
Occupation	**Student**	**Private Employed**	**Self Employed**	**Government Employed**	**Other**	**Total**
Frequency (Buyer Survey)	105	57	28	147	5	**342**
Percentage (Buyer Survey)	30.7	16.7	8.2	43	1.5	**100**
Monthly Income	**<2,000**	**2,001-5,000**	**5,001-10,000**	**10,001-50,000**	**>50,000**	**Total**
Frequency (Buyer Survey)	104	94	116	28	3	**342**
Percentage (Buyer Survey)	30.4	26.6	33.9	8.2	0.9	**100**
Monthly Income	**<10,000**	**10,001-30,000**	**30,001-50,000**	**50,001-100,000**	**>100,000**	**Total**
Frequency (Seller Survey)	20	25	30	17	4	**96**
Percentage (Seller Survey)	20.8	26	31.3	17.7	4.2	**100**
Marital Status	**Single**	**Married**	**Divorced**	**Widowed**	**Other**	**Total**
Frequency (Buyer Survey)	236	101	1	2	2	**342**
Percentage (Buyer Survey)	69	29.5	0.3	0.6	0.6	**100**
Frequency (Seller Survey)	60	36	0	0	0	**96**
Percentage (Seller Survey)	62.5	37.5	0	0	0	**100**
Heard online payment?	**Yes**			**No**		**Total**
Frequency (Buyer Survey)	234			108		**342**
Percentage (Buyer Survey)	68.4			31.6		**100**
Frequency (Seller Survey)	64			32		**96**
Percentage (Seller Survey)	66.7			33.3		**100**

(Source: Researcher's survey, 2017)

4.3.2 Mean Responses and Standard Deviations

The mean responses for all the specific questions ï 11 for relative advantage, 8 for compatibility, 4 for simplicity, 3 for trialability, 4 for observability and 3 for the dependent variable, diffusion of innovation ï of both the potential online buyer and seller survey are attached in the appendix section as appendix G and H respectively. The details can also be seen there in those sections.

The following tables depict the mean of the answers to all the variables. On the potential online buyers table the mean are very close to each other in value of which the least is for the mean of simplicity (Std. Deviation=0.84329) and for the mean of observability (Std. Deviation=0.80299) which in both cases is 3.5753 whereas the highest value is for the mean of trialability (Std. Deviation=0.81580), which is 3.6793 with only a difference of 0.104.

Table 4: Potential online buyer survey mean responses

	N	Mean	Std. Deviation
Relative Advantage	342	3.6789	.75274
Compatibility	342	3.6484	.83554
Simplicity	342	3.5753	.84329
Trialability	342	3.6793	.81580
Observability	342	3.5753	.80299
Diffusion	342	3.6092	.82421

(Source: Researcher's survey, 2017)

On the potential online sellers table, the minimum is that of compatibility with a mean of 3.5182 (Std. Deviation=0.92977) whereas the maximum is that of observability with a mean of 3.8333 (Std. Deviation=0.65057) with only a difference of 0.3151. In the middle are Relative Advantage (3.5786 & Std. Deviation=0.78327), Simplicity (3.6068 & Std. Deviation=0.95611), Trialability (3.7535 & Std. Deviation=0.92559) and that of Diffusion (3.7604 & Std. Deviation=0.84701).

Table 5: Potential online seller survey mean response

	N	Mean	Std. Deviation
Relative Advantage	342	3.5786	.78327
Compatibility	342	3.5182	.92977
Simplicity	342	3.6068	.95611
Trialability	342	3.7535	.92559
Observability	342	3.8333	.65057
Diffusion	342	3.7604	.84701

(Source: Researcher's survey, 2017)

In both cases, all are above 3.5 score and if we round off them the value will be 4. Thus, we can say that the average respondent agreed to all the questions relating to the five variables.

4.4 Correlation Matrix – Pearson's Product Moment Correlation

As an assumption, Pearsonôs correlation requires only that data are interval for it to be an accurate measure of the linear relationship between two variables (Field, 2009). Since this research employed a 5 point likert scale, the data we have is interval and it is possible to proceed to Pearsonôs correlation.

According to Mooi and Sarstedt (2011), the calculated value of the correlation coefficient ranges from -1 to 1, where -1 indicates a perfect negative relation (the relationship is perfectly linear) and 1 indicates a perfectly positive relationship. A correlation coefficient of 0 indicates that there is no correlation. The following two tables show the Pearson correlations for both the potential online buyer and seller cases. The values for the potential online buyer case ranges from 0.361 through 0.564 both of which show that there is a positive relationship between the variables. The values for the potential online seller case also show a positive correlation ranging from 0.284 through 0.617.

Correlation is an effect size and so we can verbally describe the strength of the correlation using the guide that Evans (1996) suggests for the absolute value of r. His suggestion is as follows

1. 0.00-0.19 ñvery weakò
2. 0.20-0.39 ñweakò
3. 0.40-0.59 ñmoderateò
4. 0.60-0.79 ñstrongò
5. 0.80-1.0 ñvery strongò

By looking at the values on the correlation tables, first from the potential online buyer case, we can see that only the relationship between diffusion with that of relative advantage and simplicity is found to be weak with respective values of 0.368 and 0.361. All the remaining relationships are found to be moderate, ranging from 0.447 for the case of diffusion with that of compatibility through 0.564 for the case of relative advantage with that of compatibility.

Table 6: Correlations Matrix: Potential online buyers' survey

Correlations Matrix (Pearson's)						
	Relative Advantage	Compatibility	Simplicity	Trialability	Observability	Diffusion
Relative Advantage	1					
Compatibility	.564**	1				
Simplicity	.471**	.544**	1			
Trialability	.503**	.503**	.551**	1		
Observability	.472**	.485**	.430**	.537**	1	
Diffusion	.368**	.447**	.361**	.495**	.558**	1
Correlation is significant at the 0.01 level (2-tailed). , N=342 and Sig.=0.000 in all cases						

(Source: Researcher's survey, 2017)

Table 7: Correlations Matrix: Potential online sellers' Survey

Pearson Correlation		Relative Advantage	Compatibility	Simplicity	Trialability	Observability	Diffusion
Relative Advantage		1					
	Sig. (2-tailed)						
Compatibility	Pearson Correlation	.617**	1				
	Sig. (2-tailed)	.000					
Simplicity	Pearson Correlation	.420**	.357**	1			
	Sig. (2-tailed)	.000	.000				
Trialability	Pearson Correlation	.581**	.440**	.451**	1		
	Sig. (2-tailed)	.000	.000	.000			
Observability	Pearson Correlation	.392**	.284**	.316**	.291**	1	
	Sig. (2-tailed)	.000	.005	.002	.004		
Diffusion	Pearson Correlation	.569**	.384**	.358**	.312**	.317**	1
	Sig. (2-tailed)	.000	.000	.000	.002	.002	

Correlation is significant at the 0.01 level (2-tailed). , N=96 in all cases

(Source: Researcher's survey, 2017)

Second, for the case of potential online seller, we have one strong correlation with a value of 0.617 which is between compatibility and relative advantage. We then find five moderate

relationships ranging from 0.420 through 0.581. These are the correlations between relative advantage with that of simplicity, trialability and diffusion; the correlation of compatibility with that of trialability and that of trialability with that of simplicity. All the remaining correlations are found to be weak since they fall within the range of 0.20 through 0.39.

Thus, we can conclude that the independent variable and the dependent variables in both potential online buyer and seller cases are positively correlated.

4.5 Inferential Statistics

This is the section where we first lay the ground work for the testing of the proposed hypotheses and finally test them using the regression method.

4.5.1 Assumptions of Multiple Linear Regression

Multiple linear regression analysis makes several key assumptions: These are linear relationship, multivariate normality, in absence of multicollinearity, homoscedasticity and sufficient number of observations.

A **Linear Relationship** between the outcome variable and the independent variables. A plot of the standardized residuals verses the predicted Y' values show whether there is a linear or curvilinear relationship. To depict this, every single independent variable is linearly tested and has passed the linearity test. Please see the appendix part for the histograms, normal p-p plots and regression coefficients table for details on linearity test of the individual independent variable (StatisticsSolutions, 2015).

Sufficient number of observations ï According to Mooi and Sarstedt (2011), to test the overall relationships between the independent and dependent variables, the number of observations should at least be 50 + 8 k, where k are the number of independent variables. In our case, both for the potential online buyer and seller sample size, we have 5 independent variables. Thus, k=5 gives us a minimum of 50+5*8=90 observations.

The potential online buyer sample size was already 385 and fulfills this. But, the potential online seller sample size was only 68. To correct this for regression, additional 32 questionnaires were distributed by oversampling and the total collected was 96 observations and this number was used for further analysis.

4.5.1.1 Normality Test

Prior to further analysis, normality of the data should be checked. Multiple regression assumes that the variables are normally distributed (StatisticsSolutions, 2015). To check this, the researcher had used Skewness and Kurtosis and found out that the variables are in an acceptable normality range. This was done using Skewness and Kurtosis after the data was feed into SPSS version 20 and the values for both Skewness and Kurtosis were computed for the variables considered in the research. First, the mean of the variables were calculated and then, basing these mean, Skewness and Kurtosis were computed to render the following tables respectively for potential online buyers and sellers.

1. **Potential Online Payment System Buyer Survey**

Table 8: Skewness and Kurtosis: Potential online buyer

	Skewness, Std. Error=0.132	Kurtosis, Std. Error=0.263
	Statistic (For N=342)	Statistic (For N=342)
Relative Advantage	-.582	.023
Compatibility	-.530	.048
Simplicity	-.377	.089
Trialability	-.475	.202
Observability	-.378	-.106
Diffusion	-.272	-.253

(Source: Researcher's survey, 2017)

2. **Potential Online Payment Seller**

Table 9: Skewness and Kurtosis: Potential online seller

Statistic (For N=96)	Skewness, Std. Error=0.246	Kurtosis, Std. Error=0.488
Relative Advantage	-0.397	-0.314
Compatibility	-0.167	-0.608
Simplicity	-0.817	0.463
Trialability	-0.667	0.040
Observability	-0.408	0.271
Diffusion	-0.610	0.271

(Source: Researcher's survey, 2017)

As we can see from the above tables, the values on the potential online buyers table for Skewness of the variables range from -0.582 through -0.272 and for Kurtosis they range from -0.253 through 0.202. On the potential online sellers side, Skewness ranges from -0.817 through -0.167 and Kurtosis from -0.608 through 0.463. According to George and Mallery (2010), a range of -2 through +2 is considered at a 95% degree of confidence, and a range between -1 and +1 in mean cases where normality is highly required. The findings on the above table fit both for p values of 0.05 and 0.01 since they are between the required ranges. The histogram and P-P plot also shows that the distribution is normal. Therefore, concluding the distribution is acceptable, we continue to further analysis. The distribution graphs are also put in the appendix part.

4.5.1.2 Test of multicollinearity

This assumption assumes that the independent variables are not highly correlated with each other. This assumption is tested by the Variance Inflation Factor (VIF) statistic and the Tolerance of every independent variable (StatisticsSolutions, 2015). A tolerance of below 0.10 indicates that multicollinearity is a problem. The VIF is just the reciprocal value of the tolerance. Thus, VIF values above ten indicate collinearity issues (Mooi and Sarstedt, 2011). As can be seen in the table below for potential online buyers and sellers, every variable has passed this test.

Table 10: Collinearity Statistics: Potential online buyer and seller survey

	Collinearity Statistics			
	Buyer Survey		Seller Survey	
	Tolerance	VIF	Tolerance	VIF
Relative Advantage	.590	1.696	.469	2.132
Compatibility	.546	1.830	.602	1.662
Simplicity	.587	1.704	.731	1.368
Trialability	.548	1.824	.604	1.655
Observability	.626	1.597	.817	1.224

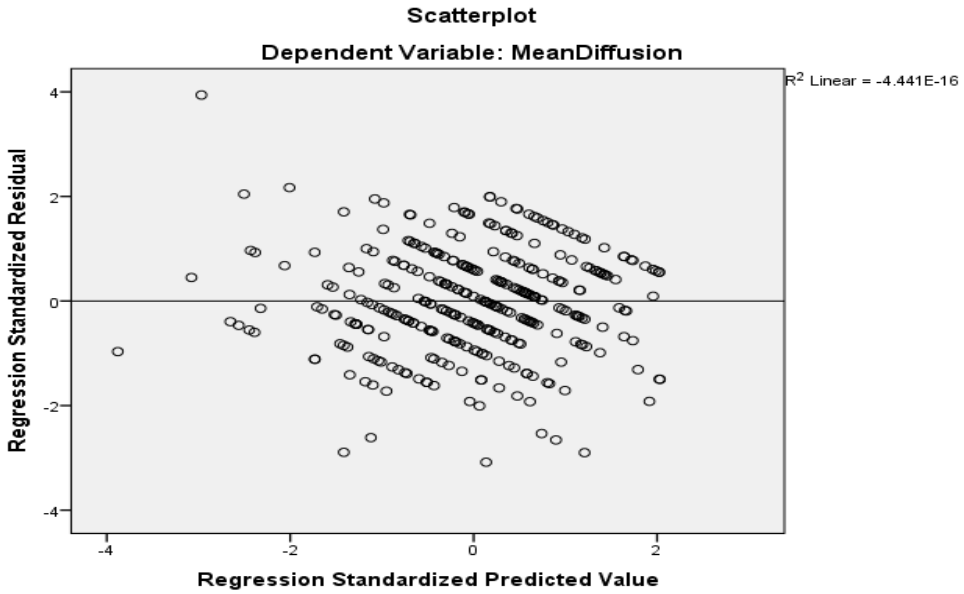
(Source: Researcher's survey, 2017)

4.5.1.3 Homoscedasticity Test

In the case of homoscedasticity, the variance of the errors should be constant (Mooi and Sarstedt, 2011). This assumption requires that the variances of error terms are similar across the independent variables (StatisticsSolutions, 2015). This is tested both for the potential online

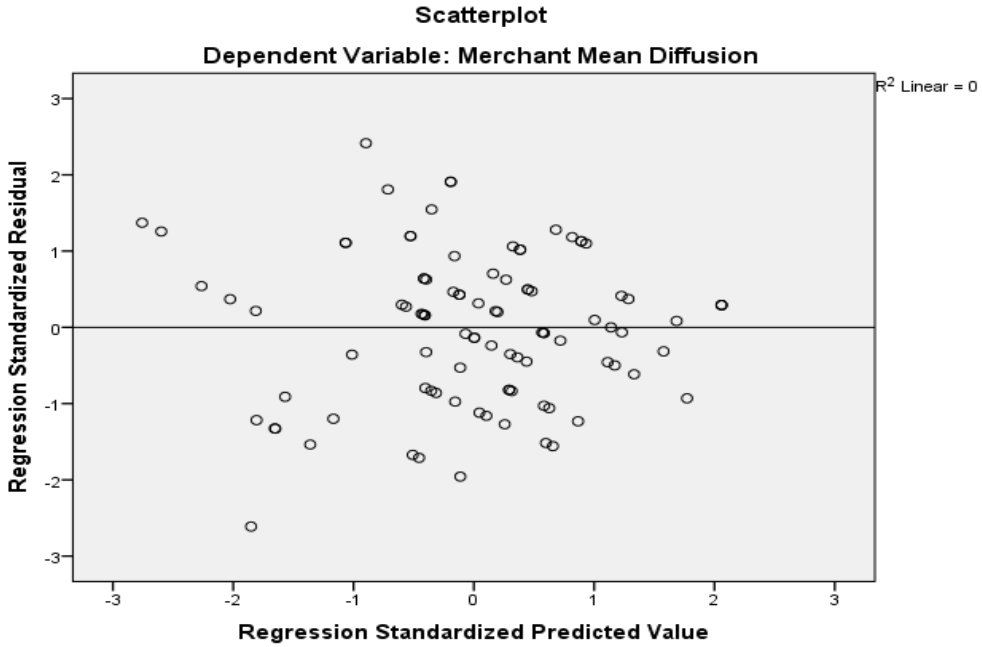
buyer and seller variables and the graphs are presented below respectively. The plots indicate that the responses seem concentrated in a specific area falling in a rectangular shape with some outliers. This shows that the errors are constant throughout the observations.

Figure 2: Scatterplot showing Homoscedasticity – Potential online buyers' survey



(Source: Researcherôs survey, 2017)

Figure 3: Scatterplot showing Homoscedasticity – Potential online sellers' survey



(Source: Researchers survey, 2017)

4.6 Multiple Linear Regression Analysis

4.6.1 Potential online buyer survey model summary

From the potential online buyer model summary result, we can see that independent variables explain the dependent variable with 38.3% leaving the rest to be explained by other exogenous factors not considered in this research. In cross-sectional designs, values of around 0.30 are common while for exploratory research using cross-sectional data, values of 0.10 are typical (Mooi and Sarstedt, 2011). Please read the details after the Model Summary table.

Table 11: Buyer survey model summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.619[a]	.383	.373	.65245

a. Predictors: (Constant), Observe, Simple, RA, Try, Comp

b. Dependent Variable: MeanDiffusion

(Source: Researcherôs Survey, 2017)

R^2 is a measure of how much of the variability in the outcome is accounted for by the predictors and the adjusted R^2 gives us some idea of how well our model generalizes and ideally we would like its value to be the same, or very close to, the value of R^2 (Field, 2009). In this case the difference is only one percent, 38.3% ï 37.3% = 1%. This shrinkage means that if the model were derived from the population rather than a sample it would account for approximately 1% less variance in the outcome.

4.6.2 Potential online seller survey model summary

On the other hand, the potential online seller model summary result shows that the independent variables explain the dependent variable by 35.3% leaving the rest to be explained by other exogenous factors.

Table 12: Seller survey model summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.594[a]	.353	.317	.70014

a. Predictors: (Constant), Observability, Compatibility, Simplicity, Trialability, Relative Advantage

b. Dependent Variable: Diffusion

(Source: Researcher's survey, 2017)

In this case the difference is only three point six percent, 35.3% ï 31.7% = 3.6%. This shrinkage means that if the model were derived from the population rather than a sample it would account for approximately 3.6% less variance in the outcome.

4.6.3 Potential online buyer and seller survey ANOVA tables

Table 13: ANOVA: Potential online buyer survey

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	88.616	5	17.723	41.634	.000[b]
	Residual	143.031	336	.426		
	Total	231.647	341			

a. Dependent Variable: Diffusion

b. Predictors: (Constant), Observe, Simple, RA, Try, Comp

(Source: Researcher's survey, 2017)

Table 14: ANOVA: Potential online seller survey

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	24.038	5	4.808	9.808	.000[b]
	Residual	44.118	90	.490		
	Total	68.156	95			

a. Dependent Variable: Diffusion

b. Predictors: (Constant), Observability, Compatibility, Simplicity, Trialability, Relative Advantage

(Source: Researcher's survey, 2017)

The ANOVA tables for the potential online buyers show an F value of 41.634 and for the potential online seller it shows 9.808 with degree of freedom = 5 in both cases with a Sig. of <0.01. Specifically, the F-ratio represents the ratio of the improvement in prediction that results from fitting the model, relative to the inaccuracy that still exists in the model (Field, 2009). The Df column shows the degree of freedom that we use to calculate the minimum value acceptable. Thus the degree of freedom for the potential online buyer ANOVA is (5, 336) and (5, 90) for the potential online seller case.

Now we can look up from an F-distribution to see what the minimum F value should be. And then we get, buyer case F (5, 336) at Sig. < 0.05 should be greater than 2.24. The buyer ANOVA table shows a value of 41.634 which is acceptable. On the seller case, F (5, 90) at Sig. < 0.05

should at least be 2.33. The seller ANOVA table reads a value of 9.808 which is also acceptable. Partial F-distribution table at P value of 0.01 and 0.05 is attached as Appendix I for reference.

4.6.4 Regression Coefficients

Below is the table of regression coefficients both for the potential online buyers and the sellers. From these tables, we can derive a model for regression. Let us see each separately.

Table 15: Regression Result: Potential online buyer

Coefficients[a]

0Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.897	.209		4.294	.000
	Relative Advantage	-.007	.061	-.006	-.113	.910
	Comp	.163	.057	.165	2.849	.005
	Simple	-.005	.055	-.005	-.088	.930
	Try	.225	.058	.223	3.843	.000
	Observe	.373	.056	.363	6.705	.000

a. Dependent Variable: Diffusion

(Source: Researcher's survey, 2017)

The constant in this table is 0.897, relative advantage -0.007, compatibility 0.163, simplicity -0.005, trialability 0.225 and observability 0.373. Thus, for the potential online buyersô case, our model can be

Diffusion=0.897 – 0.007RA + 0.163Com – 0.005Sim + 0.225Try + 0.373Observe + 0. 65245

But, relative advantage and simplicity were found to be insignificant as we can see from the Sig. column of the regression table. Thus, the regression model will be

Diffusion=0.897 + 0.163Com + 0.225Try + 0.373Observe + 0. 65245

Table 16: Regression Result: Potential online seller

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.092	.482		2.268	.026
	Relative Advantage	.543	.134	.502	4.057	.000
	Compatibility	.032	.100	.035	.318	.751
	Simplicity	.129	.088	.146	1.470	.145
	Trialability	-.080	.100	-.087	-.801	.425
	Observability	.117	.122	.090	.954	.342

a. Dependent Variable: Diffusion

(Source: Researcher's survey, 2017)

The constant in this table is 1.092, relative advantage 0.543, compatibility 0.032, simplicity 0.129, trialability -0.080 and observability 0.117. Thus, for the potential online sellersô case, our model can be

Diffusion=1.092 + 0.543RA + 0.032Com + 0.129Sim - 0.080Try + 0.117Observe + 0. 70014

But, only relative advantage is found to be significant as we can see from the Sig. column of the regression table. Thus, the regression model will be

Diffusion=1.092 + 0.543RA + 0. 70014

4.7 Hypothesis Testing

In this section, we will test the proposed hypotheses of the research. Let us recall the hypotheses from the first chapter section 1.5.

H1a. Perceived relative advantage positively affects the acceptance of online payment systems by potential online buyers.

Relative advantage on the potential online buyersô table shows a value of -0.007 with a Sig. of 0.910. Since the Sig. value is >0.05 (95% confidence level), we reject this proposition.

H1b. Perceived relative advantage positively affects the acceptance of online payment systems by potential online sellers.

Relative advantage on the potential online sellersô table shows a value of 0.543 with a Sig. of < 0.05. Thus, relative advantage has a positive significant influence on diffusion of online payment system by potential online sellers. Where there is a one unit change in relative advantage, diffusion of online payment system will be affected by 0.543 units.

H2a. Compatibility positively affects the acceptance of online payment systems by potential online buyers.

Compatibility on the potential online buyersô table shows a value of 0.163 with a Sig. of < 0.05. Thus, compatibility has a positive significant influence on diffusion of online payment system by potential online buyers. Where there is a one unit change in compatibility, diffusion of online payment system will be affected by 0.163 units.

H2b. Compatibility positively affects the acceptance of online payment systems by potential online sellers.

Compatibility on the potential online sellersô table shows a value of 0.032 with a Sig. of 0.751. Since the Sig. value is >0.05 (95% confidence level), we reject this hypothesis.

H3a. Ease of Use positively affects the acceptance of online payment systems by potential online buyers.

Simplicity on the potential online buyersô table shows a value of -0.005 with a Sig. of 0.930. Since the Sig. value is >0.05 (95% confidence level), we reject this proposition.

H3b. Ease of Use positively affects the acceptance of online payment systems by potential online sellers.

Simplicity on the potential online sellersô table shows a value of 0.129 with a Sig. of 0.145. Since the Sig. value is >0.05 (95% confidence level), we reject this proposition.

H4a. Observability positively affects the acceptance of online payment systems by potential online buyers.

Observability on the potential online buyersô table shows a value of 0.373 with a Sig. of < 0.05. Thus, observability has a positive significant influence on diffusion of online payment system by

potential online buyers. Where there is a one unit change in observability, diffusion of online payment system will be affected by 0.373 units.

H4b. Observability positively affects the acceptance of online payment systems by potential online sellers.

Observability on the potential online sellersô table shows a value of 0.117 with a Sig. of 0.342. Since the Sig. value is >0.05 (95% confidence level), we reject this proposition.

H5a. Trialability positively affects the acceptance of online payment systems by potential online buyers.

Trialability on the potential online buyersô table shows a value of 0.225 with a Sig. of < 0.05. Thus, trialability has a positive significant influence on diffusion of online payment system by potential online buyers. Where there is a one unit change in trialability, diffusion of online payment system will be affected by 0.225 units.

H5b. Trialability positively affects the acceptance of online payment systems by potential online sellers.

Trialability on the potential online sellersô table shows a value of -0.080 with a Sig. of 0.425. Since the Sig. value is >0.05 (95% confidence level), we reject this proposition.

4.8 Summary of Hypothesis Testing

Table 17: Hypothesis test summary

Hypothesis	Analysis Method	Remark
H1a. Perceived relative advantage positively affects the acceptance of online payment systems by potential online buyers.	**Regression**	**Rejected**
H1b. Perceived relative advantage positively affects the acceptance of online payment systems by potential online sellers.	**Regression**	**Accepted**
H2a. Compatibility positively affects the acceptance of online payment systems by potential online buyers.	**Regression**	**Accepted**
H2b. Compatibility positively affects the acceptance of online payment systems by potential online sellers.	**Regression**	**Rejected**
H3a. Ease of Use positively affects the acceptance of online payment systems by potential online buyers.	**Regression**	**Rejected**
H3b. Ease of Use positively affects the acceptance of online payment systems by potential online sellers.	**Regression**	**Rejected**
H4a. Observability positively affects the acceptance of online payment systems by potential online buyers.	**Regression**	**Accepted**
H4b. Observability positively affects the acceptance of online payment systems by potential online sellers.	**Regression**	**Rejected**
H5a. Trialability positively affects the acceptance of online payment systems by potential online buyers.	**Regression**	**Accepted**
H5b. Trialability positively affects the acceptance of online payment systems by potential online sellers.	**Regression**	**Rejected**

(Source: Researcher's survey, 2017)

Chapter Five – Summary, conclusion and recommendation

5.1 Chapter Overview

This chapter presents summary of the major findings, conclusion and recommendation based on the analysis made in chapter four. It also discusses the limitation and future area of investigation.

5.2 Summary of the Major Findings

This research tried to examine the factors that influence the diffusion of online payment system in Addis Ababa according to characteristics of innovation based on Everett M. Rogersô diffusion of innovation theory. According to this theory, the characteristics are relative advantage, compatibility, simplicity (ease of use), trialability and observability. This has been seen from two perspectives and, by large, it yielded different outcomes. To check this, a conceptual model and hypotheses were developed based on literature and the following findings were found.

- In both cases of potential online buyers and potential online sellers, all the variables ï both dependent and independent, are positively correlated with each other.
- For the case of potential online buyers, the variables relative advantage and simplicity are found to be insignificant whereas compatibility, trialability and observability significantly affect the diffusion of online payment system.
- For the case of the potential online sellers, only relative advantage significantly affects diffusion of online payment system in a positive direction whereas the rest four variables ï compatibility, simplicity, trialability and observability are found to be insignificant.
- In aggregate, diffusion of innovation is positively explained by the independent variables of this study ï relative advantage, compatibility, simplicity, trialability and observability ï by 38.3% for the case of the potential online buyers and by 35.3% for the case of the potential online sellers and the remaining (about 61.7% for potential online buyers and 64.7 for potential online sellers) of diffusion of online payment system in Addis Ababa is explained by other variables that are not considered in this research.

5.3 Conclusions

Data was collected from 96 potential online seller and 342 potential online buyer respondents. The questionnaires implemented in both cases were in 5 point likert scale form. The data was analyzed in SPSS using multiple linear regression and Pearsonôs correlation.

None of the results are found to be opposite to theory of diffusion of innovation. They are either insignificant or in line with theory.

- In the case of potential online sellers, relative advantage positively affected the diffusion of online payment system. This is also supported by the study of Olatokun and Igbinedion (2009) and Yohannes (2010). But, the rest of the factors were found to be insignificant.
- In the case of potential online buyers, compatibility, trialability and observability are found to affect online payment diffusion positively. Again this is also supported in other studies. E.g. (Olatokun and Igbinedion, 2009). But, relative advantage and simplicity were found insignificant.

Basing the analysis, it can be concluded that

- In the case of potential online sellers, relative advantage positively affected the diffusion of online payment system. But, the rest of the factors were found to be insignificant. This might be because potential online sellersô focus on profits and other relative advantage factors but the reason still needs to be checked in research.
- In the case of potential online buyers, compatibility, trialability and observability are found to affect online payment diffusion positively. But, relative advantage and simplicity were found insignificant. This might be because potential online buyers focus on acceptance by others, the associated show-off and trial options. Again, the reason still needs to be checked in research.

5.4 Recommendations

The findings of this research show that, for the case of the potential online sellers, only relative advantage has a positive significant influence. Thus, banks or other financial institutions that may facilitate online payment system shall focus on relative advantage aspects when promoting to potential online sellers. They should convince the potential online seller that, among other options such as cash payment, ATM, etc, online payment has more relative advantage. For example, sellers must be convinced that, payments made to those who sold online will be received quicker and safer in a more secured way. They also need to be convinced that they will get more market by using the online payment method than using traditional payment systems.

For the case of potential online buyers, compatibility, observability and trialability have a positive significant influence. Again, banks or other financial institutions that may facilitate online payment system shall focus on compatibility, observability and trialability aspects in allocating resources for decisions such as promotion thereby neglecting the remaining factors (relative advantage and simplicity). They should convince the potential online buyer that online payment is highly compatible with previous payment experiences, social values and prepare trial options for the potential online buyer. For example, they may undertake a simple and short interview with religious and cultural leaders and air it on media so that people will know the technology is compatible with their religious and cultural beliefs to convince its compatibility; show when different kind of people make use of the technology to convince its simplicity. In such a way, online payment system can be diffused more rapidly to the society.

5.5 Limitations

One expected limitation was that many Ethiopians are not civilized and may not have the know-how of what online payment system is. If they didnôt disclose their lack of knowledge and ask for clarification, they might have filled the questionnaires with a guess of what online payment system could be thereby leading to inappropriate responses.

This study was intended to be done using both qualitative method (interview from bank managers and analysis to be done using content analysis) and quantitative method (survey using questionnaires from potential online buyers and sellers). Due to time constraint, only the quantitative aspect was carried on. One may come up with a better result if the study was made using both techniques.

Additionally, the model used here is diffusion of innovation theory by Everett M. Rogers. Other models such as the technology acceptance model (TAM), theory of reasoned action (TRA), etc are not taken into consideration. If these were used in combination with diffusion of innovation theory, one may come up with a more useful outcome.

5.6 Future Research Area

The main strength of longitudinal research is the capacity that it has to study change and development (Saunders et al., 2009). Thus, future research, especially concurrently with release of online payment system, will be a good step forward.

When returning questionnaires, some has engaged in discussion with the researcher and revealed their fear that even if online payment system is started, infrastructural problems may hinder its applicability (e.g. network instability). Thus, interested researchers may assess the readiness of the country with regard to infrastructure for online payment system.

The research was made using quantitative technique. Mixed research would have been more advantageous so as to gather data that could not be obtained by adopting only a single method and for triangulation (Creswell, 2003). Thus, interested researchers can undertake similar investigation using either qualitative techniques or mixed approach in order to examine what would be delivered if such a methodology is pursued.

Although diffusion of innovation theory (DIT) is preferred to undertake similar researches, there are also other models such as the technology acceptance model (TAM) and theory of reasoned action (TRA). Future researchers should consider such models independently or in combination with the DIT.

Finally, feasibility of local online payment system is a good area of study. International online payment system raises many issues such as availability of hard currency. But, local currency can be used until the international is acceptable. Therefore, it would be a good area of investigation if researchers consider feasibility of local online payment system.

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Appendices

Appendix A: English questionnaire: Potential online buyer Survey

Addis Ababa University – School of Commerce

Dear Respondent,

I am undertaking this research for the fulfillment of the thesis required for the Master of Arts Degree in Marketing Management. The aim of this questionnaire is to identify the **Determinants of Diffusion of Online Payment Systems in Addis Ababa**. I would like to assure you that the information you provide will be used only for the purpose of achieving academic award.

Thank you for your participation. Yoseph Melka

Best Regards,

Section A: Demographic Factors:

1. Your age falls in

Ĭ 18 - 25 Ĭ 26-35 Ĭ 36-45 Ĭ 46-55 Ĭ > 55

2. Gender

Ĭ Male Ĭ Female

3. Occupational status

Ĭ Student Ĭ Private employed Ĭ Self Employed Ĭ Government employed Ĭ Other

4. Monthly Income

Ĭ <2,000 Ĭ 2,001 - 5,000 Ĭ 5,001 - 10,000 Ĭ 10,001 - 50,000 Ĭ > 50,000

5. Marital Status

Ĭ Single Ĭ Married Ĭ Divorced Ĭ Widowed Ĭ Other

Specific Questions:

6. Have you heard of online/internet payment systems before? E.g. buying from the internet like from amazon.com using credit card or other online payment system.

Ĭ Yes Ĭ No

Section B – Factors for Usage of Online Payment System

Please indicate the level of your agreement and disagreement with the following statements.
Please tick (ã) your appropriate answer based on the following rating.
1= strongly disagree 2= disagree 3= neutral 4= agree 5= strongly agree

	Online Payment System - Relative Advantage	**1**	**2**	**3**	**4**	**5**
1	I can buy things any time of the day I want using online payment.					
2	I can buy things from anywhere I want using online payment.					
3	Online payment system enhances my effectiveness in life.					
4	Online payment system enables me to accomplish tasks faster					
5	Online payment system is cost advantageous over other payment system.					
6	To be able to buy using online payment system is a symbol of status.					
7	Buying using online payment system saves time than going to buy at shop.					
8	Online payment system helps me complete buying activities more quickly.					
9	Online payment system helps me complete buying activities more easily					
10	I will be satisfied if Iôm able to use online payment system.					
11	There is no time limit to buy things if I can use online payment system.					
	Online Payment System – Compatibility					
12	Online payment system fits with my prior experience of purchasing things.					
13	Online payment system meets my social values.					
14	Online payment system meets my personal values.					
15	Online payment system is compatible with my day to day activities					
16	Online payment system is compatible with my familyôs need					
17	Online payment system does not contradict with my religious aspects.					
18	Online payment system does not contradict with my cultural aspects					
19	Online payment system fits well with how I like to manage my purchases.					
	Online Payment System - Simplicity					
20	I believe online payment system is an easy to use technology.					
21	Online payment system is clearly understandable.					
22	Online payment system necessitates little mental effort					
23	Learning to operate online payment system is easy for me					
	Online Payment System - Trialability					
24	Simple trial option will speed my decision to subscribe to online payment					
25	I have an opportunity to try various Online Payment System technologies					
26	It will help my decision to use online payment if I can try by cheap items					
	Online Payment System - Observability					
27	Results of using online payment system are easily visible to others					
28	I wish to communicate others about use of online payment system					
29	Social media serves as witness to the benefits of online payment system					
30	Advertisements of online sellers will be easily observable by buyers					
	Online Payment System - Diffusion					
31	Online payment system is easily acceptable by me					
32	Addis Ababa residents will be eager to start using online payment system					
33	Future transactions will be highly dominated by online payment system					

Appendix B: English questionnaire: Potential online seller Survey

Addis Ababa University – School of Commerce

Dear Respondent,

I am undertaking this research for the fulfillment of the thesis required for the Master of Arts Degree in Marketing Management. The aim of this questionnaire is to identify the **Determinants of Diffusion of Online Payment Systems in Addis Ababa**. I would like to assure you that the information you provide will be used only for the purpose of achieving academic award.

Thank you for your participation. Yoseph Melka

Best Regards,

Section A: Demographic Factors:

1. Your age falls in

Ï 18 - 25 Ï 26-35 Ï 36-45 Ï 46-55 Ï > 55

2. Gender

Ï Male Ï Female

3. Occupational status

Ï Student Ï Private employed Ï Self Employed Ï Government employed Ï Other

4. Monthly Income

Ï <2,000 Ï 2,001 - 5,000 Ï 5,001 - 10,000 Ï 10,001 - 50,000 Ï > 50,000

5. Marital Status

Ï Single Ï Married Ï Divorced Ï Widowed Ï Other

Specific Questions:

6. Have you heard of online/internet payment systems before? E.g. buying from the internet like from amazon.com using credit card or other online payment system.

Ï Yes Ï No

Section B – Factors for Usage of Online Payment System

Please indicate the level of your agreement and disagreement with the following statements.
Please tick (ã) your appropriate answer based on the following rating.
1= strongly disagree 2= disagree 3= neutral 4= agree 5= strongly agree

	Online Payment System - Relative Advantage	**1**	**2**	**3**	**4**	**5**
1	I can sell things any time of the day I want using online payment.					
2	I can sell things from anywhere I want using online payment.					
3	Online payment system enhances my effectiveness in life.					
4	Online payment system enables me to accomplish tasks faster					
5	Online payment system is cost advantageous over other payment system.					
6	To be able to sell using online payment system is a symbol of status.					
7	Selling using online payment system saves time than selling at shop.					
8	Online payment system helps me complete selling activities more quickly.					
9	Online payment system helps me complete selling activities more easily					
10	I will be satisfied if Iôm able to use online payment system.					
11	There is no time limit to sell things if I can use online payment system.					
	Online Payment System – Compatibility					
12	Online payment system fits with my prior experience of selling things.					
13	Online payment system meets my social values.					
14	Online payment system meets my personal values.					
15	Online payment system is compatible with my day to day activities					
16	Online payment system is compatible with my familyôs need					
17	Online payment system does not contradict with my religious aspects.					
18	Online payment system does not contradict with my cultural aspects					
19	Online payment system fits well with how I like to manage my sells.					
	Online Payment System - Simplicity					
20	I believe online payment system is an easy to use technology.					
21	Online payment system is clearly understandable.					
22	Online payment system necessitates little mental effort					
23	Learning to operate online payment system is easy for me					
	Online Payment System - Trialability					
24	Simple trial option will speed my decision to subscribe to online payment					
25	I have an opportunity to try various Online Payment System technologies					
26	It will help my decision to use online payment if I can try by cheap items					
	Online Payment System - Observability					
27	Results of using online payment system are easily visible to others					
28	I wish to communicate others about use of online payment system					
29	Social media serves as witness to the benefits of online payment system					
30	Advertisements of online sellers will be easily observable by other sellers					
	Online Payment System - Diffusion					
31	Online payment system is easily acceptable by me					
32	Addis Ababa residents will be eager to start using online payment system					
33	Future transactions will be highly dominated by online payment system					

Appendix C: Amharic questionnaire: Potential online buyer Survey

አዲስ አበባ ዩኒቨርሲቲ — የንግድ ስራ ትምህርት ቤት

ውድ ተሳታፊ,

ይህንን ጥናት እያጠናሁ ያለሁት በገበያ አስተዳደር ለምማረው የሁለተኛ ዲግሪ ማሟያነት ነው። የዚህ መጠይቅ አላማ በአዲስ አበባ ውስጥ የኢንተርኔት ክፍያ ሲጀመር በማህበረሰቡ ውስጥ ተቀባይነትን አግኝቶ እንዲሰርፅ የሚያደርጉ ኩነቶችን ለይቶ ለማውጣት ሲሆን የሚሰጡኝም መረጃ ለትምህርታዊ ጉዳይ ብቻ የሚውል መሆኑን አረጋግጥልዎታለው።

ውድ ጊዜዎን ሰውተው ስለተሳተፉ እጅግ አመሰግናለው። ዮሴፍ መልካ - 0911640997

ክፍል 1 : የመላሽ አጠቃላይ ሁኔታ:

1. የእድሜዎ ክልል

☐ 18 - 25 ☐ 26-35 ☐ 36-45 ☐ 46-55 ☐ > 55

2. ፆታ

☐ ወንድ ☐ ሴት

3. የስራ ሁኔታ

☐ ተማሪ ☐ የግል ድርጅት ተቀጣሪ ☐ የግል ስራ ☐ የመንግስት ተቀጣሪ ☐ ሌላ

4. የወር ገቢ (በብር)

☐ <2,000 ☐ 2,001 - 5,000 ☐ 5,001 - 10,000 ☐ 10,001 - 50,000 ☐ >50,000

5. የጋብቻ ሁኔታ

☐ ያላገባ ☐ ያገባ ☐ የፈታ ☐ በሞት የተለየ ☐ ሌላ

ክፍል 2: ልዩ ጥያቄዎች

6. በኢንተርኔት ስለሚደረግ ክፍያ (online/internet payment) ሰምተው ያውቃሉ? ምሳሌ፡ ካሉበት ቦታ ሆነው በኢንተርኔት ድህረገፅ የሚፈልጉትን እቃ ወይም አገልገሎት እዛው ክፍያ ፈፅሞ መግዛት።

☐ አዎ አውቃለው ☐ አይ አላውቅም

ክፍል 3፡ የጥናቱ ዋነኛ ጥያቄዎች

እባክዎ ምርጫዎ ላይ (ã) ምልክት በማድረግ ምላሽ ይስጡ። ከተጠቀሰው ሀሳብ ጋር ያለዎትን መስማማት/አለመስማማት መጠን የሚከተሉትን ቁጥሮች በመመስረት መልስዎን ይምረጡ።

1= በጣም አልስማማም 2= አልስማማም 3= መሀከለኛ 4= እስማማለው 5= በጣም እስማማለው

	Online Payment System - Relative Advantage (አንፃራዊ ጥቅም)	1	2	3	4	5
1	በኢንተርኔት ክፍያ በመጠቀም በማንኛውም ሰዓት ግዢ መፈፀም እችላለው					
2	በኢንተርኔት ክፍያ በመጠቀም ከማንኛውም ቦታ ሆኜ ግዢ መፈፀም እችላለው					
3	የኢንተርኔት ክፍያ በሕይወቴ ውስጥ ይበልጥ ውጤታማ ያደርገኛል					
4	የኢንተርኔት ክፍያ ግዢዎችን በፍጥነት እንድጨርስ ይረዳኛል					
5	የኢንተርኔት ክፍያ ከሌሎች ክፍያዎች ጋር ሲነፃፀር አነስተኛ ወጪ ብቻ ነው ያለው					
6	የኢንተርኔት ክፍያ ተጠቅሞ መግዛት የኑሮ ደረጃዬ ከፍ ማለቱን ያሳያል					
7	ወደተለመዱ ሱቆች ሄዶ ከመግዛት በኢንተርኔት ክፍያ መግዛት ጊዜን ይቆጥባል					
8	በኢንተርኔት ክፍያ መግዛት የግዢ ሂደትን በፍጥነት ለመጨረስ ያስችላል					
9	በኢንተርኔት ክፍያ መግዛት የግዢ ሂደትን በቀላሉ ለመጨረስ ያስችላል					
10	የኢንተርኔት ክፍያን በመጠቀሜ ምክንያት እርካታን አገኛለሁ					
11	የኢንተርኔት ክፍያን ብጠቀም ለግዢ የጊዜ ገደብ አይኖርብኝም					
	Online Payment System – Compatibility (አብሮ መሄድ)					
12	የኢንተርኔት ክፍያን ብጠቀም እስካሁን ካለኝ የግዢ ሂደት ጋር አይቃረንም					
13	የኢንተርኔት ክፍያ ብጠቀም ከማህበራዊ እሴቶቼ (social values) ጋር አይቃረንም					
14	የኢንተርኔት ክፍያ ብጠቀም ከግላዊ እሴቶቼ (personal values) ጋር አይቃረንም					
15	የኢንተርኔት ክፍያ ብጠቀም ከእለት እለት ውሎዬ ጋር ይስማማል					
16	የኢንተርኔት ክፍያ ብጠቀም ከቤተሰቤ የኑሮ ፍላጎት ጋር ይስማማል					
17	የኢንተርኔት ክፍያ ከሀይማኖታዊ እሴቶቼ (religious values) ጋር አይቃረንም					
18	የኢንተርኔት ክፍያ ብጠቀም ከባህላዊ እሴቶቼ (cultural values) ጋር አይቃረንም					
19	የኢንተርኔት ክፍያ ግዢዎቼን ማስተዳደር ከምፈልግበት ሁኔታ ጋር ይስማማል					
	Online Payment System - Simplicity (ቀለት)					
20	የኢንተርኔት ክፍያ ለመጠቀም ቀላል የሆነ ቴክኖሎጂ ነው					
21	የኢንተርኔት ክፍያ ለመረዳት የማያስቸግር ቴክኖሎጂ ነው					
22	የኢንተርኔት ክፍያ ጥቂት የአይምሮ ጥረት ብቻ ነው የሚፈልገው					
23	ለኔ የኢንተርኔት አከፋፈልን መልመድ ቀላል ነው					
	Online Payment System - Trialability (መሞከር መቻል)					
24	የኢንተርኔት ክፍያ በቀላል የሙከራ አማራጭ ቢኖር ተጠቃሚ መሆኔን ያፋጥነዋል					
25	የኢንተርኔት ክፍያ አማራጮችን ለመሞከር ብዙ አጋጣሚዎች አሉኝ					
26	በርካሽ እቃዎች መሞከር ብችል የኢንተርኔት ክፍያ የመጠቀም ውሳኔዬ ይፈጥናል					
	Online Payment System - Observability (መታየት መቻል)					
27	የኢንተርኔት ክፍያን የመጠቀም ውጤቶች በሌሎች በቀላሉ ሊታዩ ይችላሉ					
28	ስለኢንተርኔት ክፍያ ለሌሎች ለማሳወቅ ፍላጎት አለኝ					
29	የማህበራዊ ሚዲያ ስለኢንተርኔት ክፍያ እንደ ምስክር ያገለግላል					
30	በኢንተርኔት ክፍያ የሚሸጡ ሻጮች ማስታወቂያ በገዢዎች በቀላሉ ይታያሉ					
	Online Payment System - Diffusion (ተቀባይነት ማግኘት)					
31	የኢንተርኔት ክፍያን በቀላሉ እቀበለዋለሁ					
32	የአዲስ አበባ ነዋሪዎች የኢንተርኔት ክፍያን ለመጠቀም ከፍተኛ ፍላጎት ይኖራቸዋል					
33	ለወደፊት የሚደረጉ ግዢዎች በአብዛኛው የኢንተርኔት ክፍያን የሚጠቀሙ ይሆናሉ					

Appendix D: Amharic questionnaire: Potential online seller Survey

አዲስ አበባ ዩኒቨርሲቲ — የንግድ ስራ ትምህርት ቤት

<u>በነጋዴ የሚሞላ</u>

ውድ ተሳታፊ,

ይህንን ጥናት እያጠናሁ ያለሁት በገበያ አስተዳደር ለምማረው የሁለተኛ ዲግሪ ማሟያነት ነው። የዚህ መጠይቅ አላማ በአዲስ አበባ ውስጥ የኢንተርኔት ክፍያ ሲጀመር በማህበረሰቡ ውስጥ ተቀባይነትን አግኝቶ እንዲሰርፅ የሚያደርጉ ኩነቶችን ለይቶ ለማውጣት ሲሆን የሚሰጡኝም መረጃ ለትምህርታዊ ጉዳይ ብቻ የሚውል መሆኑን አረጋግጥልዎታለው።

ውድ ጊዜዎን ሰውተው ስለተሳተፉ እጅግ አመሰግናለው። ዮሴፍ መልካ - 0911640997

ክፍል 1 : የመላሽ አጠቃላይ ሁኔታ:

1. የእድሜዎ ክልል

☐ 18 - 25 ☐ 26-35 ☐ 36-45 ☐ 46-55 ☐ > 55

2. ፆታ

☐ ወንድ ☐ ሴት

3. የወር ገቢ (በብር)

☐ <10,000 ☐ 10,001 - 30,000 ☐ 30,001 - 50,000 ☐ 50,001 - 100,000 ☐ >100,000

4. የጋብቻ ሁኔታ

☐ ያላገባ ☐ ያገባ ☐ የፈታ ☐ በሞት የተለየ ☐ ሌላ

ክፍል 2: ልዩ ጥያቄዎች

5. በኢንተርኔት ስለሚደረግ ክፍያ (online/internet payment) ሰምተው ያውቃሉ? ምሳሌ፡ ካሉበት ቦታ ሆነው በኢንተርኔት ድህረገፅ የሚፈልጉትን እቃ ወይም አገልገሎት እዛው ክፍያ ፈፅሞ መግዛት።

☐ አዎ አውቃለው ☐ አይ አላውቅም

ክፍል 3፡ የጥናቱ ዋነኛ ጥያቄዎች

እባክዎ ምርጫዎ ላይ (ã) ምልክት በማድረግ ምላሽ ይስጡ። ከተጠቀሰው ሀሳብ ጋር ያለዎትን መስማማት/አለመስማማት መጠን የሚከተሉትን ቁጥሮች በመመስረት መልስዎን ይምረጡ።

1= በጣም አልስማማም 2= አልስማማም 3= መሀከለኛ 4= እስማማለው 5= በጣም እስማማለው

	Online Payment System - Relative Advantage (አንፃራዊ ጥቅም)	1	2	3	4	5
1	በኢንተርኔት ክፍያ በመጠቀም በማንኛውም ሰዓት ሽያጭ መፈፀም እችላለው					
2	በኢንተርኔት ክፍያ በመጠቀም ከማንኛውም ቦታ ሆኜ ሽያጭ መፈፀም እችላለው					
3	የኢንተርኔት ክፍያ በሕይወቴ ውስጥ ይበልጥ ውጤታማ ያደርገኛል					
4	የኢንተርኔት ክፍያ ሽያጭዎችን በፍጥነት እንድጨርስ ይረዳኛል					
5	የኢንተርኔት ክፍያ ከሌሎች ክፍያዎች ጋር ሲነፃፀር አነስተኛ ወጪ ብቻ ነው ያለው					
6	የኢንተርኔት ክፍያ ተጠቅሞ መሸጥ የኑሮ ደረጃዬ ከፍ ማለቱን ያሳያል					
7	ሱቆች ውስጥ ከመሸጥ በኢንተርኔት ክፍያ መሸጥ ጊዜን ይቆጥባል					
8	በኢንተርኔት ክፍያ መሸጥ የሽያጭ ሂደትን በፍጥነት ለመጨረስ ያስችላል					
9	በኢንተርኔት ክፍያ መሸጥ የሽያጭ ሂደትን በቀላሉ ለመጨረስ ያስችላል					
10	የኢንተርኔት ክፍያን በመጠቀሜ ምክንያት እርካታን አገኛለሁ					
11	የኢንተርኔት ክፍያን ብጠቀም ለሽያጭ የጊዜ ገደብ አይኖርብኝም					
	Online Payment System – Compatibility (አብሮ መሄድ)					
12	የኢንተርኔት ክፍያን ብጠቀም እስካሁን ካለኝ የሽያጭ ሂደት ጋር አይቃረንም					
13	የኢንተርኔት ክፍያ ብጠቀም ከማህበራዊ እሴቶቼ (social values) ጋር አይቃረንም					
14	የኢንተርኔት ክፍያ ብጠቀም ከግላዊ እሴቶቼ (personal values) ጋር አይቃረንም					
15	የኢንተርኔት ክፍያ ብጠቀም ከእለት እለት ውሎዬ ጋር ይስማማል					
16	የኢንተርኔት ክፍያ ብጠቀም ከቤተሰቤ የኑሮ ፍላጎት ጋር ይስማማል					
17	የኢንተርኔት ክፍያ ከሀይማኖታዊ እሴቶቼ (religious values) ጋር አይቃረንም					
18	የኢንተርኔት ክፍያ ብጠቀም ከባህላዊ እሴቶቼ (cultural values) ጋር አይቃረንም					
19	የኢንተርኔት ክፍያ ሽያጭዎችን ማስተዳደር ከምፈልግበት ሁኔታ ጋር ይስማማል					
	Online Payment System - Simplicity (ቀለት)					
20	የኢንተርኔት ክፍያ ለመጠቀም ቀላል የሆነ ቴክኖሎጂ ነው					
21	የኢንተርኔት ክፍያ ለመረዳት የማያስቸግር ቴክኖሎጂ ነው					
22	የኢንተርኔት ክፍያ ጥቂት የአይምሮ ጥረት ብቻ ነው የሚፈልገው					
23	ለኔ የኢንተርኔት አከፋፈልን መልመድ ቀላል ነው					
	Online Payment System - Trialability (መሞከር መቻል)					
24	የኢንተርኔት ክፍያ በቀላል የሙከራ አማራጭ ቢኖር ተጠቃሚ መሆኔን ያፋጥነዋል					
25	የኢንተርኔት ክፍያ አማራጮችን ለመሞከር ብዙ አጋጣሚዎች አሉኝ					
26	በርካሽ እቃዎች መሞከር ብችል የኢንተርኔት ክፍያ የመጠቀም ውሳኔዬ ይፈጥናል					
	Online Payment System - Observability (መታየት መቻል)					
27	የኢንተርኔት ክፍያን የመጠቀም ውጤቶች በሌሎች በቀላሉ ሊታዩ ይችላሉ					
28	ስለኢንተርኔት ክፍያ ለሌሎች ለማሳወቅ ፍላጎት አለኝ					
29	የማህበራዊ ሚዲያ ስለኢንተርኔት ክፍያ እንደ ምስክር ያገለግላል					
30	በኢንተርኔት ክፍያ የሚሸጡ ሻጮች ማስታወቂያ በሌሎች ሻጮች በቀላሉ ይታያሉ					
	Online Payment System - Diffusion (ተቀባይነት ማግኘት)					
31	የኢንተርኔት ክፍያን በቀላሉ እቀበለዋለሁ					
32	የአዲስ አበባ ነዋሪዎች የኢንተርኔት ክፍያን ለመጠቀም ከፍተኛ ፍላጎት ይኖራቸዋል					
33	ለወደፊት የሚደረጉ ሽያጮች በአብዛኛው የኢንተርኔት ክፍያን የሚጠቀሙ ይሆናሉ					

Appendix E: Statistical Outputs of SPSS

E.1 Skewness of specific variables (SPSS output): Potential online buyer Survey

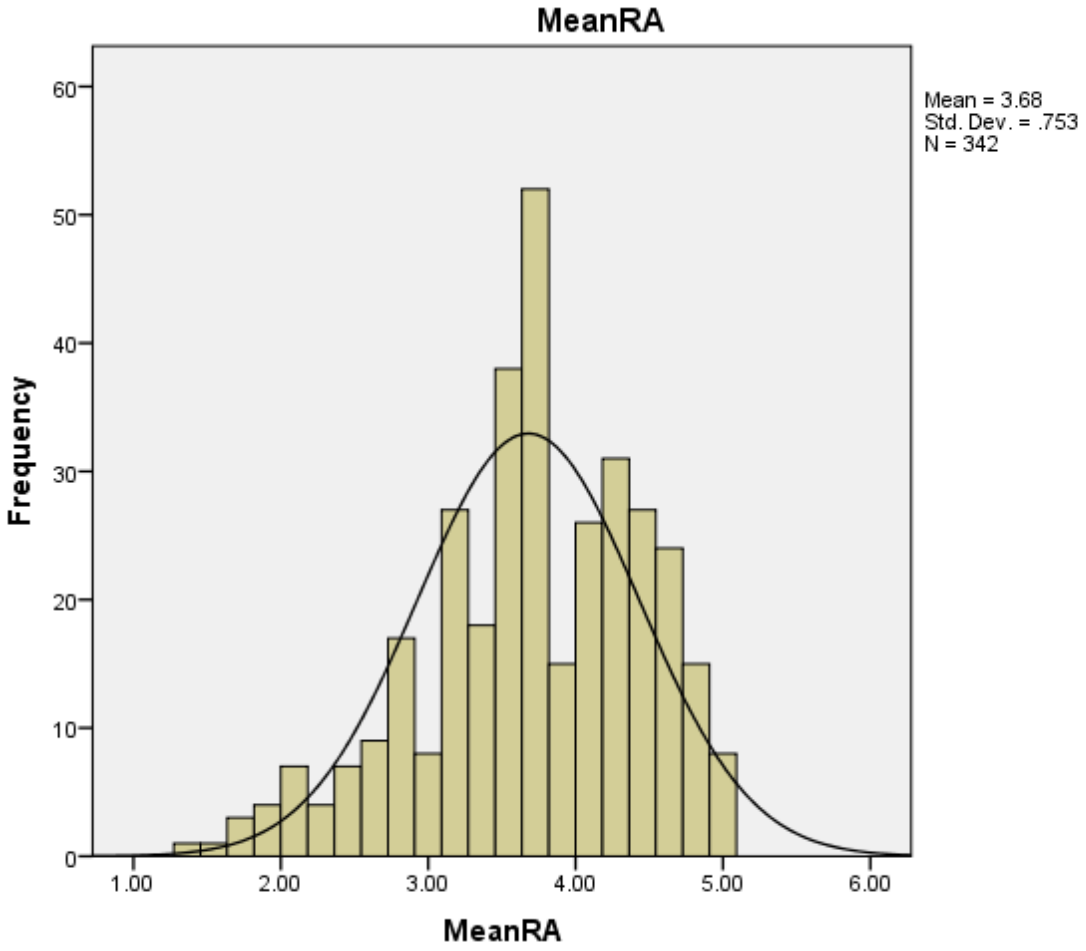


Figure 4. Skewness Graph ï Buyer Survey

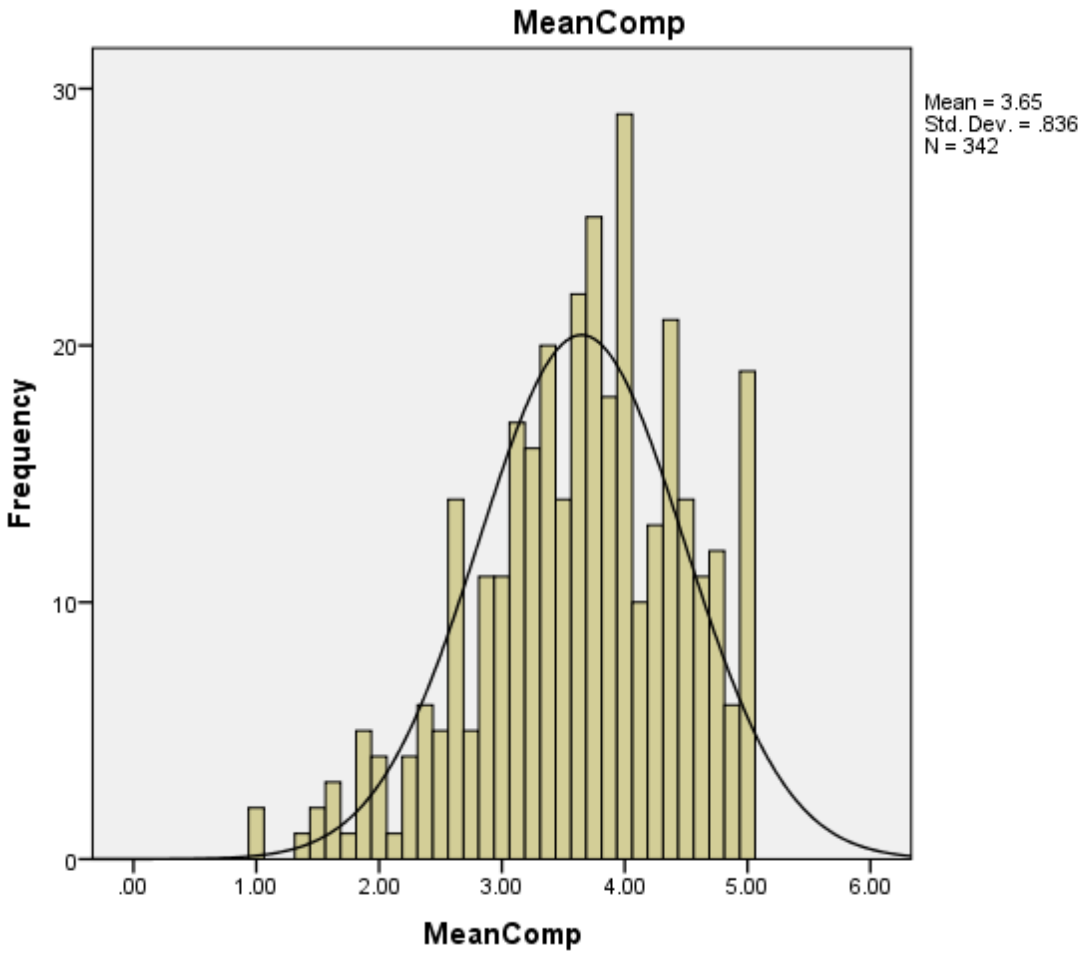


Figure 5. Skewness Graph ï Buyer Survey

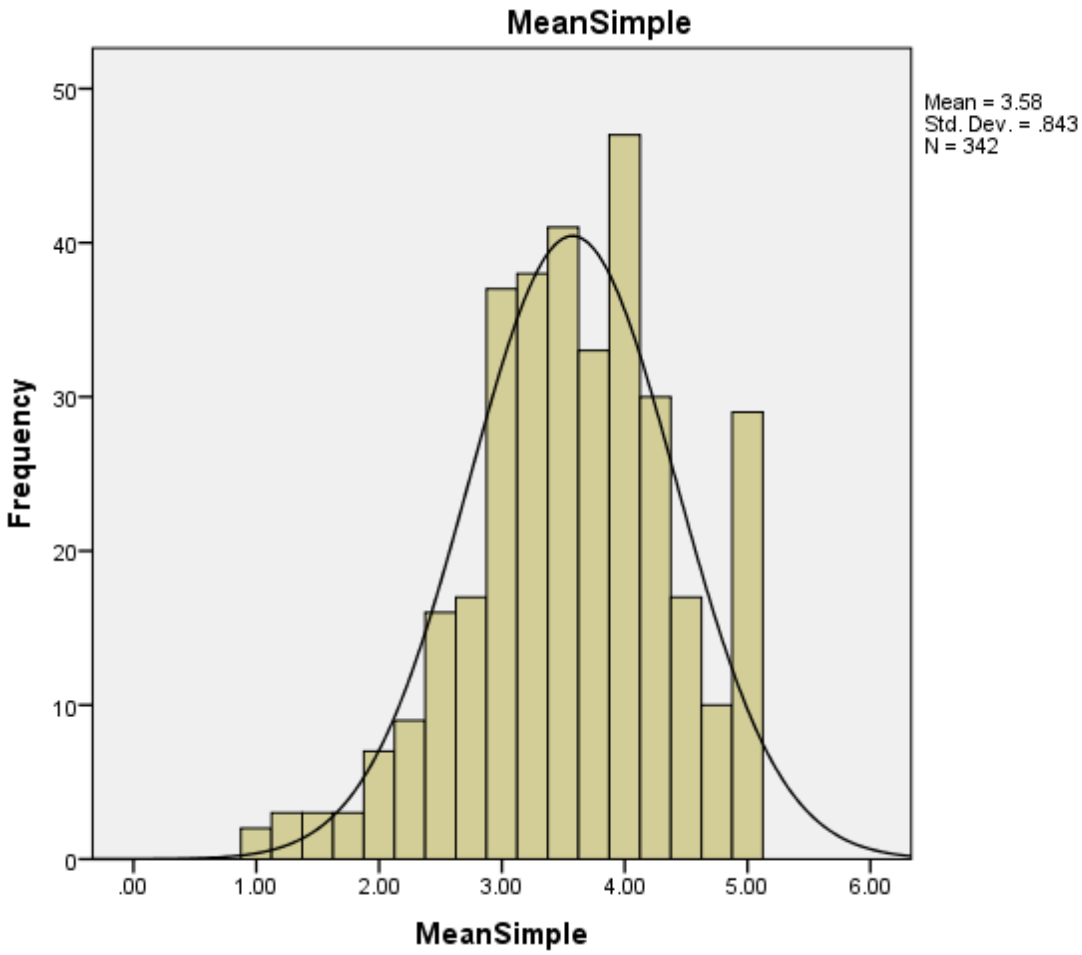


Figure 6. Skewness Graph ï Buyer Survey

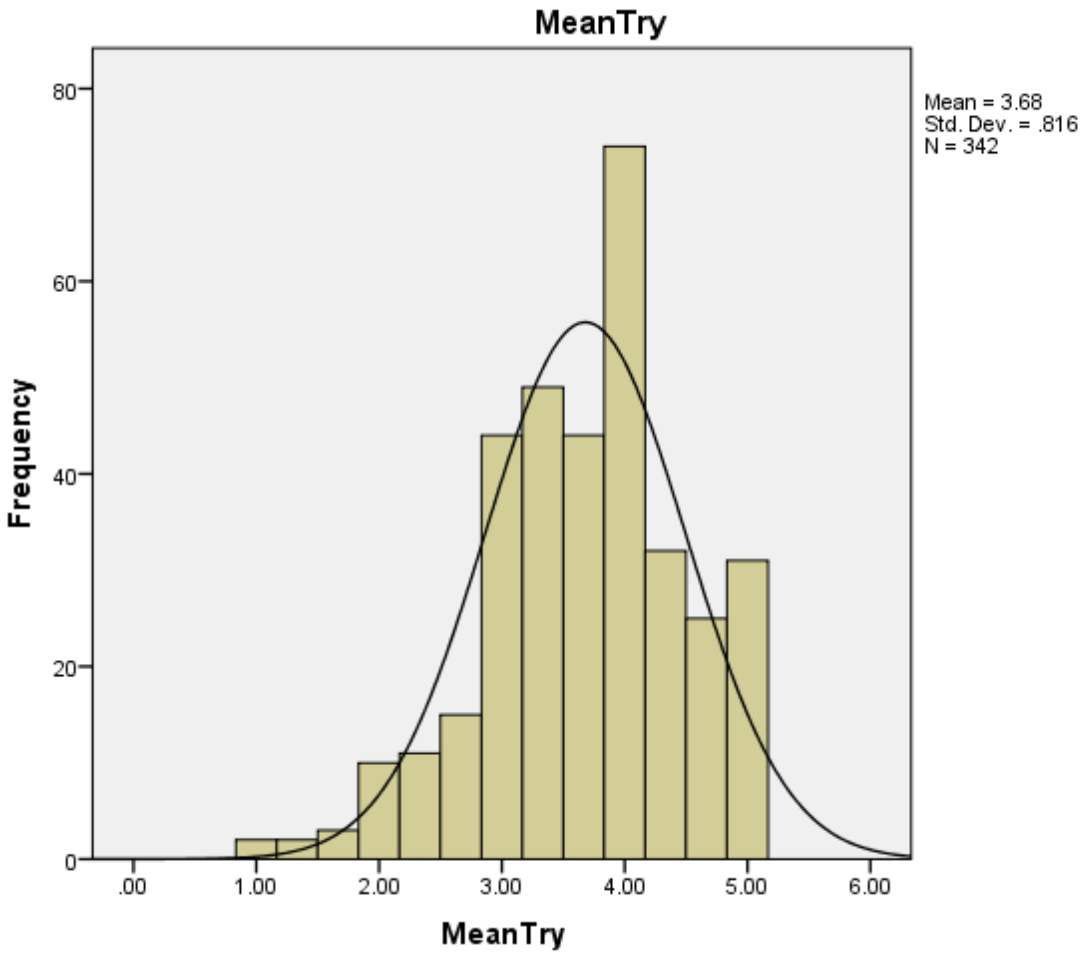


Figure 7. Skewness Graph ï Buyer Survey

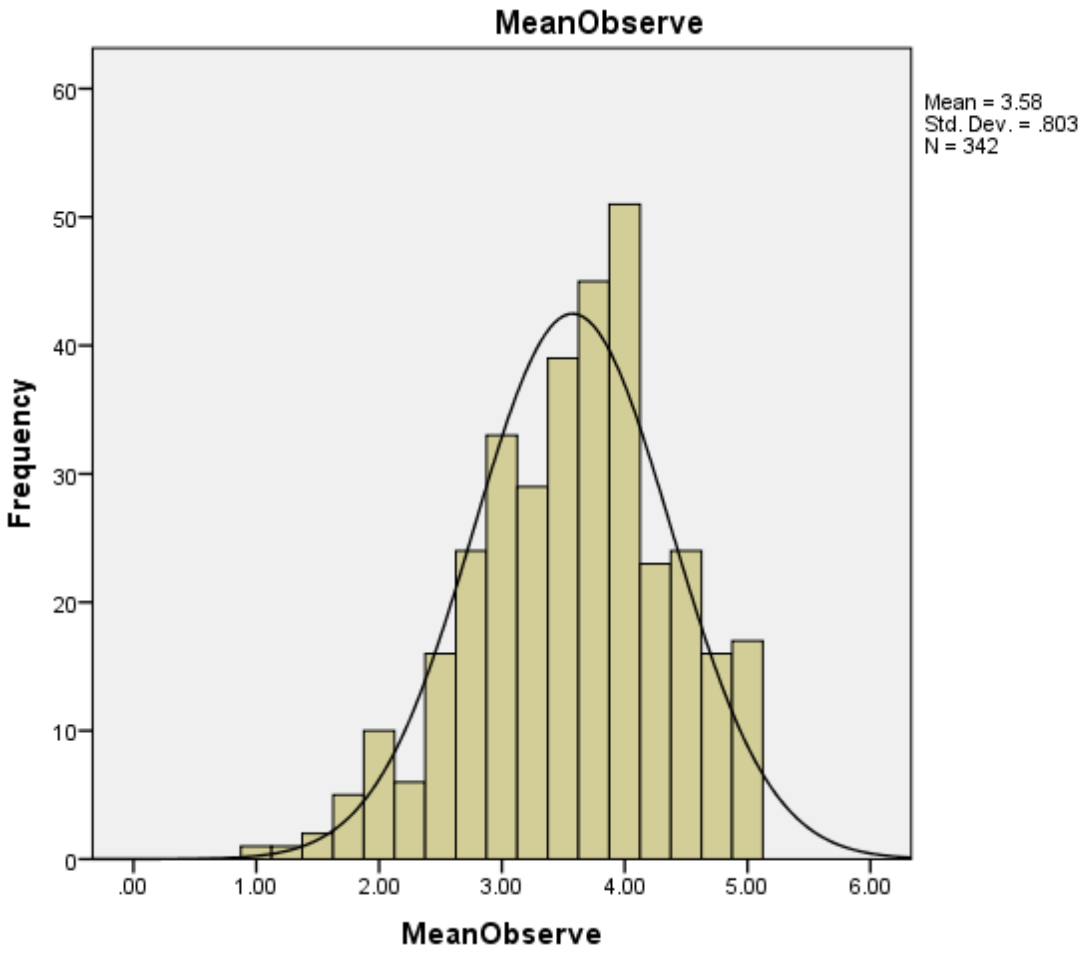


Figure 8. Skewness Graph ï Buyer Survey

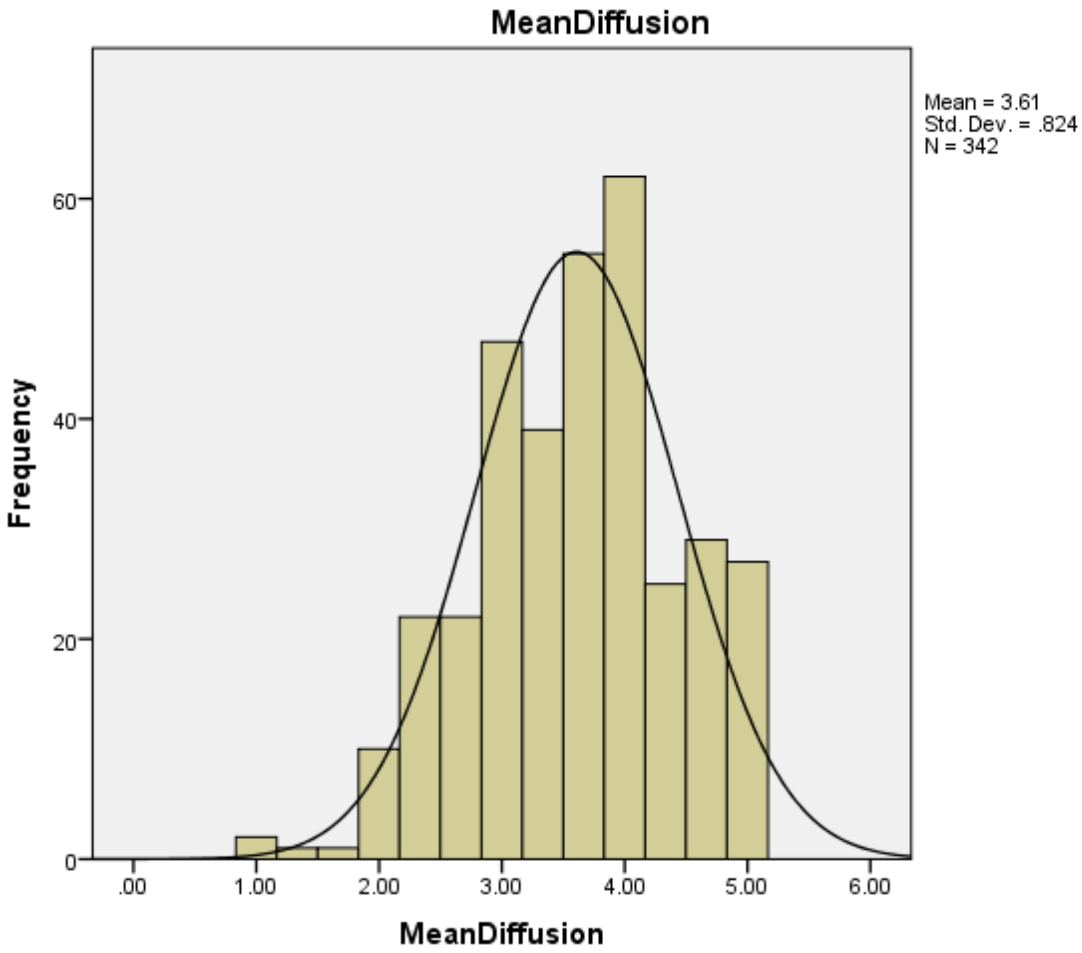
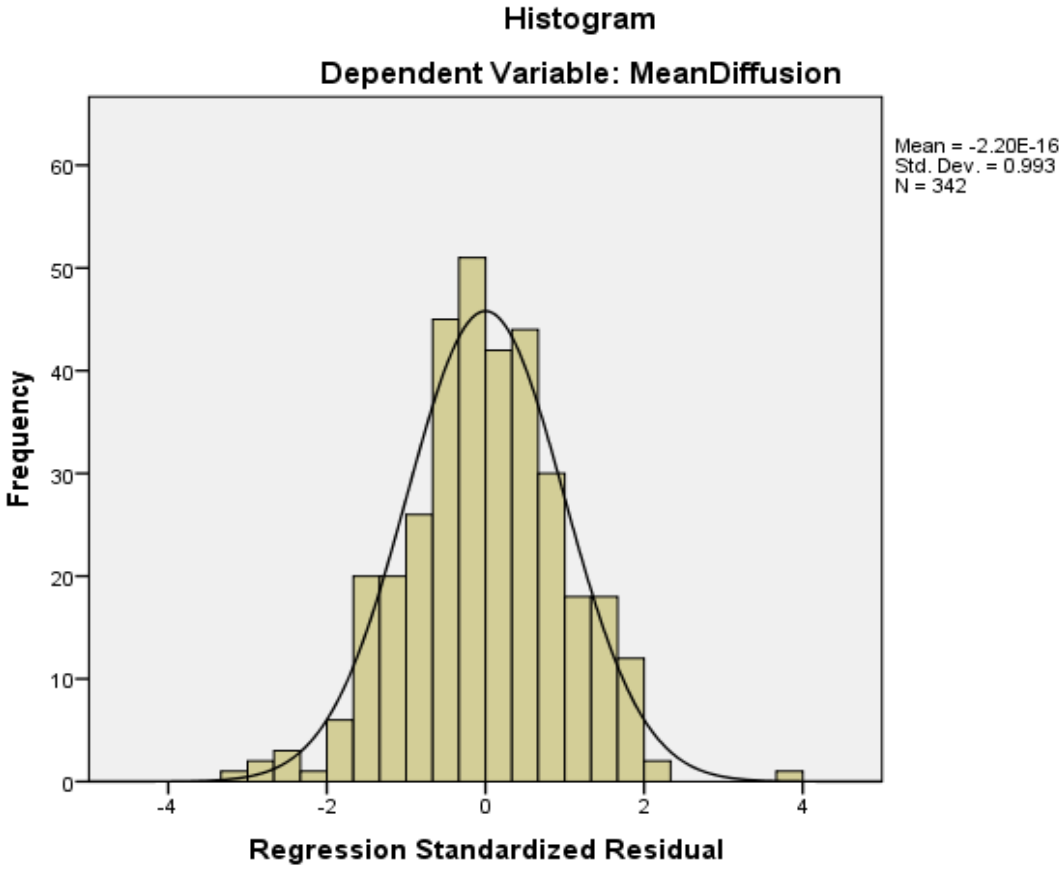


Figure 9. Skewness Graph ï Buyer Survey

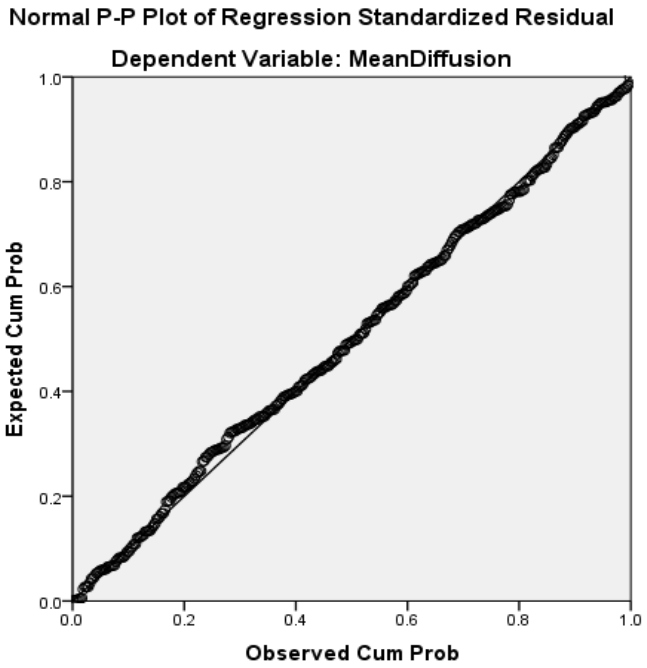
E.2 Histogram and Nomal P-P Plot – Potential online buyer Survey

Figure 10: Histogram showing normality, Potential online buyer Stat



(Source: Researcher's survey, 2017)

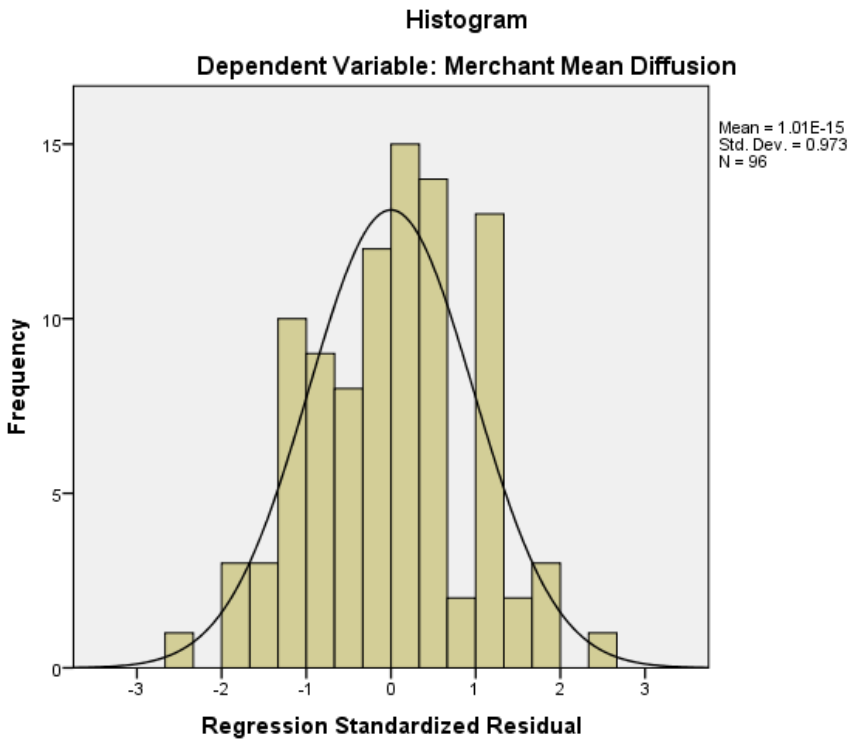
Figure 11: P-P plot showing normality, Potential online buyer Stat



(Source: Researcher's survey, 2017)

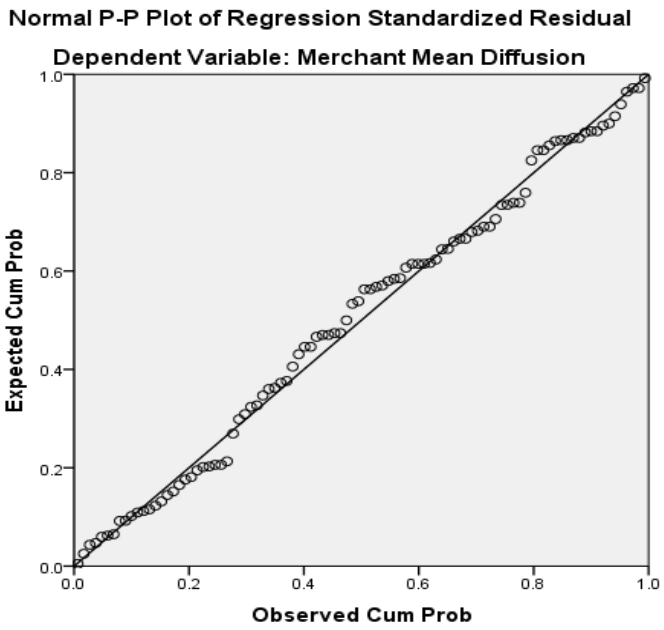
E.3 Histogram and Nomal P-P Plot – Potential online seller Survey

Figure 12: Histogram showing normality, Potential online seller Stat



(Source: Researcher's survey, 2017)

Figure 13: P-P plot showing normality, potential online seller stat,



(Source: Researcher's survey, 2017)

Appendix E: Demonstration: ~~Let's go~~ Let's surf shopping from Amazon.

In this part we will look at how we can buy from Amazon with internet by making payment online. For this case, let us buy a Marketing Research book. Please watch the steps illustrated.

Step 1: We type Amazon.com on the address bar of our browser and open the page.

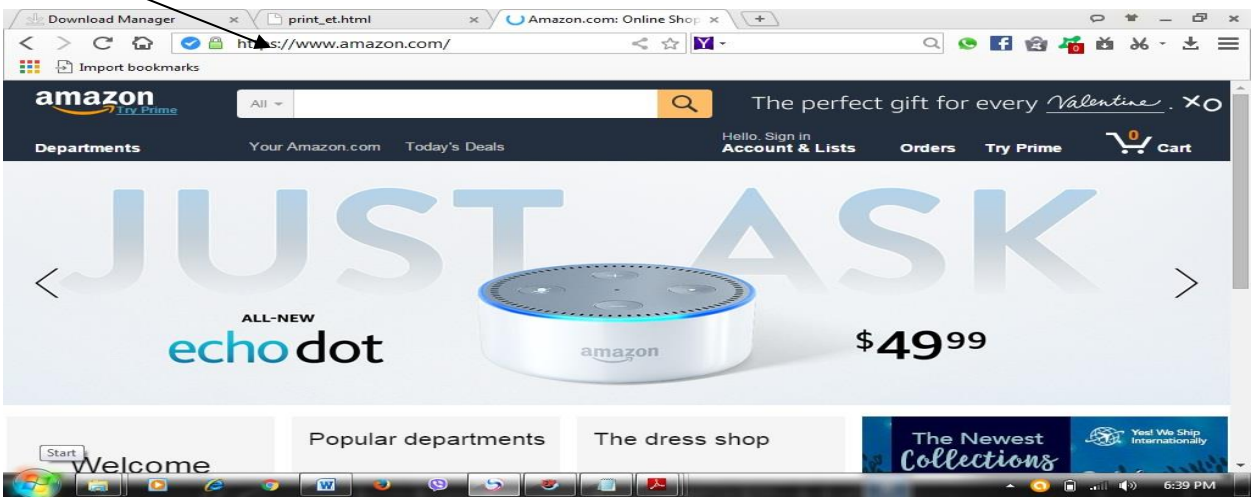


Figure 14: Online payment illustration: Amazon home page.

Step 2: Let us type ñMarketing Researchò in the searching text box of Amazonôs web page and press search.

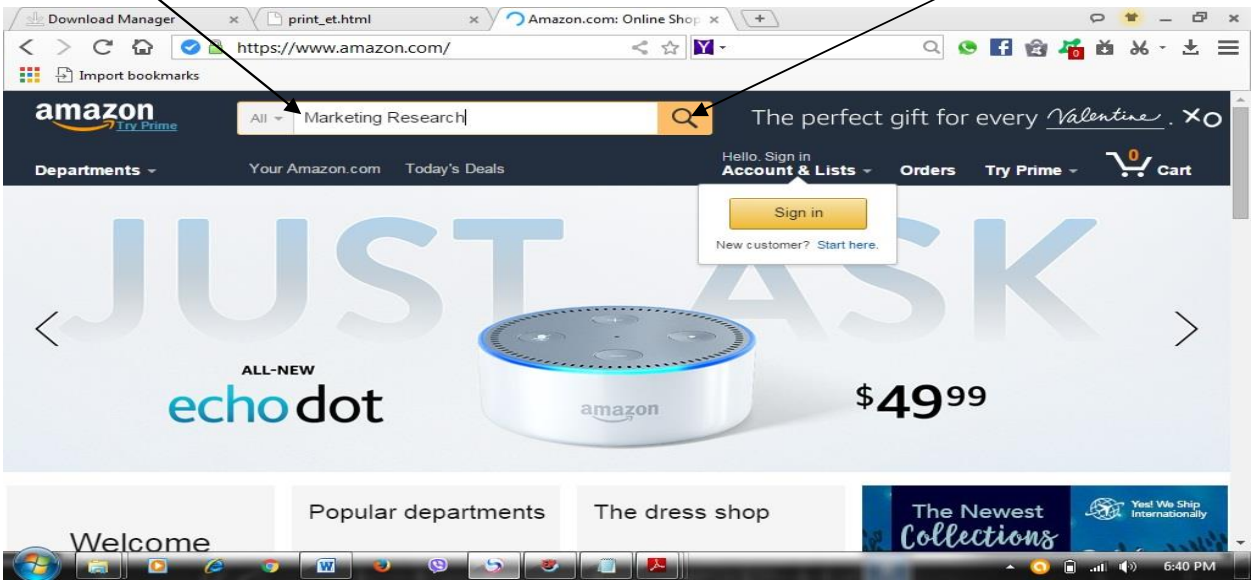


Figure 15: Online payment illustration: Searching the item.

Step 3: Then the page will reload with results related to the search term we entered at step 2 above. See the Marketing Research books that are populated in the picture below. Let us choose the second one by clicking on it.

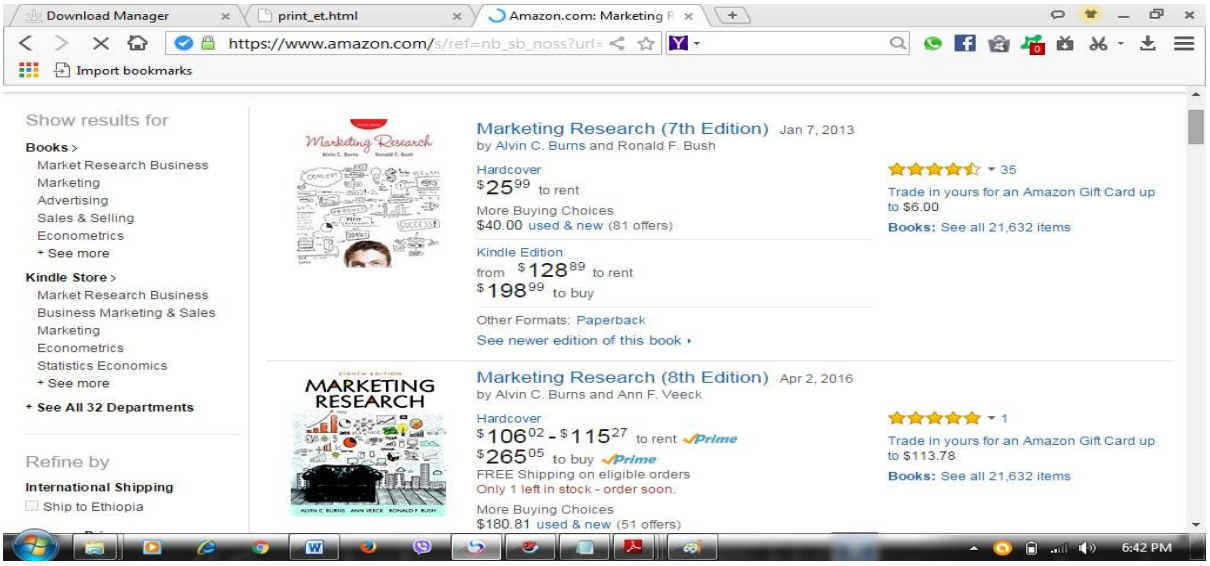


Figure 16: Online payment illustration: Choose from alternatives.

Step 4: The choice made above will bring the chosen book with its details and choices such as rent, buy used, buy new, add to cart, etc. Why donôt we choose the Buy new for a price of 265.05 USD? After all, we cannot pay online from Ethiopia. Then we click on add to cart to include it in our purchase list.

Figure 17: Online payment illustration: Add to cart.

Step 5: The page then loads with the cart containing our choice and it also asks us if we want to add more. For example, consider the Advertising Promotion book. When we put the mouse icon on it, it brings the Add to Cart option. For now, let us proceed with the marketing research book. To do this, we choose the Proceed to checkout.

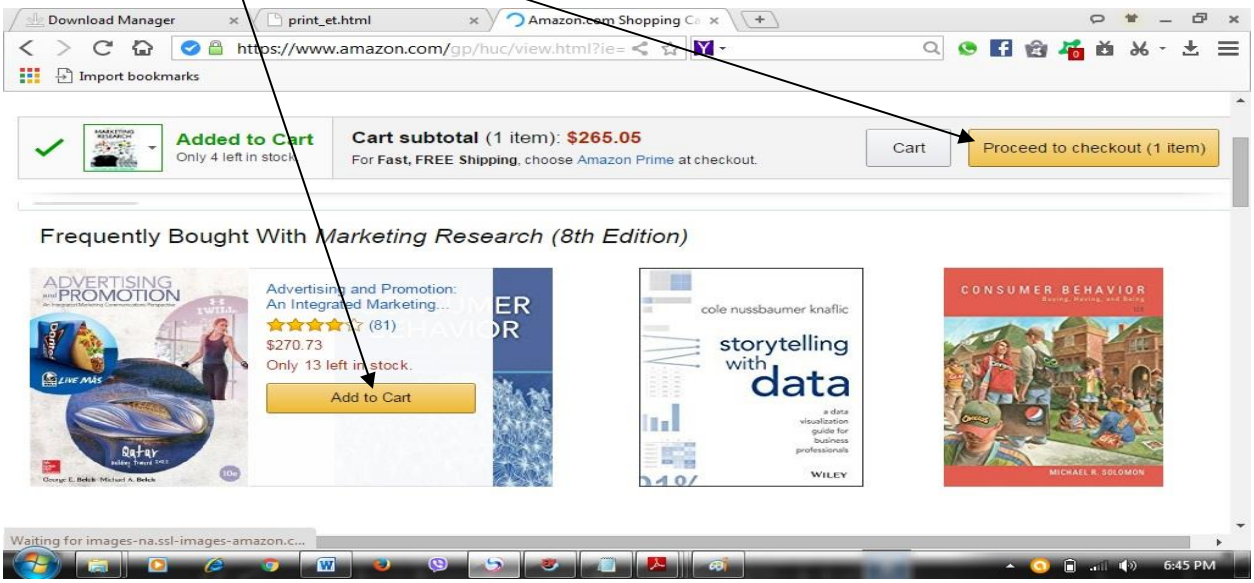


Figure 18: Online payment illustration: Proceed to payment.

Step 6: Now the page asks for the buyerôs details so that it can deliver the book to the address that we provide and for future transaction history. We fill up everything. Since the full form is not visible here, the illustration will resume on the next picture.

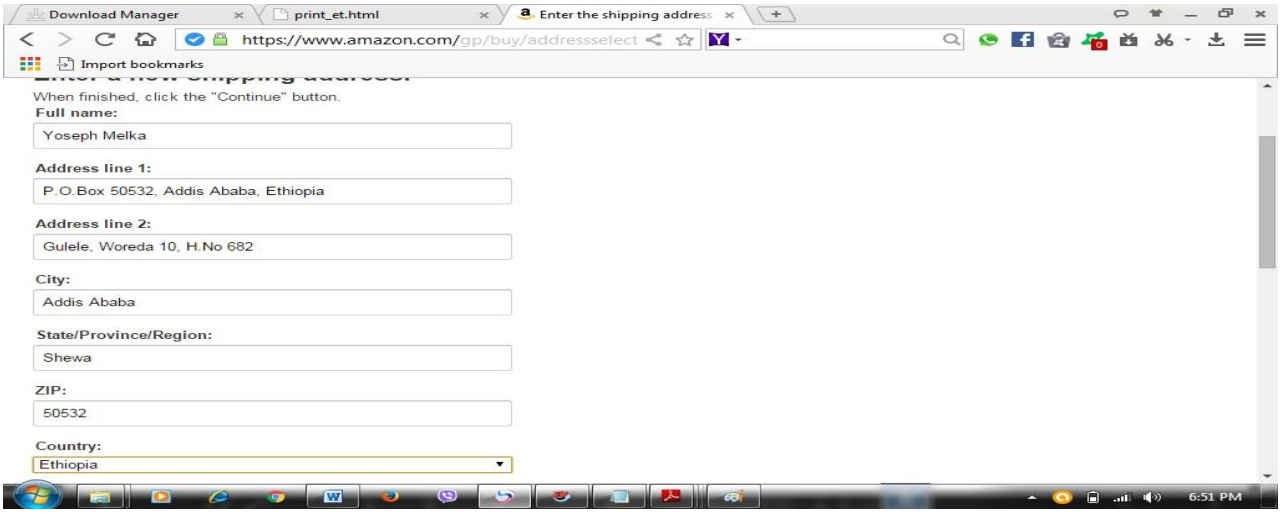


Figure 19: Online payment illustration: Fill buyer details.

Step 7: Continued from the previous step. Now we choose continue after we complete every detail.

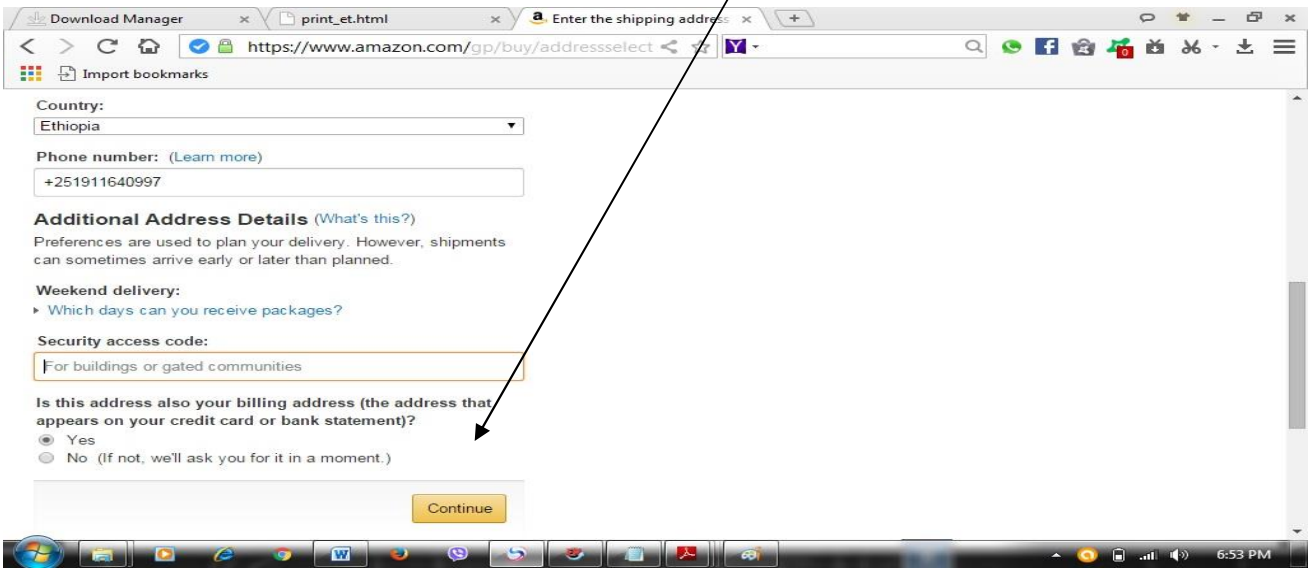


Figure 20: Online payment illustration: Fill remaining detail and continue.

Step 8: The page revises the destination to which the shipment is to be made. This is the address we had provided in the previous steps. We also choose from delivery options and the Standard one says we can receive our products within 18-32 business days.

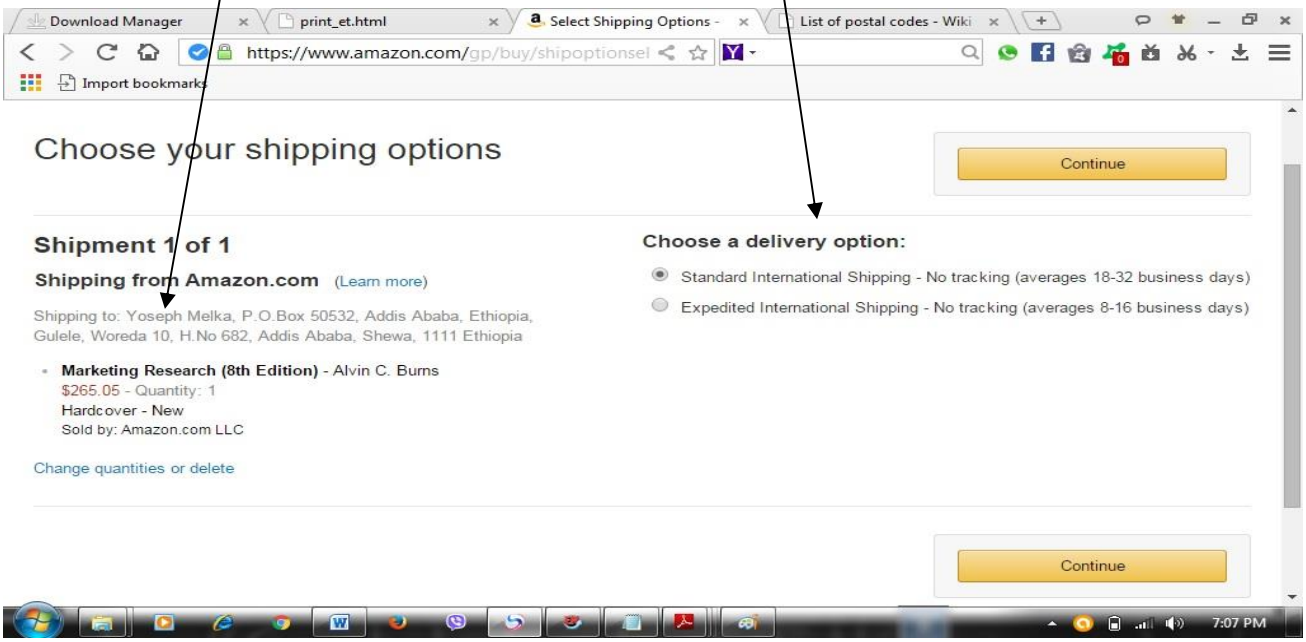


Figure 21: Online payment illustration: Delivery option &continue.

Step 9: Here we are asked to add a payment method. Since online payment method is not provided by any of Ethiopiaôs local banks, we cannot proceed. Only people who have accounts abroad and subscribed for the service there can proceed from this step.

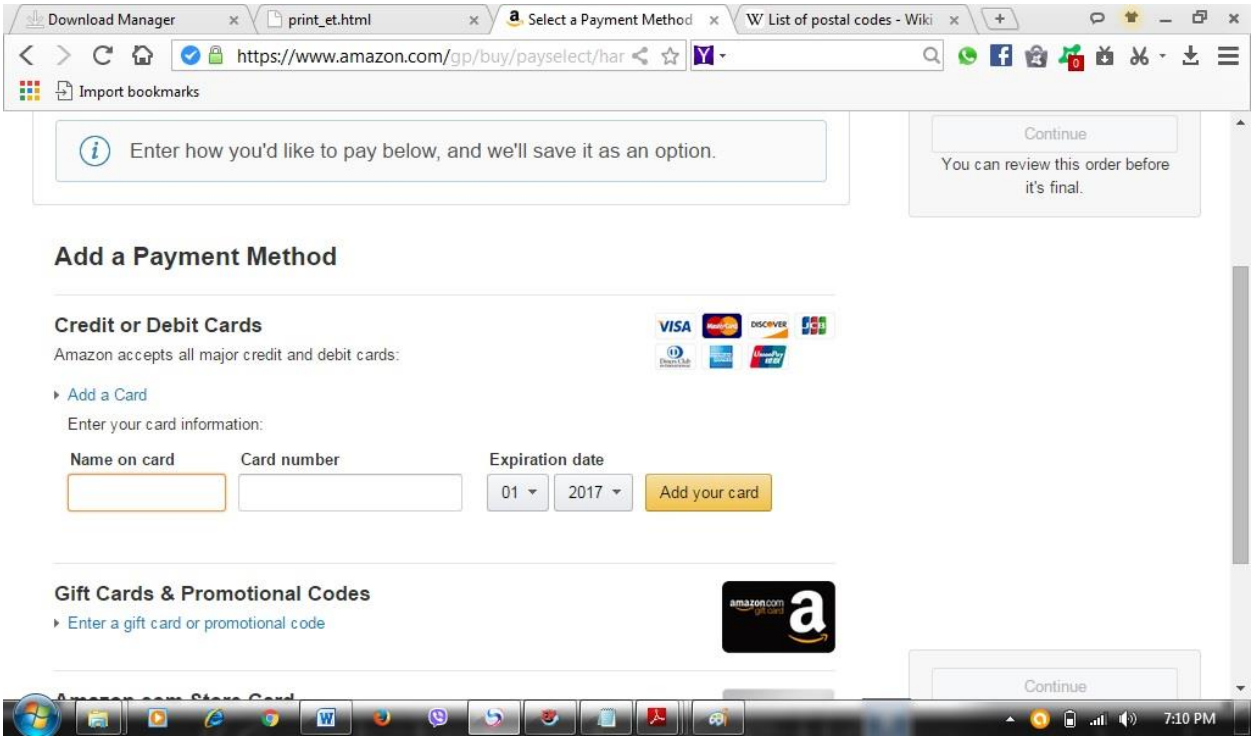


Figure 22: Online payment illustration: Enter payment choice & details.

From the above nine step demonstration, we can understand that we can buy any good or service which is available online. We can do this at the convenience of our home, office, a hotel, in a bus or while we are enjoying on a trip at one of the resorts outside Addis Ababa. All we need is an internet connection which can even be on our phone and an online payment method.

As simple as this, one can buy or sell online. We could have even compared prices on several sites such as eBay, Alibaba etc. so that we can get a better price and product choice.

Appendix F: Demographic Profile Detail

Profile of the respondents is presented in tables and graphs that were outputs of SPSS computation. Description is given with respect to every item in consideration.

Age tables and graphs

1. Potential online buyers

The first two age groups ï 18-25 (43.9%) and 26-35 (40.6%) together make up 84.5% of the total population. 36-45 are 11.7% and the rest 3.8% is those between 46-55 age group. With the age of >55 years, no respondent was found. For this reason, SPSS didnôt include this age group either in the table or in the graph.

Table 18: Buyer Respondents Age

Respondent Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	150	43.9	43.9	43.9
	26-35	139	40.6	40.6	84.5
	36-45	40	11.7	11.7	96.2
	46-55	13	3.8	3.8	100.0
	Total	342	100.0	100.0	

(Source: Researcher's survey, 2017)

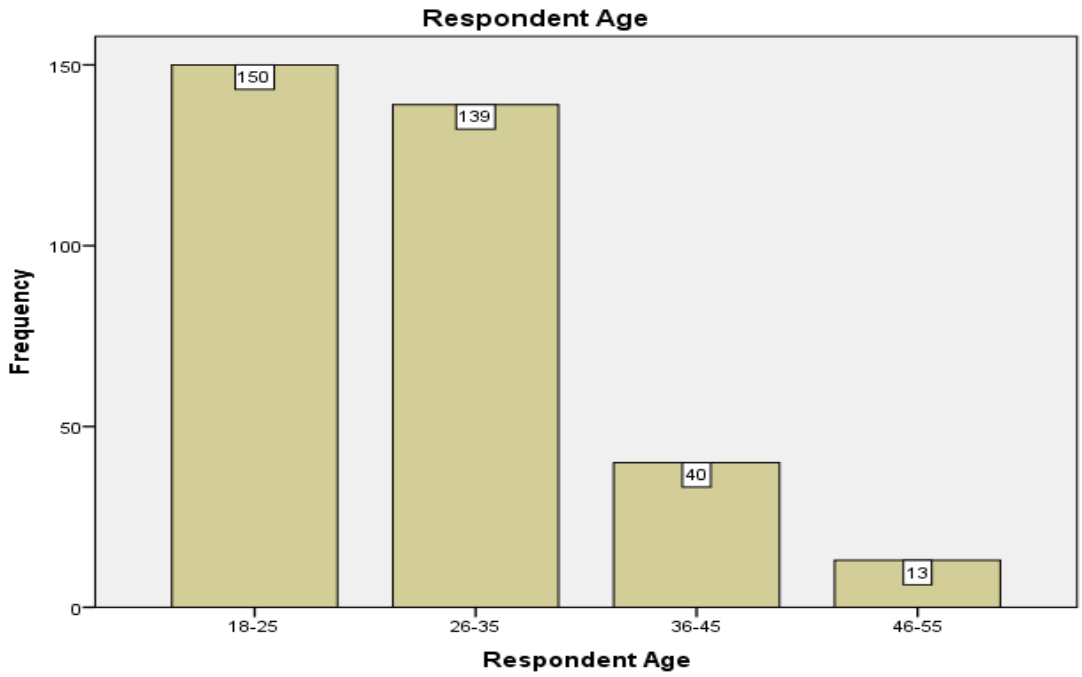


Figure 23: Chart for buyer age frequency

(Source: Researcher's survey, 2017)

2. Potential online sellers

For the potential online sellers study, the highest percentage falls in the age group 26-35 (53.1% of the whole). The next highest is the group 36-45 (21.9%) followed by the group 18-25 (15.6%) and finally the age group 46-55 which is only 9.4%. As it is with the case of the buyers, there is no one who chose the age >55 years old though in both cases there were people who look like older than 55 years of age.

Table 19: Potential online seller Respondents Age

Respondent Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	15	15.6	15.6	15.6
	26-35	51	53.1	53.1	68.8
	36-45	21	21.9	21.9	90.6
	46-55	9	9.4	9.4	100.0
	Total	96	100.0	100.0	

(Source: Researcher's survey, 2017)

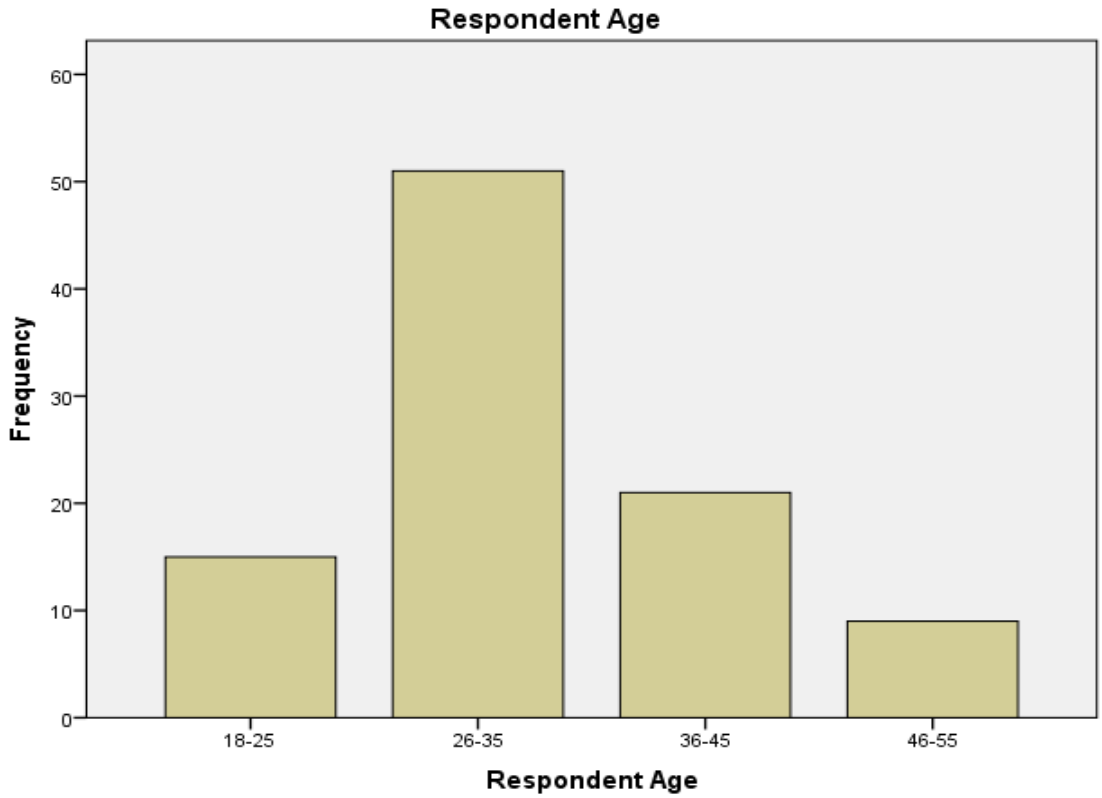


Figure 24: Chart for potential online seller age frequency

(Source: Researcher's survey, 2017)

Gender tables and graphs

1. Potential online buyers

Out of the respondents, 35.1% are female and the rest 64.9% are male outnumbering the female by 102 in frequency and with a ratio of 1.85 male to a female (222/120 = 1.85). The pie chart below the graph makes this ratio more visually clear.

Table 20: Potential online buyer respondents gender

Respondent Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	222	64.9	64.9	64.9
	Female	120	35.1	35.1	100.0
	Total	342	100.0	100.0	

(Source: Researcher's survey, 2017)

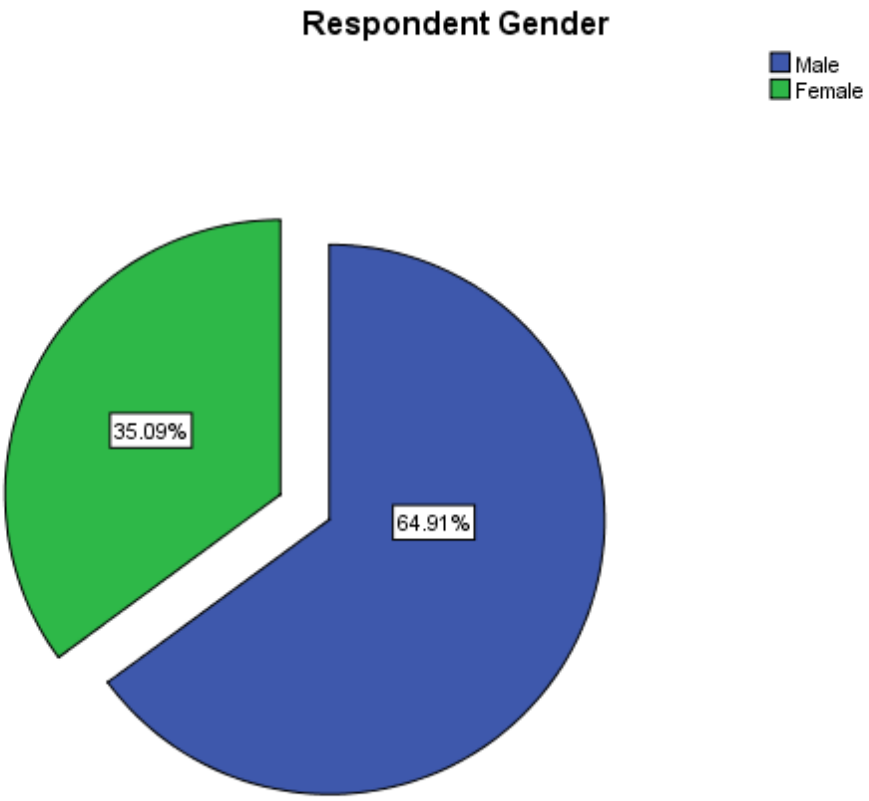


Figure 25: Chart for potential online buyer gender frequency

(Source: Researcher's survey, 2017)

2. Potential online sellers

In this group, there were 53.1% male and 46.9% female. The male to female ratio for the potential online sellers is almost 1:1. This similarity can also be seen in the pie chart.

Table 21: Potential online seller respondents gender

Respondent Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	51	53.1	53.1	53.1
	Female	45	46.9	46.9	100.0
	Total	96	100.0	100.0	

(Source: Researcher's survey, 2017)

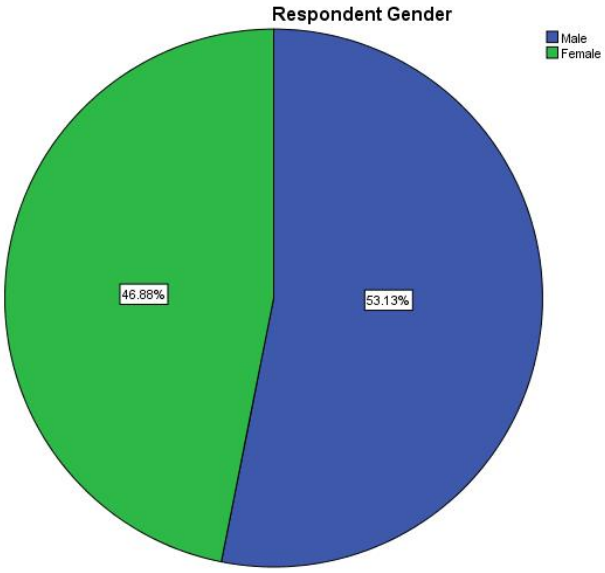


Figure 26: Chart for potential online seller gender frequency

(Source: Researcher's survey, 2017)

Occupational Status table and graph

Since the potential online seller is already a seller there is no need to check occupation. Thus, this part is omitted from the instrument of the potential online sellers. Therefore, this part is only for the potential online buyers.

Out of the 342, government employees lead the frequency with a number of 147 followed by students which are 105. Private employed are 57, almost 1/3 of government employees. Self employed are only 28 which account for only 8.2% of the total population. The rest 5 respondents chose other.

Table 22: Potential online buyer respondents' occupation

Respondent Occupational Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Student	105	30.7	30.7	30.7
	Private Employed	57	16.7	16.7	47.4
	Self Employed	28	8.2	8.2	55.6
	Government Employed	147	43.0	43.0	98.5
	Other	5	1.5	1.5	100.0
	Total	342	100.0	100.0	

(Source: Researcher's survey, 2017)

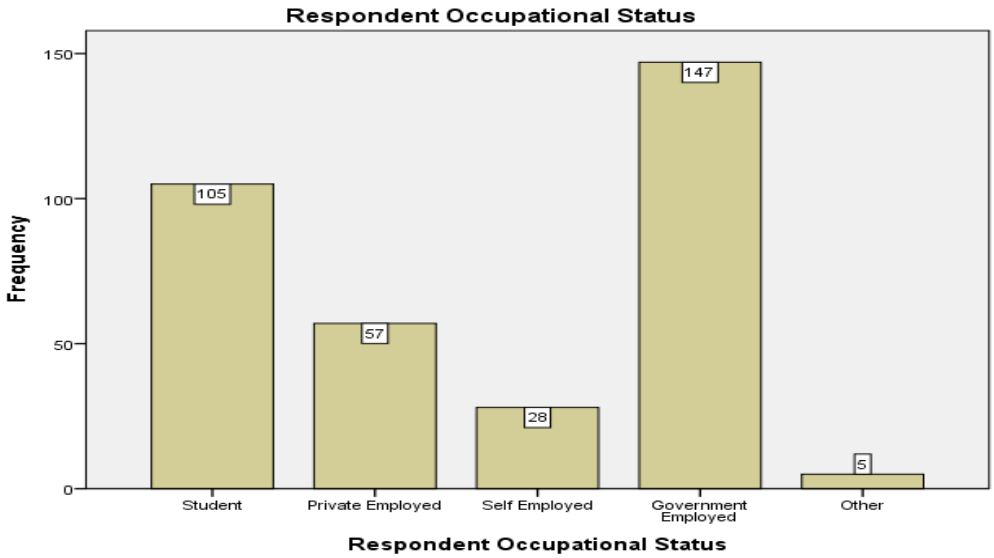


Figure 27: Chart for potential online buyer occupation frequency

(Source: Researcher's survey, 2017)

Monthly Income tables and graphs

1. Potential online buyers

Income of potential online buyer respondents is as follows. Only 3 respondents get >50,000 birr a month, 28 get between 10,001 through 50,000, 116 is the highest frequency for 5,001-10,000 birr a month income range, 91 is the third highest frequency for the income range of 2,001-5,000 birr and for the remaining <2,000 birr income a month, 104 respondents have chosen it making it the second most frequent income range.

Table 23: Potential online buyer respondents' monthly income

Monthly Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<2000	104	30.4	30.4	30.4
	2001-5000	91	26.6	26.6	57.0
	5001-10000	116	33.9	33.9	90.9
	10001-50000	28	8.2	8.2	99.1
	>50000	3	.9	.9	100.0
	Total	342	100.0	100.0	

(Source: Researcher's survey, 2017)

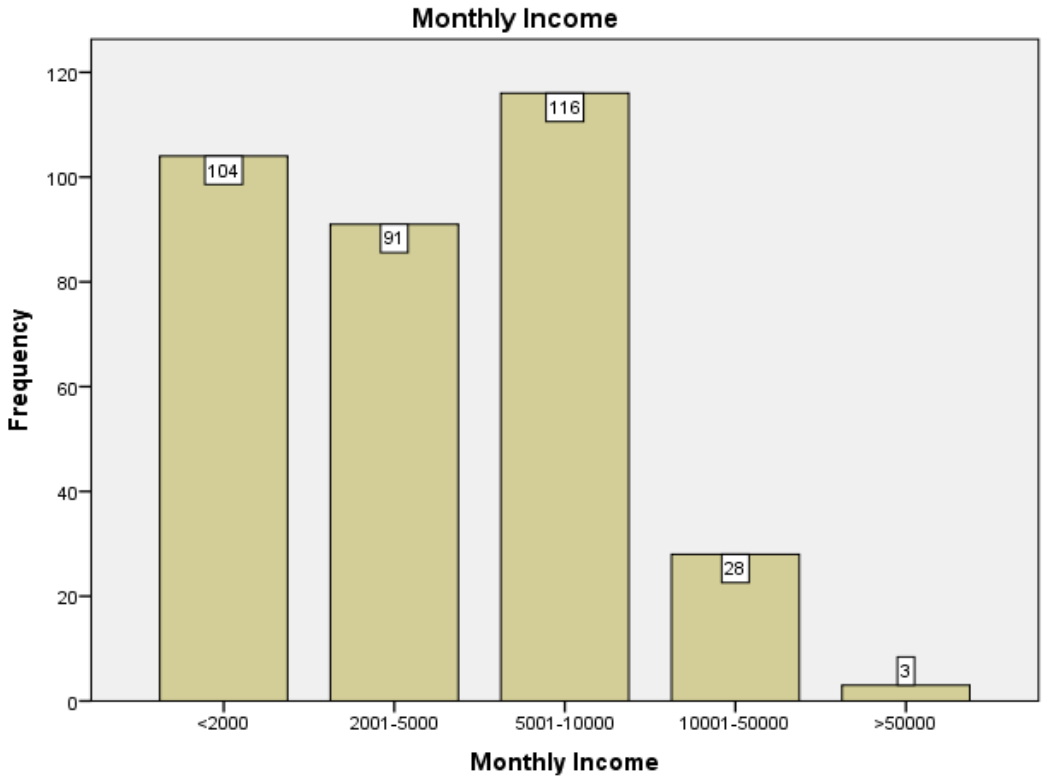


Figure 28: Chart for potential online buyer income range frequency

(Source: Researcher's survey, 2017)

2. Potential online sellers

Income of potential online seller respondents in birr is as follows. 30,001-50,000 monthly earners are 31.3%, 10001-30000 earners are 25%, <10000 earners are 20.8%, 50001-100,000 earners are only 4.2%.

Table 24: Potential online sellers' Monthly Income

Monthly Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<10000	20	20.8	20.8	20.8
	10001-30000	25	26.0	26.0	46.9
	30001-50000	30	31.3	31.3	78.1
	50001-100000	17	17.7	17.7	95.8
	>100000	4	4.2	4.2	100.0
	Total	96	100.0	100.0	

(Source: Researcher's survey, 2017)

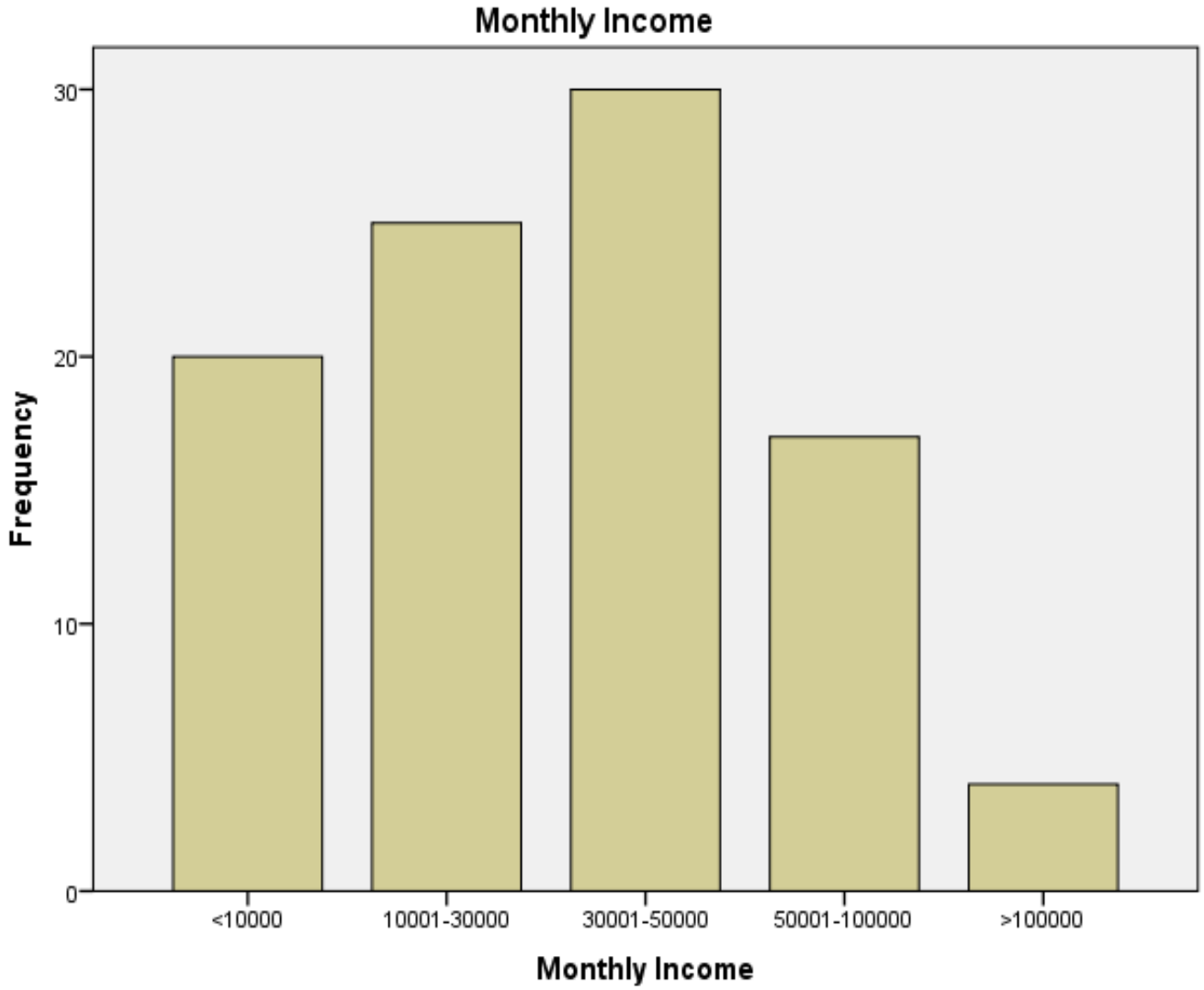


Figure 29: Chart for potential online seller income range frequency

(Source: Researcher's survey, 2017)

Marital Status tables and graphs

1. Potential online buyers

69% of the respondents are single with a number of 236. 101 respondents (below half of the single) are married. These two groups together make up 98.5% of the whole respondents. The rest are 1 divorced, 2 widowed and 2 in the other category.

Table 25: Potential online buyers marital status

Respondent Marital Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	236	69.0	69.0	69.0
	Married	101	29.5	29.5	98.5
	Divorced	1	.3	.3	98.8
	Widowed	2	.6	.6	99.4
	Other	2	.6	.6	100.0
	Total	342	100.0	100.0	

(Source: Researcher's survey, 2017)

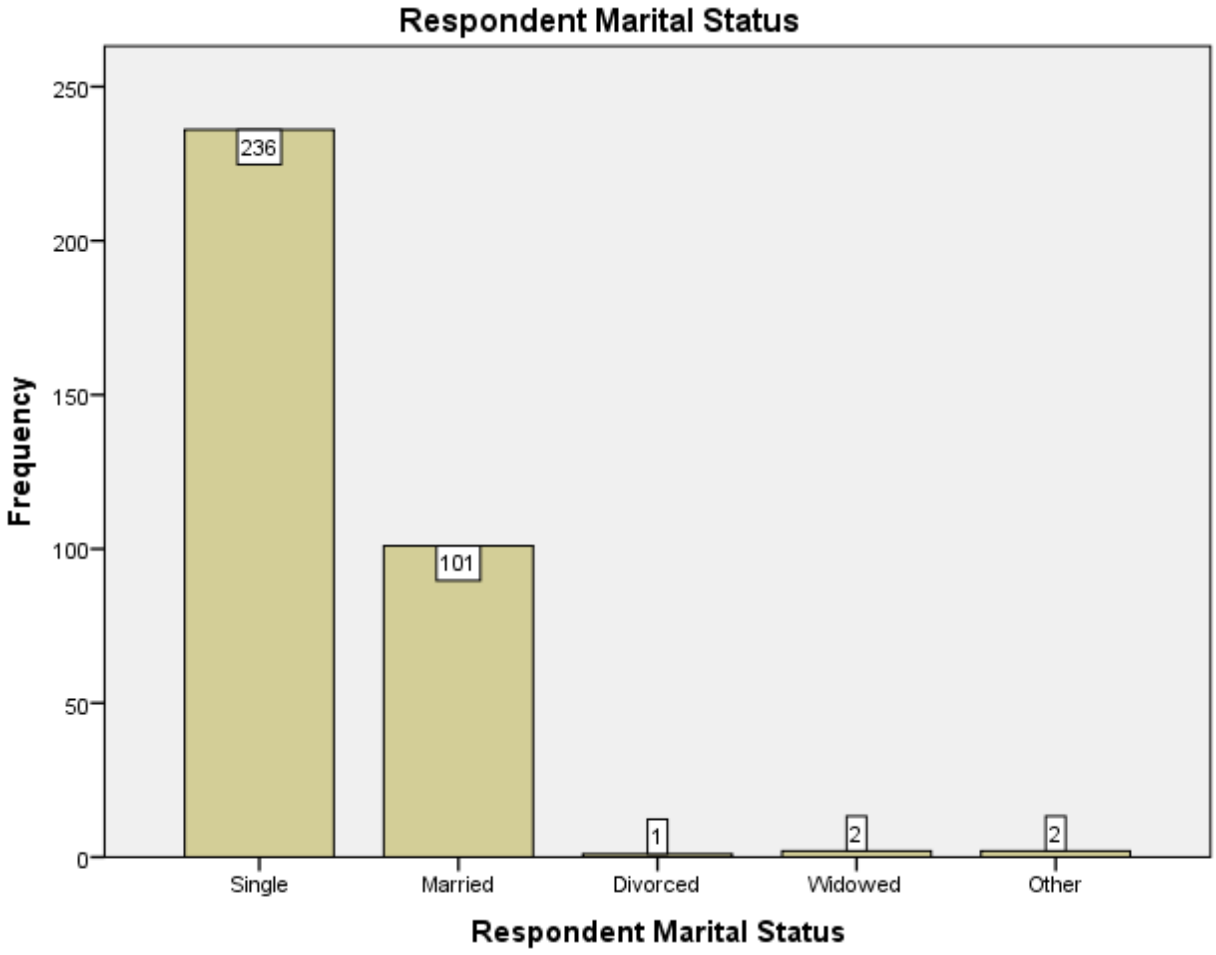


Figure 30: Chart for potential online buyer marital status frequency

(Source: Researcher's survey, 2017)

1. Potential online sellers

The online selling respondents, with regard to marital status, are composed of only single and married with respective percentages of 62.5% and 37.5%. This can be seen in the next table and graph.

Table 26: Potential online sellers Marital Status

Respondent Marital Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	60	62.5	62.5	62.5
	Married	36	37.5	37.5	100.0
	Total	96	100.0	100.0	

(Source: Researcher's survey, 2017)

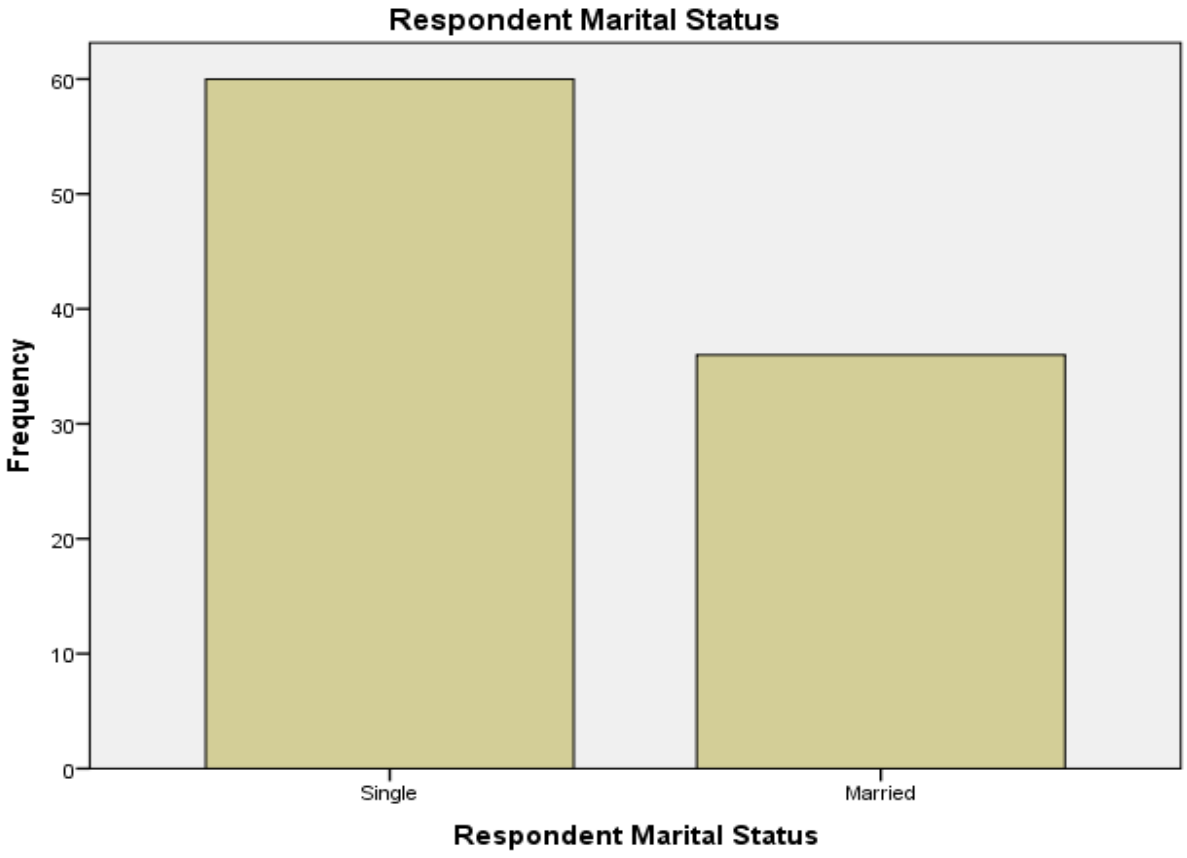


Figure 31: Chart for potential online seller marital status frequency
(Source: Researcher's survey, 2017)

Heard of online payment? tables and graphs

1. Potential online buyers

68.4% of the potential buyer respondents have heard about online payment system before whereas the rest 31.6% said they have not heard of it. This is depicted in the table and pie chart below.

Table 27: Buyers who heard of online payment

Have you heard of online payment system before?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	234	68.4	68.4	68.4
	No	108	31.6	31.6	100.0
	Total	342	100.0	100.0	

(Source: Researcher's survey, 2017)

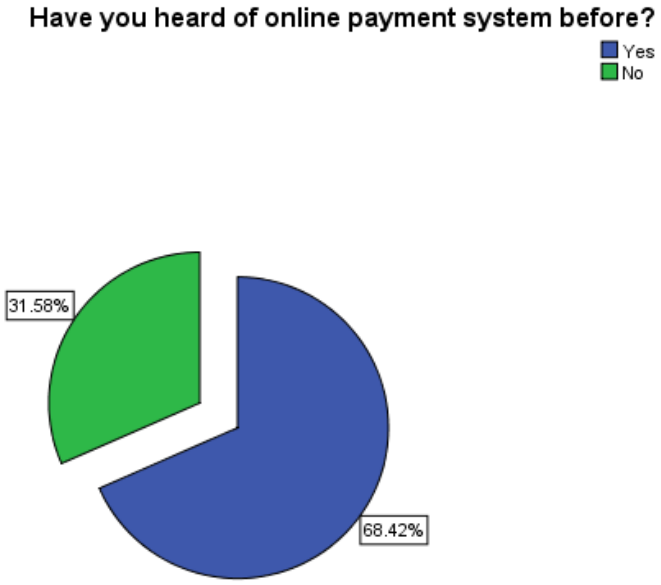


Figure 32: Chart for potential online buyers who heard about online payment frequency

(Source: Researcher's survey, 2017)

2. Potential online sellers

As can be seen on the table and graph below, from the potential online sellersô side, 66.7% said they heard about online payment system before and the rest 33.3% said they have not heard about it. The percentage of those who heard about online payment system is double of those who have not heard. This is also true for the case of potential online buyers. Thus, in both cases and set of population, 2/3 of the study samples have heard about online payment system before.

Table 28: Potential online sellers who heard of online payment

Have you heard of online payment system before?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	64	66.7	66.7	66.7
	No	32	33.3	33.3	100.0
	Total	96	100.0	100.0	

(Source: Researcher's survey, 2017)

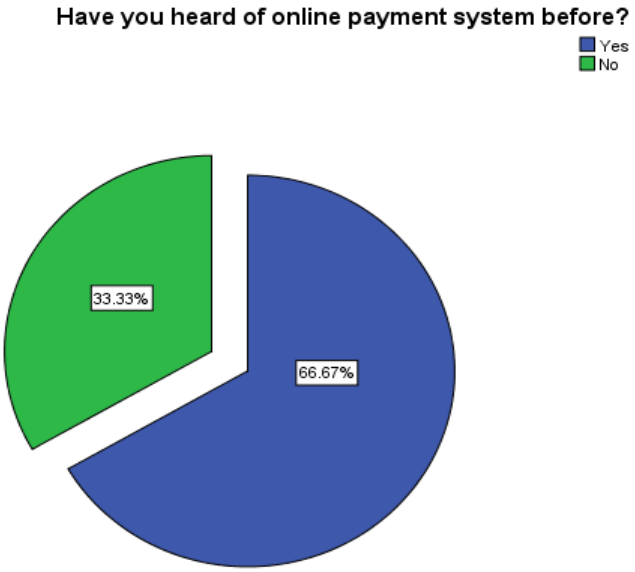


Figure 33: Chart for potential online sellers who heard about online payment frequency

(Source: Researcher's survey, 2017)

Appendix G: Specific mean responses – potential online buyer survey

This section contains the mean response for all the specific questions of the five variables in the case of potential online buyer survey.

Table 29: Relative advantage mean responses – potential online buyer survey

Relative Advantage Questions	Mean of the responses
I can buy things any time of the day I want using online payment.	3.58
I can buy things from anywhere I want using online payment.	3.45
Online payment system enhances my effectiveness in life.	3.73
Online payment system enables me to accomplish tasks faster	3.92
Online payment system is cost advantageous over other payment system.	3.25
To be able to buy using online payment system is a symbol of status.	3.15
Buying using online payment system saves time than going to buy at shop.	4.08
Online payment system helps me complete buying activities more quickly.	4.05
Online payment system helps me complete buying activities more easily	4.06
I will be satisfied if Iôm able to use online payment system.	3.56
There is no time limit to buy things if I can use online payment system.	3.65
N=342	

(Source: Researcher's survey, 2017)

Table 30: Compatibility mean responses – potential online buyer survey

Compatibility Questions	Mean of the responses
Online payment system fits with my prior experience of purchasing things.	3.42
Online payment system meets my social values.	3.61
Online payment system meets my personal values.	3.73
Online payment system is compatible with my day to day activities	3.73
Online payment system is compatible with my familyôs need	3.53
Online payment system does not contradict with my religious aspects.	3.78
Online payment system does not contradict with my cultural aspects	3.70
Online payment system fits well with how I like to manage my purchases.	3.70
N=342	

(Source: Researcher's survey, 2017)

Table 31: Simplicity mean responses – potential online buyer survey

Simplicity Questions	Mean of the responses
I believe online payment system is an easy to use technology.	3.75
Online payment system is clearly understandable.	3.21
Online payment system necessitates little mental effort	3.44
Learning to operate online payment system is easy for me	3.91
N=342	

(Source: Researcher's survey, 2017)

Table 32: Trialability mean responses – potential online buyer survey

Trialability Questions	Mean of the responses
Simple trial option will speed my decision to subscribe to online payment	4.02
I have an opportunity to try various Online Payment System technologies	3.32
It will help my decision to use online payment if I can try by cheap items	3.70
N=342	

(Source: Researcher's survey, 2017)

Table 33: Observability mean responses – potential online buyer survey

Observability Questions	Mean of the responses
Results of using online payment system are easily visible to others	3.42
I wish to communicate others about use of online payment system	3.74
Social media serves as witness to the benefits of online payment system	3.61
Advertisements of online sellers will be easily observable by buyers	3.54
N=342	

(Source: Researcher's survey, 2017)

Table 34: Diffusion mean responses – potential online buyer survey

Diffusion Questions	Mean of the responses
Online payment system is easily acceptable by me	3.39
Addis Ababa residents will be eager to start using online payment system	3.53
Future transactions will be highly dominated by online payment system	3.91
N=342	

(Source: Researcher's survey, 2017)

Appendix H: Specific mean responses – potential online seller survey

This section contains the mean response for all the specific questions of the five variables in the case of potential online seller survey.

Table 35: Relative advantage mean responses – potential online seller survey

Relative Advantage Questions	Mean of the responses
I can sell things any time of the day I want using online payment.	3.77
I can sell things from anywhere I want using online payment.	3.56
Online payment system enhances my effectiveness in life.	3.65
Online payment system enables me to accomplish tasks faster	3.87
Online payment system is cost advantageous over other payment system.	3.27
To be able to sell using online payment system is a symbol of status.	3.07
Selling using online payment system saves time than going to buy at shop.	3.83
Online payment system helps me complete selling activities more quickly.	3.89
Online payment system helps me complete selling activities more easily	3.56
I will be satisfied if Iôm able to use online payment system.	3.28
There is no time limit to sell things if I can use online payment system.	3.60
N=96	

(Source: Researcher's survey, 2017)

Table 36: Compatibility mean responses – potential online seller survey

Compatibility Questions	Mean of the responses
Online payment system fits with my prior experience of selling things.	3.34
Online payment system meets my social values.	3.54
Online payment system meets my personal values.	3.57
Online payment system is compatible with my day to day activities	3.64
Online payment system is compatible with my familyôs need	3.35
Online payment system does not contradict with my religious aspects.	3.56
Online payment system does not contradict with my cultural aspects	3.54
Online payment system fits well with how I like to manage my sells.	3.59
N=96	

(Source: Researcher's survey, 2017)

Table 37: Simplicity mean responses – potential online seller survey

Simplicity Questions	Mean of the responses
I believe online payment system is an easy to use technology.	3.76
Online payment system is clearly understandable.	3.26
Online payment system necessitates little mental effort	3.40
Learning to operate online payment system is easy for me	4.01
N=96	

(Source: Researcher's survey, 2017)

Table 38: Trialability mean responses – potential online seller survey

Trialability Questions	Mean of the responses
Simple trial option will speed my decision to subscribe to online payment	4.06
I have an opportunity to try various Online Payment System technologies	3.61
It will help my decision to use online payment if I can try by cheap items	3.58
N=96	

(Source: Researcher's survey, 2017)

Table 39: Observability mean responses – potential online seller survey

Observability Questions	Mean of the responses
Results of using online payment system are easily visible to others	3.45
I wish to communicate others about use of online payment system	4.03
Social media serves as witness to the benefits of online payment system	3.94
Advertisements of online sellers will be easily observable by sellers	3.92
N=96	

(Source: Researcher's survey, 2017)

Table 40: Diffusion mean responses – potential online seller survey

Diffusion Questions	Mean of the responses
Online payment system is easily acceptable by me	3.74
Addis Ababa residents will be eager to start using online payment system	3.55
Future transactions will be highly dominated by online payment system	3.99
N=96	

(Source: Researcher's survey, 2017)

Appendix I: F-Distribution table

Table 41: Partial F-Distribution table at 0.05 and 0.01 Sig. value

df	p value (Sig.)	1	2	3	4	5	6	7	8	9	10
60	.05	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04	1.99
	.01	7.08	4.98	4.13	3.65	3.34	3.12	2.95	2.82	2.72	2.63
80	.05	3.96	3.11	2.72	2.49	2.33	2.21	2.13	2.06	2.00	1.95
	.01	6.96	4.88	4.04	3.56	3.26	3.04	2.87	2.74	2.64	2.55
100	.05	3.94	3.09	2.70	2.46	2.31	2.19	2.10	2.03	1.97	1.93
	.01	6.90	4.82	3.98	3.51	3.21	2.99	2.82	2.69	2.59	2.50
150	.05	3.90	3.06	2.66	2.43	2.27	2.16	2.07	2.00	1.94	1.89
	.01	6.81	4.75	3.91	3.45	3.14	2.92	2.76	2.63	2.53	2.44
300	.05	3.87	3.03	2.63	2.40	2.24	2.13	2.04	1.97	1.91	1.86
	.01	6.72	4.68	3.85	3.38	3.08	2.86	2.70	2.57	2.47	2.38
500	.05	3.86	3.01	2.62	2.39	2.23	2.12	2.03	1.96	1.90	1.85
	.01	6.69	4.65	3.82	3.36	3.05	2.84	2.68	2.55	2.44	2.36

Source: Partially adapted from Field (2009) page 805