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A study on impact of customer confidence and variety of E-banking services on demand for E-banking services in Iran

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ABSTRACT

Over the recent decades, considerable developments have occurred in the field of information and communication technology. The developments have influenced business and commerce more than other areas, in between; banking industry has experienced a significant evolution. Applying developed systems of ICT in banking industry as well as moving toward E-banking have abolished activities of traditional banks and changed E-banking into an industry of possessing information. New concepts such as electronic money, automotive teller machines, point of sale and so forth are the basis of activities done by industry of information processing. Based on a case study, the present paper intends to study the impact of customer confidence and variety of E-banking services on use of E-banking services. In this research, Logit econometric model has been used. Using E-banking services is the dependent variable and factors such as age, income, education, and E-banking service characteristics are independent variables that influence demand for E-banking services. Descriptive statistics of the model is obtained from software SPSS 16 and data estimation is obtained from econometric software Ewievs 7.

Keywords: econometric model, customer confidence, electronic banking services.

1. Introduction

The beginning of electronic payment dates back to 1918, the time that Federal Reserve banks of America used to transfer funds via telegraph. However, internet developed in 1970 by academic experts in order to share information and increase its popularity. The process continued up to 1993 and one year later, non-academic people and especially businessmen who hoped to increase number of their customers searched through internet to use E-banking as a suggested delivery system for products and services.

Up to January 1995, only 24 banks were available on internet network, however, within a year this number arrived at 800 banks, and banks located in the north of America launched approximately 1500 internet networks up to 2000. Therefore, internet banking is a relatively new product on which economics has not fully concentrated. More than economics, other sciences such as marketing have focused on it. [2]

Economic method of customer's demand based on comparative statistic method has been presented by Alfred Marshal (1890) and Jan Hiks (1946). In this method, the analysis is done in relation with "the customer's primary balance point". In fact, if important changes such as change in the price of dependent goods occur, the consumer will try to adapt himself with the new conditions to arrive at a new balance point.

The issue of E-banking in Iran is a new subject presented over the past 20 years. Contrary to developed countries of the world, in Iran the number of researches related to E-banking is limited. In fact, no research similar to the present one was available; therefore, relevant internal studies have been summarized as follows: [3]

Chrucknel and Majoumdar have used Logit econometric model to study factors affecting demand for internet in England and calculated price and income flexibility of the demand. They have also studied internet demand market in business and banking, and then compared it with applying internet. Results of their comparison indicate that internet dynamism is a key factor for development in the future. In fact, increase of number of users and demand for internet leads to increase of demand for E-banking services.[1]

2. Literature Review

Farhad Naser (at Tehran University) has studied the issue of E-banking in a thesis titled "recognition of factors that affect willingness of business banks customers toward E-banking services in Iran". Results of the research indicate that factors such as shortening time for doing customers' bank affairs, E-banking services reliability, customers' access to E-banking services, and customers' access to personal internet have a direct impact on customers' willingness toward E-banking services. [4]

Shamsi Yazdanifard has done a research titled "factors affecting customers' intention to use E-banking services in Iran". The research is done based on the descriptive-survey method and it consists of 120 customers of Saman bank. The results indicate that an individual's perception of facility of using E-banking services, usefulness of services, and an individual's self-effectiveness in using computers has a direct impact on individuals' intention to use E-banking services.

In his research "a study on factors affecting acceptance of E-banking technology in branches of Meli bank", Majid Salavati concludes that factors such as easy understanding, usefulness, motivation to use services, employment relationship, real application of systems and so forth affect use of new E-banking technology by employees. [5]

Chorny Andriy and Professor Serhiy Korablin worked on a thesis titled "E-banking in Ukraine (factors affecting decision making)" at international university of Kiev. In their research, they have studied factors that lead to development of banking and E-banking industries in Ukraine via testing the main hypothesis.

The main question of the research is presented here: to what extent do companies and individuals' deposits influence demand for E-banking services in Ukraine?

Logistic regression model is used in the research, and its results indicate that antiquity of banks, their amount of deposits, and age are factors that influence e-banking.

Furst, Lang and Nolle (2000) studied a research titled "decision making factors in e-banking". In their research, factors such as size of bank, antiquity of bank, its location, and its supporting companies were considered. [6]

The result of the research indicated that factors such as banks capital, antiquity of banks, and banks location have a positive impact on decision making for e-banking. The research "E-Banking and customers' preferences" has been studied in Malaysia (2003). In this research, current approaches and strategies of e-commerce have been studied and customers' preferences for E-banking and factors that affect E-banking policy have been observed. The result of the research indicates that factors such as being aware of customers' attitude toward changes and accessibility of internet for using E-banking services in Malaysia and being aware of how one could use E-banking. [7]

In their research "the impact of confidence on E-banking acceptance by customers", Suo and Hon (2007) have used technology acceptance model. The result of the research indicates that confidence is one of the most important factors that affect customer's intention to use E-banking services.

In the research "applying virtual banking", Liao (2005) has used the theory of the planned behavior. The results of the research indicate that customers' attitude toward applying virtual banking is influenced by the individual's opinion on the advantage and easiness of using the services. [8]

3. Methodology

The selected method of the research is divided based on objective and type of method. Therefore, regarding research objective, it has an applied subject and regarding method type, it has an applied field. An applied research attempts to solve a scientific problem that exists in the real world. Since results of the present paper determines factors that affect E-banking services demand, they can also help the government and its monetary authorities make effective policies to remove obstacles to E-banking development. As it was mentioned, the present paper is an applied research done based on field method. In fact, a field study refers to any kind of study that

follows affairs and hypotheses based on an organized system in order to perform them in real conditions such as local communities, training centers, factories, and organizations.

In this research, Logit econometric model is used; its dependent variable is Y that consists of 0 and 1 values. Y= 1 indicates use of E-banking services, and Y= 0 indicates lack of use of E-banking services. If X_1 stands for independent variable and Y=1 indicates use of E-banking services, the following model will be presented: [9]

(1)

$Pi = E(Y = 1|Xi) = 1/[1 + e - (\beta_1 + \beta_i Xi)] = 1/[1+e- (Z_i)]$

$Zi = \beta_1 + \beta_i Xi$

$Zi = \beta_1 + \beta_2 M + \beta_3 YOUNG = \beta_4 EDU + \beta_5 EM_1 + \beta_6 EM_2 + \beta_7 EM_3 + \beta_8 INC_1 + \beta_9 INC_2 + \beta_{10} X_{71} + \beta_{11} X_{91} + \beta_{12} X_{92} + \beta_{13} X_{93} + \beta_{14} X_{94} + V_i$

According to the above model:

MLD: it includes all respondents who are older than 45.

$Young$: it includes all members of statistical population including 485 people whose age is less than 35. In other words, they are between 18 to 35 years old.

EDU: the variable estimates effect of education f use of E-banking services. Education introduces people with education level lower than diploma as illiterate and people with education level upper than diploma as literate or educated. EM variables stand for "employment" that determines job of the respondents, categorizes it into three groups and estimates effect of each of them on use of E-banking services. [10]

$EM1$: it refers to members of statistical population who are employees of private or governmental offices.

$EM2$: it refers to members of statistical population who have self- employment.

$EM3$: it refers to members of statistical population who are students, housekeepers, workers, farmers, and even unemployed people.

INC: variable stands for "income" and determines income of the respondents. It categorized them into two groups and estimates effect of each of them on demand for E-banking services.

$INC1$: it refers to those members of statistical population whose income is less than 200000 Rials.

$INC2$: it refers to those members of statistical population whose income is more than 600000 Rials.

$X71$: the variable has estimated effect of bank customers' confidence on demand for E-banking services.

Via questioning the respondents, the following variables determine the most important reasons for using E-banking services.

$X91$: the variable indicates that service accessibility affects use of E-banking services.

$X\ 92$: the variable indicates that low price of the service affects use of E-banking services.

$X93$: the variable indicates that easy use of service affects use of E-banking services.

$X94$: the variable indicates that service practical and various services affects use of E-banking services.

vi : it indicates the converted disturbance.

3-1- Data collecting method

Data used in the present paper are secondary data and the reason is that they are obtained from different resources and based on different observation and library methods. Official statistics of the research are obtained from central bank and statistical center of Iran. Moreover, data related to use or lack of use of E-banking services, customer confidence, variety of E-banking services, applicants' education, applicants' income etc were obtained via questionnaires. [11]

3-2- Statistical population

One of the questions any researcher should answer during the research process is whether total data of statistical population should be studied or a sample of it selected by respecting rules and regulations.

Statistical population means a collection of individuals and objects that have at least one common characteristic.

Since the research subject is demand for E-banking service in Iran, in this research a sample including 485 people has been selected randomly.

4. Finding

In this study, 407 people out of 485 or better to say 83.9 percent of the observed people have used E-banking services. On the other hand, 68 people equal to 16/1 percent of the respondents have not used E-banking services. (Figure 1)

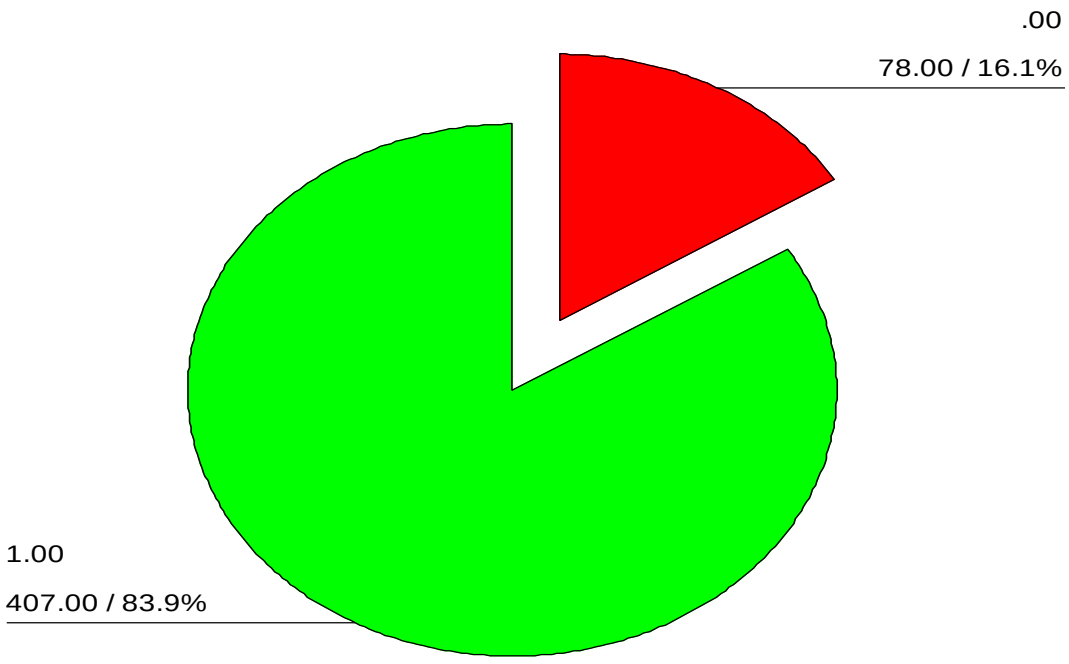

Figure 1: applying E-banking services

24/7 percent of observations at age range of 18-25, 36/7 percent of observations at age range of 25-35 (Young variable), 23/9 percent at age range of 35-45, 10/7 percent at age range of 45-55 (whose 34/6 percent is middle aged), and finally 3/9 percent of them are at age range over 55(who are considered as the old population). [11]

It is obvious that at age range of 18-25, over 80 percent of the respondents, at age range of 25-35, over 85.5 percent of them, at age range of 35-45, over 89 percent of them, at age range of 45-55, over 82 percent of them, and finally at age range of 55 or over this age, 58 percent of them use E-banking services.

If society population is divided into three groups of young, middle aged and old individuals, it will be clarified that the middle aged use E-banking services up to 90.5 percent, the young use it up to 82.5 percent and the old use it up to 58 percent. [12]

24/7 percent op members of statistical population are at the age range of 18- 25, 36/7 percent of them are at the age range of 25-35, 23/9 percent of them are at the age range of 35-45, 10/7 percent of them are at the age range of 45-55, and finally 3/9 percent of them are at the age range over 55. [13]

It is obvious that individuals at the age range of 18-25 make 80 percent of population of respondents. This group has the maximum demand for applying E-banking services. Moreover, at the age range of 25-35 over 85/5 percent, at the age range of 35-45 over 89 percent, at the age range of 45-55 over 82 percent, and finally at the age range over 55, more than 58 percent of respondents use E-banking services. (Figure 2)

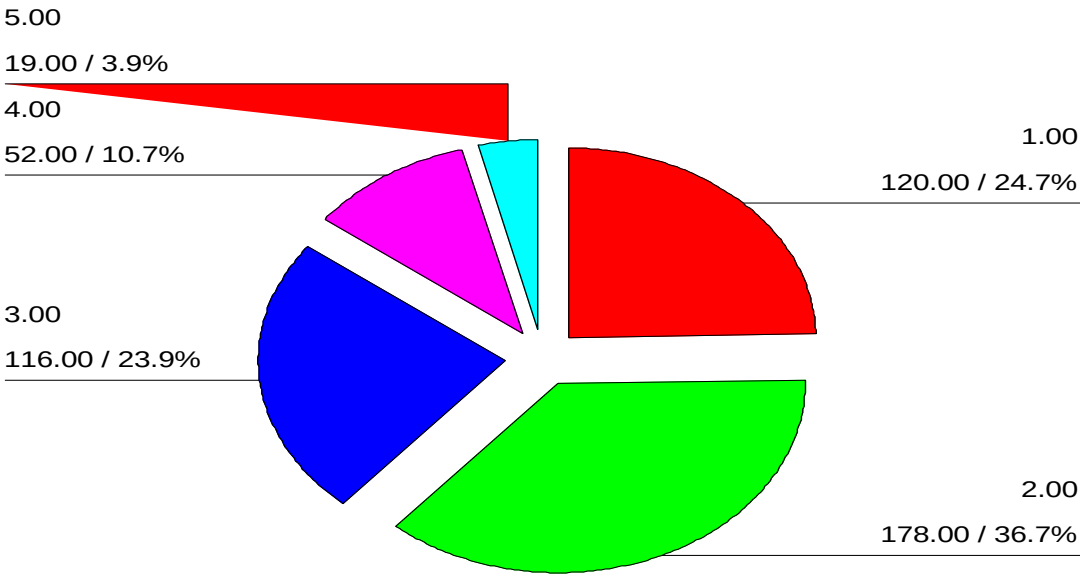

Figure 2: age of applicants for E-banking services

Regarding 485 people observed in the study, 36/1 percent of the statistical population have a degree lower than diploma, 20 percent of them have a degree of higher-than diploma, 33/2 percent have B.A, 9/1 percent have M.A and finally, 1/6 percent have Ph.D.

In this research, individuals whose educational degree is lower than diploma are called illiterate, while those who have a degree of higher-than diploma, B.A, M.A and PhD are called the literate. Therefore, 36/1 percent of respondents are illiterate and 63/9 percent of them are literate. [14]

With regard to the obtained results, over 9 percent of people whose degree is lower than diploma, over 87 percent of people with a degree of diploma, over 93 percent of people with a degree of B.A, over 97/5 percent of people with a degree of M.A, and finally over 97/5 percent of people with a degree of PhD take advantage of E-banking services. Therefore, it could be mentioned that there is a direct relation between education and individuals' demand for E-banking services. [15](Figure 3)

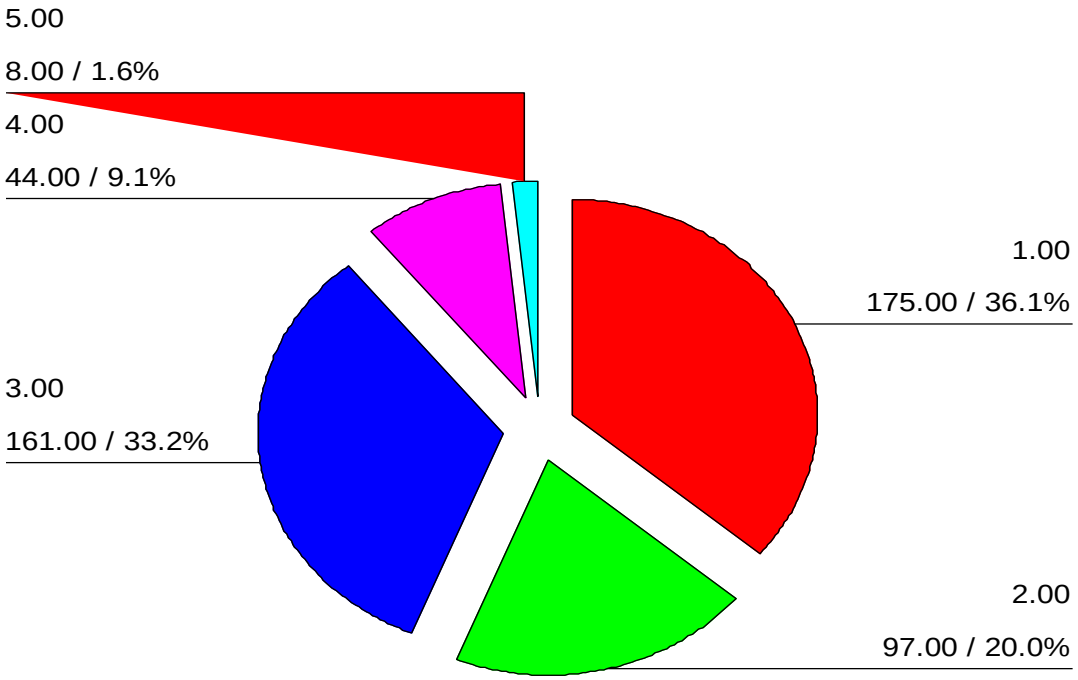

Figure 3: level of education of applicants for E-banking services

Regarding the needed data and the model used in the study (Logit econometric model), the model is rewritten as follows:

(2)

$$Zi= \quad \beta_1+ \quad \beta_2\text{M}+ \quad \beta_3\, YOUNG + \beta_4 EDU + \beta_5 EM_1 + \beta_6 EM_2 + \beta_7 EM_3 + \beta_8 INC_1 + \beta_9 INC_2 + \beta_{10} X_{71} + \beta_{11} X_{91} + \beta_{12} X_{92} + \beta_{13} X_{93} + \beta_{14} X_{94} + V_i$$

According to the above model:

M: it includes all respondents who are older than 45.

Young: it includes all members of statistical population including 485 people whose age is under 35. In other words, they are between 18 to 35 years old. [16]

EDU: the variable estimates effect of education on use of E-banking services. Education introduces people with education level lower than diploma as illiterate and people with education level upper than diploma as literate or educated. EM variables stand for "employment" that determines job of the respondents, categorizes it into three groups and estimates effect of each of them on use of E-banking services.[17]

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Via questioning the respondents, the following variables determine the most important reasons for using E-banking services. [18]

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X_{93}: the variable indicates that easy use of service affects use of E-banking services.

X_{94}: the variable indicates that service practical and various services affects use of E-banking services.

vi : it indicates the transformed disturbance.

5. Discussion & Conclusion

The present article is based on my thesis titled: "The Study of effective factors on Demand for E-banking in Iran". With regard to the output of software Eviews (Logit model estimation), it is observed that factors such as being an employee, not trusting E-banking services, lack of variety of services, non-accessibility, low price, and out of practice state of E-banking services leads to decrease of demand for new E-banking services in Iran. In other words, they have a negative impact on demand for E-banking services.

The negative coefficient in the software output for customer's confidence indicates that banks customers in Iran do not trust E-banking services and lack of confidence is the most important factor in decreasing public willingness to use E-banking services. For instance, in the process of paying the bills via different E-banking services, the cost of bill might be subtracted customers' account, while the payment is not done and the tracking code indicates that the process is done

successfully. In this case, the customer has to spend a long time to bring the money back to his account, moreover, only central branch of that banks are able to bring the money back to the customer's account.

Other factors such as customer's being self-employed, being a student, level of education, high income or low income leads to increase of demand for E-banking services in Iran. In other words, the mentioned factors have a positive impact on customer's demand for E-banking services presented in Iran.

It is clear that education, agedness, and high income have the maximum impact on increase of demand for E-banking. In other words, positive percent of the factors indicates customers' willingness to use E-banking services.

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