

Evaluation of Factors Influencing Internet Banking Acceptance by Internet Users in Iran

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ABSTRACT

Purpose – The purpose of the study was to identify the factors underlying the decision to adopt online banking in Iran. **Design/methodology/approach** – The samples used in this empirical study includes 560 persons who were among Iranian Internet users and completed the interactive questionnaires. The statistical analysis which has been used in regard to the dichotomous decision of whether to adopt Internet Banking services was Logistic Regression.

Findings – The results show that one of the dominant relationships that have been observed in our study is the link between the decision to use Internet Banking and the experience of using Internet. Certain demographic variables like gender also proved to be robust predictors of the adoption status. This inquiry documents that perceived level of security of Internet transactions in Iran Internet users don't have impact on acceptance of Internet Banking. These findings can provide a valuable tool for the expansion of Internet Banking and remove impediments of Internet Banking acceptance.

Practical implications – The results presented in this paper can be of assistance to financial institutions that either operates in Iran or Islamic countries. Useful insights are also provided with regard to security and strategies fostering the acceptance of Internet Banking.

Originality/value – The analysis is based on a random sample of Internet users at Iran that rarely discussed in previous literature.

Keywords - Internet Banking, Internet users, Iran, developed technology acceptance model 3.

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I. INTRODUCTION

To benefit from the advantages of information society, on the one hand, and to be afraid of being left further behind by Global Society and the increase in the digital divide, on the other hand, stimulate countries to be part of Global Information Society [1]. For over a decade, information technologies have significantly affected the banking industry [2]. Banks and other financial institutes have improved their functions as a financial intermediary through adopting various information technologies [3, 4, 5, 6, 7]. Internet Banking, which is the act of conducting financial intermediation on the Internet [7], is the latest development that has added a new dimension to banking transactions by allowing customers to conduct financial transaction through the Internet. Due to the advantages for both suppliers and consumers in the financial market, Internet Banking services have rapidly grown in the world. For example, in 2006, Pew Internet and American Life Project reported that nearly half of Internet users in the United States – 63 million adults – bank online [8]. Internet Banking has benefits for banks to maintain competition, to save costs, to enhance mass customization, marketing and communication activities, and to maintain and attract consumers [9, 10, 11, 12, 13]. DeYoung(2007) indicated

that Internet Banking's most important advantage is to save time and cost and reducing overhead expenses particularly in maintenance of physical branches, marketing and work [14]. Chang [3] showed that Internet Banking had a low transaction cost and a high speed of service when compared to other banking services. Moreover, at 2001 Lee and Lee revealed that Internet Banking allows consumers easier access to their bank accounts, lower service charges, and time saving. From the bank's view point, the first benefits for the banks offering e-banking services is better branding and better responding to the market. The other benefits are possible to measure in monetary terms.

The main benefit from the bank customer's perspective is saving of time by the automation of banking services processing and introduction of patronage equipments for managing customer's money. The main advantages of e-banking for corporate customers are increased comfort and timesaving, quick and continuous access to information, better cash management, and satisfaction private customers which seek slightly different kind of benefits from e-banking [15] such as reducing costs, convenience, speed and funds management [16, 17, 18, 19, 20], nevertheless one of the major issues banks are faced with in providing Internet Banking (IB) services is

the adoption of these services by the customers [21].

Consumers have not quickly changed their main propensity to new form of use banking services. Internet banking as a new banking service has not quickly substituted for traditional ones and non-electronic banking services. Internet Banking has not yet become mainstream [22] and there are barriers to adopting it [23, 24, 18, 19, 25]. The key reasons for people not having adopted Internet Banking are lack of need, lack of interest, preference for face-to-face or telephone banking services, and distrust of the Internet Banking channel. Rothwell and Gardiner (1984) observed that there are two fundamental sets of factors affecting user needs, namely price factors and non-price factors. To this extent, Guadagni *et al.* (1983), Gupta (1988), Mazursky *et al.*, (1987) identified price as a major factor in brand switching. The lack of computer or Internet access appears to be the most prominent. Internet Banking provides higher degree of convenience that enables customers to access Internet bank at all times and places. Apart from that, the accessibility of computers is perceived as a measure of relative advantage [26, 27, 23, 28, 29, 30, 31]. According to Cooper (1997) and Daniel (1999) another important factor affecting the acceptance and adoption of new innovation is the level of security or risk associated with it. Even in countries where Internet Banking has long been established, one of the most important factors slowing progress of this new innovation is the consumers concern for security of financial transactions over the Internet. [32, 33, 34]. Finally, demographic characteristics have been shown to be pertinent predictors of the adoption status in prior studies [35, 36, 18, 19]. customers due to their low educational attainment or unavailability of adequate information about this distribution channel can avoid from Internet Banking [32, 36, 20, 25, 37, 38].

This study seeks to identify and examine the main factors affecting Internet Banking adoption in Iran. The empirical analysis presented here is based on a large sample of Internet users and employs a set of explanatory variables. Some of the factors considered, such as the impact of marketing exposure or the interaction of Internet Banking with other products, are relatively new to the empirical literature. This inquiry focuses on the Iran banking market. Findings of this study could be useful for the banking sector in formulating appropriate strategies to build customer loyalty and retain user's strategies.

II. Banking Industry in Iran

Bank notes and gold coins were first used in the country following the conquest of Lidi by Achaemenid king Darius in 516 B.C. At that time, a gold coin called Derick was minted as the Iranian currency. During the Parthian and Sassanian eras, both Iranian and foreign coins were used in trade in the country [39]. Bank financing is the main source of outside financing in all countries [40]. Banking operations had been carried out in Iran by temples and princes before the advent of Achaemenid dynasty by government. Before a bank in its present form was established in the country, banking operations had been carried out in traditional forms in the form of money

changing. Money changing began to decline with the establishment of New East Bank, an originally British owned bank in the country in 1850. Bank Sepah was the first bank to be established with Iranian capitals in 1925 under the name of Bank Pahlavi Qoshun, in order to handle the financial affairs of the military personnel and set up their retirement fund. In 1979, all Iranian banks were nationalized and banking laws changed with the approval of the new interest free Islamic banking regulations. The New East Bank establishment 1850 and it was in fact the first banking institute in its present form established in Iran. New East Bank allowed individuals to open accounts, deposit their money with the bank and draw checks. It was at this time that people began to draw checks in their dealings [39]. According to a concession granted by the Iranian government to Baron Julius De Reuter in 1885, Bank Shahanshahi (Imperial Bank) was established. This bank purchased the properties and assets of the New East Bank, thus putting an end to the banking operations of the former.

In 1209 (lunar hejira), the right of printing bank notes was purchased from Bank Shahanshahi for a sum of 200,000 pounds and ceded to the Bank Melli of Iran. Bank Shahanshahi continued its activities until 1948 when its name was changed into Bank of Britain in Iran and Middle East.

In 1269 (l.h.), a Russian national received a concession from the government of Iran for establishment of Bank Esteqrazi for 75 year. Besides, banking and mortgage operations, the bank had an exclusive right of public auction. In 1898 the Tzarist government of Russia bought all shares of the bank for its political ends. Under a contract signed with Iran, the bank was transferred to the Iranian government in 1920. The bank continued its activities under the name of Bank Iran until 1933 when it was incorporated into the Bank Keshavarzi (Agriculture Bank). The proposal to establish a national Iranian bank was first offered by a big money dealer to Nasereddin Shah before the Constitutional Revolution. In April 1927, the Iranian Parliament gave final approval to the law allowing the establishment of Bank Melli of Iran, but the bank established in 1928. The Central Bank of Iran was established in 1928, tasked with trade activities and other operations (acting as the treasurer of the government, printing bank notes, enforcing monetary and financial policies and so on). In June 1979, Iranian banks were nationalized and banking regulations changed with the approval of the Islamic banking law. In terms of both assets and capital, the banking sector is dominated by Bank Melli Iran (National Bank of Iran). In recent years, some privately owned banks [39].

The growth of electronic communication has significant effects on every-day activities of human. The experts of this area try to apply this technology for facilitating daily affairs so that the owners of industries, service organizations, and other centers becomes able to communicate with their clients in the earliest time with lowest expenses and free from time and place limitations. In this way, they can offer their products and services and even buy and sell them [41]. Based on the growth Tehran

banks acquired between 7 to 10 ATM in its branches experienced the first automatic money paid. In late 1981 the country's banks due to the use of personal computers and the need to bank automation after different studying in proposed framework for a comprehensive transformation in planning informatics activities of banks was provided to officials of banking network that in 1993 comprehensive plan of the banking system automation adopted by the general assembly of banks became to official form. During 1993 and 1994 years created spark a national switch to electronic banking, the communication network established between Melli bank and national stores. In June 2002 adopted set of regulations governing in center of interbank information exchange network customary to "accelerating network". Thus the acceleration office of the central bank was established in July 2002 [42].

Iran, with one of the highest levels of internet users in the world, has a constantly growing part of its population using internet banking. It is therefore important to examine what affects customers' usage of internet banking in Iran [43]. On the other side, Vision Document or 20-Year Document Iran, as Iran in 1404 dictates the country will be the first in the region. One of the aspects of the Document is implementing e-government [44], and internet banking is one of the symbols of e-government.

III. Empirical Determinants and Hypotheses

The purpose of this study is to investigate and evaluate the determinants of Internet Banking adoption from the view point of Iranian Internet users. Pikkarainen *et al.* (2004) defines Internet Banking as an Internet portal, through which customers can use different kinds of banking services ranging from bill payment to making investments. With the exception of cash withdrawals, Internet Banking gives customers access to almost any type of banking transaction at the click of a mouse [45]. Based on the literature review, the research framework was formulated. Some of researchers believed it is possible to study acceptance from the attitude of the process of consumer decision-making [24, 18, 19]. A lot of researchers viewed have Internet Banking through the prism of innovative technology adoption [46, 47, 35, 29, 48, 49, 50, 51, 52, 53]. Although this theoretical framework has been initially employed with reference to products [54, 55], later studies used it also in the context of services (e.g.: [56]). The aforementioned studies directed us for designing our conceptual research model, which is demonstrated in figure I.

[Figure I about here]

According to the literature [57, 58, 59, 60, 22, 52], a decision by customers to accept Internet Banking can be motivated by a variety of factors. To assess the factors influencing decision of adopting Internet Banking can use the literature in the marketing field that has largely focused on motivation factors [61]. Research model as brought in Figure "I" divides the factors which are hypothesized to influence the individual's decision to acceptance of Internet Banking into 18 categories. By using factor analysis, these categories have been summarized in 6 main classes: Internet experience, Use of other banking products, Demographic

attributes, Perceived security, Internet experience, Marketing disposal.

Internet experience: According to Technology Acceptance Model (TAM), perceived usefulness (PU), and perceived ease of use (PEOU) influence one's attitude toward system usage [62, 63, 64]. Perceived ease of use (PEOU) of Internet Banking is a key factor in determining adoption of this particular system. For using Internet Banking, consumers have to be familiar with a set of accompanying technologies such as a personal computer and a web [25].

Duration of Internet use [20, 18, 19, 65, 53];

Internet use at the workplace [32, 25, 65];

Experience of e-finance [66, 25, 19, 18, 65]

Experience of online purchases [66, 25, 19, 18, 65].

Use of other banking products: Mattila *et al.* (2003) state that experience of other banking products and prior technology experience have been identified as determinants of Internet Banking adoption. In the survey run Gerrard *et al.* (2006), some respondents commented that there was no human interaction when sourcing financial services over the Internet. In other word, a service delivered over the Internet lacked the human touch. This can be sometimes slow the diffusion of cost-cutting financial innovations [67]. Bayus (1987) and Norton and Bass (1987) noted that a consumer's willingness to adopt a new technology is affected by his or her prior pattern of adopting related technologies. Karjaluoto *et al.* (2002a) indicated that electronic banking technology experience was significant factor toward Internet Banking among Finland bank consumers. Lee and Lia (2001) indicated that heavy usage of banking service was the most significant factor in the adoption of Internet Banking among non-adopters, and prior Internet purchase behavior was also a significant factor, but not as much as the usage of related banking technologies. However, if consumers have no experience of previous banking technologies, they might find it hard to adopt recent banking technology, even though they think Internet Banking is necessary. Consequently, in order to investigate whether mobile banking customers and holders of debit, credit and virtual cards are more likely to apply Internet Banking.

Type of Internet connection used: Internet Banking offers new value to the customers. The emergence of the Internet has had a significant impact on the diffusion of electronic banking. With the help of Internet, banking is no longer bound to time and geography. Internet banking preserve time, save money, provides convenience and accessibility and has positive impact on customer satisfaction [18] Anyway, price seemed to be factor militating against Internet Banking [33]. Dial-up connection will cause connection charge and telephone fee which can be considered as customer expense [68, 69]. Individuals connecting via broadband tend to pay a flat monthly fee, whereas those using a dial-up assess are charged on a per-minute basis. Given that the marginal cost of connection for broadband subscribers is zero, one would expect them to be more favorably inclined towards Internet Banking. They also do

not suffer from the slow connection problem associated with the telephone line modems, which on its own can discourage certain people from adopting online banking [32].

Based on Internet World User Stats site report until June 30, 2010 Iran stand in 13th place in regard of Internet users in the world and according to the International Telecommunication Union (ITU), Iran's Internet penetration rate is the sixth highest in the region. While the predominant download speed for broadband connections in Iran, among which the Asymmetric Digital Subscriber Lines (ADSL) were the most common, has been estimated not to exceed 128 kb/s (speed tests, 2011). The traditional dialup modems in Iran can reach a maximum download speed of 56 kb/s, which means that they are much slower in comparison to the broadband connections. Nonetheless, according to Speedtests.net report the average download speed in Iran is 74 kb/sec and the average upload speed is 28kb/sec. The data published by the ADSL-PAP.com (2010) reveals that, by March 2009, there were only around 557,857 broadband subscribers in Iran; the majority of private users are connected with dialup.

Marketing disposal: Awareness an innovative product or service may precede the decision to adopt by months or years [70, 71]. Even an innovative may not success without consumers cognizant of its existence and the potential benefits it offers. The Wallis Report (1997); cited by Sathye (1999) states that consumers will seek out those financial products and suppliers which offer the best value for money and they are educated about it, therefore, for adoption of Internet Banking, it is necessary that the banks and financial companies offering this service make the consumers aware about the existing of such a service and its benefits [33]. "Don't assume good products sell themselves" [72, 33]. Also Polatoglu and Ekin (2001) contended that marketing effort in Turkey had a positive influence on e-banking acceptance. At the same time, Suganthi et al. (2001) mentioned consumer awareness effect the adoption of an new innovative including Internet Banking. In the survey run by Gerrard *et al.* (2006), lack of knowledge was one of eight factors which explained why Singaporean consumers are not using Internet Banking. At 2007 in the in-depth interview carried out by Kuisma *et al.* several reasons were revealed which barred consumer from using Internet Banking, lack of awareness was one of them.

Perceived security: Perceived risk is a major factor affecting intentions to accept or to continue using a good or a service. The intangible nature of Internet transactions tends to heighten the consumer's perception of risk [25]. The use of Internet Banking involves many types of risk. Customers may feel that they do not have much control over the misuse or abuse of personal information transmitted via the Internet [25]. In the service marketing literature, it was suggested that consumers generally perceive greater risk when purchasing services than goods [73, 74]. These risks include financial risk, performance risk, physical risk, social risk, psychological risk, and time risk [24, 75]. Based on the literature that appears the level

of perceived risk is negatively related to the attitude towards banking on the World Wide Web [47, 32, 25, 50, 76, 33, 77, 78, 53] in this study we uses perceived security as a forecaster of customer acceptance.

Demographic characteristics: Although many researchers, such as Daniel (1999), Jayawardhena, Sathye (1999), and Foley (2000), Karjaluoto *et al.* (2002), Mattila (2002a), Mattila *et al.* (2003), and indicated that demographic factors were significant in their adoption model, they did not explain why the demographic factors had an impact on adoption of Internet Banking. Mattila *et al.* (2002b) find that technical education, university degree and household income impact the use of Internet Banking also in the case of mature customers. Some demographic variables, attitude toward computers, prior banking experience, prior technology experience, and reference group have been identified as determinants of Internet Banking adoption [79, 80, 33]. In retail banking, adoption was more likely among: young people [81, 82, 22] males [81, 48, 83, 84], married people [22] highly educated customers [22, 84] and affluent customers [85, 82, 22]. The effect of demographic variables on adoption and continued use of Internet Banking services was strongly supported in a number of studies. Specifically, age and gender were found to affect adoption and continued use of retail banking services in a number of studies (e.g., [81, 86, 35, 24, 48, 18, 19]) Conversely, a number of studies reported no such effect [24]. The effect of education was supported by a number of studies (e.g., [87, 88, 48, 22, 85, 89, 84]). The effect of income was also supported (e.g., [82, 85, 22, 84]). Marital status was found to be one of the factor affecting retail banking adoption and continued usage (e.g., [82, 22]). Stavins (2001) documented that only a very small fraction of people outside of paid employment chose the PC or Internet Banking services. For those who had a job, income level proved to influence the adoption decision [35, 18, 19]. This finding presumably derives from the lower computer penetration in the low income stratum. Stavins (2001), Karjaluoto *et al.* (2002) and Gan *et al.* (2006) showed that the probability of using electronic banking is higher for white-collar workers. Highly paid skilled workers are more likely to use advanced technologies [90] because they can improve their productivity through using advanced technologies within a given time. Finally, the empirical model takes into account the location of the respondent. Stavins (2001) argued that geographic location matters for the usage of electronic payments, and Gan *et al.* (2006) provided evidence that online banking usage depends on the urbanization of the residence area. In locations where bank branches are sparse, customers may be forced into transacting via the Internet.

On the basis of the literature review and conceptual framework presented previously, the following hypotheses are proposed for testing in the empirical study of Iran Internet users that follows:

H1: Familiarity with the Internet medium, as measured by the duration of past usage, application of Internet at work, Experience of online purchases and Experience of e-finance, will have affect on the usage

of Internet Banking.

H2: Access to broadband Internet connection will affect the probability of using Internet Banking.

H3: Use of other banking products, such as mobile-banking, debit, credit and virtual cards will have changed the chance of that a respondent use Internet Banking.

H4: The individually perceived security of Internet transactions will affect the probability of using Internet Banking services.

H5: Exposure to online banking advertisements will affect the likelihood of Internet Banking adoption.

H6: Demographic characteristics, such as age, gender, income, education, place of residence of employees and being white-collar workers will affect the probability of using Internet Banking services.

IV. Data and Variable Definitions

Data collection method is highly influenced by the methodology chosen [91]. The data were collected by means of online questionnaire by Spread sheets.google.com; one of the most popular tools which Google site offer to Internet users. The survey's link published on most popular Persian sites, weblogs, mailing list, yahoo messenger rooms and face book. The survey sample consisted of Iranian Internet users. There was an invitation to participate in the survey for randomly selected visitors. The responses of this electronic questionnaire were anonymous and without any monetary incentives offer¹. The data gathered at 45 days limitation. In this term, 15841 people visited the survey and 623 people responded to that. Eventually 560 questionnaires were useable. 273 people of those 560 responders were Internet Banking users.

A lot of studies on IS adoption used dichotomous categorization (for example: [92, 81, 35, 24, 18, 19, 65]). The dependent variable in this study represents the Iranian Internet users' decision to use Internet Banking services. As it mentioned earlier there are eighteen explanatory variables that will examine. The dependent variable and fourteen independent variables are indicator variables; one of the variables is measured on a five-point Likert scale, two of them measured on a positive and continuous scale and one of them measured based on positive scale. Table I shows Conceptual Definition, Measurement and Measure scale of variables have been examined in this study.

To examine the fitness of questionnaire there are some tests. Validity tests can be classified into three main categories: Content validity, Criterion-related validity and structure validity [93]. In this questionnaire content validity has been emphasized. Content validity is used for evaluating the components of measuring instruments. In fact the concept of credit answers the question that the measuring instrument how much can measure the proper option. For determining the content validity of the questionnaire, the questionnaire has been given to six people of universities' faculty members and their opinion about the factors has been asked, the desired changes were implemented. Reliability is one of the technical

characteristics of measuring instruments. One way to calculate the reliability coefficient is measuring Cronbach's Alpha [44]. Internal consistency describes the extent to which all the items in a test measure the same concept or construct and hence it is connected to the inter-relatedness of the items within the test. Internal consistency should be determined before a test can be employed for research or examination purposes to ensure validity. In addition, reliability estimates show the amount of measurement error in a test [94]. Cronbach's Alpha was 0.893 via SPSS Software. Therefore, the questionnaire has a good reliability.

[Table I about here]

The respondents mostly have used the Internet more than 7 years. Most of them have a broadband connection and just 35% of them accessed the Internet at work in the past. Almost all of the respondents have confronted Internet Banking advertisements. Compared to non-adopters, adopters are more likely to use mobile banking and males were using Internet Banking more than females. Employees were using this service more than un-employees. Most of the adopters compared with non-adopters had Experience of e-finance, using Internet at work and online purchases. Table II reports summary descriptive statistics for variables used in the study separated by Internet Banking adoption status.

[Table II about here]

V. Empirical Results

Due to the fact that the Internet banking adoption status is a binary variable, there are two statistical technique: Discriminate analysis and Logistic Regression. Logistic Regression is more powerful statistical tool compared with Discriminate Analysis [95]. With logistic regression, there is no standardized solution printed, and to make things more complicated, the un-standardized solution does not have the same straight-forward interpretation as it does with Ordinary Least Squares regression. In Logistic Regression there is no R^2 to gauge the variance accounted for in the overall model (at least not one that has been agreed upon by statisticians). Instead, a chi-square test is used to indicate how well the logistic regression model fits the data and Wald statistics² used for the significance test. Also Logistic Regression give us a type of "coefficient" that is useful. This coefficient is called the odds ratio³(beta coefficients). The results of Logistic Regression for Internet Banking adoption are presented in Table III.

[Table III about here]

Based on Table III the Negelkerk R Square of the model is 0.521 and Cox & Snell R Square is 0.391, it's mean between 0.391 to 52.1 per cent of dependent variables changes related to logistics independents variables. The likelihood ratio test (χ^2 of 277.694 (d.f. = 18)) and with considering to number of observations (560), rejects the null hypothesis of no relationship between the dependent

² The statistic z is sometimes called a **Wald statistic**. Output from some statistical software reports the significance test result in terms of the square of the z statistic

³ **Odds Ratio**. The odds ratio is equal to $exp(B)$, or sometimes written e^B

¹ Offering monetary incentive has a potential over- representation of respondents from the low income stratum [112, 114]

variable and the independents variables.

Supplemental statistical measures provide further evidence on the effectiveness of the Logit model⁴ which is shown at below. Based on a classification with prediction cut- off value of 0.5 the model correctly classifies 80.0% of the respondents. Finally, the Hosmer and Lemeshow Goodness-of-Fit test [96] further ascertains the suitability of the model. The test showed a χ^2 of 7.505 (d.f. = 8) with a p -value of 0.483, which implies that the logistic model fits the data well.

Logit model:

$$\begin{aligned} & \ln\left(\frac{p_i}{1-p_i}\right) \\ &= \ln\left(\frac{\text{proportion of times the internet banking adopt}}{\text{proportion of times the internet banking does not adopt}}\right) \\ &= \beta_0 + \beta_i x_i \\ &= -6.356 - 0.217 \text{ Internet Experience} + 0.522 \text{ Internet at Work} \\ &+ 1.912 \text{ Internet Transactions} \\ &+ 1.459 \text{ Internet Financial Transactions} + 0.731 \text{ Mobile Banking} \\ &+ 0.746 \text{ Male} + 1.003 \text{ Employee} \end{aligned}$$

Individuals who have used the Internet for a shorter period and have Internet access at work, as well as those who conducted Internet transactions and Internet financial transaction in the past, were more likely to accept Internet Banking. Accordingly, it can be concluded that hypotheses H₁ is supported by the data.

After controlling for other factors, Broadband was statistically insignificant and hypothesis H₂ was rejected. We detected the possible reasons which could be cause of this result. First, the quality of both kind of Internet connection broadband and dial-up at Iran; both of them are too low speed and too expensive. Thereupon cost of using different type of internet connections and speed of connection is not that much important to affect internet users' behavior about Internet Banking acceptance. On the other hand, a simple banking operation by a dial-up user does not take longer than 20 minutes in Iran; the cost added to the telephone bill will not go beyond 22000 Rial per month. Whereas, the cost for broadband connection in cheapest and slowest service is 70000 Rial per month individuals who have used the dial up connections will have more benefits than those who use broadband. Then a cost- benefit analysis from the perspective of the consumer can deter Iranian Internet users to involve this factor in decision making process for acceptance Internet Banking.

According to findings in this research, previous experience of Mobile banking has a positive impact on adopting Internet Banking from Iranian Internet users' perspective. Mattila et al. (2003) and Lee et al. (2005) documented that consumers who heavily utilized the existing electronic services showed a greater propensity to adopt Internet Banking. But same result did not find for ownership of a debit, credit or virtual card by Iranian Internet users. The Wald chi-square test statistic for the null hypothesis that all coefficients on Use of other banking products variables are equal to zero is 13.829

(d.f. =4) with a corresponding p -value of 0.008. The hypothesis H₃ cannot thus be rejected as an accurate description of reality.

In Most of the previous researches (for example: (Black, et al., 2001; Gerrard, et al., 2006; Laforet & Li, 2005; Lee, et al., 2005; Liao, et al., 1999; Rotchanakitumnuai & Spence, 2003; Sathye, 1999; Singh, 2004; Suh & Han, 2002; Tan & Teo, 2000)) the perceived security appeared as a predictor of Internet Banking adoption, but in this research we didn't find a Significant relevance between them. Remarkable is that none of these 560 responders have trust to online banking transactions. Also the frequency distribution of responders who found online banking transactions almost secure and frequency distribution of responders who found online banking transactions almost un-secure was almost equal. Costumers' lack of knowledge about Internet banking security can inducement anxiety in users' perceived security. According to TAM and TAM3 [63, 97, 98] technology anxiety and individual's viewpoint of new technology can impact technology acceptance process. It can be concluded that hypotheses H₄ is rejected.

In this research we didn't find significant relevance between exposed to advertisements regarding Internet Banking and acceptance of Internet Banking. The cultural issues of Iran and lack of trust to pretensions in advertisement between Iranian respondents can be cause of this result. Therefore, regarding to results which showed at Table III hypotheses H₅ is rejected.

Some of the demographic attributes emerged as important determinants of adoption. Internet Banking is clearly preferred by male employees. Furthermore, Based on Table III with increasing education level and income level of individuals, the possibility of acceptance of Internet Banking was decreasing. The Wald chi-square test statistic for the null hypothesis that all coefficients on demographic variables are equal to zero is 92.106 (d.f. =7) with a corresponding p -value of 0.000. The hypothesis H₆ cannot thus be rejected.

VI. Conclusion

The banking industry plays a significant role in supporting economic development through efficient financial services [99, 100, 101]. Iranian banks have embraced innovative banking technologies and Internet Banking service in recent years. Almost all Iranian banks have invested in expanding and improving the IT systems. Probably, Internet Banking acceptance depends to bank services quality, and customer satisfaction. The objective of this study was investigating the factors affecting the decisions to accept Internet Banking in Iran. At the time of conducting this study almost all Iranian banks were offering Internet Banking services; and based on Internet World User Stats site report until June 30, 2010, Iran with 33.2 million Internet users stands in 13th place in regard to Internet users in the world. Therefore, we narrowed our research scope to Iran Internet users' respondents. Based on the research goals, the effective factors were extracted from reviewing literature and

⁴ In the logit model the log odds of the outcome is modeled as a linear combination of the predictor variables.

related theories to adoption of the new technology such as Technology Acceptance Model [62], Theory of Planned Behavior [102], Diffusion of Innovation Theory [71], Technology Acceptance Model 3[97, 98]. Based on the derived factors, the research model of this study has been designed. A logistic regression has been applied to pinpoint the determinants of the adoption status. Data analysis consequences reveal that experience in using internet, experience with other banking products and demographic attribute affect on accepting Internet Banking services in Iran. In most previous studies, perceived security and marketing campaigns were significant factors in adopting Internet Banking but in this study they were not significant factors in Iranian internet users' adoption Internet Banking. It has been documented that customers who are familiar with other electronic distribution channels, especially mobile banking, show greater proclivity to use Internet Banking in Iran. Furthermore, using Internet at work, shorter duration of Internet usage, having Internet transactions experience in the past and Internet financial transaction were important predictors of the adoption status. The higher probability of conducting banking operations via the medium of Internet can be resulted from increasing of technology-savvy. Gender and being employee (as demographic characteristics) also seem to have an influence on acceptance of Internet Banking in Iran. We did not find correlation between acceptance of Internet Banking and the area of residence, educational level, income level and the age of the respondent. This study results exhibit lack of awareness about Internet Banking transactions security can induce anxiety in users' perceived security. Persian culture and lack of trust in banks' advertisement that are presented by respondents can be the factors responsible for rejection of Internet Banking services advertisement in Iran.

VII. Managerial Implications

The findings of present study have important implications for researchers and banks that are currently offering Internet Banking service as well as banks that are planning to offer such services. In terms of research, this study provides further evidence on appropriateness of using Technology Acceptance Model 3[97, 98] to measure influence factors of Internet Banking service. However, it should be noted that the difference between the findings of present study and prior studies which was using TAM3, could be due to the inherent factors of the sample of Iranian Internet users. Results reported in Section V present the managerial implications for Internet Banking adoption.

Davis (1989) in primal Technology Acceptance Model highlighted that the diffusion of any innovation hinges also upon its ease of use. The results in present study showed that lack of experience of using online transactions, experience of online purchases and other e-banking services which were similar to Internet Banking hinders adoption. Therefore, we believe that a lot of clients are not interested in using Internet Banking because they feel using Internet Banking is more complex than other banking services. However, to reduce the customers worry

about complexity of Internet Banking service, banks should equip Internet Banking websites with a demonstration facility and a virtual assistant. In addition, the banks should support customers with a help center to ensure them that whenever they face a problem, they are able to resolve it by making a phone call or sending an e-mail. Also Iranian banks should try to improve the technical reliability of Internet Banking system and customers awareness about using Internet Banking. Also banks should make their Internet Banking systems as user-friendly as possible to make customers' Internet Banking experience more pleasant. The banks should improve offer of electronic banking services especially services in financial markets, business companies and organizations and offer interesting packages for encouraging them to use Internet Banking. Individuals who want gain these financial organizations services should to use electronic banking services, it will make them familiar with these services. On the other hand, banks' website should be comprehensible and the information contained therein should be written in a non-technical language.

This study showed that customers' benefit and cost associated with Internet Banking adoption. Therefore, banks should aware consumers about the benefits of Internet Banking, especially lower operations costs. According to a global survey conducted by Booz-Allen and Hamilton (1997), the establishment of specialized Internet Banking requires only US\$1-2 million, which is lower than branch-based banking setup. The traditional bank's running cost account for 50% to 60% of its revenues, while the running cost of Internet Banking is estimated at 15% to 20% of its revenues. Based on this, the main benefits of Internet Banking for banks are cost saving [103, 79] then banks can have more flexibility about paying revenues to bank's Internet Banking service customers and asking less operation expenses from them. If customers find Internet Banking with more benefits at lower costs, they will be motivated to use these services instead of traditional banking services.

As cost-benefit paradigms greatly influence people's attitudinal benefits and outcome judgments, trust can be a direct influencer that determines people's attitude toward behavior [104, 63]. In this research we didn't find significance statistical relation between perceived security and acceptance of Internet Banking. At the same time, based on the findings of the research, we discovered there is inconsistency in Iranian Internet users' perceived security. Anxiety and individual's viewpoint about new technology can affect to technology acceptance process [63, 97, 98]. In addition, we didn't find statistical significance between Marketing Exposure and Internet Banking acceptance. At a lot of former researches, there were correlation between Marketing Exposure and Internet Banking acceptance, but we didn't find the same results. Present study recommends, for the first step, Iranian banks should have continuous improvement awareness strategy about new electronic services. Afterward, they should try to maintain a good record by eliminating any potential security threats in a proactive manner. It is therefore essential that the bank advises its Internet Banking service

users to take a number of precautions.

This study results didn't prove the impact of marketing exposure on the Iran Internet user's decision to adopt Internet Banking service. But due to importance of individual's awareness about Internet Banking benefits and its security situation we need to identify the target customers and thereafter the best advertising medium. According to the data provided in Table II, over 93.8% of the respondents have confronted Internet Banking advertisement. Meanwhile, 37.8% of the individuals participating in the survey have encountered an online banking advertisement on the Internet, 79.8% have seen a TV commercial, 28% of Internet users had experience of watching Internet Banking advertisement from billboards and 24.3% of them have read a newspaper advertisement. Radio advertising resulted was 19%. Notably, the majority of respondents (77.3%) considered the TV to be the best advertising medium for online banking.

It has been also shown that the likelihood of using Internet Banking service is positively correlated with the adoption of other e-banking products; which signifies that the customers who have experience of other electronic banking services, especially mobile banking, have greater probabilities to adopt Internet Banking. Therefore, retailers or marketers in banks should focus on customers who have already used other electronic banking services to boost usage of Internet Banking. Also, managers should consider Internet Banking and other electronic banking services as a part of multi channels provided to better serve the customers [105]. All banking channels should be managed strategically with the eventual goal of reaching high customers satisfaction and retention. Thus, if customers believe that previous electronic banking services were useful and desirable, they will find enough courage for accepting Internet Banking service.

Different studies have analyzed the characteristics of Internet Banking adopters, and especially focused on their demographic characteristics. This study has been found further significant influence for gender and occupation among demographic variables. Gender has not been found to have a direct impact on adoption of technology in general [106, 107] whereas the result of this study indicates that men represent the segment with the higher use of Internet Banking service. Also, higher use of Internet Banking has been evident for jobholders compared to unemployed. With notice to this reality, if bank's strategy approaches towards organizations by providing special offers for this segment, it may increase the rate of adoption of Internet Banking service. Besides, if organizations support Internet Banking service providers, they can help customers work through the pros and cons of adopting this new technology.

VIII. Theoretical Contributions

Some of the results of this study are similar to outcomes propounded in the reviewed literature. Technology Acceptance Model [62, 63], Diffusion of Innovations

theory [108] and Technology Acceptance Model 3 [97, 98] were the most prominent theoretical models used to extract the variables of this study. We find that individuals who are more familiar with Internet are indeed more positively inclined towards Internet Banking. Also our finding revealed that computer efficacy and anxiety (as the main pillars of the decision making for Internet Banking adoption) constitute crucial factors influencing the perceived ease of use. In addition, perceived usefulness is one of the important factors of adoption of Internet Banking. Furthermore, as has been showed in Gerrard *et al.* (2006), between assemble of perceived ease of use and usefulness in the TAM model and the concepts of complexity and relative advantage in the Diffusion of Innovations framework there is proximity. Therefore, it can be claimed that the results of this research contributes to the Technology Acceptance Model and the Diffusion of Innovation theory. Sathye (1999) and Gerrard *et al.* (2006) mentioned that the reliability of Internet connection should be an important determinant of the adoption status, that is why our model included this factor; but in our results we didn't find major correlation between Internet connection and adoption of Internet Banking. After reviewing the literature and the theories of acceptance of new technology (especially TAM), we decided to include measuring risk variable and perceived credibility to our model [109, 110, 38, 111]. Also this study confirmed the significance of a set of demographic attributes.

IX. Limitations and Further Research

The same as most of the researches, this research faces some limitation. The limitations are as follows:

This research only surveyed the Persian Internet users and our sample has been restricted to the respondents who share Persian cultural background.

The data were collected during 45 days (mid of March to end of April). So the results can only be generalized to the Internet users which were accessing Internet in this period of time. We recommend to researchers to perform this research as a multi-duration research and compare the finding with this research finding.

Since this study focused on use of Internet Banking service, it is suggested that future research, explores other electronic banking products such as mobile banking among the Iranian Internet users, and compare the results with the result of this study.

Although this study focused on the adoption of Internet Banking services by Internet users in Iran, it can be extended to Middle East Internet users or Internet users from across the world. Comparison can then be made between Iranian Internet users and Middle East Internet users or Internet users from across the world in terms of the factors influencing their decision for adopting Internet Banking service.

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Appendix

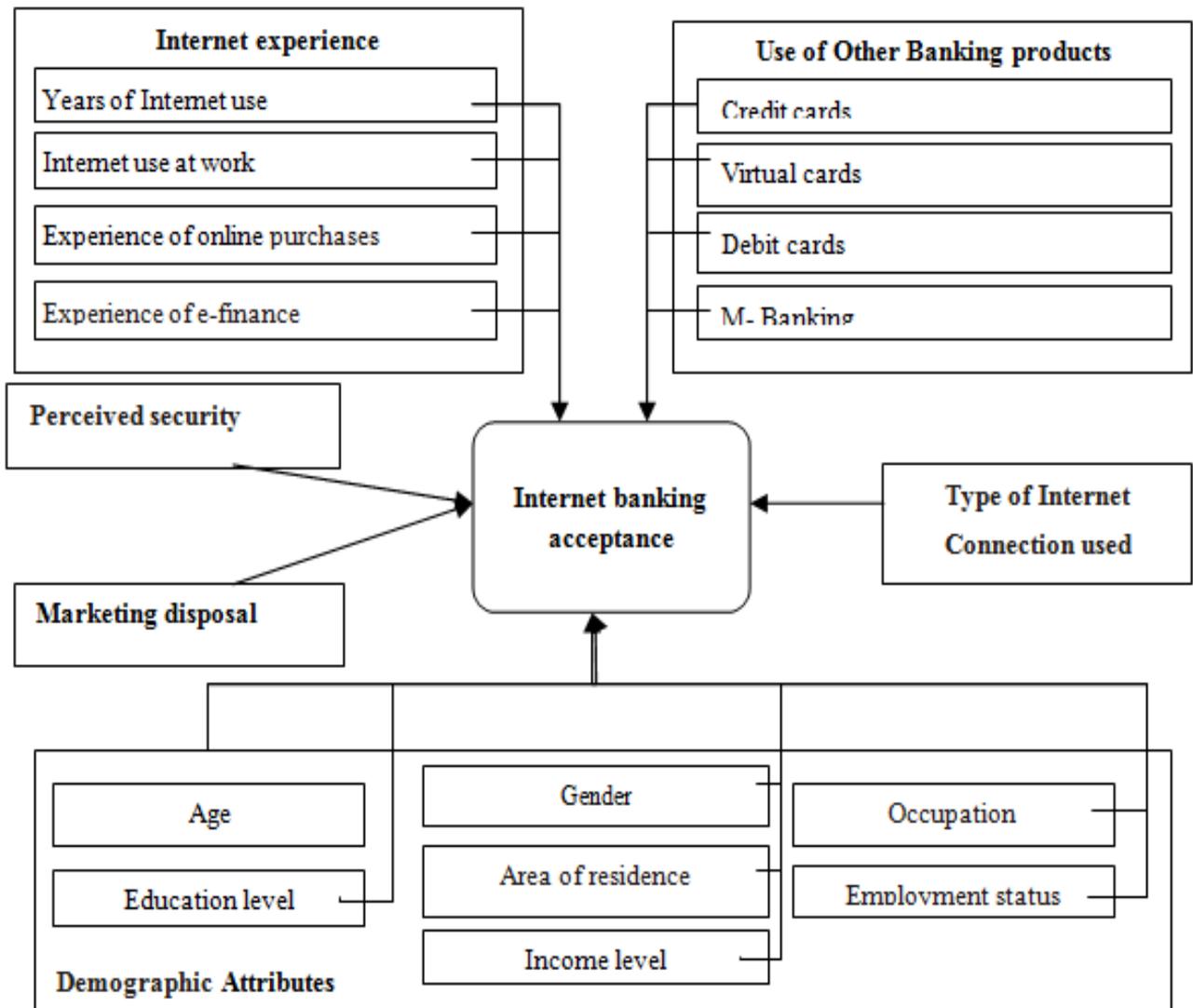


Figure I: Research Model

Table I: Explanatory variables examined in study

Variables	Conceptual Definition	Measurement	Measured scale
Internet Experience	Number of years the respondent has been using the Internet	Number of years the respondent has been using the Internet	Measured on a positive and continuous scale
Internet at Work	Internet use at work	1 if the respondent uses Internet at work; 0 otherwise	Indicator variable
Internet Transactions	Experience with online transactions	1 if the respondent conducted at least one Internet purchase or sale in the past; 0 otherwise	Indicator variable
Internet Financial Transactions	Experience with online financial transactions other than Internet Banking	1 if the respondent conducted at least one Internet financial transaction in the past; 0 otherwise	indicator variable
Mobile Banking	Experience with mobile phone banking	1 if the respondent conducted at least one financial transaction over the mobile phone in the past; 0 otherwise	Indicator variable
Debit Card	Debit card ownership	1 if the respondent holds a debit card; 0 otherwise	Indicator variable
Credit Card	Credit card ownership	1 if the respondent holds a credit card; 0 otherwise	Indicator variable
Virtual Card	Virtual card ownership	1 if the respondent holds a virtual card; 0 otherwise	Indicator variable
Perceived Security	Security of Internet transactions perceived by the respondent;	Variable measured on a five-point scale ranging from 1 (very unsafe) to 5 (very safe)	Five-point Likert
Marketing Exposure	Exposure to Internet Banking advertisements	1 if the respondent came across at least one advertisement; 0 otherwise	Indicator variable
Broadband	Type of Internet connection	1 if the respondent accesses the Internet via broadband Internet connection; 0 otherwise	Indicator variable
Education	Level of education	Variable derived from the highest educational attainment	Measured on a positive and continuous scale
Age between 18 and 60	Age level	1 if the respondent is between 18 and 60 years of age; 0 otherwise	Indicator variable
Male	Gender	1 if the respondent is a male; 0 otherwise	Indicator variable
Area of Residence	Location of response Metropolises/City/Town/Village/ Bedouin	The area which the respondent resides	Measured on a positive scale
Employed	Employment status	1 if the respondent is in paid employment; 0 otherwise	Indicator variable
High Income	Income level	1 if the respondent's monthly net income is above 10000000Rial, 0 otherwise	Indicator variable
White Collar	Occupation	1 if the respondent is a white-collar worker; 0 otherwise	Indicator variable

Table II: summery descriptive statistics for variables by adoption status

<i>Variables</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Adopters</i>	<i>Non-adopters</i>
Internet experience				
<i>Less than 6 months</i>	35	6.3	7	28
<i>Between 6-12 months</i>	48	8.6	13	35
<i>Between 1-3 years</i>	61	10.9	16	45
<i>Between 3-5 years</i>	92	16.4	39	53
<i>Between 5-7 years</i>	104	18.6	49	55
<i>More than 7 years</i>	220	39.3	149	71
Internet at Work				
<i>Yes</i>	196	35.0	145	51
<i>No</i>	364	65.0	128	236
Internet Transactions				
<i>Yes</i>	257	45.9	202	55
<i>No</i>	303	54.1	71	232
Internet Financial Transactions				
<i>Yes</i>	84	15.0	72	12
<i>No</i>	476	85.0	201	275
Mobile banking				
<i>Yes</i>	189	33.8	110	79
<i>No</i>	371	66.3	163	208
Debit card				
<i>Yes</i>	174	31.1	84	90
<i>No</i>	386	68.9	189	197
Credit card				
<i>Yes</i>	466	83.2	230	236
<i>No</i>	94	16.8	43	51
Virtual card				
<i>Yes</i>	32	5.7	12	20
<i>No</i>	528	94.3	261	267
Perceived security				
<i>Certainly no</i>	64	11.4	41	23
<i>Presumably no</i>	193	34.5	65	128
<i>Hard to say</i>	109	19.5	61	48
<i>Presumably yes</i>	194	34.6	106	88
<i>Certainly yes</i>	0	0	0	0
Marketing exposure				
<i>Yes</i>	525	93.8	257	268
<i>No</i>	35	6.3	16	19
Broadband				
<i>Yes</i>	412	73.6	229	183
<i>No</i>	148	26.4	44	104
Education				
<i>Junior high school</i>	7	1.3	3	4
<i>High school</i>	17	3.0	5	12
<i>Diploma</i>	71	12.7	22	49
<i>Associate of art or bachelor</i>	354	63.2	161	193
<i>Master degree</i>	95	17.0	68	27
<i>Ph.D. or higher</i>	16	2.9	14	2
Age between 18 and 60				
<i>Age between 18-60</i>	540	96.4	272	268
<i>Another</i>	20	3.6	1	19
Gender				
<i>Men</i>	431	77.0	228	203
<i>Women</i>	129	23.0	45	84
Aria of residence				
<i>Bedouin</i>	1	.2	1	0
<i>Village</i>	4	.7	4	0
<i>Town</i>	9	1.6	4	5
<i>City</i>	265	47.3	94	171
<i>Metropolis</i>	281	50.2	170	111
Employee				
<i>Yes</i>	240	42.9	155	85
<i>No</i>	320	57.1	118	202
High income				
<i>More than 10 million Rial</i>	45	8.0	33	12
<i>Less than 10 million Rial</i>	515	92.0	240	275
White collar				
<i>White color worker</i>	164	29.3	107	57
<i>Else</i>	396	70.7	166	230

Table III: result of Logistic Regression analysis for Internet banking adoption

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1a <i>Internet Experience</i>	-.217	.083	6.899	1	.009	.805
<i>Internet at Work</i>	.522	.273	3.650	1	.056	1.685
<i>Internet Transactions</i>	1.912	.244	61.621	1	.000	6.766
<i>Internet Financial Transactions</i>	1.459	.394	13.720	1	.000	4.303
Broadband	.391	.274	2.043	1	.153	1.479
<i>Mobile Banking</i>	.731	.252	8.457	1	.004	2.078
<i>Debit Card</i>	-.062	.261	.056	1	.813	.940
<i>Credit Card</i>	.149	.318	.221	1	.638	1.161
<i>Virtual Card</i>	-.574	.517	1.231	1	.267	.563
<i>Perceived Security</i>	-.154	.107	2.077	1	.149	.857
<i>Marketing Exposure</i>	.131	.488	.072	1	.788	1.140
Male	.746	.280	7.106	1	.008	2.108
Age between 18-60	1.081	1.123	.926	1	.336	2.947
Aria of residence	-.197	.198	.990	1	.320	.821
Employee	1.003	.354	8.017	1	.005	2.725
High income	-.258	.452	.324	1	.569	.773
White-color	-.380	.379	1.006	1	.316	.684
Education	-.216	.168	1.662	1	.197	.805
Constant	-6.356	2.619	5.890	1	.015	.002
Number of observations			560			
Model Chi-square (d.f. =18; sig.= 0.000)			277.694			
Negelkerk R Square			0.521			
Cox & Snell R Square			0.391			
(Hosmer and Lemeshow Goodness-of-Fit test)Chi-square (d.f. =8; sig.= 0.483)				7.505		



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