The Key Factors Affecting B2C Acceptance in Egypt: An Empirical Investigation

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Abstract—This research aims at investigating the effect of interrelated micro-variables (level of trust, perceived security and perceived self-efficacy) and macro-variables (availability of active legislations and technological level) on the acceptance of e-commerce as the independent variable in Egypt. Applying the Technology Acceptance Model (TAM) and adopting quantitative research methodology, questionnaires were carried out amongst 600 Egyptian consumers. The results of the survey indicate that trust, security, current technological level, active legislations and self-efficacy all affected Egyptians consumers’ acceptance of business-to-consumer (B2C) e-commerce. The research further discusses significant implications that can be adopted at both the micro and macro levels in Egypt and presents the Conceptual Model for B2C acceptance in Egypt.

Keywords- Business-to-Consumer e-commerce, Egyptian e-commerce; TAM model, B2C in the Arab world.

I. INTRODUCTION

Information and Communications Technology (ICT) evolution has affected the way businesses are managed both internally and externally by creating new goods, services, delivery channels and tools by which the organisation can enhance relationships with its customers (Turban et al., 2011). Consequently, it has evoked the concept and practice of e-commerce. The successful presence of e-commerce has helped to create low cost and high efficiency for product and service sales through a more dynamic and interactive venue of opportunities where the world has become the marketplace (Soloman, 2015).

Electronic commerce is a relatively new concept that emerged in the 1970s (Laudon and Traver, 2012). There are various definitions of electronic commerce as the researchers have not been able to agree on a conclusive definition for the concept (Mesenbourg, 1999; Riggins and Rhee, 1998; Swatman, 1996; Wilkins et al., 2000). Therefore, this paper aims at investigating the key micro and macro factors that affect the acceptance of e-commerce by Egyptian consumers.

The Arab Republic of Egypt (ARE) is still at its early stages of using (B2C) e-commerce and its diffusion is very fragmented (ICT, 2013). Egypt is the most populous Arab country, with a population that has reached 85.55 million in the beginning of 2014 (Egypt Human Development Report, 2015). The proportion of Internet users in Egypt is 30 million (The Future of the Internet Economy in Egypt, 2014), which further means that only 35.08% of the Egyptians use the Internet, and 64.92% of the population do not use it.

Furthermore, only two per cent of Egyptian Internet users buy products and services on-line (The Future of the Internet Economy in Egypt, 2014), which means that only 600,000 Egyptians shop on-line out of 85.55 million; a fact which gives a clear indication of the low rate of on-line shopping users compared to the total number of population. This situation a fact which further reflects the urgent need to conduct intensive studies to identify the causes behind the current lack of e-commerce acceptance by the Egyptian consumers, and try to find the appropriate solutions to this problem, given the potential significance of e-commerce and the need to keep pace with the rapid technological developments taking place worldwide. Therefore, there is an urgent need to identify and explore the factors that influence the B2C acceptance so that appropriate solutions can be proposed to address them.

The acceptance of e-commerce process by consumers crystallises around two major aspects: [1] getting information about the product, and [2] purchasing the product from an online vendor (Laudon and Traver, 2012). Accordingly, the working definition of e-commerce that will be employed throughout this paper is the use of information technology (IT) applications within B2C contexts to attract new consumers and strengthen relationships with existing ones through improving internal processes, existing products, and enhancing consumer's...
experience with product delivery (Bin et al, 2003: 50). Other definitions include "all the electronically mediated information exchanges between an organisation and its external stakeholders" (Chaffey, 2011: 705).

Through analysing the literature on the research of e-commerce, it is apparent that there is a lack of empirical studies directed to the scope of studying Egyptian B2C in general and the Egyptian consumer behaviour in particular. The majority of recommendations presented in the analysed empirical investigations were directly related to the macro-milieu of specific countries. Thus, these cannot be generalised to the Egyptian context especially that the investigation on consumer behaviour varies across different countries as in most cases, culture values such as buying habits and lifestyles are the root of consumer behaviour (Mooij, 2011).

In light of the above discussion, the aim of this research is to investigate and identify the key micro and macro factors that affect the acceptance of e-commerce by Egyptian consumers. Accordingly, this study will investigate the effect of inter-related micro-variables (level of trust, perceived security and perceived self-efficacy) and macro-variables (availability of active legislations, Egypt's technological level) on the acceptance of e-commerce as the independent variable, which constitute the key factors for B2C acceptance.

II. B2C ACCEPTANCE IN THE ARAB WORLD

The Arab countries share various cultural similarities including religion, customs and values, history, and language. However, they differ mainly in terms of wealth, size and their acceptance to information technologies (Dehkordi et al., 2011).

The main challenges that modern organisations face in developing countries nowadays with regards to implementing the e-commerce applications are the factors that affect the level of usability and security of e-commerce applications. Attracting on-line consumers to purchase through e-commerce applications is not an easy task and many organisations in the developing countries are facing obstacles to get advantages from the acceptance of e-commerce, and enhancing the trust of customers to increase on-line sales through the development of the usability of e-commerce applications installed in their websites (Dehkordi et al., 2011).

During the last decade, the Arab World has witnessed an Internet revolution on a massive scale. In the beginning of 2004, the Internet was still a young technology in the region, with only 28 million people going on-line. But ten years later, this number increased by more than 400%. In 2014, there was over 141 million Arabs on the web from the Arab countries (PayFort Report, 2014).

In Egypt being a non-expat heavy weight country, 99% of the on-line transactions are made by the Egyptians and the remainder by foreigners living in the country. The majority of on-line buyers is located in the capital Cairo with more than half of total on-line transactions. The Nile Delta, Upper Egypt, and Alexandria regions comprise around 43% of the on-line buying population, with the remainder of the on-line buyers is located in The Sinai Peninsula (Payfort Report, 2014).

The most popular on-line shopping categories in Egypt are: electronics, airline tickets, and fashion. They constitute a total 40% of Egypt’s on-line transactions. Unlike other countries detailed in this report, hotel reservations only make up to 6% of the total on-line transactions, while books are higher than the regional average with 8% of the total on-line transactions. With only 7% of the population being banked and only eight million credit and debit cards issued, the Egyptian consumers are challenged when it comes to on-line payments with over 65% relying on alternative payment methods such as pre-paid cards and bill presentment services and a 80% cash-on-delivery to 20% on-line credit card ratio (Payfort Report, 2014).

IV. CONSUMER BEHAVIOUR AND MICRO-FACTORS: TRUST, SELF EFFICACY, SECURITY

Losing customers is very costly, but customer retention and loyalty have become possible through the development of long-term, mutually beneficial relationships with customers (Athanasopoulou, 2009; Ndubisi, 2007). The majority of reviewed research (Flavian et al., 2006; Helander and Khalid, 2000; Herington and Weaven, 2007; Herring et al., 2005; Kim and Park, 2005; Ribbink et al., 2004; Shih, 2004; Wagner and Bolloju, 2005; Yen, 2010) supports this paper’s argument that consumer behaviour has a major impact on the B2C acceptance among consumers. One can argue that many of the previous research on e-commerce has focused on the Internet as a new channel rather than an extension from the traditional offline retail format (Mothersbaugh et al., 2012).

Trust was a major barrier towards e-commerce acceptance (Eastlick et al., 2011). Establishing an on-line consumer trust is at the centre of successful e-commerce acceptance. Within the Business-to-Consumer B2C e-commerce market, there is an explicit evidence that suggests the importance of establishing trust in encouraging e-commerce acceptance (McCole et al., 2010).

Other related research on the subject of e-commerce assurance and acceptance pertains to the issue of on-line trust in e-commerce, where many researchers have focused on the issue of distorted perceptions of trust. The security of the Internet for financial transactions poses one of the biggest challenges to the success of e-commerce (Gehrt 2011; Hsieh et al., 2013; Irwin et al. 2010; Ozkan, 2010). In this regard, some
researchers have identified the obstacles to forging on-line trust, which include the following three major aspects: First, technical, which results in the development of inconsistent infrastructure of certification policies; Second, legal, which emerges due to the availability of different or contradicting legislative frameworks that govern the adoption of e-commerce practices across countries; and Third, the management process of on-line transactions (Barkat, 2002; Desai et al., 2012; Garbarino and Lee, 2004; Gritzalis & Gritzalis, 2001; Henari et al., 2008; Ladhari, 2013; Lawson et al., 2003; Ogonowski et al., 2014; Park, 2012; Pennanen et al., 2007; Premazzi, 2010; Stewart et al., 2002).

Furthermore, trust has been identified in some empirical studies as a moderator variable. Generally, moderators are a third type variable other than independent and dependent ones, and they specify the magnitude and intensity of the relationship between independent and dependent variables. In the presence of a moderating variable, the relationship between dependent and independent variables can be changed drastically (Hansen and Jensen, 2009; Hernandez et al., 2011; Hwang, 2010). In this regard, trust has been studied as a moderator variable in relation to e-commerce acceptance, especially with the independent variable perceived risk (Buttner & Gortiz, 2008). It was argued that if the consumer trusts e-commerce, the perceived risk will be lower and an influence is expected with e-commerce acceptance especially in European countries Delbufalo (2012).

Furthermore, another concept that is related to the micro level is perceived self-efficacy (PSE), which is defined as the belief that one has the capability to behave in a certain way (Azmi and Peng, 2014). Additionally, to be able to carry out an efficient action, the individual must feel capable of handling and controlling the IT during the purchase process (Ganguly, Dash, & Cyr, 2011). Self-efficacy has a significant effect on other perceptions of the technology acceptance model such as the ease of use and usefulness, thus indirectly determining the final behaviour of consumers (Mobarakhe and Rezaei, 2014; Wu et al., 2007; Yi et al., 2006).

Having reviewed the literature, it is discovered that considerable research has been conducted on the major concepts of Technology Acceptance Model, specifically Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) (Camarero, 2012; Chen et al., 2002; Chen et al., 2009; Davis, 1989; Giovanis et al., 2012: 24; Madlberger, 2006; Torkzadeh and Dhillon, 2002; Venkatesh, 2000a; Zeithaml and Gilly, 1987). However, limited previous research has been conducted on PSE as a new extension to TAM; previous research focused on the influence of self-efficacy on consumers’ behaviour (Bruner and Kumar, 2005; Chen et al., 2002; Chau and Hu, 2001; Hernandez et al., 2007; Hernandez et al., 2011; Khalifa et al., 2008; Wu et al., 2007; Venkatesh and Brown, 2001; Venkatesh, 2000b: 351; Yi et al., 2006; Zha, 2013).

The third factor that relates to the micro-variables is on-line security. The on-line security has been found to be one of the major challenges to a wide scale acceptance of Business-to-Consumer B2C (Stewart et al., 2002) in addition to the absence of strong regulations and guidelines that ensure the on-line security for consumers (Evans and Sawyer, 2009).

Some scholars have perceived on-line security as maintaining the security of financial information such as credit card information or on-line account passwords (Ladhari, 2010). Further, Chellappa and Pavlou (2002) argued that an on-line transaction is secure if the information originated from the right party and reached the right entity without being observed, changed or destroyed during the transition process and storage. It has been argued that customers had perceived on-line security as an ethical issue and expected on-line merchants to guarantee the security of sensitive information which they held; other research studies argued that safety and security of transactions are the most important risks faced during e-commerce acceptance (Ratnasingam, 2006).

The majority of previous research studies has been interested in providing a better understanding of customers’ perceived on-line security concerns. Some of these risks include information security and privacy concerns among on-line consumers (Forsythe and Shi, 2003; Miyazaki and Fernandez, 2001; Ladhari, 2010; Runyan et al., 2008), which if not properly addressed could hinder e-commerce growth.

Furthermore, few researchers have studied the influence of customers’ perceptions of different factors on their perceived on-line security. Such factors included encryption, authentication, technical protection, and verification (Chellappa and Pavlou, 2002). Other researchers have investigated the influence of the customers’ perceptions of a security statement and websites technical protection on their perceived overall security (Kim et al., 2010).

V. MACRO-FACTORS: CURRENT LEGISLATIONS AND TECHNOLOGY

This section presents an evaluation of the literature that relates to the macro-level within an Egyptian context. The macro-level refers to the major external factors that influence the acceptance of e-commerce such as legal, cultural and technological conditions (Turban, 2011). The conduction of on-line commercial activities have created legal implications such as taxation (Noronha, 2003; Pilkingon and Farron 2000; Sumanjeet, 2010; Swardt and Oberholzer, 2006; Viboonthanakul, 2009). Additionally, e-commerce utilisation has also created legal responsibility for content and collection of data (Brinson et al., 2001; Johnson and Post, 1996; Swire, 1998). Therefore, it can be argued that the latter aspects can create more challenges for developing countries.
wishing to make use of e-commerce applications such as Egypt.

Further arguments have emphasised that legal implications present a strong barrier to B2C (Brinson et al., 2001; Johnson and Post, 1996; Noronha, 2003; Pilkington and Farron 2000; Swardt and Oberholzer, 2006; Swire, 1998; Sumanjeeet, 2010; Viboonthanakul, 2009). The digitalisation of the purchasing process and products has many implications in regard to the taxation procedures, which have been developed under the premise of physical presence in a tax jurisdiction. In this regard, many countries which impose value added tax (VAT) are affected by this shift (Swardt and Oberholzer, 2006), which further creates more challenges to Egypt as an Arab developing Arab country because in similar countries legislations usually lag behind new technological developments.

It has been further argued that overcoming the challenges that e-commerce present to taxing authorities are suggesting that "international taxation of e-commerce should be based upon the concept of "substantial economic presence, and that such a concept should replace the notions of residence and establishment" (Pilkington and Farron 2000: 85).

Still, it is very significant to highlight that the suitability of proposed strategies at the reviewed studies relies on the cultural context of each country. Furthermore, many jurisdictions in developing countries have been developed prior to the development of e-commerce (Sumanjeeet, 2010; Viboonthanakul, 2009). Reviewing the literature within this scope showed that no previous research had been conducted on the legal implications of the utilisation of E-commerce in Egypt. Thus, the results cannot be generalised to the case of Egypt because there is a research gap on the Egyptian on-line legislations in relation to e-commerce utilisations. Thus, there is a need to empirically test the legal variable in relation to B2C in Egypt.

Another factor that is associated with the macro-level is the information technology (IT) acceptance. Research on this theme has received enormous global attention with interest spanning different systems and applications in different contexts/settings (Benbasat and Barki, 2007; Kannabiran and Dharmalingam, 2012; Raghunath and Panga, 2013; Venkatesh et al., 2007). Previous research indicated that the maturity of information technology and the innovation characteristics of firm have positive influence on e-commerce acceptance (Bayo-Moriones and Lera-Lopez, 2007; Irvine and Anderson, 2008; Manning et al., 2007; Sherlock, 2002; Walczuch et al., 2000; Young, 2012). One can argue that the scope of IT research is imperative as it can help explain why some firms or countries adopt IT and why others lag behind, (Bouwman et al., 2007; Fillis et al., 2003; Lawson et al., 2003; MacGregor and Vrazalic, 2005).

Having reviewed the literature, it is worth mentioning that the majority of IT research and e-commerce has tackled the micro-level of specific countries to analyse the difficulties encountered during the acceptance process (Demeka and Olden, 2012; Obayan, 2010; Yunis et al., 2010) and little previous research has been conducted in Egypt to empirically investigate the technology as a variable.

Having reviewed the literature, it is observed that there is limited research on trust, security, legislation and technology in relation to B2C acceptance in Egypt. Accordingly, the following hypotheses are developed.

VI. RESEARCH MODEL

The Technology Acceptance Model (TAM) (Davis, 1989) forms the basis for this research. It identifies the factors that facilitate the integration of technology in organisations and the reasons why users accept or reject a technology (Lindsay et al., 2011).

Furthermore, the TAM takes into consideration the Perceived Usefulness (PU) and perceived ease of use (PEOU) of technology. The PU is whether the technology will enhance the user's job performance and perceived ease of use relates to whether using the system will be free from effort (Davis, 1989). Time and usefulness factors, such as convenience and time savings, are given as the reason to shop on-line (Chen et al., 2002; Madlberger, 2006; Torkzadeh and Dhillon, 2002; Usoro and Kuofie, 2010; Zeithaml and Gilly, 1987). Accordingly, a number of factors influences consumers' decisions about how and when they will use new technology.

Since its inception, the TAM model has gone through several developmental stages. Venkatesh and Davis (2000) extended the original TAM to include additional key determinants of TAM's PU construct, incorporating social influence and cognitive instrumental processes in what is called the TAM2 model. According to Venkatesh and Davis (2000), additional elements in the TAM2 within the social influence category include subjective norms, voluntariness, image and experience. However, the TAM2 model has been criticised for being limited to the exploration of the basics of the PU component and ignores the perceived ease of use construct (Venkatesh and Davis, 2000).

Recently, researchers have included other new concepts, either as antecedents of Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) or as intermediaries between these two variables and the final concept (intention or intensity of use). Perceived usefulness (PU) has been defined as the degree to which a potential user believes the use of a specific tool will improve his/her performance, and the operational definition for perceived ease of use (PEOU) is the perception that using a specific technology will not require additional effort (Davis, 1989). Factors such as self-efficacy or attitude, which are internal motivations (Azmi and Peng, 2014; Bruner and
Kumar, 2005; Chen et al., 2002) have been integrated as new concepts.

Moreover, Venkatesh and Brown (2001) combined the TAM2 and the model of determinants of perceived ease of use (MDPEOU) to explain perceived usefulness (PU) as per the TAM2 and perceived ease of use (PEOU). The additional factors have been integrated to evoke TAM3. Factors are taken from the (MDPEOU) and anchors (that is general beliefs about technologies) such as "computer self-efficacy", the "perception of external control", the "computer anxiety" and the "computer playfulness" are all included. The "perceived enjoyment" and the "objective usability" determinants are referred to as the "adjustments", whereby beliefs are shaped at the level of experience with a system (Venkatesh, 2000b: 351).

According to Venkatesh, the “computer self-efficacy” relates to the level of belief an individual to perform a task; the “perception of external control” determines whether an individual believes the organisational and technical support is suitable; the “computer anxiety” encompasses the level of fear associated with using a new system, and the “computer playfulness” represents the intrinsic motivation for using a novel technology; and the “perceived enjoyment” is defined as “the extent to which the activity of using a system is perceived to be satisfying in its own right” (Venkatesh, 2000b:351); and is expected to increase with experience whilst computer playfulness will decrease over time. The “objective usability” involves an individual making a comparison of the actual level of effort required to complete specific tasks (Venkatesh, 2000b: 351).

The TAM2 model critics argue that although it is more comprehensive because it provides interventions to boost PEOU as well as PU. They say that these are focused on the individual and not in the wider implementation context. In this sense, wider organisational issues such as the influence of supervision and level of involvement in the decision-making process may also play a part in determining the acceptance of a new technology (Venkatesh, 2000a).

In this perspective, it can be argued that TAM provides a useful framework for exploring the factors affecting the acceptance of a technology within the scope of this paper due to its high explanatory power in technological behaviour and e-commerce and its acceptance as an efficient model and framework for understanding acceptance of e-commerce (Azmi and Peng, 2014; Ahn et al., 2004; Al-Maghrabi, T. et al, 2011; Cheng et al., 2012; Hajli, 2012; Shang et al., 2005; Shih, 2004).

Having shed light on the TAM model integration to various studies that are directly related to the theme of this research, it was found that the majority of conducted research studies were interested in studying the motivations that led to the acceptance of on-line shopping compared with the off-line market (Chen et al., 2002; Klopping and McKinney, 2004). Thus, there is an urgent need to develop original hypothesis in relation to TAM and consumers’ acceptance of e-commerce.

VII. CONCEPTUAL DEVELOPMENT AND HYPOTHESES

Based on the major findings concluded from the literature review and the Egyptian context, this study hypothesised five hypotheses that propose one dependent variable, which is the Egyptian consumers' acceptance of e-commerce applications. In this regard, it is of paramount significance to differentiate between two stages of e-commerce acceptance, specifically, adoption and post-adoption or acceptance.

Adoption is the decision by potential on-line customers to make the first purchase, and post adoption acceptance refers to the re-purchase decisions by those who have carried out at least one purchase, and whom the researcher describes as experienced e-customers (Karahanna et al., 1999; Vijayasartharathy, 2004). One can argue that Egyptian consumers' acceptance of e-commerce will eventually lead to its diffusion as it is a major prerequisite.

On-line Trust

Hypothesis One proposes that the Egyptian’s acceptance of e-commerce in Egypt is influenced by the level of trust consumers have towards the process of on-line purchasing. According to Hofstede’s model, Egypt ranks high in uncertainty avoidance, which means that the Egyptians try to avoid uncertain or ambiguous situations (Hofstede, 2001).

According to Zhang (2011), uncertainty occurs when there are many implications to a decision. For elaboration, unlike the traditional shopping, the online purchasing makes consumers more sensitive. In traditional shopping, consumers experience the commodities and thus they develop trust and reduce their level of uncertainty before making a purchase decision by visiting the store, touching the commodity, or seeking advice from the salesperson. Accordingly, physical interaction with the product prior to purchasing a specific product can play a role in customers' trust and purchase decisions (Zhang 2011). According to Rashid (2003), trust can lead to the development of a marketing relationship, which on the long run can create satisfied and loyal consumers. In fact, the latter aspect is very important because it helps diffuse the process of e-purchasing.

It has been noted that consumers' perceived uncertainty comes from both endogenous and exogenous uncertainty. According to Littler and Melanthiou (2006), the endogenous uncertainty is generally caused by consumers' own reasons such as the lack of knowledge and lack of experience, or the inability to determine the attributes of commodities. On the other hand, exogenous uncertainty is caused by the consumers' perception of external factors. It has two major forms: perceived commodity uncertainty and uncertainty of behaviour (Chevalier and Mayzlin, 2006). The major cause for the
perceived commodity uncertainty is the type of uncertainty witnessed due to the lack of information about the attributes of a given commodity such as its quality, style, or cost. The other type of exogenous uncertainty is uncertainty of behaviour, which results from the consumers' inability to determine the credibility and truth of the information provided by the seller (Chevalier and Mayzlin, 2006).

**H1:** The acceptance of the e-commerce in Egypt is influenced by the level of trust consumers have towards the process of on-line purchasing in Egypt.

**Self-Efficacy**

Hypothesis two is an extension to the Technology Acceptance Model (TAM). It proposes that the acceptance of e-commerce in Egypt is influenced by the Egyptian consumers' perceived self-efficacy. Generally, the perceived self-efficacy (PSE) is defined as the belief that one has the capability to behave in a certain way (Azmi and Peng, 2014). Additionally, to be able to carry out an efficient action, the individual must feel capable of handling and controlling the IT during the purchase (Ganguly, Dash, & Cyr, 2011).

Self-efficacy has a significant effect on other perceptions of the technology acceptance model such as the ease of use and usefulness. Thus, it indirectly determining the final behaviour of consumers (Wu et al., 2007; Yi et al., 2006). Accordingly, the third hypothesis will integrate two independent variables to test self-efficacy: Easiness of on-line steps and the consumer's ability to handle the process of online buying.

The moderating variables for the third hypothesis are directly related to the demographics of Egyptian consumers in terms of their education, gender and age. Some authors have found that age has no significant relationship with IT use, assuming that young people already know about the Internet and that older people were resistant, which has been found to be an incorrect assumption (Rousos, 2007; Smith and Comstock, 1995; Zhang, 2005). Thus, Hypothesis Three will correlate the age variable to the variable of self-efficacy in relation to Egyptian consumers' behaviour towards e-commerce utilization.

**H2:** The acceptance of the e-commerce in Egypt is influenced by the consumers' perceived self-efficacy.

**Technological Level**

Hypothesis Three suggests that the acceptance of e-commerce in Egypt is influenced by the current technological level. The tele-communications infrastructure over which the Internet operates is a significant factor to the acceptance process of e-commerce (Bianchi et al., 2012). It can be argued that Egypt has the basic IT infrastructure to start boosting the utilisation of e-commerce applications among the Internet users segment, especially with an increase in the number of companies working in the information and communications technologies in Egypt, a matter which can lay the foundation and support the infrastructure for e-commerce in the country (ICT Indicators Report, 2012).

Still, the former aspects related to the skill level of population and the demand for e-commerce needs to be integrated into a strategic national plan as to ensure a comprehensive diffusion of e-commerce applications. For elaboration, there is currently only 31.03 million Internet users out of 82.080 million making around 37.8% of the overall Egyptian population (ICT Indicators Report, 2012). Accordingly, hypothesis six was developed as to examine the influence Egypt's current technological level on consumers’ acceptance of e-commerce.

**H3:** The acceptance of the e-commerce in Egypt is influenced by the current technological level of Egypt.

**Legislations**

Hypothesis Four posited that the availability of active legislations that support the right of on-line consumers during and after the purchasing process, especially that in some cases the on-line purchaser may trust the quality of product offered by the online merchant, but simultaneously does not trust the security of certain transactions (Gritzalis and Gritzalis, 2001). Hypothesis Four is directly related to the influence of available online active legislation on the Egyptian consumer's behaviour towards the acceptance of e-commerce applications as part of their purchasing lifestyle. The originality of this hypothesis is that it investigates the effect of available legislations on consumer behaviour.

**H4:** The acceptance of the e-commerce in Egypt is influenced by the availability of active legislations that support the rights of on-line shoppers.

**Security Risk**

Hypothesis Five hypothesized that the acceptance of e-commerce is affected perceived security risk either during current conductions or for their willingness to conduct future transactions. Previous research studies have confirmed that younger individuals usually possess greater experience with the Internet, and aspects such as usefulness and attitude acquire greater importance for them, whilst older people perceive greater risks, and have more difficulty in creating syntactically complex commands (Morris and Venkatesh, 2000; Trochcia and Janda, 2000).

**H5:** The acceptance of the e-commerce in Egypt is influenced by perceived security risks consumers have towards the process of on-line shopping in Egypt.

**VIII. CONCEPTUAL MODEL**

The conceptual Model of this study covers the interrelated relationship between research dependent, independent. It claims positive relations as an effect from the dependent variable on proposed independent ones. Hypothesis two is
related to the TAM Model. The Conceptual Model proposes a relationship between perceived trust, perceived self-efficacy, technological level, active legislations and perceived security to the major dependent variable, which is the acceptance of e-commerce by Egyptian consumers. Please refer to Figure (1-1):

![Figure 1-1: Research Conceptual Model: Factors Affecting B2C acceptance in Egypt](image)

IX. METHODOLOGY

This study will integrate the quantitative research to test hypotheses and to examine the adopted theoretical framework, which is the Technology Acceptance Model (TAM). The research instrument is self-administered questionnaire that will be distributed among 600 Egyptian consumers. The five-point Likert scale is the adopted scaling technique for this study (Saunders et al., 2012). The Likert Scale was applied because it is the widely applied in marketing research as it meets Likert’s rules for construction and testing (Cooper and Schindler, 2012). Moreover, it is the most common scale in attitude research (Malhotra, 2013).

The questionnaire in this study has integrated twenty one structured questions divided on three scopes that covered both demographic information about respondents' profiles (age, gender, educational level); and questions concerned with the independent variables of the research's eight hypotheses. The third scope was concerned with the dependent variable.

The questionnaire was distributed face-to-face through self-administered format at private universities and public places, where the segment of the targeted sample representing the upper and middle class Egyptians would be accessible. Field work locations covered the American University in Cairo (AUC); the Modern Sciences and Arts University (MSA); Misr International University (MIU); “Al Jazzera” social club; “Shooting” social Club; and Mall of Arabia.

In addition, this research has adopted a simple random sampling of probability sampling technique to allow generalisations, to provide a good approximation of the population, and offer better assurance against sampling bias (Argyrous, 2011; Malhotra, 2013; Saunders et al., 2012; Smith, 2012). The research sample in this study was a total of 600 participants. The major factors for qualifying the research sample are Egyptian, who purchased online at least once before and fit the age frames of the research: 21 - 59. Both males and females are included.

X. STATISTICAL ANALYSIS

Multiple regression analysis has been adopted at this research because it aims to explain the significant variation in the acceptance of B2C e-commerce in Egypt as the dependent variable, and how much the variation of the acceptance of e-commerce variable can be explained by each independent variable: Trust, Security, Self-efficacy, current technological level and current legislations.

The multiple regression analysis has been adopted because it explains the significant variation in the acceptance of e-commerce in Egypt as the dependent variable, and how much the variation of the acceptance of e-commerce variable can be explained by each independent variable (Saunders et al., 2012; Smith, 2012).

XIII. STATISTICAL SIGNIFICANCE

A statistical result is said to be statistically significant when the probability of its occurrence is very small usually 0.05 or 0.01 (Antonius, 2013; Burns, 2012). In research, statistical significance refers to ‘Sig. or P-value’ is associated to the probability that the result of a particular statistical test is occurring by chance. Accordingly, if the probability (p-value) of the test having occurred by chance is very low [P < 0.05 or lower], then there is a statistically significance relationship.

This means that the hypothesis is accepted because 95% of results are true and that the degree of difference being tested would occur only by 5% as a chance (Argyrous, 2011). The Sig or P-value ≤ 0.05 has been selected as the suitable statistical significance level. This level has been has been used by many previous studies similar to the present study (Pennanen et al., 2007; Swardt and Oberholzer, 2006; Katos and Patel, 2008; Tsarenko and Tojib, 2009).

XIV. DATA ANALYSIS AND RESULTS

Looking at demographic, it can be concluded from Table (1.1) that the majority of respondents (51.2%) were in the age range of 30-39 years followed by from 21-29 (28.7%), those
between 40 - 49 years were (18.7%). Finally, the 50-59 constituted only (1.5%) of the respondents and this is justified as this age group is risk-averse and prefer to experience the products from physical stores. Please refer to the appendix for Table (1.1).

Male respondents represented 50.7% of the sample and females represented 49.3%. The education level of respondents was divided into six categories: Doctorate, Master, Graduate Diploma, Bachelor, Undergraduate Student, and High School Student. It can be seen from table 6-2 that respondents were highly educated as (39.5%) of the sample were master’s degree holders, (28.3%) were Bachelor degree holders, and (15.3%) were doctorate degree holders. The remaining categories were Graduate Diploma (8.2%), Undergraduate Student (8%), and High School Student (0.7%).

For the income level per month, it was divided into six levels: Less than 1000 Egyptian pounds (LE), 1,000 LE – 2,999 LE, 3,000 LE – 4,999 LE, 5,000 LE – 6,999 LE, 7,000 L.E. – 8,999 L.E, 9,000 L.E – above. In this regard, it is worth mentioning that one USA dollar ($) is equivalent to 7.6 Egyptian pounds (LE), and 1 Sterling (£) is equivalent to 11.6 L.E. The majority of the sample were between 3,000 L.E-4,999 LE (24.2%), followed by 5000-6999 (28.7%) which reflects on the ability of the respondents to purchase more online. The remaining levels were 9,000 L.E. & above (17.2%), 1,000 LE. – 2999 L.E (12.7%), 7,000 LE. – 8,999 L.E (12.3) and least was Less than 1,000 L.E (5%) only.

Group Differences

One of the objectives of this study is investigating whether consumer behaviour can differ towards the acceptance of e-purchasing in the e-commerce sector in Egypt. Accordingly, the researcher wanted to investigate whether the acceptance of e-commerce differed among different groups of respondents. To fulfil this objective a series of tests were carried out on the empirical data. Two statistical techniques were used. The Mann-Whitney U Test, which is “a non-parametric test that looks for differences between two independent samples.”

It tests whether the population from which two samples are drawn have the same location” (Field, 2013: 878); and the Kruskal-Wallis Test, which is a non-parametric test of whether more than two independent groups differ (Burns, 2008: 316). Thus, the Mann-Whitney U Test has been used for measuring group differences by gender and the Kruskal-Wallis test has been used for measuring group differences by age, income and education.

Gender

Table (1.2) shows the results obtained from Mann-Whitney U Test for gender analysis. The test was conducted to identify any difference between males and females in their level of acceptance of B2C e-commerce. The level of significance (P-value) has been examined to interpret the differences. The results from table (1.2) suggests that there was no significant gender difference in their acceptance of B2C e-commerce. This result is indicated by: p= 0.068>0.05, U=41,426.5, z=-1.82.

Furthermore, in Table (1.3), shows the rank of gender with no difference between males and females. Hence, the test reveals that males and females were similar in their acceptance towards B2C e-commerce.

Age, Educational level and Income

The respondents were divided into four different age groups (20-29, 30-39, 40-49, and 50-59), the educational level has been divided into six categories (doctorate, masters, graduate diploma, BA/BS degrees, undergraduate student and high school student degree) and income were divided into six categories (less than 1,000 LE., from 1,000 to 2,999 LE., from 3,000 to 4,999 LE., from 5,000 to 6,999 LE., from 7,000 to 8,999 LE. and from 9000 LE and above). The level of significance will be examined in order to interpret the differences. From table (1.4), the Kruskal-Wallis Test results showed significant age differences in the respondents’ acceptance of B2C e-commerce with p=0.012, $\chi^2=10.90$, and df=3. Moreover, for education, the results showed a significant educational differences in the respondents’ acceptance of B2C e-commerce with p=0.001, $\chi^2= 21.27$, and df=5. However, for Income, the results showed no significant income differences in the respondents’ acceptance of B2C e-commerce with p=0.459> 0.05, $\chi^2=4.6$, and df=5.
Table 1.4: Kruskal-Wallis Test statistics

<table>
<thead>
<tr>
<th>Moderating Variables</th>
<th>Do you think that online buying is accepted in Egypt?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Chi-Square 10.906, df 3, P-value .012</td>
</tr>
<tr>
<td>Educational Level</td>
<td>Chi-Square 21.127, df 5, P-value .001</td>
</tr>
<tr>
<td>Income</td>
<td>Chi-Square 4.659, df 5, P-value .459</td>
</tr>
</tbody>
</table>

XV. RELIABILITY TESTS

Reliability refers to the ability of the measure to produce consistent results when the same entities are measured under different conditions (Wilson, 2012). The higher the coefficient, the more reliable the questionnaire will be. According to Uma Sekaran and Roger Bougie, Cronbach's alpha is the most often used statistical measure to evaluate internal consistency in business research (2010). Accordingly, the internal consistency method is adopted in this research as to evaluate the reliability of the measures as Cronbach's alpha does not require the researcher to administer the questionnaire for two times. The commonly accepted lower limit for alpha is 0.7 (Hardy and Bryman, 2011). However, Malhotra and Birks (2010) recommended that a value greater than 0.6 is considered a satisfactory level of internal consistency of a measure. Table (1.5) shows the value of Cronbach's alpha for the eleven variables. The higher the Cronbach's alpha, the higher the reliability of measuring the same variable. It can be seen from table (1.5) that all five variables are with a value higher than 0.70 which is satisfactory.

Table 1.5: Reliability Statistics Cronbach’s alpha

<table>
<thead>
<tr>
<th>Variables</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptance of e-commerce</td>
<td>0.76</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>0.723</td>
</tr>
<tr>
<td>Current technological level</td>
<td>0.778</td>
</tr>
<tr>
<td>Active legislations</td>
<td>0.829</td>
</tr>
<tr>
<td>Security</td>
<td>0.76</td>
</tr>
<tr>
<td>Trust</td>
<td>0.81</td>
</tr>
</tbody>
</table>

XVI. HYPOTHESIS TESTING

Regression analysis determines whether the independent variables explain a significant variation in the dependent variable and how much the variation in the dependent variable can be explained by the independent variables (Kahane, 2008). Multiple regression is an extension of linear regression in which several independent variables, instead of just one, are combined to predict a value on a dependent variable for each subject (Tabachnick and Fidel, 2013).

Furthermore, Table (1.6), shows how much of variance in the acceptance of e-commerce is explained by the independent variables and that this value measured by the coefficient of determination (R square). According to Table (1.6), it can be seen that 62.2% of the total variations in the dependent variable “acceptance of e-commerce” can be explained by 5 independent variables included in the study and this result was statistically significant (Sig. = 0.0001).

Further Table (1.7) reflects the P-value of each independent variable (online trust, perceived self-efficacy, active legislations, technological level and online security) in relation to the acceptance of e-commerce by Egyptian consumers.

Table 1.6: Regression Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.790</td>
<td>.622</td>
<td>.625</td>
<td>.3351</td>
</tr>
</tbody>
</table>

Table 1.7: Hypothesis testing using Regression

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of online trust</td>
<td>0.025</td>
</tr>
<tr>
<td>Perceived self-efficacy</td>
<td>0.000</td>
</tr>
<tr>
<td>Technological level</td>
<td>0.043</td>
</tr>
<tr>
<td>Active legislations</td>
<td>0.033</td>
</tr>
<tr>
<td>Online Security</td>
<td>0.032</td>
</tr>
</tbody>
</table>

XVII. DISCUSSION

Hypothesis $H_1$ hypothesized a relationship between the acceptance of e-commerce in Egypt and the level of trust consumer towards online purchasing. The level of trust is hypothesized to significantly influence Egyptian consumers' acceptance of e-commerce because the $p<0.05$ (0.025). Thus, the level of trust has shown to make a significant contribution to the acceptance of e-commerce, and based on this statistical data, $H_1$ is accepted, which indicates that trust has an effect on B2C acceptance among Egyptian consumers.
Hypothesis H₂ proposed a relationship between the acceptance of e-commerce in Egypt and consumers’ self-efficacy. This is hypothesised to be significantly influence Egyptian consumers’ acceptance of e-commerce because the p<0.05 (0.000) Thus, Self-efficacy has proven to make a significant contribution to the acceptance of e-commerce, and based on this statistical data, H₂ is accepted, which reflects that self-efficacy has an effect on B2C acceptance among Egyptian consumers.

Hypothesis H₃ suggested a relationship between the acceptance of e-commerce in Egypt and Egypt’s current technological level. The Egypt’s current technological level is hypothesised to significantly influence Egyptian consumers’ acceptance of e-commerce because the p<0.05 (0.043). Thus, Egypt’s current technological level made a significant contribution to the acceptance of e-commerce, and based on this statistical data, H₃ is accepted, which emphasised that current technological level has an effect on B2C acceptance among Egyptian consumers.

Hypothesis H₄ posited a relationship between the acceptance of e-commerce in Egypt and the availability of active legislations. The availability of active legislations is hypothesised to significantly influence Egyptian consumers’ acceptance of e-commerce because the p<0.05 (0.033). Thus, the availability of active legislations has shown to make a significant contribution to the acceptance of e-commerce, and based on this statistical data, H₄ is accepted, which emphasised that active legislations have an effect on B2C acceptance among Egyptian consumers.

Hypothesis H₅ proposed a relationship was between the acceptance of e-commerce in Egypt and security. Security is hypothesised to be significantly influence Egyptian consumers’ acceptance of e-commerce because the p<0.05 (0.032). Thus, security was shown to make a significant contribution to the acceptance of e-commerce, and based on this statistical data, H₅ is accepted, which shows that security has an effect on B2C acceptance among Egyptian consumers.

The present study has relied largely on quantitative methodology of data collection as the qualitative methodology was used only at the preliminary research. Thus, it is somehow restrictive. Therefore, more of qualitative methodology of data collection should be undertaken in future to provide wider perspective to the present study. For instance, the research design can employ intensive interviews study to provide a holistic picture to the given subject. Future research can also extend the TAM model by proposing extra macro factors such as culture and moderating variables such as gender and age to be empirically tested.

XIX. IMPLICATIONS AND CONCLUSION

The present study gives important practical and theoretical implications in relation to the current status of (B2C) acceptance in Egypt. It is worth mentioning that the Arab Republic of Egypt (ARE) is still in its early stages of using (B2C) e-commerce and its diffusion is very fragmented (ICT, 2013). Egypt is the most populous Arab country, with a population that stood at 85.55 million in 2014 (Egypt Human Development Report, 2014). The proportion of Internet users in Egypt is 30 million (The Future of the Internet Economy in Egypt, 2014), which further means that only 35.08% of Egypt’s population use Internet, and 64.92% of the population do not use it.

Furthermore, only two per cent of Internet users buy products and services on-line (The Future of the Internet Economy in Egypt, 2014), which means that only 600,000 Egyptians shop on-line out of 85.55 million; a fact which gives a clear indication of the low rate of online shopping users compared to the total number of population.

At the micro-level, research results verified that trust, self-efficacy and security affect Egyptians’ consumers acceptance to e-commerce; accordingly, the most important practical implications is that marketers may use the proposed framework to assess their e-commerce activities that are being provided to their customers. For the managerial implications, on-line vendors should prioritise the development of strategies that create a feeling of security, boost customers’ trust and allow an easy applications and utilization of their online stores.

The findings further suggest that the e-marketers should incorporate features that can greatly enhance on-line shopping efficiency. For example, there is a need for a search mechanism that can not only provide extensive relevant
information but also facilitate product comparison and help users make their best decisions in a most efficient way.

At the macro-level, results showed that level of technology and available legislations play a key role in maximizing the level of acceptance of e-commerce among the Egyptian consumers. The Egyptian government should pay attention to activating current legislations that protect the security and privacy of consumers. It must also provide advanced levels of IT support. From the perspective of contribution to the literature, this paper proposes the first framework for e-commerce acceptance in Egypt.

REFERENCES


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APPENDIX

Table 1.1: Sample distribution according to demographic variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Interval</th>
<th>Respondents</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number</td>
<td>% of Total</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>21 – 29</td>
<td>172</td>
<td>28.7</td>
</tr>
<tr>
<td></td>
<td>30 – 39</td>
<td>307</td>
<td>51.2</td>
</tr>
<tr>
<td></td>
<td>40 – 49</td>
<td>112</td>
<td>18.7</td>
</tr>
<tr>
<td></td>
<td>50 – 59</td>
<td>9</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>600</td>
<td>100</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td>Male</td>
<td>304</td>
<td>50.7</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>296</td>
<td>49.3</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>600</td>
<td>100</td>
</tr>
<tr>
<td><strong>Educational level</strong></td>
<td>Doctorate Degree</td>
<td>92</td>
<td>15.3</td>
</tr>
<tr>
<td></td>
<td>Master’s Degree</td>
<td>237</td>
<td>39.5</td>
</tr>
<tr>
<td></td>
<td>Graduate Diploma</td>
<td>49</td>
<td>8.2</td>
</tr>
<tr>
<td></td>
<td>BA/BS Degree</td>
<td>170</td>
<td>28.3</td>
</tr>
<tr>
<td></td>
<td>Undergraduate Student</td>
<td>48</td>
<td>8.0</td>
</tr>
<tr>
<td></td>
<td>High School Student</td>
<td>4</td>
<td>0.7</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>600</td>
<td>100</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td>Less than 1000 L.E</td>
<td>30</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td>1000 L.E. – 2999 L.E</td>
<td>76</td>
<td>12.7</td>
</tr>
<tr>
<td></td>
<td>3000 L.E. – 4999 L.E</td>
<td>145</td>
<td>24.2</td>
</tr>
<tr>
<td></td>
<td>5000 L.E. – 6999 L.E</td>
<td>172</td>
<td>28.7</td>
</tr>
<tr>
<td></td>
<td>7000 L.E. – 8999 L.E</td>
<td>74</td>
<td>12.3</td>
</tr>
<tr>
<td></td>
<td>9000 L.E. – above</td>
<td>103</td>
<td>17.2</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>600</td>
<td>100</td>
</tr>
</tbody>
</table>