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Online purchase behaviour among professionals: a socio-demographic perspective for Turkey

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This study reports the findings of a survey concerning the impact of professionals' selected socio-demographic factors with regard to their online purchasing behaviour in Turkey, since this consumer group plays an important role in adopting new technologies in societies. The survey has been conducted using a 'face-to-face interview' approach during an IT event. To keep in line with the available literature, gender, age, education level, income and daily Internet usage, constitute the socio-demographic variants for this study. Five hypotheses were constructed to investigate the nature of the relationship between the socio-demographic factors and the usage of online purchasing. The chi-square method was selected to test the hypotheses. According to the test results, age, income and education level have a significant impact on the online purchasing behaviour of professionals.

Keywords: online purchasing; gender; age; education; income; Internet

JEL classification: L81, L86, I20, I21, A2, J16

1. Introduction

Electronic retailing over the Internet or online purchasing first started in 1994 and has captured the interest of many retailers and merchants because of its advantages to both companies and consumers. In this approach, there are no geographical boundaries for companies and a variety of products are available at any time and anywhere with better prices for consumers. These advantages make online purchasing an increasingly essential tool, especially for small and medium sized enterprises in gaining competitive advantage and in accessing global markets for the last two decades (Yulihasaki, Islam, & Daud, 2011). Simonsen (2012) pointed that online European retail sales are forecasted to grow 12.2% annually, reaching a total value of US\$230.4 billion by 2016.

The conventional literature holds sufficient evidence to support the effect of many factors including gender, education, income, age, households, business and geographical areas at different socio-economic levels (Salomon & Koppelman, 1992) on purchase decisions. However, less empirical evidence is currently available to support this phenomenon in online purchasing context and thus, the online consumer behaviour is an emerging research area (Cheung, Chan, & Limayem, 2005).

Apart from factors regarding the selected services and the motivation, there is evidence in the literature that socio-demographic factors have impact on individuals'

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attitudes towards the use of online purchasing (Cheung et al., 2005; Lightner, 2003; Sim & Koi, 2002; Teo & Lim, 2004). This is also supported by Beneke, Scheffer, and Du (2010) who concluded that demographic variables such as income, education and age are likely to have a material effect on purchase intention. Finally, Bubaš and Hutinski (2006) noted that personality types of Internet users constitute another set of factors that influences Internet usage motives and online activities.

The available studies have generally focused on academic populations (see for example, Hwang, Jung, & Salvendy, 2006; Lightner, Yenisey, & Ozok, 2002) and inhabitants (see for example, Farag, Krizek, & Dijst, 2003; Farag, Krizek, & Dijst, 2006). Additionally, the amount of work on consumer behaviour in relation to most services, including online purchasing, has been relatively low in the academic literature and, therefore, the differences across demographic groups have become an interesting research area (Yang & Tung, 2007). In particular, employee populations constitute one of the largest groups and play a very important role in shaping the future in all societies and in the adoption of new technologies, which affects many sectors, such as commerce, industry, services, etc. According to Jin, Drozdenko, and Bassett (2007) professionals' use of the Internet services may show entirely different patterns to other groups in the society due to the differences in understanding the required knowledge, subject knowledge, technical skills and perception of proficiency achieved/possessed. These imply that findings reported by existing online purchasing studies for different groups (academics, students, citizens, etc.) may not be applicable to professionals. Therefore, research on the online purchasing attitude of professionals may expand the important philosophical debate on business strategies.

The basic concepts of online purchasing (or online shopping) have been developed in the Western World (Usunier & Lee, 2005) and most of the relevant studies are either US/EU or Far East based. The results of these studies may not be applicable to other parts of the world due to social and economic differences and comparatively, very little has been researched in the field of information and communication technology (ICT) in developing countries. Turkey is a relatively young and highly populated developing republic. It is the 17th largest economy in the world and lies between the individualistic and collectivist cultures of Western and Far East countries respectively (Chirkov, Ryan, & Kim, 2003). Additionally, it started negotiations with the European Union in 2004. With all these characteristics Turkey is an important and interesting example to developing countries and to markets with high potential. Although a number of studies related to ICT technologies were conducted in the country, the impact of demographic factors on online purchasing has not been studied in our context yet. Recently, some studies have been reported on various issues of e-commerce in Turkey, such as impact of e-commerce on the business sector in Turkey (Yumusak, 2005) and comparison of conventional and online commerce (Altinok, Sugoza, & Cetinkaya, 2003). These studies do not address the attitudes of individuals towards online purchasing usage in the society.

This study was, thus, undertaken to investigate the use of online purchasing among employees of government and private sector organisations in Turkey with reference to important concerned socio-demographic factors such as gender, age, income, education and Internet usage. For the purpose of this study, the definition by Mokhtarian (2004) is used to define online purchasing. The results of this empirical study may be useful for policymakers of companies from public and private sectors for developing effective online business strategies for their own organisations.

The remainder of this article is organised as follows: The following section introduces the research method. The results of the analysis are then presented and discussed in the forthcoming two sections. The article concludes with conclusions, limitations and directions for future research.

2. The hypotheses

The current research investigates the impact of socio-demographic factors on professionals' attitudes towards online purchasing. The term 'professional' is used to represent the employees/workers of public and private sector organisations. Alike deductive approach is followed in this study and for this purpose, six logically bounded hypothesis categories were proposed. The justification of these hypotheses is given in the following sub-sections.

2.1. Gender

The impact of gender on the use of Internet and online commerce/purchasing has been analysed in various studies and the results have not been found conclusive. For example, Farag et al. (2003) has shown that, in general, most online buyers are male. Similarly, Bhatnagar and Ghose (2004) have found considerable evidence that women display lower levels of computer aptitude and higher levels of computer anxiety. However, Dai (2007) has reported that women outnumber men with respect to both online shopper population and expenditures despite their concerns regarding the risks associated with online purchasing. All these may be used as an indication of the fact that some gender differences in use of ICT should normally be expected. However, the nature of this pattern may change depending on the men's and women's different occupational experiences and their different positions related to professional characteristics in different societies (Losh, 2003). All these may be taken as an evidence of the fact that the attitude of professionals towards online purchasing may depend on their gender and may show differences from the other groups in the society. Therefore, the following hypothesis is postulated:

Hypothesis 1. *There is significant relationship between professionals' online purchasing behaviours and gender.*

2.2. Age

Age is among the factors that influence the attitudes of individuals in the use of ICT and different age groups may have different tendencies towards online purchasing (Hwang et al., 2006). This view is also supported by Farag et al. (2003) who reported that age is inversely related to online purchasing in a non-linear manner. Both studies used the data from citizens and the second was concentrated on personal travel only. Bhatnagar and Ghose (2004) and Beneke et al. (2010) are supporters of the existence of a negative relationship between age and degree of online search. However, there are studies reporting conflicting results. For example, Saarenpää and Tarja (2005) pointed that 57% of the consumers of e-commerce were 30-years-old or older. This means there is a need for further investigation. Based on this rationale we propose the following hypothesis:

Hypothesis 2. *There is significant relationship between professionals' online purchasing behaviour and age.*

2.3. Education level

In this study the education level is defined as the participants' school of graduation. Palumbo and Herbig (1998) defined the typical Internet user of the twentieth century as being young, professional and affluent with higher levels of education. Bhatnagar and Ghose (2004) and Tarafdar and Vaidya (2006) also agreed about the impact of education on the Internet and a lack of training and education form significant barriers to the adoption of new technologies. Additionally, most research findings indicate that the better educated use the Information Technology (IT) for diverse tasks and entertainment (Losh, 2003). This backdrop, concludes that professionals' education level may be an important factor for understanding their online services usage behaviour. This leads to the development of the following hypothesis:

Hypothesis 3. *There is significant relationship between professional' online purchasing behaviour and their educational level.*

2.4. Income

The economic factors which influence online purchasing and payment include income level (e.g. per capita GDP) and availability of credit (e.g. through credit card systems) (Hwang et al., 2006). Data collected by the US National Telecommunications and Information Administration (NTIA) indicates that income correlates with Internet usage (Lightner et al., 2002). Additionally, individuals with a higher income shop online more often (Sim & Koi, 2002). Furthermore, according to a recent report, UNPAN (2005) pointed out that 'low-income countries account for 40% of the world's population and 11% of the world's gross national income, yet comprise only 2% of the world's ICT users'. According to this report, disparities in income broadly mirror disparities between the ICT adoption of the countries. Based on these findings, it will be interesting to investigate the inclination of professionals, which is assumed to constitute the middle level income group to shed light on their potential of online purchasing. Such an investigation may also provide some valuable information about the differences between professionals from the government and from the private sector organisations. Against this backdrop, the following hypothesis is proposed:

Hypothesis 4. *There is significant relationship between professionals' online purchasing behaviours and income.*

2.5. Use of the Internet

In their research, Sim and Koi (2002), concluded that Internet experience and usage frequency have an impact on the use of Internet for purchasing purposes. Therefore, the level of Internet usage may be taken as one of the indicators of online purchasing (Thomson & Laing, 2003; Bhatnagar and Ghose (2004). Furthermore, Tigre and Dedrick (2004) reported that the growth and usage of the Internet have not been the same across all layers in the society and there appear to be differences in the usage of the Internet both regionally and demographically. This means, findings regarding ICT usage of other groups may not be applicable to professionals due to the existence of social, cultural and economical differences. Therefore, the following hypothesis is proposed:

Hypothesis 5. *There is significant relationship between professionals' online purchasing behaviours and average daily use of the Internet.*

3. Research methodology

This study uses a systematic analysis to investigate the impact of socio-demographic factors on online purchasing. A survey approach was adopted for this purpose and the data was obtained by means of a questionnaire. Several IT managers and academics were interviewed to finalise the questionnaire.

The respondents were employees from public and private sector organisations who attended an annual two-day workshop on informatics, organised by the Turkish Informatics Association (TIA). The participating establishments were selected from the TIA's list of major government and private sector firms using 'judgment sampling' based on the size and the sector of the firm. The number of invitations was limited to 265, and assumed to constitute our research sample. A face-to-face interview method was used for collecting the data in the survey. A total of 230 completed survey questionnaires was received at the end of the workshop. The questionnaire contains eight questions, which involve eight variables (Table 1). The variables sector and experience were used for descriptive purposes in the discussions. The values in parentheses in the last column of Table 1 show the codes used for values of the variables.

A smaller number of categories was decided to be used for the variables; age, income, experience and time spent for the Internet usage. This is because our study uses a sample of professionals only and the scale intervals for such samples are more coarse than samples containing groups with different natures. Cummins and Gullone (2000) also supported the claim that larger scales are not necessarily sensitive for the purpose of measuring. According to their study, expanding the number of choice-points may systematically damage scale reliability. The overall internal reliability as measured by Cronbach alpha (Brown, 2002) was found to be 0.781. This means the data is reliable since, usually, 0.7 and above is acceptable (Yu, 2007).

The chi-square test method was used to examine the relationship between variables.

Table 1. Research instrument.

Q. No	Variable	Definition	Scale	Range of values and their codes
1	Gender (x_1)	Your gender	Categorical	male (1)/female (2)
2	Age (x_2)	Your age	Categorical	<30 (1), 30–40 (2), >40 (3)
3	Income(x_3)	What is your monthly income?	Categorical	<1,500 TL* (1), 1,500–3,000 TL (2), >3,000 TL (3)
4	Education (x_4)	What is the level of your education?	Categorical	high school (1), vocational school (2), university (3), post graduate (4)
5	Internet (x_5)	What is your average daily use of Internet?	Categorical	<3 h (1), 3–6 h (2), >6 h (3)
6	online purchasing* (y)	Have you purchased online**?	Dichotomous	yes (1)/no (2)
7	Sector	What is the sector of your organisation?	Categorical	public (1), private (2)
8	Experience	For how many years have you been working as an employee?	Categorical	<5 years (1), 5–10 years (2), >10 years (3)

Source: Authors' calculation.

*TL means Turkish Lira (1.8 TL=1 US\$).

**Online purchasing is defined as an activity to buy or receive information about consumer goods via the Internet from the user's perspective in this study.

4. Results

Initially, the results of the survey are presented by using descriptive statistics. This is followed by the results of analysis for each selected factor.

4.1. Descriptive results

The background profile of respondents is provided in Table 2.

The male respondents were observed to be dominant (69.57%) in this survey. This is to be expected because it is generally observed in the society that the majority of professionals working in the field of IT are males. This observation is especially true for rural areas. Of the males, 63.13% conducted e-shopping and the corresponding percentage for females was 60%. Additionally, most of the public (69.81%) and private (79.31%) sector respondents were males. Public sector professionals were observed to use more Internet than their private sector counterparts since corresponding percentages appeared to be 71.70% and 60.92% for using the Internet more than 3 hours in a day. The experience of respondents was clustered around five to 10 years (44.35%) and the average number of years of experience was 6.67 years. The variables experience and average daily use of the Internet show similar trends. This may imply that computer experience is one of the determinant factors for the use of the Internet.

Table 2. Profile of Respondents.

Variable	Number	Percentage
<i>Gender</i>		
Male	160	69.57
Female	70	30.43
<i>Age</i>		
<30	161	70
30–40	46	20
40>	21	9.13
No Response	2	0.87
<i>Income (in TL)</i>		
<1.500	161	70.00
1.500–3.000	47	20.43
>3.000	18	7.83
No response	4	1.74
<i>Average daily use of the internet (hours)</i>		
<3	73	31.74
3–6	81	35.22
>6	66	28.7
No response	10	4.35
<i>The sector of your organisation</i>		
Public	135	58.70
Private	95	41.30
<i>Experience (number of years of using IT)</i>		
<5	62	26.96
5–10	102	44.35
>10	58	25.22

Source: Authors' calculation.

4.2. Test results

The chi-square test results for usage of online purchasing are given in Table 3. The inspection of p -values in Table 3 indicated that there is no sufficient evidence to accept H_1 (Chi-square = 0.004; $df = 1$; P -value = 0.947). In other words, on the contrary to what is expected, there is no statistically significant relationship between professionals' gender and online purchasing. This means that there is no disparity in gender in terms of professionals' online purchasing behaviour. Interestingly, test results were also not in favour of the hypotheses H_5 (Chi-square = 1.309; $df = 3$; p -value = 0.727) and, therefore, H_5 is rejected. This leads to the fact that the time spent for daily internet usage is not one of the significant predictors of professionals' online purchasing behaviours. This can also be interpreted as, there is no significant relationship between time spent for Internet usage and online purchasing.

All the remaining hypotheses were supported by the survey results at 5% significance level and, therefore, H_2 , H_3 and H_4 are accepted. In other words, the independent variables age, income and education are significant factors for the explanation of the dependent variable, online purchasing. This can also be interpreted as professionals' age, income and education have significant impact on the reported online purchasing of professionals. In other words, significant disparities exist in the variables of age, income and education in terms of professionals' online purchasing behaviours.

5. Discussions

Surprisingly, the results of this study revealed that professionals' gender is not significantly related to the use of online purchasing. It was observed that male professionals conduct online purchasing (63.13%) slightly more than their female counterparts (60.00%). This finding is consistent with what was reported by Zhang (2005), who found that there is no statistically significant difference in terms of Internet sub scale usefulness between male and female employees. One plausible explanation for this result may be that respondents having similar backgrounds and similar positions in the society are likely to show similar attitudes and behaviours in using ICT. Teo and Lim (2004) and Hwang et al. (2006) are amongst the researchers who reported contradictory findings. Teo and Lim (2004) reported that one of the user characteristics that has empirical support for impacting online behaviour and preferences is gender and, similarly, Hwang et al. (2006) pointed out group differences for gender. Rodgers and Harris (2003) suggested that females were less emotionally satisfied with online purchasing, and they tended to find Internet purchasing 'more of a hassle' than males. A plausible explanation for the contradictory results may be based on the cultural differences since

Table 3. Chi-square results of online purchasing behaviour according to demographic factors.

Dep. var.	Indep. var.	Hyp.	df	Chi-sq.	p -val*
Online purchasing (y)	Gender (x_1)	H1	1	0.004	0.947
	Age (x_2)	H2	2	6.333	0.042*
	Income (x_3)	H3	3	10.058	0.018*
	Education (x_4)	H4	2	6.257	0.044*
	Internet (x_5)	H5	3	1.309	0.461

Source: Authors' calculation.

*Indicates statistically significant at 5% significance level.

culture influences the preferences and also there are differences among different cultures from the Human Computer Interface (HCI) point of view (Husing & Selhofer, 2002).

In this study, test results indicated that professionals' age affects the level of online purchasing and this effect was found to be negative. In other words, the percentage for the younger group (age < 30 years) reported online purchasing (51%) is higher than the older (age \geq 30 years) professionals (26%) as expected. An interesting explanation of this finding is backed up by Bhatnagar and Ghose (2004), who suggest that as consumers get older, conducting a search requires greater physical effort. On the contrary, Levy (2002) supported the claim that the rapid uptake of new technologies is occurring among most groups of Americans, regardless of age. Nonetheless, noticeable gaps still exist between the different levels of these attributes (Levy, 2002). Another contrasting conclusion was also reached by Koyuncu and Lien (2003), who found that age promotes online purchasing and they reported significant positive effects for age on online purchasing. This may be due to the approach that they used to capture possible nonlinear effects of age. Another plausible explanation for the contrary findings may be based on the existence of the differences between the characteristics of samples and categorisation of the data. To illustrate, in the survey of this study, the respondents were either from public or private sectors and most of the respondents (70%) were less than 30 years of age, whereas Koyuncu and Lien (2003) used citizens as their respondents, and these respondents' average age was greater than 36 years.

Prior literature on the influence of income on online purchasing produced conflicting results. For instance, Shiu and Dawson (2002) examined the consumer segmentation of the Internet in Britain and Taiwan and found that Internet purchasing is not different among different income groups. However, Farag et al. (2006) reported that higher income respondents are more likely to buy online and they indicated that economic factors which influence online purchasing include income level. Interestingly, our study indicated that the difference between income groups using online purchasing is significant. This shows that professionals practice online purchasing by considering their monthly income. In our study, most of the professionals were from the public sector (58.70%) and their income level was reported to be accumulated around the average (1698.86 TL). This figure is lower than that of private sector professionals. Considering their income level, professionals working in the government sector are influenced by the economic benefits that they gain as a result of their purchasing online. In general, professionals constitute one of the groups using ICT effectively in the society and, therefore, are well-informed consumers as a variety of information is available on the Web (Thomson & Laing, 2003). Thus, they have more control over the search process, which in turn facilitates price comparison.

Education in using ICT technology appears to be a key element in the gap in usage and it was observed in this study that professionals' level of education has a significant impact on online purchasing. This finding is in parallel with Farag et al. (2006) and Lightner et al. (2002), who reported that more highly educated respondents buy online more and educational environment has an effect on online behaviour respectively. This means that, as the professionals' education levels rise, inclination towards using online purchasing rises. A possible explanation for our finding may be based on the fact that higher education level means higher level of income and more perceptiveness towards innovations in both government and private sector organisations. This naturally has a positive impact on professionals' online purchasing usages.

The Internet is defined as the use of technology as a means to deliver services to citizens, businesses and other entities (Tambouris et al., 2001) and has a significant

impact on individuals' daily live (Mcivor, Mchugh, & Cadden, 2002). According to Lightner (2003) once buyers were comfortable with an online vendor, repeat business would follow. This finding was also supported by Thomson and Laing (2003), who reported that factors such as time spent on Internet and the usage of the Internet at work affect an individual's exposure to and experience of Internet usage. Surprisingly, the chi-square test results did not show any significant difference for average daily use of Internet in our study. An explanation for the contradictory findings may be based on the fact that our sample was drawn from the population of professionals only, and it is reasonable to expect this group of individuals to show similar behaviour in using the Internet.

6. Conclusion

This article investigates the use of online purchasing behaviours among professionals in Turkey. To the best of our knowledge, it is the first of its own kind of study that directly analyses the relationship between demographic factors and online purchasing behaviours of, specifically, professionals. A survey research approach was adapted to a set of data collected from a sample of professionals from the government and private sector organisations. To keep in line with the literature, selected factors include socio-demographic variables such as gender, age, income, education and average daily use of Internet. According to the comparative analysis professionals' online purchasing usage is significantly related to age, income and level of education. Our results may provide significant insight for policymakers regarding how to promote online purchasing usage in developing countries. We hope that this study will enhance the readers and information system (IS) professionals' understanding of the online purchasing and start a discussion of the implications that will help guide IS practitioners as they develop effective strategies and tactics to penetrate the highly competitive cyber markets.

7. Limitations and directions for future reesearch

For the followers of this paper, the authors suggest that larger sample be used in future attempts which may lead to more comprehensive insight into the relationships towards using online purchasing among employees. Probably, extension of the content of the survey will interest the reader in this direction. An extension to consider work climates' impact on online purchasing in organisations of different sectors would also be of interest. Actually, analysis of individual preferences, group influences and administrative factors may also provide very interesting results. Additionally, this study should be designed to include small and medium size organisations from all sectors.

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