
Online Purchasing Intentions of Croatian Customers

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With the increasing importance of online shopping, it is crucial to better understand factors that influence customers' purchasing behaviour in an electronic commerce environment. In order to explore which factors determine the propensity of customers towards online purchase a binary probit regression was used. The data was collected through survey questionnaire using the purposive sample of 426 Croatian customers from the Dubrovnik-Neretva County. Research results show that customers who feel insecure are less likely to make an online purchase. Additionally, place and environment are proven to be significant factors of electronic retailing. The results also indicate that the probability of actual online purchase increases with higher customers' purchase intentions.

Keywords: *electronic retailing, online purchase, consumer behaviour, purchase intentions*

Introduction

Today's retail environment is characterised by new, store and non-store, retailing formats, a wide range of new products, use of new information and communication technologies and consequently, the changing customer requirements. Moreover, changing conditions in people's personal environment has contributed to a profound change in customer behaviour (Schröder and Zaharia, 2008). In that context, Mathwick et al. (2002) emphasize that retailing in the 21st century means doing business with customers on their terms.

Nowadays, the Internet, as a retail format, represents a form of in-home shopping and the major non-store channel (Levy and Weitz, 2007). Furthermore, Wang and Head (2007) emphasize that the Web is increasingly being viewed as a tool and place to enhance customer relationship. Given the ever-increasing growth in electronic retailing, a better understanding of online purchasing behaviour is becoming imperative for online retailers in order to maintain their customers, attract new ones and convert online visitor to buyers. According to Weitz (2010), electronic retailers are using technology to convert “touch-and-feel” attributes into “look-and-see” attributes.

Overall, the topic of purchasing behaviour of Croatian customers in online retailing environment is a rather under-researched area. Given the specific nature of electronic retailing environment, it is of the utmost importance for online retailers and marketers to better comprehend online customers' behaviour and, in particular, their online purchasing intentions. Consequently, the main research objective of this paper is to analyse the factors that influence the propensity of customers towards online purchase. In that context, the perceptions of 426 Croatian customers regarding their online purchase intentions and other factors that are likely to influence purchasing online behaviour (i.e., place and environment and consumer security) are analysed.

To achieve the research objectives, this paper is divided into five sections. Following this introduction, the second section provides the selected literature review on online purchasing behaviour, with the special emphasis on customers' online purchase intentions, as well as risk perceptions associated with electronic retailing. These mainly refer to risk perceptions regarding Internet security in the context of online purchase decision-making. Data, model and methodology are discussed in the third section, while the fourth presents research results and the discussion of findings. The final section of the paper draws certain conclusions and directions for future research.

Literature review

The widespread use of computers and communications technologies presents many behavioural and psychological questions with respect to adoption and use of the technologies (Zhang *et al.*, 2008). Convenience is probably the most important perceived benefit from shopping on the

Internet and a key factor influencing the growth of online shopping (Rohm and Swaminathan, 2004). It is mainly related to saving time and effort and flexibility in the timing for shopping. However, factors that influence purchase intention also include product type, prior purchase, and, to a lesser extent, gender (Brown *et al.*, 2003). Kau *et al.* (2003) out-lined that in spite of the convenience of Internet shopping, consumers are still wary of shopping online.

In that context, privacy concern has a negative influence on online spending, i.e., people who are concerned about privacy spend less on online purchases (Akhter, 2012). Their concerns mainly refer to the risks associated with online retailing, such as revealing personal information, the possibility of credit card fraud and the inability to touch the products before purchasing. Security and privacy issues are of the utmost importance in electronic retailing. In that sense, online trust can discourage online consumers from online retailing and can influence purchase intentions. Risk perceptions regarding Internet privacy and security have been identified as issues for both new and experienced users of Internet technology (Miyazaki and Fernandez, 2001).

Additionally, Schlosser *et al.* (2006) emphasized the role of trust in predicting online purchase intentions. Similarly, Mukherjee and Nath (2007) argue that trust and commitment are the central tenets in building successful long-term relationships in the online retailing context and that behavioural intentions of customers are consequences of both trust and commitment. Chen and Barnes (2007) found that perceived usefulness, perceived security, perceived privacy, perceived good reputation, and willingness to customise were the important antecedents to online initial trust. Moreover, they found that both online initial trust and familiarity with online purchasing had a positive impact on purchase intention. In that sense, Salo and Karjalainen (2007) outline that the actual outcome of trust-enhancing methods in online environments should be the development of long-term trusted customer relationships.

Sometimes the information available over the Internet is insufficient to make high-risk purchase decisions (Weitz, 2010). Shim *et al.* (2001) found that intention to use the Internet to search for information was not only the strongest predictor of Internet purchase intention but also mediated relationships between purchasing intention and other predictors, such as attitude toward Internet shopping, perceived behavioural control, and

previous Internet purchase experience. Heijden *et al.* (2003) examined online purchasing intention using two different perspectives: a technology-oriented perspective and a trust-oriented perspective. They found that the trust-antecedent 'perceived risk' and the technology-antecedent 'perceived ease-of-use' directly influenced the attitude towards purchasing online.

As regards online environment, Chang and Chen (2008) examined whether online environment cues (web site quality and web site brand) affected customer purchase intention towards an online retailer and whether this impact was mediated by customer trust and perceived risk. The study by Harris and Goode (2010) revealed that consumers' interpretations of online environments exerted a powerful influence over trust and purchase intentions. The findings confirmed that web-site quality and web site brand affected consumers' trust and perceived risk, and in turn, consumer purchase intention. Furthermore, the study also revealed that the web-site brand was a more important cue than web site quality in influencing customers' purchase intention and that the relationship between trust and perceived risk was reciprocal. Similarly, evidences suggested that web-site trust, web-site satisfaction, web-site awareness, and overall customer satisfaction all influenced the online purchase intention (Yoon, 2002; Bai, Law and Wen, 2008). Another important element with regard to consumer online purchase intention is related to web interface feature (Hausman and Siekpe, 2009).

To conclude, the review of the examined literature emphasizes that the convenience of online shopping, security and privacy, and, consequently, purchasing intentions play an important role in preference for online purchasing. The next section mainly deals with these factors in order to develop a model to analyze the determinants of online customer purchase behavior.

Data and methodology

The data was collected through survey questionnaire using the purposive sample of Croatian customers from the Dubrovnik-Neretva County. The empirical survey was carried out in March and April 2012. Dataset consists of 426 observations. In total there were 240 customers practicing online purchase and 186 non-online customers.

The respondents were asked several questions regarding factors recognised in the literature as the potential determinants of online purchasing intentions. The question related to uncertainty was "Do you feel insecure about

purchasing online?” and the question related to the importance of place and environment for online purchasing was formulated as “Do you find place and environment important to purchasing online?”. The answers to both questions were dichotomous. Also, respondents used the five-point Likert scale to express the degree of their agreement (1=strongly disagree, 5=strongly agree) with a statement related to customers’ intentions towards online purchase. Table 1 presents the characteristics of analysed variables.

Table 1: Characteristics of analysed sample

Variable	Categories	Percentage (%)
Do you purchase online?	Yes	56.3
	No	43.7
Uncertainty	Yes	50.7
	No	49.3
Place and Environment	Yes	54.0
	No	46.0
Purchase Intentions	strongly disagree	12.7
	disagree	5.6
	neither disagree nor agree	16.2
	agree	20.2
	strongly agree	45.3

Source: Survey results

As shown in Table 1, the sample consists of 426 consumers from Dubrovnik- Neretva county of which 240 (56.3%) are online customers. The results show that about half of the surveyed respondents feel uncertainty towards purchasing online. Furthermore, somewhat higher proportion of customers considered place and environment to be important elements of online purchasing. According to the data from Table 1, the majority of customers are going to make an online purchase in future (65.5%). They are followed by 18.3% customers who do not have online purchase intentions in future, while 16.2% customers do not know whether they will purchase or not.

The primary research objective was to broaden the understanding of customer online purchase behaviour. In order to explore the factors that determine the propensity of customers towards online purchase a binary probit regression was used. In the probit regression, the probability of an outcome is

modelled as a linear combination of the predictors and it is similar to linear regression except that it is used when the dependent variable is nominal and dichotomous. Probit regression assumes that the outcomes are independent and mutually exclusive. The probit model specified in this paper to analyze the determinants of online customer purchase behavior can be expressed as follows:

$$ONLINE\ PURCHASE = \beta_0 + \beta_1 UNCERTAINTY + \beta_2 PLACEENV + \beta_3 INTENTION_1 + \beta_4 INTENTION_2 + \beta_5 INTENTION_3 + \beta_6 INTENTION_4 + \beta_7 INTENTION_5 + u_i$$

The definitions of these variables are shown in Table 2.

Table 2: Definitions of the variables

Dependent variable	
ONLINE PURCHASE	Categorical variable, 1 if consumer purchases on-line
Independent variables	
UNCERTAINTY	Categorical variable, 1 if consumer feels uncertainty with regard to electronic retailing
PLACE AND ENVIROMENT	Categorical variable, 1 if consumer finds place and environment of transaction important
INTENTION1	Categorical variable, 1 if consumer strongly disagrees with online purchase intentions (base group)
INTENTION2	Categorical variable, 1 if consumer disagrees with online purchase intentions
INTENTION3	Categorical variable, 1 if consumer neither disagrees nor agrees with online purchase intentions
INTENTION4	Categorical variable, 1 if consumer agrees with online purchase intentions
INTENTION5	Categorical variable, 1 if consumer strongly agrees with online purchase intentions

Dependent variable is customers' decision whether to purchase online or not. It is estimated as a function of a set of regressors measuring the effect of – uncertainty, place and environment as well as the level of purchase intentions. The binary probit model is estimated with the support of statistical software package STATA 12. The subsequent section presents the results of the

estimation.

Research results

The results of estimation are presented in Table 3. However, prior to their interpretation it is useful to briefly address model diagnostics. These are presented as well in Table 3. In order to examine the validity of our model, several diagnostics have been considered. Starting with Wald test for joint significance of explanatory variables, the null hypothesis that all regressors are jointly equal to zero is rejected with very high probability. Furthermore, sensitivity and specificity tests show that 84.17% occurrences as well as 58.06% non-occurrences are correctly predicted while on overall the dependent variable was correctly predicted in 72.77% of cases.

The Hosmer-Lemeshow test tests the null hypothesis that the data fit the model well. A significant chi-square indicates that null hypothesis is accepted and the data fit the model well. In this case data fit the model well since the significance of Hosmer-Lemeshow test is higher than 0.05 and there is no significant difference between predicted and observed frequencies.

Table 3: Model diagnostics and results of estimation

Results of estimation	
Variable	Coefficient β
UNCERTAINTLY	-0.21**
PLACE AND ENVIRONMENT	0.14**
PURCHASE INTENTION2	-0.75
PURCHASE INTENTION3	0.23**
PURCHASE INTENTION4	0.31**
PURCHASE INTENTION5	0.47**
Model diagnostics	
Number of observations	426
Wald test Chi-Square	103.60 (0.000)
Sensitivity (%)	84.17
Specificity (%)	58.06
Correctly classified (%)	72.77
Hosmer – Lemeshow test Chi-Square	8.17 (0.23)
Measures of Fit	

Count r2	0.728
Log likelihood	-223.30

** Significant at 5% level

The “c” statistic or area between the Roc Curve and 45-degree line, is 0.81 providing evidence that the model fits the validation sample (Figure 1). On overall, all relevant diagnostics support our specification suggesting that the model is well specified which enables us to pro-ceed with the interpretation of results.

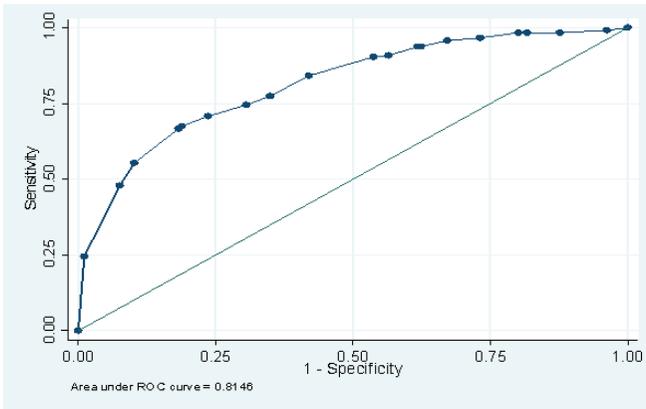


Figure 1: Roc Curve

The results in Table 3 are predicted probabilities of customers making an online purchase calculated at mean values of regressors while all other independent variables are kept constant. As shown in Table 3 most variables in the model (UNCERTAINTY, PLACE AND ENVIRONMENT, INTENTION₃, INTENTION₄ and INTENTION₅) have statistically significant impact on the probability of online purchase. In addition, the coefficient for variable UNCERTAINTY is statistically significant but has a negative sign. The results indicate that the change of variable UNCERTAINTY from zero to one decreases the probability of a negative outcome by 0.21. In other words, the sense of security is important and it increases probability of online purchase while customers who feel insecure are less likely to make an online purchase. This can be explained by the fact that customers who do not purchase online feel uncertainty in terms of receiving desired, intangible or appropriate products. Furthermore, main reason probably lies in customers' insecurity and a fear of fraud or identity theft. The coefficient next to variable PLACE AND ENVIRONMENT

indicates that its change from zero to one increases the probability of a positive outcome by 0.14. These results could be viewed in the light of convenience-oriented online customers who are flexible, less traditional, and are enjoying the benefits of online retailing. Furthermore, compared with the base group, i.e., the customers who strongly disagree with online purchase intentions, the predicted probability of making an online purchase for those neither agreeing nor disagreeing (PURCHASE INTENTION₃) is higher by 0.23. The same probability is higher by 0.31 for the customers who agree with online purchase intentions (PURCHASE INTENTION₄). Finally, as expected, compared with the base group, the predicted probability of making an online purchase is the highest for those customers who strongly agree with online purchase intentions (PURCHASE INTENTION₅). Given the purchase intentions are coded using the 5-point Likert scale, from the results of estimation (Table 3), it is evident that the probability of actual online purchase increases with higher purchase intentions.

Conclusions

Although this paper focuses on the rather narrow part of online buying behaviour, it sought to provide a better understanding of purchasing intentions of Croatian customers in an electronic commerce environment. The research contributes to the existing literature by extending the understanding of consumer purchasing behaviour by providing new insights into purchasing intentions of Croatian customers in an online shopping environment.

Based on a sample of 426 Croatian customers, this paper explores their perceptions regarding online purchase intentions taking into consideration place and environment as well as customer security as the factors influencing online purchasing behaviour. Research results show that customers who do not purchase online feel greater insecurity and are less likely to make an online purchase. Additionally, place and environment are proven to be significant factors for making an online purchase, thus reflecting the preferences of convenience-oriented customers for shopping on the Internet. The results also indicate that the probability of actual online purchase increases with higher customers' purchase intentions. These findings may be useful to online retailers, as well as marketers in order to recognize and understand the determinants of online purchasing behaviour in order to convert casual online visitors to buyers.

However, the findings should be considered in the light of their limitations. First of all, in re-gards to a sample selection, the future research sample should be extended by including other Croatian counties and conducting the research over a longer period of time. In that way, cer-tain differences and similarities of Croatian customer online purchasing behaviour could be identified. It would also be interesting to include demographic data, i.e. the socio-economic characteristics of customers. For example, gender differences could be identified in terms of online purchase behaviour. Moreover, other factors should also be included in the future re-search, primarily age, education, and household income. However, factors such as product type, prior purchase, web-site design, or web-site satisfaction could be taken into considera-tion. Similarly, it would be beneficial to examine the effect of different forms of unregulated consumer behaviour in electronic commerce environment, including impulsive, compulsive, and addictive purchasing. Given the research on the purchasing behaviour of Croatian customers in an online retailing environment is limited, new insights into the topic are required. It calls for more research in the field and this paper could be helpful in explaining determinants of online purchasing behav-iour by providing a framework for further research on the issue.

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