ARAȘTIRMA MAKALESİ/ RESEARCH ARTICLE





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# **Experienced Problems with Online Shopping: The Case of Turkey**

Online Alışverişte Yaşanılan Sorunlar: Türkiye Örneği

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#### ABSTRACT

This study's objective is to investigate the sociodemographic and economic elements that are important in cases when people experience problems with their online purchases. A microdata set from the 2021 Information and Communication Technology Usage Survey in Households conducted by the Turkish Statistical Institute is used in the study. The factors connected to the problem individuals have with online purchases have been determined using binary logistic regression analysis. In the data set included in the analysis in this study, 52.4% of the men reported that they had encountered problems with their purchases made on the website or mobile application in the last three months. According to the study, 51.9% of individuals in the eastern region reported having difficulty with transactions made through a website or mobile application. As a result of the research, it has been discovered that education level, income level, age, gender, profession, family size, financial transactions conducted over the Internet, and regional characteristics are all linked to experiencing problems with online shopping.

Keywords: Online shopping, binary logistic regression, Turkey.

# Öz

Bu çalışmanın amacı, bireylerin internet üzerinden yaptıkları satın alma işlemlerinde sorun yaşama durumlarında etkili olan sosyo-demografik ve ekonomik faktörlerin araştırılmasıdır. Çalışmada, TÜİK tarafından 2021 yılında yapılan Hanehalkı Bilişim Teknolojileri Kullanım Araştırmasından elde edilen mikro veri seti kullanılmıştır. Bireylerin internet üzerinden yaptıkları satın alma işlemlerinde sorun yaşama durumları ile ilişkili faktörlerin belirlenmesi için binary logistic regresyon analizi kullanılmıştır. Bu çalışmada analize dahil edilen veri setinde erkeklerin %52,4'ü son üç ay içinde web sitesi veya mobil uygulama üzerinden yaptıkları satın alma işlemlerinde sorunlar ile karşılaştıklarını bildirmiştir. Çalışmada doğu bölgesinde yaşayan bireylerin %51,9'unun da web sitesi veya mobil uygulama üzerinden yaptıkları satın alma işlemlerinde sorunlar ile karşılaştıklarını bildirmiştir. Çalışmada doğu bölgesinde yaşayan bireylerin %51,9'unun da web sitesi veya mobil uygulama üzerinden yaptıkları satın alma işlemlerinde sorunlar ile karşılaştıklarını bildirmiştir. Çalışmada doğu bölgesinde yaşayan bireylerin %51,9'unun da web sitesi veya mobil uygulama üzerinden yaptıkları satın alma işlemlerinde sorunlar ile karşılaştıklarını bildirdikleri tespit edilmiştir. Çalışmanın sonucunda eğitim durumu, gelir düzeyi, yaş, cinsiyet, meslek, hanehalkı büyüklüğü, internet üzerinden gerçekleştirilen finansal işlemler ve bölge değişkenlerinin online alışverişte sorun yaşama durumuyla ilişkili olduğu tespit edilmiştir.

Anahtar Kelimeler: Online alışveriş, binary lojistik regresyon, Türkiye.

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### **1. INTRODUCTION**

The Internet plays a vital role in our lives in that it allows people to easily access our world and opens international borders. E-commerce is now widely accepted as a way of purchasing goods and services. Online shopping is the dominant alternative to traditional retail shopping (Çera et al., 2020). The basic concepts of online shopping have been developed in the Western World, and most of the relevant studies are centered in the US/EU or the Far East (Usunier et al., 2005). Due to social and economic variations, the findings of these studies might not be applicable to other regions of the world, and there hasn't been much comparative research on information and communication technology (ICT) in developing nations (Akman & Rehan, 2014). Turkey is a developing country with a relatively young and high population and is located between the individualistic and collectivistic cultures of Western and Far Eastern countries respectively (Chirkov et al., 2003). With all these characteristics, Turkey is an important and interesting example of developing countries and markets with high potential.

Turkey began using the internet in 1993. In 1996, the internet started to be used in homes and changed people's usage purposes day by day (Erceğ &Kılıç, 2018). With the rapid development of internet usage and communication technologies in the world, a new economic order has spread. Parallel to this, physical boundaries between buyers and sellers have disappeared, the breadth of markets where they interact has expanded, and sellers have elevated their commercial activities to web-based platforms by accepting clients from all over the world (Lightner, 2003).

Extensive research has been conducted by academics to learn about consumer behavior on online shopping platforms. Consumer-oriented and technology-oriented studies have tried to provide information about consumer behavior from various perspectives. Consumer-oriented studies have examined consumer shopping behavior in terms of consumer demographics (Alaam et al., 2008), cultural factors (Ko et al., 2004), psychological factors (Lin, 2007; Lian & Lin, 2008), and perceived risk factors (Almousa, 2011). In a study conducted on undergraduate and graduate students in Taiwan, it was stated that consumers' trust in online retailers affects not only their attitudes towards online shopping but also their online shopping intentions (Phung, Yen & Hsiao, 2009). Technology-oriented studies have evaluated consumer behavior in terms of technical features of online stores, such as privacy and design, ease of navigation and information content (Ranganathan & Ganapathy, 2002). Research has found that online consumers' privacy and security concerns are the main factors that significantly affect their intention to shop online (Lian & Lin, 2008).

Online shopping has various advantages, such as time saving, wide product options, ease of shopping, 24/7 shopping, saving the trouble of waiting in shopping lines, special internet discounts, but it also has various risks (Ağaç, Sevinir, & Yılmaz, 2018). Cheng, Liu, & Wu (2013), present these risks in five dimensions: financial risks, performance risks, social risks, time risks and privacy risks. Research shows that perceived benefits have a positive effect on consumers' attitudes towards online shopping, while perceived risks have a negative effect. (Hsu & Bayarsaikhan, 2012). In a study conducted in Turkey, it was determined that the most important risk dimension perceived by consumers in online clothing shopping is product risk (Alkibay & Demirgunes, 2016). The product risks mentioned in the research are; problems in sizing, lack of opportunity to try and examine the product, lack of opportunity to touch and see the product live. In another study, product performance risks were grouped as visual (design, fabric, color, detail), tactile (touch, feel, weight) and trial (fit, comfort, appearance on the body). The results of the study showed that online consumers perceive visual, tactile and trial product risks related to product performance based on evaluating product attributes through visual product experience. The study also found a positive relationship between visual and tactile risks and between tactile and trial risks (Yu, Lee, & Damhorst, 2012). In a study conducted in Ankara, the attitudes of university student internet users towards online shopping were investigated. It was found that financial problems, product quality

problems, refund problems, product delivery problems, security problems and privacy problems were effective factors in online shopping concerns (Huseynov & Yıldırım, 2016).

The characteristics that influence people's online shopping behaviour have been identified in research recently undertaken in Turkey (Ünver & Alkan, 2021; Alkan & Ünver, 2021; Akman & Mishra, 2010; Akman & Rehan, 2014; Huseynov & Yıldırım, 2016). It is seen that the online shopping activities of individuals take place in several different ways and for various purposes (Potosky, 2007). Because online shopping improves opportunities in many areas, it is important to assess the extent of factors affecting online shopping and the underlying causes (Ono & Zavodny, 2007). It was found that demographic characteristics of individuals affect their actions before they commit any certain behavior (Zhang, 2005). Therefore, the differences in various aspects of experienced problems in online shopping among demographic groups have become an interesting area of research (Yang & Tung, 2007). It is important that both e-commerce providers and online shoppers understand the factors associated with individuals having problems with online shopping (Ünver &Alkan, 2021). In this study, binary logistic regression analysis was carried out to investigate the effect of selected demographic factors on individuals' online shopping problems.

This study investigates the factors related to the problems that the participants have had in the past three months when using the website or mobile application to shop. In this study, the research questions that are emphasized on the situation of individuals living in Turkey experiencing problems with online shopping are as follows: "What are the sociodemographic and economic characteristics of individuals?" and "Is there a relationship between the demographic and economic characteristics of individuals and their problems in online shopping?".

The aim of this study is to look into the sociodemographic and economic elements that are important in cases when people experience problems with their online purchases. The study used a microdata set from the 2021 Information and Communication Technology Usage Survey in Households conducted by the Turkish Statistical Institute. The factors connected to the problem individuals have with online purchases have been determined using binary logistic regression analysis. The remainder of this study is organized as follows. In Chapter 2, the data, variables and analysis method used in the study are mentioned. In Chapter 3, the results obtained from the research are explained in detail. In Chapter 4, the results obtained from the study are discussed and its relation with the literature is mentioned.

# 2. MATERIAL AND METHOD

# 2.1. Data

In this study, the Information and Communication Technology Usage Survey on Households performed by the Turkish Statistical Institute in 2021 was used as a microdata set. The Information and Communication Technology Usage Survey in Households, which has been carried out since 2004, aims to collect information about information and communication technologies owned by households and individuals and their uses. The sampling method employed in the study was stratified 2-stage cluster sampling (Alkan & Ünver, 2020; Alkan & Ünver, 2022).

Data from 9,438 participants in the Information and Communication Technology Usage Survey in Households in 2021 who were 15 years of age or older were used in this study.

# 2.2. Outcome Variables

The dependent variable of the study is the problems encountered in the purchases made by individuals through the website or mobile application in the last three months. Participants were asked about the problems encountered in their purchases made through the website or mobile application in the last three months as of the survey period:

- 1. Difficulty of use or inadequate operation of the website (1-Yes, 2-No)
- 2. Difficulties finding information on warranty conditions or other legal rights (1-Yes, 2-No)
- 3. Slower delivery than stated (1-Yes, 2-No)
- 4. Higher final costs than stated (1-Yes, 2-No)
- 5. Delivery of incorrect or damaged goods/services (1-Yes, 2-No)
- 6. Problems related to fraud (1-Yes, 2-No)
- 7. Difficulty or unsatisfactory response to complaints and redress (1-Yes, 2-No)
- 8. Not selling goods and services to the country from websites originating abroad (1-Yes, 2-No)
- 9. Other (1-Yes, 2-No)

questions were asked. Participants were coded as "1" if they encountered at least one of these problems, and as "0" if they didn't.

#### 2.3. Independent variables

The independent variables to be included in this study are the variables that are available in the Information and Communication Technology Usage Survey in Households and the variables that stand out as a result of the literature research. The independent variables of the study are age (16-24, 25-34, 35-44, 45-54, 55+), gender, education level (uneducated/primary school, secondary school, high school, university), occupation (unemployed individuals, managers, professionals, technicians and associate professionals, clerical support workers, service/sales workers, skilled agricultural/ forestry/ fishery workers, craft/related trades workers, plant-machine operators/assemblers, elementary occupations). Financial transactions carried out over the internet; participants are asked about financial transactions made for private purposes through a website or mobile application:

1- Purchase of insurance policies or renewal of existing ones (Insurance policies purchased as a package with other services are also included) (1-Yes, 2-No)

- 2- Obtaining loans from banks or other financial institutions (1-Yes, 2-No)
- 3- Buying and selling stocks, bonds, funds and other investment instruments (1-Yes, 2-No)

Participants were coded as "1" if they had made at least one of these financial transactions, and as "0" if they had not made any of them. Income level (1st income level (lowest), 2nd income level, 3rd income level and 4th income level (highest)), number of individuals in the household (1-3, 4-5, 6 and above), and region (west, central, east).

Turkey is divided into 12 regions at Level 1 under the Nomenclature of Territorial Units for Statistics (NUTS). In this study, these regions are grouped as western, central and eastern regions (Ünver & Alkan, 2021). These regions and the provinces in these regions are shown in detail in Table 1.

Region	Code	Level 1	Provinces		
	TR1	İstanbul	İstanbul		
Western Region	TR2	West Marmara	Tekirdağ, Edirne, Kırklareli, Balıkesir, Çanakkale		
	TR3	Aegean	İzmir, Aydın, Denizli, Muğla, Manisa, Afyonkarahisar, Kütahya, Uşak		
	TR4	East Marmara	Bursa, Eskişehir, Bilecik, Kocaeli, Sakarya, Düzce, Bolu, Yalova		
	TR5	West Anatolia	Ankara, Konya, Karaman		
Central Region	TR6	Mediterranean	Antalya, Isparta, Burdur, Adana, Mersin, Hatay, Kahramanmaraş, Osmaniye		
	TR7	Central Anatolia	Kırıkkale, Aksaray, Niğde, Nevşehir, Kırşehir, Kayseri, Sivas, Yozgat		

 Table 1. Nomenclature of Territorial Units for Statistics- Level 1

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	TR8	West Black Sea	Zonguldak, Karabük, Bartın, Kastamonu, Çankırı, Sinop, Samsun, Tokat, Çorum, Amasya	
Eastern Region	TR9	East Black Sea	Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane	
	TRA	Northeast Anatolia	Erzurum, Erzincan, Bayburt, Ağrı, Kars, Iğdır, Ardahan	
	TRB	Centraleast Anatolia	Malatya, Elâzığ, Bingöl, Tunceli, Van, Muş, Bitlis, Hakkâri	
	TRC	Southeast Anatolia	Gaziantep, Adıyaman, Kilis, Şanlıurfa, Diyarbakır, Mardin, Batman, Şırnak, Siirt	

In order to observe the impacts of the categories of all variables to be included in binary logistic regression, ordinal and nominal variables were identified as dummy variables (Alkan & Ünver, 2022; Alkan et al., 2020).

## 2.4. Statistical Analysis

One of the main areas of statistical inference is the testing of statistical hypotheses. SPSS 20 and Stata 15 programs were used to analyze the data. Firstly, of all, frequencies and percentages of the individuals participating in the study were obtained for demographic, economic, and personal factors. In this study, binary logistic regression method was used to investigate the relationship between demographic and economic factors and individuals' experience problems with online shopping.

Binary logistic regression is a statistical analysis method used to examine the causal relationship between the dependent variable and the independent variable(s) when the dependent variable is a binary variable (Alkan & Ünver, 2020).

## **3. RESULTS**

## 3.1. Characteristics of participants

The frequencies and percentages of the variables utilized in the study are shown in Table 2. According to Table 2, 34.1% of the individuals are between the ages of 25-34. When the education level variable is analyzed, it is seen that 48.4% of the individuals participating in the study are university graduates, while 5.8% are primary school graduates. In addition, 47.6% of the participants were male, while 52.4% were female. Table 2 shows that 51.9% of the individuals participated in the study from the western region. It is also seen that 40.2% of the individuals who participated in the study were not employed.

In the study, it was tested whether there was multicollinearity among the independent variables to be included in the binary logistic regression model. Variance inflation factor (VIF) values of 5 and above are considered to cause moderate multicollinearity, while values of 10 and above are considered to cause high multicollinearity (Ünver & Alkan, 2020; Alkan, Özar, & Ünver, 2021; Alkan, Oktay, & Genç, 2015). There are no variables in this study that induce multicollinearity between the variables.

Variables		n	%	VIF
Age	16-24	849	26.9	ref.
	25-34	1,077	34.1	1.82
	35-44	769	24.4	1.81
	45-54	334	10.6	1.49
	55+	129	4.1	1.22
	Uneducated/ Primary School	183	5.8	ref.
Education loval	Secondary School	398	12.6	2.74
Education level	High School	1,047	33.2	4.07
	University	1,530	48.4	4.84
Condor	Male	1,654	52.4	ref.
Gender	Female	1,504	47.6	1.23
	No	2,311	73.2	ref.

**Table 2.** Findings Related to the Factors Associated with Experiencing Problems with Online

 Shopping

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Financial transaction	Yes	847	26.8	1.16
	1 <sup>st</sup> income level (lowest)	705	22.3	ref.
In como lovol	2 <sup>nd</sup> income level	882	27.9	1.58
Income level	3 <sup>rd</sup> income level	767	24.3	1.63
	4 <sup>th</sup> income level	804	25.5	1.85
Dogion	West	1,640	51.9	1.86
Region	Middle	1,012	32	1.8
	East	506	16	ref.
Number of	1-3	1,505	47.7	3.59
individuals in the household	4-5	1,404	44.5	3.4
	6 and above	249	7.9	ref.
	Managers	181	5.7	1.29
	Professionals	625	19.8	1.79
Occupation	Technicians and associate professionals	228	7.2	1.23
	Clerical support workers	181	5.7	1.19
	Service/sales workers	308	9.8	1.25
	Skilled agricultural/ forestry/ fishery workers	14	0.4	1.03
	Craft/related trades workers	132	4.2	1.19
	Plant-machine operators/ assemblers	119	3.8	1.16
	Elementary occupations	101	3.2	1.11
	Unemployed individuals	1,269	40.2	ref.

## 3.2. Model Estimation

A binary logistic regression model was used to determine the sociodemographic and economic factors associated with the individuals in the study experiencing problems with online shopping. The estimated model results are provided in Table 3. When Table 3 is analyzed; it is seen that age, gender, education level, occupation, financial transaction, and number of people in the household variables are significant in the estimated model.

**Table 3**. Estimated Model and Marginal Effects of Factors Associated with Experiencing

 Problems with Online Shopping

Variables		β	S.E	M.E	S.E
Age (reference category:16-24)					
	25-34	-0.014	0.069	-0.009	0.044
	35-44	-0.094	0.076	-0.061	0.049
	45-54	-0.24	0.093	-0.159 <sup>b</sup>	0.063
	55+	-0.368	0.134	-0.251ª	0.094
Education level (reference category: une	ducated/primary sch	iool)			
	Secondary School	0.062	0.119	0.043	0.084
	High School	0.19	0.108	0.13°	0.075
	University	0.35	0.112	0.234ª	0.077
Gender (reference category: male)	-				
i	Female	0.092	0.053	0.06 <sup>c</sup>	0.035
Income level (reference category: 1st inco	ome level (lowest)				
i	2 <sup>nd</sup> income level	0.092	0.067	0.061	0.045
	3 <sup>rd</sup> income level	0.101	0.072	0.067	0.048
	4 <sup>th</sup> income level	0.187	0.077	0.123 <sup>b</sup>	0.051
Region (reference category: East)					
	West	0.463	0.068	0.314	0.048
	Middle	0.25	0.071	0.176	0.051
Financial transaction (reference category: no)					
	Yes	0.439	0.061	0.276ª	0.037
Occupation (reference category: unemployed individuals)					
Manager		-0.115	0.12	-0.076	0.08
Professionals		-0.016	0.084	-0.01	0.054
Technicians and associate professionals		0.034	0.108	0.022	0.069
Clerical support workers		-0.154	0.113	-0.102	0.076
Service/sales workers		-0.088	0.09	-0.058	0.06

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Skilled agricultural/forestry/fishery workers	-0.682	0.323	-0.487 <sup>b</sup>	0.25	
Craft/related trades workers	-0.272	0.125	-0.183 <sup>b</sup>	0.087	
Plant-machine operators/assemblers	-0.211	0.131	-0.141	0.09	
Elementary occupations	-0.189	0.137	-0.126	0.093	
Number of individuals in the household (reference category: 6 and above)					
1-3	0.177	0.093	0.116°	0.062	
4-5	0.03	0.09	0.02	0.061	
${}^{a}p < .01; {}^{b}p < .05; {}^{c}p < .10$					

According to the binary logistic regression model provided in Table 3, an individual between the ages of 45-54 is 16% less likely to experience problems with online shopping than the reference group. According to the study, an individual with a university degree is 23.4% more likely to experience problems with online shopping than the reference group. Individuals with 1-3 people in the household are 11.6% more likely to experience problems with online shopping compared to the reference group. Men are 0.6% more likely to experience problems with online shopping than women. An individual at the 4th income level is 12.3% more likely to experience problems with online shopping compared to the reference group. An individual working as a skilled agricultural/forestry/fishery worker is 48.7% less likely to have problems with online shopping than the reference group.

# 4. DISCUSSION AND CONCLUSIONS

Online shopping has grown to be one of the largest megatrends in the global economy thanks to the Internet's quick development. In this study, the data of 9,438 individuals who participated in the Household Information Technology Usage Survey conducted by the Turkish Statistical Institute in 2021 were used. In this study, a binary logistic regression method was used to investigate the relationship between demographic and economic factors and individuals' experiencing problems with online shopping. According to the results of the analysis, age, gender, education level, occupation, financial transaction, and the number of people in the household variables are significant.

In the study, it was concluded that as the age of individuals increases, the likelihood of experiencing problems with online shopping decreases. In some studies, it has been concluded that the probability of online shopping decreases as the age of individuals increases (Bhatnagar, & Ghose, 2004; Alqahtani, Goodwin, & de Vries, 2018; Beneke, Scheffer, & Du, 2010; Alkan & Unver, 2021). Therefore, the findings in this study could be associated with this situation. In addition, it was concluded that as the educational level of individuals increases, the likelihood of experiencing problems with online shopping increases. In some studies, it has been concluded that the likelihood of online shopping increases as the educational level of individuals increases (Akman & Rehan, 2014; Farag et al., 2006). Therefore, the findings in this study could be associated with this situation. In addition, as the income levels of individuals increase, the likelihood of experiencing problems with online shopping increases. In some studies, it has been determined that the probability of online shopping increases as the income level of individuals increases (Akman & Mishra, 2010; Smith et al. (2008). Higher income customers seek higher quality service interactions (Ganesan-Lim, Russell-Bennett, & Dagger, 2008).

In the data set included in this study's analysis, it was determined that men have more problems in online shopping than women. Also, it was determined that men are more likely to experience problems with online shopping than women. In some studies, it has been determined that men are more likely to shop online than women (Zhang, 2005; Potosky, 2007). Therefore, the findings in this study could be associated with this situation. The study concluded that the probability of experiencing problems with online shopping decreases as household size increases. In addition, according to the study, an individual who makes financial transactions for private purposes through a website or mobile application is more likely to experience problems with online shopping than an individual who does not make financial transactions for private purposes through a website or mobile application.

The share of Turkey in e-commerce is increasing every passing day and provides significant profits to the country's economy by raising the commerce volume and potential in both national and international markets. Despite the increasing number of e-commerce users observed in the public and private sectors, legal and sectoral regulations, it is seen that e-commerce's potential cannot be fully evaluated, and it lags behind developed countries. The first step to be taken for this purpose is the development of technological infrastructure. It is considered that the study will fill the related gap in the literature since it has been carried out on a large sample and some demographic factors that are not generally included in the studies conducted in this regard have been included in the analysis.

This study has a few limitations, as almost any study would have. First of all, it should be noted that the data in this study is secondary data and the variables required for statistical analysis consist of variables that are available in the data set. Second, some variable effects such as household internet access, duration of internet use, ownership of electronic devices for online shopping by household members, and online shopping attitudes of parents, siblings, other individuals in the household or friends in the neighborhood could not be included in the analysis since they were not included in the data set. Moreover, since the data is cross-sectional, a definite causal relationship cannot be inferred between experiencing problems with online shopping and related socioeconomic factors. Another limitation is that the direct or indirect effects of the factors among themselves cannot be observed since no modeling is used in the analysis process. Due to these factors, the data obtained in this data collection method may be biased.

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