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Research Article/Araştırma Makalesi

Socioeconomic Determinants of Out-Of-Pocket Health Care Expenditures in Türkiye

Türkiye'de Cepten Yapılan Sağlık Harcamalarının Sosyoekonomik Belirleyicileri

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Abstract

This paper explores socioeconomic determinants of out-of-pocket healthcare spending in Türkiye. A nationally representative Türkiye sample of the Life in Transition Survey is used. The literature is extended by using a new nationally representative survey of Türkiye to investigate the factors contributing to out-of-pocket healthcare expenditures. Also, thanks to the data set used, this paper can control maternal education, health status, and perceived relative income variables, which previous studies cannot explore. Overall, The findings indicate that growth in income increases out-of-pocket healthcare expenditures. In contrast, increasing the respondents' and mothers' educational attainment decreases out-of-pocket healthcare expenditures. Also, males are more likely to have out-of-pocket healthcare spending than females. Finally, having good or excellent self-reported health decreases the possibility of making out-of-pocket health care spending.

Jel Codes: *I1, I18, N3, P36*
Keywords: *Türkiye, Out-Of-Pocket Healthcare Expenditure, Health, Logit, OLS*

Öz

Bu makale, Türkiye'de cepten yapılan sağlık harcamalarının sosyoekonomik belirleyicilerini incelemektedir. Geçiş Dönemi Yaşam Araştırması'nın ulusal düzeyde temsili Türkiye örneği kullanılmıştır. Cepten yapılan sağlık harcamalarına katkıda bulunan faktörleri araştırmak için Türkiye'yi temsil eden yeni bir ulusal anket kullanarak literatüre katkı sağlamaktadır. Ayrıca, kullanılan veri seti sayesinde, önceki çalışmaların analiz edemediği anne eğitimi, sağlık durumu ve algılanan nisbi gelir değişkenlerinin cepten yapılan sağlık harcamaları üzerindeki etkisini analiz edilmektedir. Nisbi veya sürekli gelirdeki artış cepten yapılan sağlık harcamalarını arttırmaktadır. Buna karşılık, kişinin kendisinin veya annesinin eğitim düzeyinin artması, cepten yapılan sağlık harcamalarını azaltmaktadır. Ayrıca, erkeklerin kadınlara göre cepten sağlık harcaması yapma olasılığı daha yüksektir. Son olarak, kişinin kendi beyan ettiği sağlık durumunun iyi veya mükemmel olması, cepten sağlık harcaması yapma olasılığını azaltmaktadır.

Jel Kodları: *I1, I18, N3, P36*
Anahtar Kelimeler: *Türkiye, Cepten Yapılan Sağlık Harcaması, Sağlık, Logit, EKK*

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1. Introduction and Background

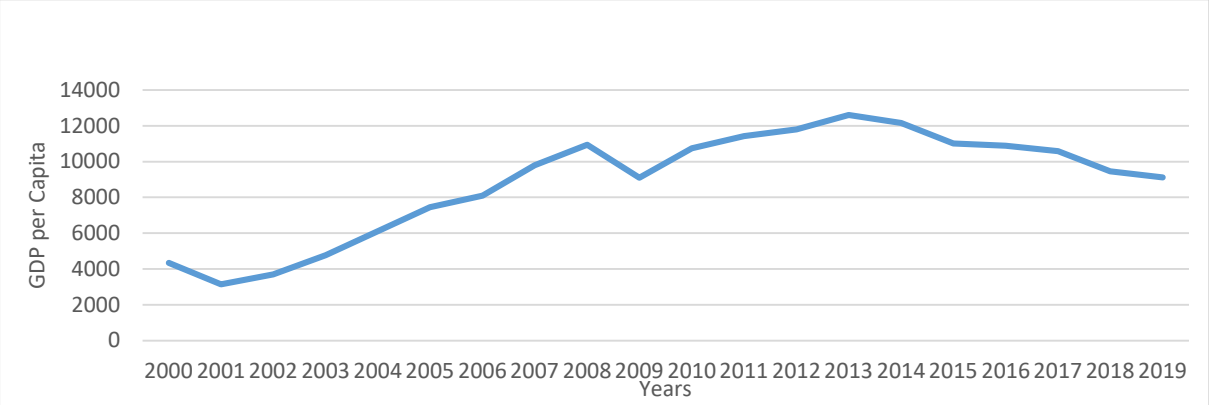
According to OECD (Organization for Economic Cooperation and Development), in general, all expenditures made for protection, development, maintenance, nutrition, and emergency programs that adopt the purpose of promoting or protecting health are considered "Health Expenditure" (Yılmaz & Yentürk, 2015). There are three different methods for financing health expenditures (Atasever, 2018). (1) the first one is the *public finance model*. The basis of this model is based on tax and premiums. In this model, financing of health services is provided through collected general or special taxes or through collected premiums. (2) The second one is the *private financing model*. This model finances health services through private health insurance, medical savings accounts, and out-of-pocket health expenditures. (3) The third one is the *mixed financing model*. In this model, the public and private financing models are used together in financing health services. In other words, the financing of health services is covered by taxes, premiums, private health insurance, and out-of-pocket expenses, as in Türkiye[2].

This study uses Türkiye to investigate the determinants of household out-of-pocket healthcare spending. There has been a transformation in healthcare provision since 2003 in Türkiye. According to Yereli et al. (2014), before 2003, Türkiye had a complex and unclear healthcare system. The health system was fragmented. There were differences in the provision of health for households, such as different financing sources, different service providers, and different coverage packages. In addition, a large part of the population was not covered by general health insurance. Within the scope of the health transformation program (HTP), put into effect in 2003, social security funds were combined, and the entire population was included in the scope of social security. Thus, poor people's access to health services has become more accessible and costs less.

On the other hand, abnormal increases were observed in public health expenditures due to the HTP, and the budget deficits threatened the system's sustainability (Yereli et al., 2014). In this context, in 2009, the participation share system was implemented to increase the share of the private sector in the health system. Households receiving health care began to pay out-of-pocket healthcare spending for each health service received as soon as they received healthcare, at a certain insignificant percentage of the health service cost.

[2] Household out-of-pocket health expenditures are direct expenditures for health services and goods from the household's primary income or savings. These are the expenditures that those who request health services when purchasing services cover the cost of the services they have received.

Figure 1: GDP per capita of Türkiye Over Years

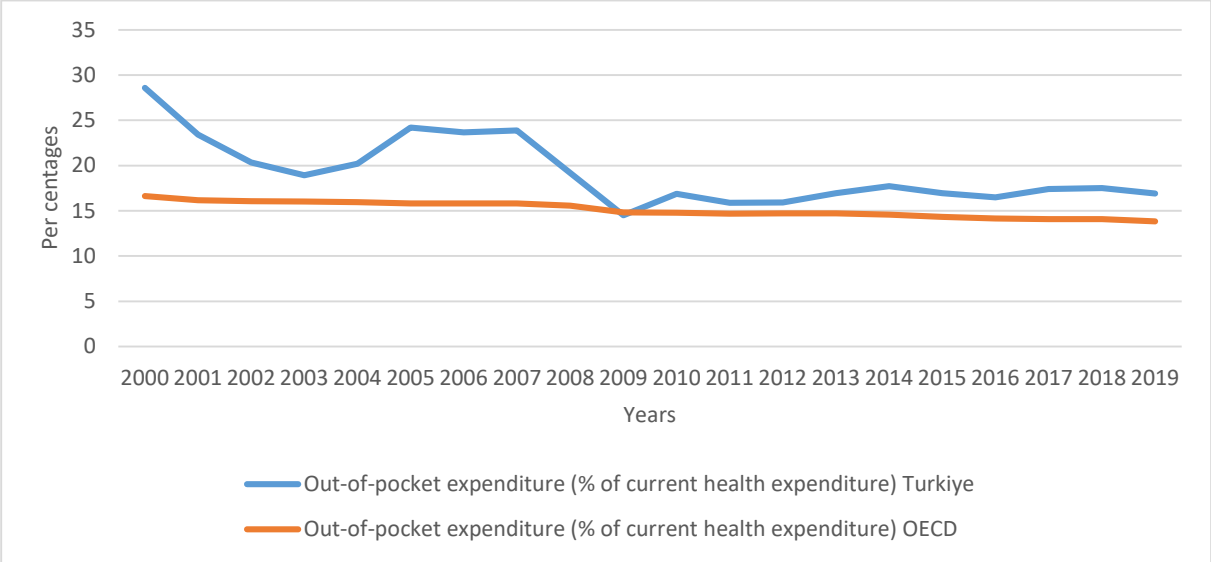


Source: https://www.macrotrends.net/countries/TUR/Türkiye/gdp-per-capita

The rate of OOP health spending to total health spending in Türkiye in 2000 was around 30 percent. This ratio is almost double the OECD average of around 17 percent in 2000 (Figure 2). Following the healthcare reform in 2003 and 2009 and the rapid increase in the GDP per capita between 2001 and 2008 (Figure 1), the figures became quite close to OECD averages. The share of private healthcare providers in providing healthcare financed mainly through the government has increased since 2008. So the ratio of out-of-pocket healthcare spending has become less and less[3]. These changes in the health care provisions, growth in GDP per capita, and declines in the OOP health care spending in Türkiye over the years turn Türkiye into an interesting case study to investigate the determinants of out-of-pocket health care expenditures.

[3] The policy change in 2009 required households to pay only an insignificant amount for the health services they received from private healthcare providers. For instance, dentists' and specialists' examination fee was 12 TL in private hospitals and 5 TL in public hospitals in 2015 (SGK, 2022). These figures are pretty insignificant and might be the reason for the decrease and almost no changes in the ratio of out-of-pocket healthcare spending in Türkiye between 2008 and 2019.

Figure 2: Out-Of-Pocket Expenditure of Türkiye over the Years (% of Current Health Expenditure)



Source: https://data.worldbank.org/indicator/SH.XPD.OOPC.CH.ZS?locations=OE

The factors that influence OOP health expenditure have been the subject of several pieces of research in both industrialized and developing countries (Ang (2010); Aregbeshola & Khan (2018; 2021); Arsenijevic et al. (2015); Azzani et al. (2019); Brinda et al., 2014; Brinda et al. (2015); Cantarero & Lago-Penas (2010); Chaudhuri & Roy (2008); Chu et al. (2005); Ebaidalla & Ali (2019); Göpffarth et al. (2016); Habibov (2009); Hartwig & Sturm (2014); Herwartz & Theilen (2003); Łyszczarz & Abdi (2021); Kumara & Samaratunge (2016); Mahumud et al. (2017); Masiye & Kaonga (2016); Martín et al. (2011). Muhammad Malik & Azam Syed (2012); Mohanty & Kastor (2017); Nghiem & Connelly (2017); Oluwatimilehin (2014); Oyinpreye & Moses (2014); Sahoo & Madheswaran (2014); Scott et al. (2021); Sinha et al. (2016); Su et al. (2006); Wagstaff et al. (2018); Yadav et al. (2021); Yetim et al. (2021); You & Kobayashi (2011); Zink et al. (2019), but there is little evidence on these factors among households in Türkiye. Studies on Türkiye mainly focus on catastrophic health expenditures (see Brown et al. (2014); Doğan et al. (2019); Narcı et al. (2015); Tokatlıoğlu & Tokatlıoğlu (2018); Yereli et al. (2014); Yardim et al. (2010)), and there are a few studies on OOP health expenditures so far.[4].

Yıldırım et al. (2011) analyze the determinants of OOP health expenditures in the capital city of Türkiye, namely Ankara. The sample of the study was selected from three hospitals in Ankara. The results indicate that increased income, education level, and age increase OOP health spending, whereas gender does not affect OOP spending on health. Using the 2018 wave of the Turkish Household Budget Survey collected by the Turkish Statistical Institute, a recent Demir et al. (2022) study investigated factors contributing to household OOP health

[4] According to the World Health Organization, OOP health care spending over 40 percent of a household's income falls into catastrophic health spending. However, it is unlikely that households in Türkiye will have catastrophic healthcare spending as they solely pay a certain amount of healthcare even if private healthcare providers give it. Also, a detailed investigation of the data set reveals that the study sample has only one individual whose OOP healthcare spending exceeds the threshold level of 40 percent, namely 52 percent.

spending in Türkiye. A multivariate probit model showed that affluent households, female-headed households, household heads with higher educational attainment, young household heads, and single (never married) and nuclear families are more likely to spend out-of-pocket (OOP) on health care. İpek (2019) also uses Household Budget Survey from 2003 to 2015 and finds that OOP health spending decreases with higher education and larger size of households.

In contrast, employed, old, and wealthy individuals are more likely to have out-of-pocket (OOP) spending on healthcare. Using the 2012 wave of the Turkish Household Survey gathered by the Turkish Statistical Institute, Ercan (2021) finds that there is a positive relationship between education, income, household size, and being married and OOP healthcare spending on health whereas the correlation between age, male gender, and OOP health spending is negative. The study finds no correlation between working status and OOP spending on health.

This study has significant contributions to the literature. First, as seen above, almost all studies on Türkiye depend on a single nationally representative survey, namely the Household Budget Survey collected by Turkish Statistical Institute. It is unclear whether the results of these studies can hold when a study uses a different nationally representative survey of Türkiye. This study fills this gap and uses a nationally representative Türkiye Life in Transition Survey sample. Secondly, one of the benefits of the life in transition survey is that it includes variables that cannot be controlled in the previous studies, such as different measures of income, maternal education level, and self-reported health status. The investigation of the effects of these determinants will bring new insights to policymakers in Türkiye to design better healthcare-related policies.

Empirical findings indicate that relatively perceived high-income and objective income variables increase continuous OOP health spending. In contrast, increasing respondents' and mothers' educational attainment decreases the OOP health spending (although these findings are only weakly significant). The results differ and are more statistically significant when the health care spending measure used is OOP health care spending over the median level. Respondents' and their mothers' educational attainment decreases the possibility of having OOP health expenditure more than the median level, and the results are statistically significant at a one percent level. An increase in objective income increases the probability of having more than the median level of OOP health expenditure.

In contrast, individuals with perceived middle relative income are less likely to obtain OOP health spending more than the median (although the results are weakly significant at a ten percent level). Also, males are more likely to do OOP health care spending over the median than females. Lastly, having good or excellent self-reported health decreases the possibility of making OOP healthcare spending over the median.

The following section presents the data used and outlines the methodology. Section 3 gives the results. Section 4 discusses the findings of the previous studies and offers some concluding remarks.

2. Data and Methodology

2.1. Data

The data set used in this paper was collected from Life in Transition Survey (LITS). LITS includes questions on the health expenditures of the respondents. There are three waves of the survey. 2006, 2010, and 2016 surveys were conducted with EBRD and the World Bank. The surveys targeted to identify how the transition affected former Soviet Union countries in eastern and central Europe as well as Türkiye, Germany, Italy, Greece, and Cyprus. The first wave of LITS was carried out in 29 countries. The second one is conducted in 34 countries; the last covers 34 countries. The only survey that includes questions related to objective income is LITS III. The introduction indicates that objective income measure is essential to OOP health expenditure. Therefore, this paper uses LITS III to conduct the analysis. In general, LITS III applied to 51206 households in 34 countries. The sample size of each country is around 1500. The sample represents the country. The nationally representative household survey contains information on the respondent's health expenditure, objective income measure, educational level, employment status, age, household size, gender, maternal education level, health status, and perceived relative income status.

This paper uses the Türkiye sample of the LITS III. OOP health spending serves as the study's dependent variable. OOP expenditures include spending people paying for their health and medical care, such as doctor visits, treatments, hospitalization, and other medical services like traditional or complementary therapies (Xu et al., 2003). This paper uses two versions of healthcare spending as dependent variables. First, a continuous variable for OOP health spending was transformed into a natural logarithm form to ease the interpretation. Second, a dummy variable is used to measure the impact of factors when the value of spending is above a threshold level, taking the value of one when the continuous OOP healthcare spending is greater than the median spending level and zero otherwise.

The independent variables at the individual level are consistent with earlier research in the introduction section and depend on the data set. There is no control for other potential determinants of healthcare spending, such as the availability of health insurance and residence location, because the study's data set does not have them. So, this study includes controls for objective income, level of education, employment status, age, age square, household size, gender, marital status, education level of the respondent's mother, good or excellent health condition, and relative perceived income variables.

Table 1: Descriptive Statistics

Variable Names	Obs.	Mean	Standard Error	Min	Max
Dependent Variable					
Health Expenditure (TL)	939	415	681	1	4000
Independent Variables					
Income (TL)	987	32000	22329	2400	480000
Education Level	1500	4	1,58	1	8
Employed	1500	0,54	0,50	0	1
Age	1500	37	12,2	18	95
Household Size	1500	3	1,03	1	9
Male	1500	0,51	0,50	0	1
Single	1500	0,16	0,36	0	1
Mother's Education Level	1474	2,4	1,10	1	7
Good or very Good Health	1496	0,8	0,40	0	1
Perceived Middle Relative Income	1483	0,23	0,42	0	1
Perceived Relative High Income	1483	0,54	0,49	0	1

Table 1 presents summary statistics for independent and dependent variables using the Life in Transition Survey of 2016. The average health expenditure is 415 TL. The average yearly income is 32 thousand TL, and 37 is the average age. The average household size is 3, and the education average of the respondents is secondary school. Fifty-one percent of the respondents are males, and 16 percent are single. The average education of respondents' mothers is low secondary school. Eighty percent of respondents have good and excellent health. Twenty-three percent of the respondents locate themselves in the middle income, whereas 54 percent put themselves into high income.

2.2. Methodology

The general form of out-of-pocket expenditure function (OPE) is constructed as follows:

$$OPE = f(Income, Education, Employment, Age, Gender, Marital\ Status, Mother\ Education, Health, Perceived\ Income) \quad \text{Eq (1)}$$

The analysis was carried out by STATA 13 version. This paper converts continued out-of-pocket health expenditure, income, and household size into a logarithmic form to interpret them as elasticity. Using the square of age variable allows different functional form effects of age. The regressions control for the educational level of respondents and their mothers. The education variable in LITS III has eight categories. It is classified into no education, primary education, lower secondary education, (upper) secondary education, post-secondary non-tertiary education, tertiary education (not a university diploma), bachelor's degree or more, master's degree, or Ph.D. Due to the lack of observation in each category of the mother education variable, no education and primary education are combined to construct primary education.

Similarly, post-secondary non-tertiary and above-level education categories combined to construct the "above high school education variable ."So, the maternal education variable has four categories in total. Respondent's education level is included in the regressions with all available categories; each category represents a dummy for that category, but "master and Ph.D. degrees ."Bachelor's degrees and above are combined to form a dummy variable from

"bachelor's degree or more" and "master's degree or Ph.D.." gender of the individuals takes the value of one if individuals are males and zero otherwise. The household size variable measures the number of people living in a house, and it is converted into a logarithmic form to ease interpretation as elasticity. The employment status variable is a dummy variable and takes the value of one if individuals are employed and zero otherwise. Another dummy variable is the marital status variable which takes the value of one for single individuals and zeroes otherwise. This study's subjective health status variable is based on the question: "How would you assess your health?" The possible answers are 1 Very good, 2 Good, 3 Medium, 4 Bad, and 5 Very bad. A dummy variable is defined from this variable, coding very good and good categories as one and the other as zero. Another question related to income is the perceived relative income question. The possible answers to this are 1) low income, 2) medium income, and 3) high income. Three dummy variables are generated from these three categories. For instance, if the respondents put themselves into low income, then a dummy variable is generated, coding low income as one and the other categories as zero. As the primary earnings indicator, the survey has a yearly income variable. It is a continuous variable transformed into a natural logarithmic form to interpret as elasticity. The study also controls age and its square. Age is a continuous variable. The age square is included to allow different functional form effects of age.

Table 2: Breusch-Pagan/ Cook-Weisberg Test for Heteroscedasticity

H_o: Constant variance
Variables: Fitted Values of Natural Logarithmic Form of Health Expenditure
chi2(1) = 34.39
Prob > chi2 =0.0000

Heteroscedasticity is tested by the 'Breusch-Pagan / Cook-Weisberg heteroscedasticity test method. The test indicates that heteroscedasticity is an issue for the estimated regressions. So, this paper uses robust standard errors to obtain reliable standard errors in heteroscedasticity.

The following OLS model is constructed to investigate the determinants of OPE in Türkiye.

$$OPE_i = \partial_0 + \partial_1 lnInc_i + \partial_2 edc_i + \partial_3 emp_i + \partial_4 age_i + \partial_5 age2_i + \partial_6 gender_i + \partial_7 lnMS_i + \partial_8 medc_i + \partial_9 hs_i + \partial_{10} prminc_i + \partial_{11} prhinc_i + \varepsilon_i \quad \text{Eq (2)}$$

Where OPE_i is the continuous OOP health care spending of individual i. $lnInc_i$ denotes the objective income measure of individual i. edc_i is the educational attainment dummies of individual i. emp_i shows the employment status. age_i and $age2_i$ show age and the square of age respectively. $gender_i$ shows the gender of the respondents. $lnMS$ indicates the household size variable. $medc_i$ is the dummies for respondents' maternal educational attainment. hs_i denotes the health status of the respondents. $prminc_i$ and $prhinc_i$ show relative perceived middle and high-income variables, respectively. ε_i is the error term of the OLS estimation.

In addition to OLS estimates, the paper estimates a logit model. The outcome variable is coded as one if the individual's OOP health expenditure exceeds the median spending level and zero otherwise. The dependent variable in the OLS estimation can have any real value and is not restricted to any range of probabilities, such as the range of 0 and 1. However, the logit model

uses a dummy dependent variable with two categories. This model predicts the probability of having a particular event, for example, health spending more than the median value. The logistic functional form defining the probability is the following:

$$P_i = \frac{1}{1 + e^{[-(\beta_1 + B_2 X_{2i} + \mu_i)]}} \qquad Eq(3)$$

Where P_i is the probability that an individual's OOP health expenditure will be more than the median value, given the explanatory variable, X_{2i}. B_2 is the slope coefficient, and e shows the natural logarithm. The following can be calculated from Equation 3.

$$1 - P_i = \frac{e^{-(\beta_1 + B_2 X_{2i} + \mu_i)}}{1 + e^{[-(\beta_1 + B_2 X_{2i} + \mu_i)]}} \qquad Eq(4)$$

Where $(1 - P_i)$ is the probability that an individual's OOP health expenditure will be lower than the median value given the explanatory variable, X_{2i}. The below from equations 3 and 4 will be estimated.

$$\frac{P_i}{1-P_i} = \frac{1}{e^{-(\beta_1 + B_2 X_{2i} + \mu_i)}} \qquad Eq(5)$$

Then taking the natural logarithms of both sides gives:

$$ln\left(\frac{P_i}{1 - P_i}\right) = \beta_1 + B_2 X_{2i} + \mu_i \qquad Eq(6)$$

Where $\frac{P_i}{1-P_i}$ represents the odds ratio, and the logit is its logarithm. Therefore, Eq(6) is identified as the logit model. Also, the error term, μ_i, represents the logistic distribution. The outcome variable in equation (6) is the logarithm of the odds that health expenditure over the median value is obtained. The logit model in equation (6) is estimated by the maximum likelihood technique (Asteriou & Hall, 2011). The iterative estimation technique, maximum likelihood, is suitable for estimating nonlinear coefficients. As there is no linear relation between the explanatory variable, X_{2i}, and P_i, a direct interpretation of the slope coefficient, B_2, is impossible. Thus, the margin command in Stata 13.2 is used to obtain the marginal impacts of a change in X_{2i} on the dependent variable. As a result, the slope coefficient can be interpreted as in the OLS estimation directly similar to linear coefficients.

3. Results

Table 3 presents regression results. Column one provides the OLS estimates for natural log-transformed health expenditures. The results show that objective income is the most crucial determinant of health expenditure. Its impact on health expenditure is statistically significant and positive at a one percent level. An increase in the educational attainments of the respondents negatively affects health expenditure. All coefficients of education are negative even though the coefficients are only statistically significant at ten percent for having a bachelor or above degree education status. Employment status, household size, sex, health status, and marital status have no statistically significant effects on health expenditures. The coefficient of age is statistically significant at a 5 percent level and positive, and the square of age is negative and statistically significant at a 1 percent level. Age has an increasing effect on

health expenditures, but the effect diminishes when the respondents get older. All maternal education coefficients adversely affect health expenditures but the high school and above education coefficients. Also, most maternal education coefficients are statistically insignificant, but the coefficient of secondary school education is statistically significant and negative at the ten percent level. Only one perceived relative income variable is statistically significant. Having perceived relatively high income increases health expenditures, and the coefficient is statistically significant at a one percent level.

Column 2 provides Logit estimates of having health expenditures over the median level. The odds ratios of the Logit model are transformed into the marginal effects using the margin command in STATA to ease the interpretation.[5]. The median health expenditure is 200 TL. The logit estimates reported in Column 2 indicate that objective income positively impacts respondents' probability of having health expenditures over the median. All coefficients of educational attainments are negative. However, the coefficients are statistically significant for low secondary, secondary, and bachelor and above degrees at a one percent level. These results indicate that the possibility of spending on health over the median level decreases when the respondents have a higher level of educational attainment. Employment status, age, age square, household size, perceived high relative income, and marital status variables do not affect the probability of having health expenditures over the median. The Logit estimate result of gender indicates that males are more likely to have OOP health care spending over the median level than females.

Moreover, having good and excellent health decreases the possibility of having OOP health expenditures over the median, and the coefficient is statistically significant at a five percent level. Similar to the effects of respondents' education, mothers' education adversely affects above-median health expenditures. The coefficients are statistically significant at a one percent level except for the above secondary school education attainment variable. Perceived relative middle income decreases the probability of spending on health above the median level, and the coefficient is statistically significant at the ten percent level.

[5] The odds ratios are available upon request.

Table 3: Socioeconomic Determinants of OOP Health Care Spending

	ln(Health Spending)	Over Median Health Spending
Objective income (TL)	1,077***	0,32***
	(0,191)	(0,04)
Education Level		
Lower Secondary School	-0,372	-0,191***
	(0,329)	(0,059)
Secondary School	0,017	-0,170***
	(0,250)	(0,050)
Post-Secondary Non-Higher Education	-0,067	-0,045
	(0,360)	(0,071)
Two-Year College Diploma	-0,002	-0,095
	(0,415)	(0,079)
Undergraduate Diploma and Above	-0,590*	-0,214***
	(0,353)	(0,064)
Employment Status		
Employed	-0,181	0,012
	(0,190)	(0,038)
Age	0,104**	0,002
	(0,041)	(0,008)
Age Square	-0,001***	-0,0001
	(0,000)	(0,0001)
ln(Household Sıze)	0,104	0,066
	(0,273)	(0,055)
Gender		
Male	0,070	0,076**
	(0,179)	(0,034)
Marital Status		
Single	0,383	0,073
	(0,241)	(0,048)
Maternal Education Level		
Primary Education	-0,349	-0,144***
	(0,271)	(0,050)
Lower Secondary School	-0,037	-0,279***
	(0,324)	(0,063)
Secondary School	-0,714*	-0,321***
	(0,378)	(0,065)
Post-Secondary School	0,330	0,037
	(0,456)	(0,126)
Health Status		
Good or very good	0,112	-0,101**
	(0,283)	(0,048)
Perceived Relative Income		
Middle income	-0,363	-0,091*
	(0,273)	(0,047)
High Income	0,823***	-0,053
	(0,203)	(0,038)

Constant	-8,574***	
	(2,013)	
Number of Observation	732	732
Note: Robust standard errors are given in parentheses. The significance level: *** p<0.01, ** p<0.05, * p<0.1. Regressions control for income, education level, employment status, age, age square, household size, gender, marital status, maternal education level, health status, and perceived income variables.		

4. Discussion and Conclusion

It is found that objective income is an essential contributor to continuous OOP health spending and OOP health spending more than the median level. These findings of objective income are consistent with the previous studies on Türkiye (see Demir et al. (2011); Ercan (2021); İpek (2019); Yıldırım et al. (2011)). People who think they belong to the relatively high-income group spend more on their health than low-income individuals. In contrast, people with relatively perceived middle income are less likely to have more than median OOP health spending. Previous studies on Türkiye do not control these types of income measures due to the nature of the data they employed, so the result is not comparable in the Turkish context. The negative relationship between educational attainment and OOP health spending is well established (see Demir et al. (2011); Ercan (2021); İpek (2019); Yıldırım et al. (2011)) and found in this study as well. As mothers are the primary caregivers of the children within a family, the education of mothers might play a significant role in the health outcome of individuals. It is found that there is a positive and significant relationship between a mother's education and child health outcomes (Nepal, 2018). Good health outcomes with increased maternal education might lead to lower OOP health spending later in life.

The finding of the present study confirms this hypothesis. As the previous studies on Türkiye do not control mothers' education, the results are not comparable for Türkiye. The positive impact of age on OOP health spending seems to decrease when someone is aged. The results are consistent with Demir et al. (2011) and Yıldırım et al. (2011). However, Ercan (2021) finds a negative correlation between OOP health spending and age, and İpek (2019) finds no statistically significant correlation. This study finds that marital status, employment status, and household size do not affect OOP health spending measures considered in this study. The literature offers mixed findings related to these factors. Demir et al. (2011) find that single (never married) individuals are likelier to spend OOP on health care. According to İpek (2019) and Demir et al. (2011), larger households are less likely to have OOP health expenditures.

In contrast, employed individuals are more likely to have OOP health expenditures for their health care. Ercan (2021) finds that larger households and married individuals are more likely to spend OOP health spending on their health. The same study finds no statistically significant relationship between working status and OOP health spending, which aligns with the present paper. Yıldırım et al. (2011) find no statistically significant correlation between OOP healthcare spending and gender, which is consistent with the findings of this study. Contrary to the findings of this study, Ercan (2021) shows a negative association between the male gender and OOP healthcare spending. This study also finds that good and excellent health status decreases OOP healthcare spending; the result is incomparable as the data previously used in the Turkish context does not have this information within the data set. To conclude, it could be argued that this paper's results align with the previous studies on Türkiye. Also, the usage

of additional independent variables which could not be controlled in the previous studies on Türkiye offers extra insights to the policymakers to design policies addressing OOP healthcare spending.

There are a few limitations in this paper. First, the data used is secondary. The variables considered in this study include available variables in the data set. Omitted variable bias may be experienced because some critical control variables (such as insurance) could not be used in the analysis. Second, sample selection bias could be a problem as some individuals may not use health care at all. A future study could address some of the shortcomings of the current study if appropriate data become available.

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Ethics Statement: The author declares that ethical rules are followed in all preparation processes of this study. In case of detection of a contrary situation, Fiscaoeconomia has no responsibility and all responsibility belongs to the author of the study.

Etik Beyanı: Bu çalışmanın tüm hazırlanma süreçlerinde etik kurallara uyulduğunu yazar beyan eder. Aksi bir durumun tespiti halinde Fiscaoeconomia Dergisinin hiçbir sorumluluğu olmayıp, tüm sorumluluk çalışmanın yazarına aittir.