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## A STRUCTURAL EQUATION MODELING WITH WELFARE INDICATORS: EXAMINING THE RELATIONSHIP BETWEEN SOCIOECONOMIC STATUS, ACCESS TO SERVICES AND MATERIAL DEPRIVATION

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### ABSTRACT

This study aims at presenting comprehensive model using welfare indicators such as socioeconomic status, access to services and material deprivation, and examining the relationships between these variables. In the analysis, we use the pooled cross-sectional data set of the Household Budget Survey of the Turkish Statistical Institute (TURKSTAT) covering the period 2015-2019. Since the simultaneous relationship between welfare indicators such as socioeconomic status, material deprivation and access to services is examined using latent variables, Structural Equation Modeling is preferred. The study finds that socioeconomic status, composed of education and income, increases households' access to services and decreases their material deprivation. In addition, as households' access to services increases, their material deprivation decreases. Our study also finds that women's socioeconomic status is lower than men's in Türkiye during the period analysed. Moreover men in households have more limited access to services and face more material deprivation than women. The increase in household size makes access to services more difficult, worsens the socioeconomic situation and increases deprivation. Considering the health status variable, it is concluded that healthy individuals have higher socioeconomic status and suffer from less deprivation.

**Keywords:** Socioeconomic Status, Access to Services, Material Deprivation, Structural Equation Modeling.

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## REFAH GÖSTERGELERİ İLE BİR YAPISAL EŞİTLİK MODELLEMESİ: SOSYOEKONOMİK DURUM, HİZMETLERE ERİŞİM VE MADDİ YOKSUNLUK ARASINDAKİ İLİŞKİNİN İNCELENMESİ

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### ÖZ


Bu çalışmada sosyoekonomik durum, hizmetlere erişim ve maddi yoksunluk gibi her biri farklı bir refah göstergesi olan değişkenleri kullanarak kapsamlı bir model oluşturmak ve bu değişkenler arasındaki ilişkileri incelemek amaçlanmıştır. Analizde, Türkiye İstatistik Kurumu (TÜİK) Hanehalkı Bütçe Anketi'nin 2015-2019 dönemini kapsayan havuzlanmış yatay kesit veri seti kullanılmıştır. Sosyoekonomik durum, maddi yoksunluk ve hizmetlere erişim gibi refah göstergelerinin birbirleri ile olan eş zamanlı ilişkisi gizli değişkenler kullanılarak incelendiğinden Yapısal Eşitlik Modellemesi tercih edilmiştir. Bireyin sosyoekonomik durumunun eğitim ve gelir değişkenlerinin kompozisyonu olduğu çalışmada sosyoekonomik durumun hanelerin hizmetlere erişimini kolaylaştırdığı ve maddi yoksunluğunu azalttığı bulunmuştur. Ayrıca, hanelerin hizmetlere erişimi kolaylaştıkça maddi yoksunlukları azalmaktadır. Çalışmanın diğer önemli bulguları arasında, Türkiye'de incelenen dönemde kadınların sosyoekonomik durumunun erkeklerinkinden daha düşük olduğu yer almaktadır. Hanedeki erkeklerin kadınlara kıyasla hizmetlere erişimde daha sınırlı oldukları ve daha fazla maddi yoksunlukla karşılaştıkları da bulgular arasındadır. Hanehalkı büyüklüğündeki artış ise hizmetlere erişimi zorlaştırmakta, sosyoekonomik durumu kötüleştirmekte ve yoksunluğu artırmaktadır. Sağlık durumu değişkeni incelendiğinde, sağlıklı bireylerin sosyoekonomik statüsünün yüksek olduğu ve daha az yoksunluk çektiği sonucuna varılmıştır.

**Anahtar Kelimeler:** Sosyoekonomik Durum, Hizmetlere Erişim, Maddi Yoksunluk, Yapısal Eşitlik Modeli.

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## 1. INTRODUCTION

In the contemporary period, the welfare of individuals and societies has been a prominent paradigm within general dynamics of daily life, social sciences and policy-making. What does welfare of an individual or society refer to? Which description would be the best-fitting to define welfare? It is rather difficult to answer these questions because the concept of welfare could be defined differently from the individual or social perspectives. Conventionally, economists concentrate on the Gross Domestic Product (GDP), the Gross National Product (GNP), and the financial indicators concerning consumption levels and economic value-adding capacities of resources in order to measure and assess the welfare. Nevertheless, a number of individuals could exhibit discontent with their lives even though they enjoy with high-income levels. The concept of welfare is a phenomenon beyond the value obtained from material resources. For a society to be considered to have the "basic" level of welfare, members of society must have access to several critical elements such as compulsory education, health care, transportation services etc. in order to sustain and improve their lives. It is also important for individuals to be able to be employed and live under equal conditions, and to be able to exist effectively in a social environment. Hence, welfare is a phenomenon with multi-layers and many political, social and economic variables together represent the general welfare.

Comprehending the concept of welfare is the initial step in acquiring the ability to measure the welfare of a person, a household, or a society. This process allows for designing sustainable and comprehensive support mechanisms such as policies, government practices, social aid programs, and health services to accommodate needs and social demands of individuals.

The main objective of our study is to construct three different variables –socioeconomic status, access to services and material deprivation - and examine how each interacts to each other as welfare indicators. More specifically, we investigate the potential effects of these three variables on each other and how control variables such as gender, age, age squared, marital status, health status, household size and working hours determine those welfare indicators. Accordingly, our study examines the link between these variables within a simultaneous equation system using structural equation modeling. It is a strong analytical tool that explains the complex correlations among these variables.

By simultaneously investigating the relationships among these welfare indicators, the study seeks to evaluate various determinants of welfare from a broader perspective. This distinguishes our study from the previous research in the literature.

The paper is structured as follows. Section 2 presents literature review on welfare, whereas the third section exhibits the descriptive statistics, method and the estimation results of the model and method. The final section includes the discussion and the concluding remarks.

## 2. LITERATURE REVIEW

In economics, rational individuals aim to live a good life and enjoy the high welfare status. Some indicators of welfare and high living standards can be represented by some factors such as satisfaction, living in a fair and safe environment, happiness, freedom, high purchasing power and allocating time to leisure and recreational activities. It is possible that each factor represents the welfare concept individually or any combination of them can be a welfare indicator. The existing studies have examined welfare from different aspects. This study aims to contribute previous literature assessing welfare for Türkiye in terms of economic, social and environmental factors.

Considering the existing literature, concepts such as poverty, material deprivation and the quality of life are among the important indicators that determine the welfare of society. These concepts depend not only on monetary variables but also on non-monetary ones. Studies that take such an approach include Townsend (1979), Ravallion (1996), Sen (2004), Boarini and Mira d'Ercole (2006), Pradhan (2008), Stiglitz et al. (2009) and Guio (2009).

Regarding the studies on material deprivation in Türkiye, Karıcı and Arlı (2018) have examined the effects of variables affecting material deprivation in Türkiye. Using the 2016 TURKSTAT Income and Living Conditions Survey (ILCS) dataset, logistic regression analysis is applied. The results show that individuals with good health, higher education level and better job status are less material deprived. As the age of the individual increases, material deprivation decreases. Ünver and Alkan (2020) have analyzed the factors influencing the material deprivation status of individuals in Türkiye using a multivariate probit regression model. They utilize the microdata set from the Turkish Statistical Institute (TURKSTAT) Income and Living Conditions Survey (ILCS) for the years 2017 and 2018. Their findings show that an increase in income and the education levels correlates with a decrease in all material deprivation indicators. In addition, they find that individuals with poor health, the married, and the unemployed experience more material deprivation. Uğur (2023) has investigated the determinants of income poverty and material deprivation among individuals in Türkiye employing a multinomial probit model and using the microdata set of 2018 Turkish Statistical Institute Income and Living Conditions Survey (ILCS). Their results

indicate that both income poverty and material deprivation decrease as education level and age increase. Individuals who are widowed, divorced, or separated, as well as those who are married, have a higher likelihood of experiencing both income poverty and material deprivation compared to singles. Moreover, individuals with poor health have a higher probability of facing income poverty and material deprivation. Regarding other country case studies on material deprivation, Boarini and Mira d'Ercole (2006) investigate material deprivation from both objective and subjective perspectives. Their findings report that income, age, household structure, education, labor market status, health, ethnicity, geographical location, assets, and debt are effective factors in changing material deprivation. De Graaf-Zijl and Nolan (2011) analyse the impact of unemployment on income poverty and material deprivation among households living in the European Union. A multinomial logit model is used in the analyses. The results show that age, education and household type are effective on income poverty and material deprivation. Fusco et al. (2011) analyses the relationship between income poverty and material deprivation in 25 European countries. The results show that income poverty and material deprivation are related. In addition, Nelson (2012), Whelan and Maitre (2012), Soltes ve Ulman (2015), Bruder and Unal (2017), and Dudek and Russek (2023) also examine the effects of socio-economic factors on material deprivation.

Considering the studies on poverty and well-being, Fourage and Layte (2003) have found that education level, household size, marital status, health, and employment have an impact on poverty in the EU countries. Their findings show that single individuals, especially single parents, and the number of additional children in the household increase the probability of being poor and that higher education has a significant effect on poverty. Kahneman and Deaton (2010) examine two aspects of individual well-being: emotional well-being and life evaluation. They find that income and the education are closely related to life evaluation. Cuesta-Nepo and Pizzolito (2011) show that age, gender and education have an impact on poverty in Latin American countries. Wang and VanderWeele (2011) examine the factors affecting well-being of the urban population in China and find that being female, being married, being a party member and belonging to a higher income group are associated with higher levels of well-being. In addition, students, the employed and the retired people have higher well-being levels compared to the unemployed. In addition, a U-shaped relationship is observed between age and well-being. Shafiei et al. (2020) present a model of wealth and welfare components and their interrelationships in Iranian households. Their analysis for rural and urban areas is based on Structural Equation Modeling. The findings show that wealth such as education, employment and income increase the level of welfare in urban areas. In Turkiye, Kızılgöl and Demir (2010)'s study show that the age and the education level of the household head and household size have a poverty-reducing effect and that households living in rural areas are poorer. Çağlayan et al. (2012) also find that age, education, gender, marital status, working sector, living in urban or rural areas are effective on poverty. Among the results of the study, male head of household, people living in rural areas, the married, the employed in agriculture and trade sectors and of the less educated suffer from the increased poverty.

Following the review of the relevant literature, our study investigates the relationship between different welfare indicators in Turkiye that are material deprivation, socioeconomic status and access to services. Regarding the previous studies, no paper has analysed the access to services as the welfare indicator and examine its relationship with socioeconomic status and material deprivation. Our study fill this gap in the related literature.

### 3. DATA AND METHODOLOGY

#### 3.1. Structural Equation Modeling (SEM)

Structural Equation Modeling (SEM) is a statistical method to analyze and model the relationships among latent variables in multi-variable data sets. SEM includes two fundamental constituents: the measurement and the structural model (Bollen, 1989; Schumacker & Lomax, 2004). The measurement model aims to estimate the latent variables through observed variables and ensure accurate measurement and description of the latent variables. At this point, the measurement model derives latent variables based on the dataset employed in our analysis. For instance, core welfare indicators in our study (material deprivation, socioeconomic status and access to services) are latent variables and they are estimated using some measurement models.

The measurement models of our structural equation modelling are shown with of Equations (1), (2) and (3) as following. In these equations, Confirmatory Factor Analysis (CFA) is conducted. CFA is utilized to determine socioeconomic status, material deprivation and access to services indices through their factor weights.

$$md_{it} = \Lambda_{md}MD_{it} + \varepsilon_{it}^{md} \quad Eq. (1)$$

$$ses_{it} = \Lambda_{ses}SES_{it} + \varepsilon_{it}^{ses} \quad Eq. (2)$$

$$a_{it} = \Lambda_a A_{it} + \varepsilon_{it}^a \quad Eq. (3)$$

Equation (1) is the measurement model for the latent variable of material deprivation. The observed variables are utilized to create material deprivation index denoted by  $md_{it}$  for the individual  $i$  at time  $t$ , whereas  $MD_{it}$  denotes the latent factors.  $\Lambda_{md}$  is the coefficients vector indicating the direct effect of observed variables of the material deprivation index.  $\varepsilon_{it}^{md}$  denotes the error term. The latent variable of material deprivation is created by using a dummy variable obtained from 20 survey questions. The latent variable of material deprivation focuses on the questions concerning the basic needs of individuals. The questions on material deprivation in the questionnaire include whether the household consumes meat and meat products, fruit, milk and dairy products, frequency of going out for entertainment such as movie theatre, theatre, sports events, etc., as well as participating in professional sport, entertainment, cultural activities, owning bathroom, toilet, piped water, hot water, house, car, natural gas, phone, internet, TV, fridge, dishwasher, washing machine along with summerhouse and land. The answers to these questions are divided into two categories: "Yes" and "No". The respondent's answer "Yes" to these questions receives a value of 1, and answer "No" receives a value of 0. Material deprivation index is obtained using 20 observable variables. Positive and high scores represent the status of not being deprived.

Equation (2) is the measurement model for socioeconomic status. The observed variables are used to create the socioeconomic status index denoted by  $ses_{it}$  for the individual  $i$  at time  $t$ , whereas  $SES_{it}$  denotes the latent factors.  $\Lambda_{ses}$  is the coefficients vector indicating the direct effect of observed variables of the socioeconomic index.  $\varepsilon_{it}^{ses}$  denotes the error term. The latent variable of socioeconomic status is created using the education and income level of individuals. Each variable are composed of five categories. Positive and high scores represent the possession of higher levels of socioeconomic status.

Equation (3) is the measurement model for the latent variable; access to services. The observed variables are utilized to create the access to services index denoted by  $a_{it}$  for the individual  $i$  at time  $t$ , whereas  $A_{it}$  denotes the latent factors.  $\Lambda_a$  is the coefficient vector indicating the direct effect of latent dimensions on the access to services index.  $\varepsilon_{it}^a$  denotes the error term. The latent variable of access to services is created by the variables obtained from the six different survey questions. These questions include convenient access to "daily shopping" services, "banking" services, "post" services "public transportation" services, "health center" services, and "primary, secondary and high school" services. Responses to these questions can be "Easy" or "Difficult". The response "Easy" takes a value of 1 while "Difficult" gets 0. Thus, the latent variable of access to services is obtained using six observable variables. Positive and high values represent the situation with easy access to services.

Following the measurement model, structural equations are estimated simultaneously by employing the maximum probability method. Equations of the structural model are given below:

$$SES_{it} = \alpha'X_{it} + v_{it} \quad Eq. (4)$$

$$A_{it} = b_1SES_{it} + b'X_{it} + u_{it} \quad Eq. (5)$$

$$MD_{it} = \beta_1SES_{it} + \beta_2A_{it} + \beta'Z_{it} + e_{it} \quad Eq. (6)$$

Equation (4) is the model used to analyse the determinants of the socioeconomic status. The vector- $X$  in the model represents some control variables such as age, age squared, gender, marital status, health status and household size.

Equation (5) is the model investigating the effect of the socioeconomic status index on the access to services. In this equation, vector- $X$  represents the control variables such as age, age squared, gender, marital status, health status and household size.

Equation (6) investigates the determinants of material deprivation, including socioeconomic status, access to services and the control variables in vector- $Z$  (age, age squared, gender, marital status, working hours, health status and household size).

In the last stage, various fit indices are used to evaluate the performance of the structural equation model. These indices include measures such as RMSEA (Root Mean Square Error of Approximation), SRMR (Standardized Root Mean Square Residual), CFI (Comparative Fit Index) and TLI (Tucker-Lewis Index). RMSEA value of less than 0.05 indicates a good fit, while values between 0.05-0.08 indicate an acceptable fit. If the value of the standardized root mean residual (SRMR) is in the interval of 0 and 0.05, this suggests a good fit. CFI and TLI range between 0 and 1. As CFI and TLI values approach 1, these values indicate a good fit (Hu & Bentler, 1999; Schermelleh-Engel et al., 2003).

### 3.2. Data and Descriptive Statistics

This study utilizes the micro data sets of the Household Budget Survey (HBS) published by the Turkish Statistical Institute in the period of 2015-2019. A pooled cross-sectional data set is prepared merging the annual cross-sectional data of each respective year. HBS consists of three surveys which include individual, household and consumption information. Table 1 exhibits descriptive statistics of continuous and categorical variables. As

mentioned in the methodology section, SEM consists of three separate latent variables. Panel A of Table 1 presents the observed variables used to create latent variables of material deprivation, socioeconomic status and access to services. Panel A in Table 1 shows that approximately 93% of respondents do not have any social activity habits. Considering the material deprivation, the majority of respondents own the items mentioned in Panel A, except summerhouses (2.30%), land (4.74%) and cars (45.23%). Regarding variables of access to services, 73.04% of respondents stated that they have convenient access to shopping centers, 63.69% of them have access to banks, 66.40% of respondents have access to post offices, and the percentages of people who have access to transportation, health centers, and educational institutions are 71.66%, 70.47%, and 75.82% respectively.

Education and income are the two variables compose the socioeconomic status index. Regarding the education variable, which is classified under five groups, 22.12% of the respondents do not have any diploma graduating from any institution. 33.24% of the people graduated from the primary school. The percentage of respondents graduated from secondary school, high school, and university or over is 18.86%, 14.33%, and 11.45% respectively. The income variable represents the monthly incomes of individuals who are 15 years old and older. It is adjusted for inflation and converted into real values using the CPI (Consumer Price Index) taking into account 2003 as the base year. The income variable is divided and categorized into five quantiles of 20% each.

Panel 1 in Table 1 represents the descriptive statistics of the continuous control variables. The average age of the individuals in the sample is approximately 34 years. In order to investigate whether there is a non-linear relationship between age and material deprivation, socioeconomic status and the access to services, the quadratic form of age is also included in the model. Household size shows the number of individuals residing in a household. The average household size is approximately 4 in the data set. The health variable is an index consisting of questions “Whether the individual has been limited in activities usually do because of a health or mental problem” and “Whether the individual has been limited in activities related to work because of a health or mental problem”. Positive and high values indicate poor health. The variable of working hours indicates the weekly total number of working hours of a person. The average working hours of the respondents is 47 hours per week.

Concerning the categorical control variables, 49.40 % of the sample consists of men and 50.60 % of the sample consists of women. In terms of marital status, 24.84 % of the individuals in the sample are never married, 66.31% are married, 2.68 % are divorced, and 6.18 % are widowed.

Regarding the number of observations in Table 1, different observation numbers are due to the missing observations of some variables (working hours, income, education, etc.).

**Table 1.***Descriptive Statistics**Panel A. Indicators used constructing latent variables of material deprivation, socioeconomic status and access to services*

Indicators	Percentage (%)		Percentage (%)		
<b>Material Deprivation</b>					
Hot water (Yes)	89.61	Piped water (Yes)	99.53		
Natural Gas (Yes)	40.80	Toilet (Yes)	90.46		
Bathroom (Yes)	97.34	House (Yes)	63.33		
Fridge (Yes)	99.24	Washing machine (Yes)	97.74		
Dishwasher (Yes)	64.64	Mobile phone (Yes)	98.70		
Car (Yes)	45.23	Panel-TV (Yes)	71.89		
Internet(Yes)	55.73	Land (Yes)	4.75		
Summerhouse (Yes)	2.30	Meat and Meat Products (Yes)	88.70		
Fruits (Yes)	97.66	Milk and Dairy Products (Yes)	88.83		
Whether any household member engages in activities like cinema, theater, soccer,games, etc., or not (Yes)	7.03	Whether any household member engages in paid recreational activities such as sports, entertainment, and culture or not (Yes)	6.54		
<b>Access to Services</b>					
Accessing to the services related to “daily shopping” considering the location of dwelling (Easy)	73.04	Accessing to the services related to “banking” considering the location of dwelling (Easy)	63.69		
Accessing to the services related to “primary education” considering the location of dwelling (Easy)	75.82	Accessing to the services related to “public transportation” considering the location of dwelling (Easy)	71.65		
Accessing to the services related to “health center” considering the location of dwelling (Easy)	70.47	Accessing to the services related to “post” considering the location of dwelling (Easy)	66.40		
<b>Socioeconomic Status</b>					
Education Level	Percentage (%)	Income	Frequency		
Literate but not a graduate	22.12	Poorest 20%	15.322		
Primary School	33.24	Second 20%	15.316		
Secondary school	18.86	Third 20%	15.326		
High school	14.33	Fourth 20%	15.321		
University and post graduate studies	11.45	Richest 20%	15.322		
<b>Panel B. Control Variables</b>					
<i>Continuous variables</i>					
<b>Variables</b>	<b>n</b>	<b>Mean</b>	<b>Standart Deviation</b>	<b>Minimum</b>	<b>Maximum</b>
Age (year)	152.750	34.095	21.780	0	107
Age_squared	152.750	1636.878	1711.749	0	11449
Household size	152.750	4.403	2.262	1	30
Health (index)	152.750	-4.81e-10	0.8710	-4.1804	0.20717
Working hours	53.910	47.2781	15.8158	0	99
<i>Categorical variables</i>					
<b>Gender</b>	<b>n</b>	<b>Percentage</b>	<b>Marital status</b>	<b>n</b>	<b>Percentage</b>
Male	75.455	49.40	Never Married	28.891	24.84
Female	77.295	50.60	Married	77.125	66.31
			Divorced	3.113	2.68
			Widowed	7.183	6.18

**4. EMPIRICAL RESULTS**

Table 2 presents the Structural Equation Model estimation results for the pooled cross-sectional data covering the years 2015-2019.

**Table 2.**  
*Estimation Results of the Structural Equation Model*

Variables	Dependent Variable: Socioeconomic Status	Dependent Variable: Access to Services	Dependent Variable: Material Deprivation
<b>Socioeconomic Status</b>		0.4347*** (0.0072)	0.5194*** (0.0054)
<b>Access to Services</b>			0.2960*** (0.0033)
<b>Age</b>	0.0392*** (0.0012)	0.0265*** (0.0019)	0.0138*** (0.0014)
<b>Age-squared</b>	-0.0005*** (0.00001)	-0.0004*** (0.00002)	-0.0002*** (0.00001)
<b>Gender (Reference Category: Male)</b>			
Female	-0.2198*** (0.0057)	0.1505*** (0.0092)	0.2014*** (0.0069)
<b>Marital status (Reference Category: Never married)</b>			
Married	-0.0067 (0.0083)	-0.0792*** (0.0133)	0.0651*** (0.0097)
Divorced	-0.0633*** (0.0155)	0.0284 (0.0249)	-0.0902*** (0.0182)
Widowed	-0.1922*** (0.0216)	-0.1859*** (0.0346)	-0.0965*** (0.0253)
<b>Health</b>	7.33e-08*** (5.53e-09)	7.63e-09 (8.86e-09)	3.35e-08*** (6.48e-09)
<b>Household size</b>	-0.0922*** (0.0013)	-0.0643*** (0.0022)	-0.0206*** (0.0016)
<b>Working hours</b>			-0.0001 (0.0001)
<b>Constant</b>	0.0091 (0.0240)	-0.0615 (0.0385)	-0.1731*** (0.0295)
<b>No. Observations</b>		48.805	
$\chi^2$		69.292	
<b>RMSEA</b>		0.026	
<b>SRMR</b>		0.004	
<b>CFI</b>		0.998	
<b>TLI</b>		0.975	

Note: Standard Errors within brackets, \*\*\*, \*\* and \* indicate significance in 1%, 5% and 10% level

Table 2 shows that as the socioeconomic status of individuals' increases, households' access to services becomes easier and the material deprivation decreases. In addition, as households' access to services becomes easier, their deprivation level decreases. Similar to our study, Shafiei et al. (2020) show that wealth such as education, job and income increase the level of welfare.

Estimations of the model where socioeconomic status is the dependent variable show that coefficient of the age-squared variable is negative, indicating that socioeconomic status starts to decrease after a certain age. This can be explained due to the retirement period when the income resources of individuals decrease.

Regarding gender, we find that the socioeconomic status of women is lower than the socioeconomic status of men. This situation may indicate the existence of gender-based inequalities within society. It is often due to lower levels of education among women, lower levels of female labor force participation, or the limitations against females in the career opportunities and progression. Women still account for almost two-thirds of illiterate adults (UNESCO, 2023). Regarding the relevant literature, Chisamya et al. (2012), Özaydınlık (2014), Rao and Sweetm (2014), Unterhalter et al. (2014), Bal (2014) and Kılıç and Öztürk (2014) emphasize the disadvantaged status of women in terms of education and the labor force participation. Parlaktuna (2010) highlights the issue of inadequate education of women in the Turkish labor market and identifies the specific challenges and gender-based discrimination. Gustafsson and Jacobsson (1985) argue that there is a partial reduction in the gender pay gap with increased education. According to Shimada and Higuchi (1985), the education of women is associated with an increase in employment. Similarly, Contreras and Plaza (2010) conclude that an increase in women's educational attainment also increases the labor force participation. Overall, our findings, supported by many studies in the literature, strengthen the argument that women's low levels of socioeconomic status (education, income, etc.) are



the indicator of gender-based inequalities. This highlights the need for more comprehensive policies and programs to reduce the gender inequality in Turkish labor market.

Regarding marital status, the widowed and the divorced respondents report lower socioeconomic status than never-married respondents. On the other hand, the variable of being married is not statistically significant. Considering the relevant literature, findings support our study that divorce does not have positive effects on the socioeconomic status of individuals. Similarly, Kılıç and Öztürk (2014) find that those divorced and the separated women are less likely to participate in the labor market compared to the single women. Elmas and Adak (2023) also find that the divorced women experience disproportionate financial difficulties compared to the divorced men and explained this situation with the income differences and the cost of raising children.

Concerning the household size, our estimates show that the socioeconomic status of individuals decreases as the household size increases. Increasing household size could result in increasing economic needs of a household and household income needs to be shared by a greater number of household members. Finally, considering health status as a determinant, we find that an increase in health results an increase in the socioeconomic status as well. Case et al. (2005) also show that children with poor health have lower educational attainment and lower social status in adulthood.

Concerning the effects of the factors on the access to services, estimates show that an increase in the socioeconomic status increases the household access to the services. Regarding the coefficient estimates of control variables, the access to the services follows a decreasing path after a certain age while an obvious increase is experienced until the threshold age. In respect of gender, it is found that women have the greater access to the services compared to men. Traditional gender roles are established on a framework where males typically assume that the responsibility of working outside and primarily engaging in income-generating activities are theirs. On the other hand, women do tasks that include indoor services, such as household chores and childcare. Women's advantage in accessing services such as banks, public transit, compulsory schooling, and hospitals stems are due to their available time during the day at home. The married and the widowed people have more difficulties accessing services than those who are never married. The coefficient of the health status variable is not statistically significant. Considering the household size, it is observed that access to services becomes more difficult as household size increases.

Regarding the various factors investigated in material deprivation equation, our analysis shows that increasing socioeconomic status and access to services resulted in decreases in material deprivation. Ünver and Alkan (2020) have found that material deprivation decreases with increasing income and educational attainment. These findings support our results showing the effect of socioeconomic status on material deprivation.

According to the coefficient estimates of control variables that the material deprivation of households decreases until a certain age, but it increases after this age level, which is shown with the negative coefficient of the age squared. Focusing on gender, the results show that women in the household have less material deprivation compared to men. In support of our findings, Uğur (2023) has found that men are more likely to be both income poor and material deprived compared to the women. The fact that women have lower levels of deprivation despite the lower socioeconomic status may be because the deprivation variable is analyzed at the household level and the effects of other family members matter in this concept. This suggests that deprivation dynamics are complexly related to household size and the influence of other family members.

In terms of marital status, married people have lower deprivation than never-married people. Our findings show that the living standards of married individuals are higher as stated by Kızılgöl and Üçdoğruk (2011). On the other hand, the widowed and the divorced individuals have higher deprivation than never-married individuals. Our results are consistent with the findings of Hyder ve Sadiq (2010) and Uğur (2023).

In the consideration of household size, our findings suggest that material deprivation is increasing with the household size level. Hyder and Sadiq (2010) find that an increase in the number of children in a household increases the poverty level, while Makame and Mzee (2014) also find that an increase in the household size leads to the same result. These findings are consistent with the results of our study. Regarding the health-related findings, the deprivation decreases as the individuals' health improves. Similar to our study Uğur (2023), Fusco et al. (2011), Karcı and Arlı (2018) find an inverse relationship between health status and the material deprivation.

Finally, in Table 2, we represent the values of model fit indices that are CFI, TLI, RMSEA and SRMR. The model is approved since the values are within the acceptable limits.

## 5. DISCUSSION AND CONCLUSION

This study explores the link among different indicators of welfare, which has a significant impact on individuals in increasing their living standards and the quality of life. In addition, our paper also checks how some other variables such as gender, age, marital status, household size, health status, and the working hours have a link with

those welfare indicators. For the empirical analysis, we used the pooled cross-sectional dataset of the TURKSTAT Household Budget Survey for the period of 2015-2019. In our study, three latent variables, socio-economic status, material deprivation, and the access to services, are included as welfare indicators. Regarding the findings related to the relationship of these variables, we find that both access to services and the material deprivation depend on the socioeconomic status and the access to services also influences material deprivation. These relationships are examined using Structural Equation Modeling (SEM) method since we measure latent variables in the system of equations.

The findings suggest that the socioeconomic status is a critical factor in determining both access to services and the material deprivation of households. Moreover, the access to services is a crucial factor in determining the material deprivation. It is not surprising that the socioeconomic status and the access to services significantly affect material deprivation. Other critical findings of the study show that women have lower socioeconomic status compared to men. Educational inequalities can limit female labor force participation and career opportunities, leading to economic disempowerment and lower socioeconomic status. On the other hand, women have higher access to services and less deprived than men. As household size increases, the access to services deteriorates and the deprivation increases. An increase in the household size may lead to a more extensive distribution of the same resources among more individuals. In this case, the per capita share of individual welfare may decrease. As health status improves, the individuals' socioeconomic status increases and the material deprivation of households decreases. Health status generally increases the educational attainment, labor force participation, the productivity, and therefore the individual's income.

The findings offer a clear plan for essential interventions that can enhance the well-being of individuals. Nevertheless, it is crucial to highlight that in order to foster the progress of a nation, prioritizing educational interventions is imperative. Education is a highly impactful investment in increasing the human capital in Türkiye, and it plays a crucial role in the development, growth, and the success of the country. Education not only improves access to well-paying work opportunities through the acquisition of information and skills, but also plays a vital role in generating income. Nevertheless, the idea of equality must not be disregarded. Promoting equality in living standards is necessary for achieving equitable and sustainable development. This necessitates the efficient execution of policies that seek to empower individuals, households, and communities in economic, educational, and social aspects.

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#### **ARAŞTIRMACILARIN KATKI ORANI**

1.yazarın araştırmaya katkı oranı %40, 2. yazarın araştırmaya katkı oranı %20'dir. 3. yazarın araştırmaya katkı oranı %20'dir. 4. yazarın araştırmaya katkı oranı %20'dir

Yazar 1: Araştırmada literatür araştırması, veri seti, analiz kısmında katkısı bulunmaktadır.

Yazar 2: Araştırmada metodoloji ve analiz kısmına katkı sağlamıştır.

Yazar 3: Araştırmada metodoloji ve analiz kısmına katkı sağlamıştır

Yazar 4: Araştırmada metodoloji ve analiz kısmına katkı sağlamıştır

#### **ÇATIŞMA BEYANI**

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