Chapter 8

Calculation of Household-Based Socioeconomic Status in Türkiye

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Abstract

The determination of the socioeconomic status (SES) of the households is of great importance especially for many studies conducted in the academic field. It is used extensively especially for market and advertising research. Different methods are utilized for calculating SES scores based on education, income and occupation data at household level. The data obtained are record-level real data, not survey data. Variables are rated according to the score scale from 0 to 100.

The data of the education variable is scaled according to the educational attainment of individuals and rankings of university departments, the occupation variable is scaled according to the civil servant coefficient and the number of persons employed, and finally the income variable is scaled according to median income value. All 26 million households in Türkiye were included in this study. According to the findings, the SES scores of the households were grouped into seven groups: A+ (1.44%), A (10.80%),

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B (16.05%), C1 (18.24%), C2 (19.32%), D (17.77%), and E (16.37%). While 16.37 % of the households were in the lowest SES group, the proportion of households in the highest SES group was 1.44%. This article is the first evidence-based study that sheds light on SES scores covering all households in Türkiye. In this way, the socioeconomic levels of people reside in Türkiye were classified by taking advantage of the administrative registers. Besides, in this study, the SES scores of an individual or household without a socioeconomic status score can be calculated by using the multivariate regression model.

1. Introduction

Socioeconomic status (SES) is a term that encompasses the social, economic, and educational standing of an individual or group within a society. It is a crucial factor in understanding a wide array of societal issues, from health disparities and educational access to employment opportunities and social mobility. SES indicate the position of an individual or group on the socioeconomic scale, such as income, duration and level of education, occupation according to their residence. In other words, socioeconomic status is a concept that expresses the place of an individual or a group in society based on a combination of factors such as income, education, occupation and well-being. This concept is frequently examined and studied in the social sciences literature. Both the individual components of SES, such as educational attainment, occupational status, and financial resources, and how these components can be combined to create a composite score have been extensively researched and discussed (Baer Et al., 2005). Some researchers choose to look at aspects of SES separately to determine how much each component contributes to any observed effect. For this reason, there is a very extended literature on SES studies. The positions of individuals and/or households in the social hierarchy and what can be used to determine their socioeconomic status is a highly controversial issue (Kalaycıoğlu Et al., 2010).

Globally, countries like the United Kingdom, the United States, and Australia have developed various SES indices to capture these disparities, each tailored to reflect their unique social and economic landscapes. The "Socio-Economic Indexes for Areas" (SEIFA) used in Australia, for example, integrates income, education, and occupation data to analyze socioeconomic trends at regional levels. Similarly, the United States relies on indices derived from census data to assess SES across diverse demographic groups. These international models provide valuable insights and frameworks that can inform SES studies in Türkiye, where socioeconomic disparities present distinct challenges shaped by regional inequalities and the urban-rural divide.

Traditionally, SES has been measured through surveys that capture variables such as income, education, and employment. However, administrative registers, which contain detailed and comprehensive data collected by government agencies for purposes such as taxation, welfare, and public services, offer a promising alternative approach.

Administrative registers provide a wealth of detailed, longitudinal data that can offer a more accurate and comprehensive picture of household SES. Moreover, because these registers often cover entire populations, they offer a unique opportunity to analyze SES in a way that is both representative and free from the biases of traditional survey methods. In this article, we will explore how household socioeconomic status can be calculated using data from administrative registers.

2. Methodology

In the SES literature, socioeconomic status indicators are generally examined within the frame of some basic themes such as health, education, poverty, well-being and ethnic inequality. In the article, some analyzes made by researchers are included. In their study, Sewell and Shah (1967) investigated the relationship between SES, intelligence, and success on higher education. Mueller and Parcel (1981) suggested two occupation-based measures, the Duncan Socioeconomic Index and the Siegel Prestige Scale, as the best measures of the SES of individuals or household respondents.

Bradley and Corwyn (2002) reviewed the history of SES and provided an overview of the relationship between SES and children's well-being for three main developmental domains (cognitive, socioemotional, health). They have drawn attention to models that attempt to explain the link between SES and these aspects of development. Ball and Crawford (2005) examined the relationship between obesity and SES in developed countries in their study. In his study, Vyas (2006) conducted a principal component analysis on the assets owned by the household due to the difficulties in obtaining accurate data, although income and expenditure data are the most appropriate data for socioeconomic status. In the SES factor score calculation in the study, 4 main groups and 28 breakdowns were used in the urban-rural distinction in Brazil and Ethiopia data. The average socioeconomic score was calculated for the quintiles by ranking the calculated factor score from the least amount to the most amount. When looking at the distribution of the results, it was determined that the SES score calculated with the variables used did not have a significant discrimination. At the end of the study, the importance of determining the variables and re-evaluating the variables taken into account as conditions change over time is emphasized.

In their study, Conger and Martin (2010) focus on evidence regarding potential mechanisms proposed to explain these relationships. The study concludes with suggestions for future research on SES, family processes, and individual development in terms of important theoretical and methodological issues that have not yet been addressed. In his study, Patten (2019) aimed to propose and test a conceptual model for socioeconomic status (SES) and to measure variables that are available to researchers in Canada and applicable in other countries.

Powers (2021) provides an overview of the basic concepts of SES in his book, reviews the major approaches to conceptualizing and measuring socioeconomic status in North America over the past thirty-five years and evaluates these measures in light of current theoretical and methodological issues, and examines the origin and development of measures of socioeconomic status and prestige derived from United States (US) Census data. Antonoplis (2023) argues that SES is a construct that cannot be measured under traditional construct concepts and offers an alternative strategy for examining socioeconomic conditions. The study included a literature review consisting of 20 years of psychological research on SES. As a result of the study, SES was reconceptualized as a set of socioeconomic conditions and a measurement strategy was given to evaluate these concepts.

Blau and Duncan presented an analysis regarding to the scope and causes of intergenerational social mobility and argued that occupation has a central position in industrialized societies. Because profession provides a basis from which salaries and wages are earned and gives the professional authority and control over others and resources. As will be discussed, they suggest that different status or prestige is attributed to various occupations. Therefore, Blau and Duncan conclude that occupational hierarchy is the underlying dimension of social stratification. (Peter M. & Duncan, 1967)

2.1. Using the Household or Individual as the Unit of Analysis

Should socioeconomic status measurement be based on the household or the individual as the unit of measurement? The answer to this question is a very important issue for determining the measurement and the indicators to be included in the measurement. Those who examine class within the traditional framework tend to apply class categories to the household and define the man as the person who determines the class structure in the household. Goldthorpe has argued that this approach effectively. According to him, household members share the same class position, and this position can be measured most accurately by looking at the male household head.

Because the male household head is the household member with the most responsibility and continuity in terms of participation in the labor market. Later, following Erikson's ideas, Goldthorpe moved away from the idea that the male determines the class of the family and began to support a method called the dominance approach. Accordingly, the class position of the household is determined by the position of the household member whose participation of household's labor market is at the highest level.

There are also views that argue that the individual should be the object of analysis. According to those who argue that the individual should be the object of analysis, the individual's attitudes and behaviors; According to logic, it should be examined according to the direct experiences of the individual. On the other hand, in studies on consumption behaviors and attitudes where the family consumes together as a whole, the appropriate unit of analysis is the household. If it is decided that the survey is a household-based classification measure rather than an individual-based classification measure, a second stage raises the question of how best to measure the household's class position. In this case, three basic approaches can be listed (Edgell, 1998):

- Goldthorpe's dominance approach: Based on the individual in the household with the highest participation in the labor market (Goldthorpe, 1983).
- Combined classifications: Including men and women in the measurement.
- Separate class schemes for men and women: Applying the schemes developed for men also to women.

There are also some problems and advantages derived from all three approaches. At this point, the scope of the research must be determined in order to decide to unit of analysis correctly. The last step that will enable the concept of class to be operationalized is to decide on the scope of the research. Traditionally, class analyzes include only adults who are economically active full-time. In this case, it becomes clear that groups such as those who do not working full time, unemployed persons, part-time workers, unpaid workers, retirees are not included in the class structure. (Kalaycıoğlu et al., 2010)

2.2. Socioeconomic Status Indicators

Another important issue is also that determining the factors/variables to be included in the index when creating the SES scale. Within this context, it is theoretically accepted that the variables such as education, occupation, income, authority and ownership are the main factors affecting SES.

a) Education: It has been one of the most important factors for obtaining certain statuses and vertical mobility. For this reason, education should be one of the basic components of an SES index to be formed for education.

b) Income: Income is one of the basic components in SES scales. Income level of a household usually affects the place in the social structure. Income, which is a socioeconomic indicator, closely affects consumption and lifestyle.

c) Occupation: Occupational reputation is an almost unchanging part of the SES models. In the modern life, it is often stated that occupation is the most fundamental factor that determines a person's social position. Occupation is also seen as a complementary factor to education and income. (TUSES)

2.3. Commonly Used SES Measurements

Although there is disagreement about the conceptual meaning of SES, there appears to be agreement on Duncan's (1972) definition of the tripartite nature of SES, which combines parental income, parental education, and parental occupation as the three primary indicators of SES. (Sirin, 2005)

The most widely used index by those publishing in the field of Child Development and Developmental Psychology is the Hollingshead Index. The index takes into account the fact that social status is a multidimensional concept.

In 1970, Green developed a scoring procedure designed for use in public health research. The scoring guide consists of two steps.

The Siegel Prestige Scale is widely used in sociology. Unlike the Census scale or the Green scale, the development of the Siegel scale was based on the assumption that occupational ranking is socially defined. (Mueller & Parcel, 1981)

According to the Duncan SEI index, developed in the early 1960s, each SEI score is obtained using the regression equation given in Equation 1:

$$SEI_{Score} = 0.59X_1 + 0.55X_2 - 6.0 \quad (1)$$

Here, X_1 is the percentage of men in the occupation who have an income of at least $3,500, and X_2 is the percentage of men in the occupation who are at least high school graduates. Regression weights were generated from data collected in a national survey conducted by NORC (1947) in North-Hatt (North-Hatt reputation scores). (Duncan, 1961) Featherman and Hauser (1977) updated this scale for three-digit occupational groups of the 1970 US Census. (Featherman & Hauser, 1977)

Another widely used scale, the Kuppuswamy scale, was developed by Kuppuswamy and is still widely used as a measure of socioeconomic status in urban populations. The Kuppuswamy scale is based on a scoring system that takes into account factors such as family income, education level, occupation and social status. (Kuppuswamy, 1981)

2.4. Country Case Studies

When National Statistical Offices and International Organizations are examined, it is seen that statistics on socioeconomic status are not published as indices. In general, statistics on the subjects included in the index are obtained from these sources and used in academic studies.

The "National Statistics Socioeconomic classification" has been published by the United Kingdom Statistics Office on this subject. (UK-1) (UK-2). "Socio-Economic Indexes for Areas (SEIFA)" were calculated by the Australian Office of Statistics. (SEIFA, 2023). Within the scope of the "Programme for International Student Assessment's (PISA) 2018" conducted by the OECD, it shows how strongly socioeconomic status is related to performance in participating countries and economies. (PISA, 2023). In a study conducted by the US Department of Health and Human Services in 1998, health status was reported according to socioeconomic status. (USA-1, 2023) The reference document for determining socioeconomic status in health research was prepared by the same unit in 2012. (USA-2, 2023)

3. Results

3.1. Components of SES Calculation

Income distribution indicators are needed not only economically but also socially in order to determine the country's economy and people's living standards and to make a healthy evaluation of various social systems. Since 2006, within the framework of harmonization with the European Union, the Turkish Statistical Institute (TurkStat) has been carrying out the "Income and Living Conditions Survey (TR-SILC)", in which the "panel survey" method is used, the aim of which is to produce data on issues such as income distribution, living conditions, social exclusion and relative income poverty. However, the TR-SILC does not allow producing income information at the household level.

The socioeconomic status score, calculated based on administrative registers at the household level, has 3 components. These are education, occupation and income.

In order to calculate the socioeconomic status index at the household level, the 2021 Address-Based Population Registration System (ABPRS), the National Education Statistics Database (NESD) and administrative records containing education, occupation and income information received from institutions were used. Education, occupation and income scores, which are the components of the socioeconomic status index at the household level, were calculated thanks to administrative registers.

3.1.1. Scoring the Education for Households

The highest level of education completed for each individual residing in Türkiye is available in the NESD. Within the framework of the education levels in NESD, it was decided to make a scoring for each education level and by using other auxiliary information such as the type of high school graduated, the university, department, and university entrance ranking of the individuals within the education levels. The score of the person with the highest education level in the household represents the household score. The scores for education is shown in Table-1.

Table 1. Education Scores for SES

CODE	LEVEL	SCORE
0	Unknown	0.0
1	Illiterate	0.0
2	Literate	10.0
3	Primary school	20.0
4-5	Primary and Secondary School Graduates (Open)	30.0
4-5	Primary and Secondary School Graduate (Formal)	35.0
6	High School (General-Open Education)	40.0
6	High School (Vocational-Open Education)	50.0
6	High School (General-Formal)	55.0
6	High School (Multi-Program)	57.5
6	High School (Vocational-Formal)	60.0
6	Police College	61.0
6	High school (Science)	62.5
7	Associate Degree / Undergraduate (Undifferentiated)	74.0
7	Associate Degree	65.0-73.0
7	Bachelor's Degree	75.0-90.0
8	Master's Degree	91.0
9	Doctorate	100.0

3.1.2. Scoring the Income for Households

While calculating the income score; Information regarding premium earnings, pension, social aid income and income declarations in the administrative registers were used. Here, the information in the administrative registers are aggregated annually at the individual level. The distribution of annual total income at the household level is given in Table-2. For households, whose income information was not available in administrative registers, motor vehicle insurance information was used to fill the gap in income.

Table 2. Number of households according to annual household income classification

Household Annual Income (TL)	Number of Households
Total	25 329 833
No Household Income in Administrative Records	1 634 999
0-30 000	5 409 708
30 001-100 000	11 150 063
100 001-250 000	4 420 364
250 001-500 000	1 651 154
500 001-1 000 000	843 743
1 000 001 and over	219 802

3.1.3. Scoring the Occupation for Households

While calculating the profession score; Social Security Institution paid employee (SSK 4a), self-employed (Bağkur 4b) and civil servant (Emekli Sandığı-4c), Service Tracking Program (HİTAP), Directorate General of Public Accounts payroll records, agricultural records, part-time employee records, academic personnel records and private bank chest records were used.

3.2. SES Calculation through Administrative Registers in Türkiye

For the three components of the socioeconomic status, education, occupation and income were given scores between 0 and 100. Thus, score values between 0 and 100 were defined for the education, occupation and income components for each household (h).

$$SES_{SCORE_h} = EDUCATION_{SCORE_h} + INCOME_{SCORE_h} + OCCUPATION_{SCORE_h} \quad (2)$$

The household with a SES score of 0 was determined as having the lowest social status, and the household with a SES score of 300 was determined as

the highest social status. Thus, an SES score was assigned to all households in 2021, approximately for 25 million households.

4. Conclusion and Discussion

This study aims to determine an SES score for all households in Türkiye based solely on administrative records, using education, occupation and income information. When academic studies in this context are examined, it is seen that status classes are generally evaluated in 5 or 6 classes. In order to make the highest status group more distinct, the 7-level classification is used in this study. The ranges of classes were determined in line with the distribution of SES scores, cluster analysis results and expert opinions.

Lower and upper scores were determined for each class. Thus, SES scores were classified at 7 level. Approximately 360 thousand households in Türkiye were in the top class in terms of socioeconomic status. The ratio of households according to socioeconomic classes is shown in Figure-1.

Figure 1. Proportion of households by socioeconomic classes

When socioeconomic status classes are examined at the provincial level; As can be seen in Figure-2, the provinces with the highest proportion of households in the lowest socioeconomic status group (E) are Yozgat, Çorum, Gümüşhane and Ardahan. (Figure-2).

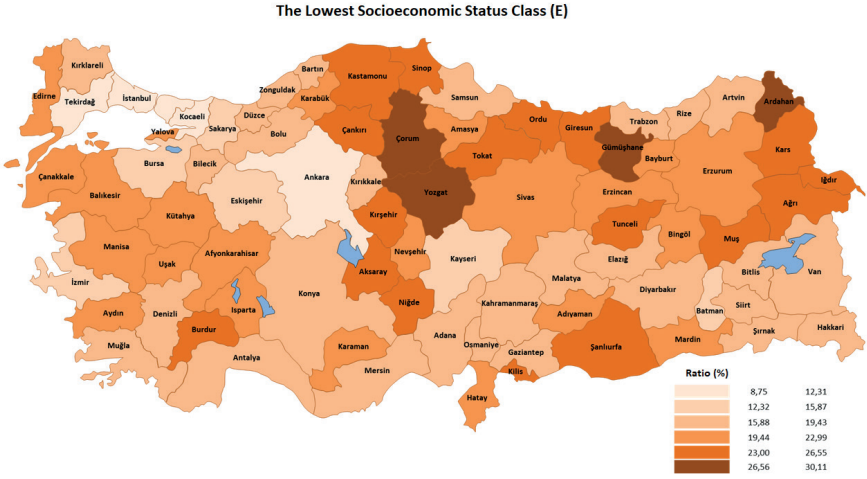

Figure 2. Distribution of households in the lowest SES class by province

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