

CHILD POVERTY IN TURKEY – A DECADE OF CHANGE

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ABSTRACT

CHILD POVERTY IN TURKEY – A DECADE OF CHANGE

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Child poverty is an important issue to be examined in many countries today. The aim of this study is to make a contribution to the literature by focusing on the decade of change in child poverty in Turkey. Within this respect, a variety of analyses are conducted in order to investigate child poverty in Turkey in 2007 and 2017 by using micro datasets of Surveys on Income and Living Conditions run by Turkish Statistical Institute. In the beginning of study, compositional changes in child poverty determinants are given place. Afterwards, determinants of child poverty in 2007 and 2017 are examined according to the relative and absolute income thresholds set in this study. A decade of change in determinants of child poverty is handled under each analysis. Lastly, sources of household incomes of children are discussed in detail in order to better understand child poverty in Turkey.

Keywords: Child poverty, income poverty, absolute poverty, relative poverty, household incomes of children.

ÖZ

TÜRKİYE’DE ÇOCUK YOKSULLUĞU – ON YILLIK DEĞİŞİM

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Çocuk yoksulluğu bugün pek çok ülkede araştırılan önemli bir konudur. Bu çalışmanın amacı Türkiye’deki çocuk yoksulluğunun on yıllık değişimine odaklanarak literatüre katkı sağlamaktır. Bu minvalde, Türkiye İstatistik Kurumu tarafından yürütülen Gelir ve Yaşam Koşulları Araştırması’nın mikro veri setleri kullanılarak 2007 ve 2017 yıllarındaki Türkiye’deki çocuk yoksulluğunu incelemek adına çeşitli analizler yapılmıştır. Analizlerin başında çocuk yoksulluğunun belirleyicilerinin kompozisyonlarında meydana gelen değişimlere yer verilmiştir. Daha sonra 2007 ve 2017 yıllarındaki çocuk yoksulluğunun belirleyicileri çalışmada belirlenen göreceli ve mutlak gelir eşiklerine göre incelenmiştir. On yıllık değişim her analizde ele alınmıştır. Son olarak çocukların hanehalkı gelir kaynakları Türkiye’deki çocuk yoksulluğunu daha iyi anlayabilmek adına detaylı olarak incelenmiştir.

Anahtar kelimeler: Çocuk yoksulluğu, gelir yoksulluğu, göreceli yoksulluk, mutlak yoksulluk, çocukların hane gelirleri



To my family

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LIST OF ABBREVIATIONS

AME	Average Marginal Effect
CPI	Consumer Price Index
DHS	Demographic and Health Surveys
EU	European Union
EUROSTAT	European Union Statistical Office
FES	Family Expenditure Survey
HBS	Household Budget Surveys
HDI	Human Development Index
HDR	Human Development Reports
HPI	Human Poverty Index
MEM	Marginal Effect at the Mean
MICS	Multiple Indicator Cluster Survey
MoFLSS	Ministry of Family, Labour and Social Services
MPI	Multidimensional Poverty Index
NUTS	Statistical Regional Units Classification
OECD	Organisation for Economic Co-operation and Development
PPP	Purchasing Power Parities
SILC	Survey on Income and Living Conditions
SPGI	Squared Poverty Gap Index
SSI	Social Security Institution
TURKSTAT	Turkish Statistical Institute
UK	United Kingdom
UNDP	United Nations Development Program

CHAPTER 1

INTRODUCTION

Poverty is an important issue that has been studied for many years. When human needs and human rights are considered in depth, the concept of child poverty becomes prominent (Gordon, Nandy, Pantazis, Pemberton & Townsend, 2003). In this regard, many countries have started to put child poverty on their agenda in 1990s since childhood is regarded as the most important and fragile period of a person (Spencer, 2000; Fiedler & Kuester, 2010).

Children are affected from poverty more than adults because they are not able to change economic conditions of their families until the end of their childhood (Brooks-Gunn & Duncan, 1997). In addition, children, who are born into poverty, are likely to have fewer opportunities in life when they are compared with their peers. Thus, if child poverty is concluded with serious outcomes concerning health, education and criminal justice, it might cause life-long problems that are irremediable (D'Souza, 2003).

In order to show the strong relationship between poverty and child outcomes, Brooks-Gunn and Duncan (1997) investigated children who were identified as poor and non-poor according to their incomes. The study revealed that poor children experience serious consequences of poverty. Low birth weight and lead poisoning were found to be prevalent among poor children and it was observed that children growing in poverty were less likely to continue their education (Brooks-Gunn & Duncan, 1997).

Mayer (2001) made a contribution to the literature by conducting a study on the links between the educational attainment and income inequality in the US. She focused on the effects of the change in educational outcomes of children.

According to her findings, inequality of educational attainments between poor and non-poor children increased with the rise of income inequality (Mayer, 2001).

Another research was made by Cao and Liu (2014) on migrant workers' children upon the massive migration from rural to urban areas in China. Six groups were established according to urban-rural differences and family compositions. Through the study, it was observed that children in poor households had lower school grades and their parents had lower education levels in reference to children in non-poor households. Income and education levels of fathers were also found to be significant determinants of physical health of poor children (Cao & Liu, 2014).

Research reveals that there is a strong relationship between family income and child outcomes. Blanden and Machin (2004) conducted a study on higher educational attainment of children going to university in 1970s, 1980s and 1990s in the United Kingdom (UK). The relationship between parental income and education of children was discussed for both poor and non-poor children. According to the results, it was observed that higher educational attainment was high for individuals whose family income was at the top quintile in 1981. However, the percentages were remarkably lower when the bottom quintile was considered (Blanden & Machin, 2004). There are also researches putting forth the argument that poverty in childhood plays a key role on poverty in adulthood. Blanden and Gibbons (2006) show for the UK that poor teenagers in 1970s were twice as likely to be poor in their adulthoods in comparison to their non-poor peers. Similarly, it was also discovered that the possibility increased four times for poor teenagers in 1980s. The difference between the possibilities was explained with increasing effect of family background over the outcomes through passing years (Blanden & Gibbons, 2006).

As one of the most vulnerable groups, children are also seriously affected by poverty in Turkey. When relative child poverty rates are investigated among the Organisation for Economic Co-operation and Development (OECD) countries,

poverty rates for children are more than 20% in Chile, Israel, Spain and Turkey. Unfortunately, the rates of Israel and Turkey are even higher than 25% (OECD, 2018). According to the address-based population registration system, there are approximately 23 million children living in Turkey which correspond to 28% of the total population by the end of 2018. This number was 41.8% in 1990 whereas 48.5% in 1970. According to the current projections, the proportion of children in Turkey will decline to the current level in European countries after 2040s¹ (TURKSTAT, 2019). It means that Turkey has a relatively larger child population than European countries. It can also be inferred from the child statistics that the child dependency ratio which shows the proportion of 0-14 years old children per 100 people who are between 15-64 years old is high in Turkey with 34.5% (TURKSTAT, 2019). The ratio means that there is a very close link between the welfare of children and their parents in Turkey. Therefore, child poverty is very critical for Turkey since future generations are directly linked to the welfares of children today.

Even though child poverty is expected to become one of the priority issues to be investigated by researchers and policy makers, there is still a limited number of studies on child poverty in literature in comparison with other issues concerning living conditions and well-being in Turkey.

In this regard, relative and absolute income poverty for children in Turkey is studied with this study to make a contribution to the literature. This study aims to examine child poverty determinants and understand the reasons behind the decade of change in child poverty. This thesis includes five main chapters in this respect. Chapter 1 provides an introduction to the study. Theoretical and empirical backgrounds are given in Chapter 2 afterwards. Chapter 3 introduces the data sets used in the analyses and the methodology followed in the study. Chapter 4 consists of descriptive statistics, relative and absolute analyses of child poverty for both 2007 and 2017 together with the examination of a decade of change in the

¹ Ireland, France and United Kingdom have the highest number of children proportions with 24.8%, 21.9% and 21.1% respectively in Europe by 2018.

effects of each determinant. In addition, decomposition of child poverty determinants is conducted and income sources of children are examined in detail in Chapter 4. The study is concluded with Chapter 5.



CHAPTER 2

LITERATURE REVIEW

2.1.Theoretical Literature Review

The concept of poverty has been studied by many scientists and researchers for many years. Each of them tried to identify poverty with a different approach. Therefore, there is no single definition of poverty today. When the history of poverty is examined, it can be observed that inequality concept had been examined by many scientists. Marx, the famous German philosopher and economist who made major contributions to economics was one of them. With Marx the focus shifted mostly to factor shares of production and wages. A great numbers of theories and studies emerged in the field of poverty over time and many of them introduced various perspectives within this scope (Townsend, 1979).

Classical theory explained poverty by associating it with “laissez faire” policies. According to the classical view, poverty depends on individual’s own choices. It is the individuals’ responsibility to gain labour market skills. In this way, persons who acquire required skills can find well-paid jobs, earn enough money and keep themselves out of poverty. Government interventions are therefore seen as unavailing and participation in the labour market is viewed crucial in order to escape from poverty (Davis & Sanchez-Martinez, 2014).

When it comes to neo-classical theories, they support similar definitions of the poor identified by classical economics. However, the concepts of utility and value of a good are different in neo-classical economics. Unlike classical theories, the neo-classical approach accentuates rational preferences of agents. According to neo-classical economics, individuals maximize their utilities by consumption where firms maximize their profits with factors of production. Equilibrium is

achieved at the intersection of supply and demand curves determined by the rational preferences of agents. Therefore, consumption and income are used for poverty analyses since income shows the marginal productivity where consumption is a measure of poverty (Davis & Sanchez-Martinez, 2014).

In the orthodox economic theory, resource allocation is in the focus and the maximization of behavior of individuals is respected while governments consider social welfare as crucial (Ng, 2003). Marginal productivity is linked with wages and it is assumed that productivity is low where individual income is low. Therefore, the productivity of individual is aimed to be maximized (Townsend, 1979).

In 1960, Theodore W. Schultz developed the human capital theory in line with the orthodox economy theory. According to this theory, human resources include physical, biological, physiological and cultural dimensions of individuals. Within this scope, human capital can be improved with education and training. Since orthodox theory relies on two main assumptions which are perfect competition and market equilibrium, skilled workers are put in the centre of the theory (Davis & Sanchez-Martinez, 2014). Therefore, the utilization of human capital is linked with the patterns of wages and salaries and distribution of personal income (Schultz, 1972). It is individuals' own responsibility to invest in human capital in order to reach high level of income by increasing their productivities.

Contrary to the human capital theory, there is no perfect competition in segmented labour market theories. It is widely accepted that education and training do not guarantee an escape from poverty, and thus, poverty remains a major problem for governments. Segmented labour market theories focuses on the demand side of the labour market. Labour market is divided by non-competing segments rather than a single competitive market. Since education and training facilities are not shared equally by all parts of population because of the institutional barriers, some workers get stuck on the lower segment of the labour market without access to the upper segment (Leontaridi, 1998). As a part of the segmented labour market

theories, dual market approach emerged due to the battle against poverty in 1960s within the framework of the social reforms. According to this approach, the labour market is divided into two parts which are called “primary” and “secondary” (Cain, 1975). In the primary labour market; high paid jobs are offered, skills of workers are fundamental and stable working habits are supported, whereas in the secondary labour market; jobs are low-paying, stable working habits are non-essential and minorities such as women and young people are working in the market (Reich, Gordon & Edwards, 1973). In this regard, everyone does not have equal opportunities and income distribution is shaped by the segments of the labour market. Individuals involved in the secondary labour market come face to face with poverty as a result of poor working conditions.

There are also Keynesian and Liberal approaches to poverty. In general, growth is expected for economic development. As a consequence, unemployment is supposed to decrease and it has a positive impact on poverty reduction. In their perspective, the causes of poverty are not related with individual choices, government interventions are expected for improving human capital and increasing public education facilities in order to tackle with poverty in contrast to classical and neo-classical thinkers (Davis & Sanchez-Martinez, 2014).

On the other hand, social exclusion and social capital approaches to poverty have a rather multi-disciplinary perspective. The social exclusion concept started to be prominent in 1970s France. It spread to the European Union (EU) and the number of studies on inequality has since increased. According to the social exclusion concept, certain groups are excluded from society because of their race, gender, religion, ethnicity etc. and they cannot enjoy same rights and opportunities given to the others in the society. Therefore, they become vulnerable and are faced with poverty problem (Daly & Silver, 2008). Government policies which enable access to services such as employment, education and health are crucial for these people to reduce poverty under social exclusion approach. Social exclusion can be both a cause and outcome of poverty (Conway, 2002). It leads to poverty by limiting

labour market participation of people to empower themselves. Meanwhile, it can be an outcome of poverty when poor people are limited to purchase enough goods and services, becoming socially excluded as a consequence (Wagle, 2002).

When it comes to the social capital concept, it is widely used in the United States and developing countries. Similar to social exclusion, social capital is related to social structure. While social exclusion is oriented to a social problem, social capital mainly focuses on social progress (Daly & Silver, 2008). According to the social capital approach, poverty problem can be solved by empowerment of individuals economically, politically and educationally. Since productive members are increased by the empowerment, they contribute to development in society. Poverty causes division of society into different layers according to their socio-economic status (Taga, 2013). Therefore, differences of various social layers of society in terms of their characteristics are highlighted by the social capital approach (Conway, 2002).

Apart from these theories explaining poverty with productivity, wages and labour market income, other sources of income are also crucial in order to understand income poverty. Rental and property income and transfer payments are important sources which can play an active role on monetary poverty. Property and rental income is generated from ownership of a property and generally received as rent, profit and interest. Having land gives opportunities to the owner such as receiving rent as an additional source of income, using it as collateral for a credit or capitalizing it for another income generating activity. Landless people do not have a chance to use one of these opportunities and become more vulnerable to poverty (Meinzen-Dick, 2009).

Transfer payments are another source of income that can lift people out of poverty. Governments provide compensation to poor people who are in need of assistance. Amounts, types and aims of this assistance vary according to the economic and social structure of each society. Cash benefit programs and in-kind contributions are types of government interventions. The benefits and allowances

are made to the most vulnerable groups in society such as children, elderly and disabled people. The efficiency of transfers is also discussed in many studies (Sanders, 1991; Schram, 1991; Creedy, 1996; Brady, 2005). Well-designed social policies are important for poverty reduction at this point to respond to people who are in need of assistance, while it is also crucial not to cause adverse consequences such as drop outs from the labour market in this regard.

In the light of different theories on poverty, different methods are followed by scientists and researchers in order to identify the poor, since there is no universal identification of poverty. Every method has both advantages and shortcomings. As the importance of income is underlined by most of these theories, monetary methods are generally accepted by many scientists and policy makers for poverty measurement. There are two well-known concepts within this regard: “relative” and “absolute”.

According to the absolute approach, poverty is broadly evaluated with the help of the minimum requirement of the basic needs and services of people (Whiteford & Adema, 2007). In order to identify poor people, one of the pioneering studies was conducted by Charles Booth (1889 and 1891) through a series of surveys. He designated a threshold which divides people by poverty and comfort levels. As a consequence, poor people were classified according to their monetary conditions. However, the data used in the study was not based on reliable sources since household information was collected from other people who know household members rather than household members themselves (Hennock, 1987). Afterwards, Seebohm Rowntree had another early study of poverty conducted for York (UK) in 1901. He set a poverty line calculated according to the minimum costs of living (Gillie, 1996).

In the early 1960s, Molly Orshansky also introduced two versions of absolute poverty lines calculations pursuant to basic needs of households in order to develop an economy food plan and low-cost food plan for the US. According to her calculations, individuals who fell below the poverty lines monetarily were

considered as “poor”. Initially, only children and their families were considered for poverty lines, but later all individuals were included in the calculations. The calculation method of poverty lines was updated and new thresholds were developed in 1970s and 1980s according to the different characteristics of families in order to provide accurate measurement for poverty (Fisher, 1992).

In 1990, the World Bank introduced a method as an international absolute measurement. This method was called “A Dollar A Day” since the Bank set \$1 per day as a threshold for measuring poverty. The measurement was considered internationally since the threshold was revealed after the consideration of national poverty lines of some of the poorest countries. It allows comparison between countries since national poverty lines are adjusted according to the exchange rates of Purchasing Power Parities (PPP). The threshold was updated to \$1.25 and \$1.90 in 2005 and 2011 respectively due to the increasing living costs in the world (World Bank, 2015). Similar to other measurement methods, some criticisms have also arisen following the promotion of the method. For instance, as PPP is not a real exchange rate, it is proposed that using PPP as a converter would be incorrect. Moreover, this method is not expected to work properly for developed countries because people who live in the developed countries have access to minimum needs and services, while other people are suffering due to insufficient education, health and other basic human needs in developing countries (Gordon & Nandy, 2012).

Since their economy expanded, the absolute poverty problem started to decrease in developed countries over time. As a result, poverty became a concept relative to individuals who lived in developed countries. People whose economic condition took a turn for the worse had to limit their quality of lives and could not have a way of life that they desired and they had to give up some necessities in the end. Therefore, poverty started to be described as “relative” (Spencer, 2000).

Historically, Rowntree (1901) laid the foundations of “relative” poverty. He described poverty as “primary poverty” where poor families are described as the

ones who are not able to meet their minimum needs. On the other hand, he added “secondary poverty”, which can be defined as a relative concept. According to the second definition, poor families are described as the ones who fulfil their basic needs but cannot put money on useful or wasteful expenditures. Townsend enhanced Rowntree’s assessment one step further and introduced relative poverty approach (Freeman, 2011). According to Townsend (1979), households can be ranked according to their incomes. Different groups are established in this respect and poor families can be obtained by making group comparisons with each other. Alternatively, certain proportions can also be obtained according to the determined percentages such as 50% of the mean or 60% of the median of household incomes in order to identify the poor under the relative poverty measurement. The relative poverty measurement is commonly used because of the reason that many countries use it for international comparisons (Whiteford & Adema, 2007).

Another contribution to the literature was made by Indian economist Amartya Kumar Sen (1989), through adding a different dimension to the poverty problem. According to Sen’s “capability approach”, human lives are the sets of “doings” and “beings”. The roots of the approach go a long way back, to Adam Smith and Karl Marx. The classical political economists see the capabilities of the human beings as the functionings (doings and beings) which are the determinants of well-being. The combinations of the functionings which are achieved by persons reflect the capabilities of the person under this approach (Sen, 1989). A person who has high capability bears less risk in terms of poverty. Therefore, different dimensions such as education and health are added to the poverty measurement methods. These kinds of measurements are called as “multi-dimensional”, and other dimensions different from income are considered. On the basis of Sen’s capability approach, economist Mahbub ul Haq and a team of scientists started to prepare ‘Human Development Reports’ (HDRs) under the United Nations Development Program (UNDP) to investigate human development by focusing socioeconomic progress in lives of people (Kaul, 2002). In HDRs, ‘Human Development Index’

(HDI) which measure poverty with different dimensions such as education and health in addition to income was introduced.

Following the introduction of HDI, new indices were developed on poverty measurement. 'Human Poverty Index' (HPI) was one of them. It has three components which are; survival, economic and education and knowledge deprivations (Anand & Sen, 1997). The HPI calculation was used in HDRs between 1997 and 2009, and the Multidimensional Poverty Index (MPI) replaced the HPI in 2010 because of the insufficiency in terms of identification of jointly deprived regions, large groups, households and specific individuals since HPI calculates each component of deprivation by taking their averages that cannot be linked to any group of people directly. On the other hand, MPI uses micro data of each households and poverty is estimated for each subgroups of people ("MPI", 2015). MPI is created by Sabina Alkire and James Foster under the perspective of multidimensional poverty. However, there are also many criticisms about the MPI today since there is an uncertainty in the number of dimensions, the correlation among the selected dimensions and imperfection of the indicators (Gordon & Nandy, 2012).

In this thesis, child poverty is measured using a monetary approach. One of the reasons for this, is that monetary measurement allows international comparisons since it is widely used in other countries. Another reason concerns the tracking of poverty. It is easier to monitor poverty with different income levels according to poverty lines. Lastly, children are directly linked with the distribution of resources by their families and child specific data is required to analyse multi-dimensional child poverty. As micro data used in this study provides household level information regarding deprivation, monetary poverty is preferred to examine child poverty and intra household distribution is made with the help of the equivalence scale of the OECD. Poverty studies conducted for children and their findings in the literature are examined in Section 2.2 of this thesis.

2.2. Empirical Literature Review

Child poverty started to attract the attention of scientists, researchers and policy makers in the beginning of 1990s. Studies have gained momentum in order to understand poverty status of children in different countries. Income is the starting point to be concentrated on since children are deeply dependent on their families economically. Determinants of child poverty are also expected to be related to characteristics of household members. Therefore, variables such as age, education level, marital and employment status of adults have been investigated in order to explain the reasons behind child poverty.

Abbott L. Ferriss (2006) established a composite model and explained poverty with inequality arising from different socioeconomic status. The data of 159 counties of the US State of Georgia in 2000 was compiled from the US Census and other local sources. The aim of his study was to identify the factors related to child poverty, and to determine the characteristics of social structure in order to take remedial action on the poverty problem. Children were grouped as black or white, then poor children were identified according to the income thresholds determined by the US Bureau of the Census. It was found that factors such as unemployment, single parent female household heads with children, low educational achievement, disability of child, elders and of working-age persons had unfavourable influence on child poverty whereas structural factors such as the presence of middle class families and persons with professional and graduate degrees, majority of married persons had positive effects on poverty alleviation (Ferriss, 2006).

Dayıoğlu (2007) studied child poverty and its determinants in Turkey using the data of Household Budget Survey conducted in 2003. Different monetary measurements were expected to give different results. Therefore, five poverty measurements were conducted in order to see the sensitivity of poverty rates according to the selected measurement. Within this scope, child poverty rates were calculated according to annual household income, annual household income without incomes of working children, annual household income without incomes

of working children and women, monthly consumption expenditure including imputed rent and annual consumption expenditure without considering incomes of working children. Differences between income and consumption based measurements were underlined in the study. In order to investigate determinants of child poverty, income and consumption based multivariate analyses were conducted. According to results, there were changes in determinants of child poverty according to each measurement and between urban and rural areas. It was obtained from the numbers that consumption poverty was less than income poverty and work efforts of children and women exerted influences on decreasing child poverty. In addition, employment status and employment sector of the household head were concluded as the determinants of child poverty. In particular, non-working household heads were found as a triggering factor of child poverty. It was also added that higher numbers of household dependents increased incidence of child poverty (Dayıoğlu, 2007).

Another study was conducted on dynamics of child poverty in Turkey by Dayıoğlu and Demir Şeker in 2016 using the panel component of SILC. The study focused on early childhood (ages 0-6) but also provided information for older children. The movements of children in and out of poverty were investigated according to poverty durations. A spell-based approach was followed for children within this respect. In addition to monetary poverty, material deprivation of children was also studied. Moreover, an analysis was also conducted in order to investigate the events that led to entry and exit from poverty. According to the findings, 51.4% of children in their early childhoods experienced poverty at least once in a 4 year period, which was considerably higher than the cross-sectional head count ratio, 32.2%. In addition, children aged between 0 and 6, and who were continuously counted as poor during the 4 year period, constituted 30% of the poor children and 15.4% of the whole child population at the same time. The results also implied that almost half of children aged 0 to 6 were in severe material deprivation. Transition rates into poverty for children were found high, whereas the rates out of poverty were low in comparison with total population.

Moreover, the results suggested that the probabilities of persistent child poverty declined with the educational level of household head and his/her spouse while employment status of household head was also effective in reducing the risk of persistent child poverty and material deprivation (Dayıoğlu & Demir Şeker, 2016).

As indicated before, it is almost impossible to change poverty status of children without changing income level of their families. Family structures and parental factors which affect household income are crucial for children's well-being. Empowerment of adults should be supported in order to integrate themselves into workforce, to increase their productivity and then to help them find better jobs in the labour market as it is also underlined in the human capital theory of poverty. Within this regard, in terms of improvement of human capital, education has an important role for adults who are expected to earn money for their family. Harmon and Walker (1995) conducted a study about economic return to schooling for the UK by using cross-sectional Family Expenditure Survey (FES) data sets. They included males who were between 18-64 years old in their sample and used data on the minimum school-leaving age. As a consequence, with a standard human capital model they estimated approximately 15 percent economic return to education for men (Harmon & Walker, 1995). Their findings support the view that educated adults bring economic advantage to their families and the risk of child poverty decrease for such households.

Since family structure is another factor affecting child poverty, single-headed households entail risks for children. Within this frame, Christopher, England, Smeeding and Phillips (2002) conducted research on marital status of parents. They used data of the Luxembourg Income Study and considered women and men individually according to their marital status and whether they were living with their children younger than 18 years old. They ran a logistic regression and found that single mothers and their children were more at risk of poverty. The finding can be explained with the unequal employment opportunities for women

(Christopher, England, Smeeding & Phillips, 2002). Thus, it is harder for women to enter into labour market. In addition, women usually find less paid jobs and get promoted later than men. Due to family responsibilities such as childcare, they could also stay away from the labour market for a long period of time. Within this scope, labour market regulations can be helpful to protect women from these disadvantaged conditions.

Similar to the studies conducted on family structure, Kickham and Ford (2009) studied the relationship between state marriage initiatives which aim to assist couples to sustain a healthy marriage, divorce rates and child poverty from a different perspective by using the Current Population Survey data of 50 states of the US. Cross sectional analysis and time series analysis were carried out and two logistic regressions were used to predict dependent variables; divorce prevalence and child poverty rate. They came to the conclusion that there is a reliable association between divorce prevalence and child poverty (Kickham & Ford, 2009).

Jäntti and Danziger (1994) investigated incidences and causes of child poverty for Sweden and US. The data of two years; 1981 and 1987 for Sweden and 1979 and 1986 for US of Luxembourg Income Study was used in the analyses. Children who were living in single women headed households² and two-parent households were examined with two different models. Weighted least squares regressions were run and child poverty was investigated according to employment status of parents in US and Sweden. According to the results, working parents had direct impact on reducing child poverty both in US and Sweden. The importance of welfare reforms for single headed households and implementation of active labour market policies were underlined in the study (Jäntti & Danziger, 1994).

Bassi (1988) conducted a study to investigate the reasons behind woman and child poverty since poverty among women was increasing according to the increasing number of women headed households. Time series of independent cross sections

² Only mothers

from the Current Population Survey between 1967 and 1985 were used and effects of variables such as women's wage rates and hours of work and men's earnings were investigated for woman and child poverty. It was obtained from the results that when women's hours of work increased in labour market, poverty of women and children increased accordingly. However, poverty declined with women's hours of work in women headed households. It was linked with the increasing number of women headed households in the study. Moreover, support payments for children had an impact due to having a positive effect on reduction of child poverty. The earnings of low-income men were also associated with child poverty and support of these men for reducing poverty was also underlined in the study (Bassi, 1988).

Income is perceived as the most important factor and money-metric methods are used in many works to determine poor children in order to examine child poverty. However, there are also an increasing number of studies which identify poor children with a multi-dimensional approach. For instance, as an alternative and supplementary approach to monetary poverty measurement, Keetie Roelen, Franziska Gassmann and Chris de Neubourg (2010) conducted a study on child poverty using multidimensional measurement for Vietnam using data obtained from Multiple Indicator Cluster Survey (MICS) in 2006, which includes accommodation, education, and health related questions. Sub-indices on education, health, shelter, water and sanitation, child work, leisure and social inclusion and protection were constructed and dual cut off strategy was used to end up with aggregated poverty rates for children. The children were grouped according to depth and severity of poverty, and poverty quantiles were constructed in this respect. It was concluded that one third of the children were poor according to the multidimensional approach conducted in the study. Within this scope, it was observed that the levels of water and sanitation, shelter and leisure were alarming for children in Vietnam (Roelen, Gassmann & de Neubourg, 2010).

Trani, Biggeri and Mauro (2013) also focused on different dimensions of child poverty and conducted a study for the children in Afghanistan. The data of the National Disability Survey of Afghanistan which includes children whose age differed between 5 and 14 were used in their study. Since poverty was considered as multidimensional, child poverty is defined as the deprivation of basic capabilities in the study. Child poverty was evaluated in 10 different dimensions, such as health, care, food security, etc. As a consequence, their results showed that people in rural areas, girls and disabled children were exposed to poverty higher than other groups in Afghanistan. The importance of dimensions such as education and health were also underlined in the study (Trani, Biggeri & Mauro, 2013).

Roche (2013) emphasized the multi-dimensional techniques for child poverty measurement by using data from four rounds of Demographic and Health Surveys (DHSs) between the years 1997 and 2007 in Bangladesh. Within this scope, child poverty was examined under the “Alkire and Foster methodology” and supplementary measures were also given place in the study. Nutrition, water, sanitation, health, shelter and access to radio or television were chosen as dimensions for child poverty investigation in the study. According to the results; with the help of composed multi-dimensional poverty index, a significant drop was observed between the periods 1997-2000 and 2000-2004 for children in Bangladesh. The analyses also showed that reduction in deprivation of health, nutrition and sanitation played an important role in the decrease of deprivation among the poor (Roche, 2013).

Wealth Index is also an alternative index proposed to measure poverty with the help of DHSs. In the calculation of the index, questions concerning the assets and services such as sanitation facilities, water supply, ownership of agricultural land and country specific items are asked to the households. Each household asset is assigned a weight. The results are standardized according to standard normal distribution and five wealth quintiles from lowest to highest are defined in line

with these standardized results (Rutstein & Johnson, 2004). When child poverty was intended to be measured with the Wealth Index, children in households were categorized with the index scores from the lowest to the highest. The bottom 10% or 20% shows the children in poverty. The disparities between children and other household members could be measured with this method (Gordon & Nandy, 2012). Within this respect, Ainsworth and Filmer (2002) examined the orphans' likelihood of being poor by using the Wealth Index. They chose 28 countries according to the data available. The data were obtained from 39 surveys which collected information on orphan status, living standards, school enrolments etc. They grouped orphan children under "maternal" (mother lost), "paternal" (father lost) and "two-parent orphan" (both mother and father lost). An index value was computed for each household by using data on living standards such as access to electricity, ownership of a refrigerator and television. The children were grouped as the bottom 40%, middle 40% and top 20% under the scope of the index classification. According to the comparison of the bottom 40% and top 20% of the households with an orphan, poor households were more likely to have an orphan in countries such as South Africa and Senegal while the opposite situation is observed in the study for countries such as Mozambique and Uganda (Ainsworth & Filmer, 2002). Since there is no consistency among the country specific results in terms of orphans, it could be inferred from the analysis that rather than orphan specific policies, it is better to concentrate on poor children, including orphans, as a whole.

Due to the increasing number of debates on the choice of monetary versus multidimensional measurement of child poverty, Stewart and Roberts (2018) assessed inclinations of national experts from organizations in the UK including local authorities and children's charities to child poverty measurement. They examined 251 views collected from academicians, researchers and individuals to the consultation document presented by the UK government on child poverty measurement in 2012. One of the questioned issues was about whether there is a tendency among experts to prefer multidimensional poverty measures to monetary

measures of poverty. Preference to use multidimensional measurement of poverty but including income as a dimension was also questioned. Another questioned issue concerned the use of absolute rather than relative thresholds in monetary measurement. At the end of their examination of responses, it was concluded that income was seen as the most essential component of poverty by the great majority. Only 2 out of 251 views supported the exclusion of income from poverty measurement whereas 10 out of 251 expressed an opinion about treatment of income as an indicator similar to others under the multidimensional approach. In addition, it was observed that most of the views promoted a relative understanding of poverty and only a few of them had concerns about measurement of 60% of equivalised median income. (Stewart & Roberts, 2018). Although there are valuable studies using different methods to measure poverty, this thesis will study monetary child poverty in Turkey. In addition, a decade of change in child poverty is also presented in this thesis, which is different from other studies. The data and methodology used in the study are explained in the following section.

CHAPTER 3

DATA AND METHODOLOGY

3.1.Data

A decade of change in child poverty in Turkey is the main focus of this thesis. The Survey on Income and Living Conditions (SILC), which is carried out by the Turkish Statistical Institute (TURKSTAT), provides adequate data within this context. The annual cross-sectional data of 2007 and 2017 are selected for examination in this study. SILC is the survey that began to be conducted in 2006 for monitoring income distribution among households, living conditions, poverty situations and social exclusion. Before SILC was introduced, data from Household Budget Surveys (HBS) were used to compute statistics on income distribution and poverty in Turkey. The reason behind the introduction of SILC arose from the need to harmonise the statistics standards of Turkey in the fields of relative poverty as measured by income, social exclusion and living conditions in order to become compatible with EU regulations due to Turkey's EU membership candidacy (TURKSTAT, 2018).

Regarding the methodology; stratified, two-staged, clustered sampling is used in SILCs. In the first stage, clusters are composed according to their sizes, which correspond to the number of addresses in each cluster. Afterwards, 8 clusters in rural, 12 clusters in urban areas are selected by systematic sampling method. The final sampling unit is households. In the beginning, selection of 12,800 households was determined as the sampling size based on the constraints such as estimation level and aim of the survey. Thus, 12,736 households were selected for interviews in 2007 but the number was increased to 24,498 in 2017. This change was due to the change of estimation level in 2014; as it was decided to produce

estimates based also on Statistical Regional Units Classification (NUTS)-2 level in addition Turkey, urban, rural and NUTS-1 levels.

With the help of SILC, information regarding demography, income, education and employment status, housing and health conditions of households are collected. The content of the survey provides enough insight to examine the poverty status of households within this respect.

When the 2007 and 2017 data are examined closely, it is observed that every household member was subjected to the screening process, and demographic information such as age and gender were collected for all of them. Following the registration of household members, personal data is collected for the household members who are aged 15 and above. In this part, the data on the education status such as higher education level, the year of this education are collected. In addition, the questions about health status, limitation in daily activities due to any physical or psychological health problems, unmet need for medical examination or treatment are also directed to the respondents. Different from 2007, questions about material deprivation including clothing, daily activities with friends and family, buying and/or doing something for themselves and internet facility are considered in the 2017 SILC. SILC is conducted at the household level. Thus, the data related to the household, in general apart from the individual level, is collected with the survey. Information about the region of residence of the household, household type which provides knowledge about the structure of the household, dwelling and housing conditions such as number of rooms available in the household, heating systems available in the dwelling, telephone line, washing machine, refrigerator, dishwasher, TV, computer and internet availabilities in the dwelling are collected with the survey. In addition, there are also questions concerning the problems with the dwelling unit such as heating or with the environment such as, pollution, crime and violence in the area. Moreover, the financial situation of the household is another point which is aimed to be collected with the survey questions. Arrears on loan repayments, utility bills, credit cards

and ability to make ends meet with total household income are some of the questions included in the survey.

There is a wide range of questions concerning the employment status of household members. The current economic status such as whether the person is a full time or a part time employee, economically active or inactive, looking for a job or not, student or retiree is asked to the respondents. Detailed information about the previous job is also collected if applicable for the person. The data on the sector of economic activity, number of working hours, social security registration, level of the post, hours of work and income regarding the main job is also collected with the relevant questions.

When it comes to income, the previous calendar year is taken as the reference point and both incomes and expenses are collected in Turkish Liras (TRY). While computing the annual household disposable income, the individuals' incomes; wages and incomes coming from other sources are collected for every household member and summed together. Total income obtained from individuals is gathered with incomes coming to household from other sources such as child benefits.

In this study, annual household net disposable income is used for the purpose of child poverty measurement. The variables used for obtaining annual household net disposable income are stated in detail as follows:

Table 1: Annual Household Disposable Income

Table 1.A: Individual Level Income

(+) Annual total net income of employee in cash in the form of wage or salary received in (year) (TRY)
(+) Annual total net income of employee in kind in the form of wage or salary received in (year) (TRY)
(+) Annual total net income of employer or own-account worker in cash (year) (TRY)
(+) Annual total net income of employer or own-account worker in kind (year) (TRY)
(+) Unemployment benefits received in (year) (TRY)
(+) Old-age benefits received in (year) (TRY)
(+) Retirement bonus received in (year) (TRY)
(+) Survivor benefits received in (year) (TRY)
(+) Sickness benefits received in (year) (TRY)
(+) Disability benefits received in (year) (TRY)
(+) Education-related allowances received in (year) (TRY)

Source: SILC 2017, TURKSTAT

Table 1 (Continued)**Table 1.B: Household Level Income**

(+) Annual imputed rent
(+) Income received by household members aged under 15 during (year) (TRY)
(+) Children allowances in cash received during (year) (TRY)
(+) Children allowances in kind received during (year) (TRY)
(+) Housing allowances received during (year) (TRY)
(+) Other social benefits in cash received in (year) (TRY)
(+) Other social benefits in kind received in (year) (TRY)
(+) Regular inter-household transfers in cash received in (year) (TRY) (Excluding alimony)
(+) Regular inter-household transfers in kind received in (year) (TRY) (Excluding alimony)
(+) Alimony received in (year) (TRY)
(+) Rental income received in (year) (TRY)
(+) Interests, dividends and profit from capital investments received in (year) (TRY)
(+) Market value of animal or vegetable products not regarded as an agricultural activity, produced just for own consumption of household in (year) (TRY)
(+) Imputed annual income for individuals not responded to the questionnaire (TRY)
(-) Regular inter-household transfers in cash paid in (year) (TRY) (Excluding alimony)
(-) Regular inter-household transfers in kind paid in (year) (TRY) (Excluding alimony)
(-) Alimony paid in (year) (TRY)
(-) Regular taxes on wealth paid in (year) (TRY) (Excluding income tax)
(-) Contributions to individual private pension plans paid in (year) (TRY)

Source: SILC 2017, TURKSTAT

Different sources of income are considered for calculation of annual household net disposable income. When Table 1 is examined in detail, it is observed that incomes of employees including salaries, wages and self-employment incomes received by employers and own-account workers are collected in-cash and in-kind forms at individual level.

Old-age, unemployment, sickness and disability benefits which are some types of social transfers made by governmental and non-governmental organisations are other sources of household income collected at individual level. Retirement pensions are also considered as old-age benefits (EUROSTAT, 2017).

On the other hand, rental income collected as rent of land, an apartment, shop, etc. and income obtained from an interest gained from a bank account or dividends coming from a company are collected at household level. Children and housing allowances and other social benefits are also other sources of income collected at household level.

Furthermore, regular taxes on wealth such as motor vehicle tax and property tax, alimonies and inter-household transfers paid to persons or other households and contributions to individual private pension plans are deducted during the calculation of annual household net disposable income.

In order to measure child poverty according to household disposable income and determine child poverty determinants, the micro datasets of 2007 SILC and 2017 SILC are used for the analyses. When the data of 2007 SILC is examined in detail, it is observed that the interviews were conducted with 30,380 individuals whose ages were 15 and older during the survey time. The inclusion of 12,736 households was the aim for the survey. However, in the end 10,796 households and 30,380 individuals aged 15 and over could be interviewed. The overall non-response rate for the households was reported as 15.2%, while the percentage was 0.4% for the individuals participating to the 2007 SILC (TURKSTAT, 2009). After a decade, 22,869 households were interviewed in 2017 SILC since the sample size was increased to 24,498 for the year of 2017. 58,888 individuals

whose ages were 15 and above at the time of the survey took part within this scope. As a consequence, the non-response rates for the households and individuals were calculated as 6.6% and 0.24% respectively for 2017 SILC (TURKSTAT, 2018). Both data coming from 2007 SILC and 2017 SILC are used to examine the change of child poverty in Turkey in this thesis. The methodology for the examination is explained in detail in Section 3.2.

3.2.Methodology

The aim of this study is to understand the present position of children in terms of poverty in Turkey. Within this scope, determinants of child poverty are aimed to be examined by using annual cross-sectional data sets of 2007 and 2017 SILCs. Moreover, current developments are focused on and the change in child poverty over a decade is also analysed, taking into account possible reasons which could affect child poverty in Turkey.

At the first step, children are determined according to the ages of household members in the data sets in order to start the analyses. Individuals younger than 15 years old are considered as “children” in this thesis. The reason for this application is that the age variable in the 2007 micro data set is not a continuous variable. Instead, it is labelled according to different intervals such as; “0-4”, “5-11”, “12-14” and “15-19” by TURKSTAT. The age variable, which is continuous in 2017 micro data set, is also labelled in line with the intervals used in 2007 SILC. As a result, working age population³ is excluded from the target group with this assumption.

Secondly, poor children were required to be determined in order to continue the analyses. Therefore, the measurement method was needed to be decided. Although multidimensional measurement of child poverty is considered in some studies, there are numerous discussions on the type of application for poverty measurement. Since it is more complicated to include non-quantifiable variables

³ According to the OECD, working age population consists of individuals who are aged between 15-64 (OECD, 2019).

to the poverty measurement, the monetary approach to measure poverty is adopted by most of the governments and international organisations (Minujin, Delamonica, Davidziuk, & Gonzalez, 2006). As the relevant data is available and deemed more appropriate, it was decided to follow a monetary approach in order to investigate child poverty, and to use annual household disposable income for determination of poverty status of children.

Next, household disposable income is required to be equalized according to the number of adults and children in the households since the size and composition are different for every household. Thus, different equivalence scales are generally used for equivalised household income in the literature. Commonly used ones are “square root scale” and “OECD modified scale”. Square root scale divides household income by the square root of household size: It means that the needs of a household composed of four persons are the double of the one composed of a single person. On the other hand, OECD modified equivalence scale assigns a value of “1” to the household head, “0.5” to each additional adult member and “0.3” to each child⁴ in the household and divides household income by the sum of these values. There are also country specific scales such as “McClements scale”, “The Orshansky scale”, “Canadian LICOs” since some countries constitute their own scale and prefer to analyse their data with the help of the scale that they agreed on. The outcomes of the poverty differ according to scale used in the estimation. Therefore, the decision of the scale to be used in the estimations has an important role in the research (Whiteford & Adema, 2007). There are many discussions concerning which equivalence scale would be more appropriate for these kinds of studies. However, the OECD’s modified method is chosen to be used in this study when taking into account the comparability of Turkey with the OECD and EU countries since EUROSTAT, TURKSTAT and many other countries also follow the mentioned method.

⁴ 0.3 is the assigned value to each household member younger than 15 years old in this thesis.

In order to designate poor and non-poor, poverty thresholds are set by the policy makers. According to the income levels, poor and non-poor groups are identified via this method. In this study, child poverty is examined according to both relative and absolute poverty thresholds. Within this respect, relative poverty thresholds in 2007 and 2017 are determined according to the 60% of median equivalised household incomes in each year under the relative poverty approach. Thus, children whose equivalised disposable incomes placed below the relative poverty lines are considered as “poor” while others are considered as “non-poor”. As a consequence, relative child poverty rates are then calculated according to the relative poverty lines constituted for both 2007 and 2017. The relative child poverty calculation also allows comparison of results with other similar studies.

In addition to relative poverty thresholds set for 2007 and 2017, absolute child poverty in 2007 and 2017 is calculated according to the absolute poverty thresholds in order to see the possible changes in child poverty in real terms. Therefore, after deriving relative poverty line which is 60% of median equivalised household disposable income of 2007, the threshold is corrected by inflation and it is also set for absolute poverty thresholds in 2007 and 2017. In order to use the same absolute threshold in 2017, absolute poverty threshold in 2007 is corrected according to the inflation. “Consumer Price Index (CPI)” is used as a deflator. CPI used for the correction of the threshold is based on the year 2003. Since household incomes are collected in 2006 and 2016 in the SILC 2007 and SILC 2017 respectively, the CPI index value of 2006 June and 2016 June published by TURKSTAT are used.

Table 2: Consumer Price Index (CPI)

Consumer Price Index (CPI) (2003=100)	Year	Month	Index Value
	2006	June	128.63
	2016	June	279.33

Source: Consumer Price Index Numbers, TURKSTAT

According to the above table CPI value was 128.63 in 2006 while it was 279.33 in 2016 according to the TURKSTAT. The change of inflation is calculated as 117.16% as it can be seen from the below calculation;

$$\frac{CPI_{2016} - CPI_{2006}}{CPI_{2006}} = \frac{279.33 - 128.63}{128.63} = 117.16\%$$

Therefore, 60% of median equivalised household disposable income of 2007 SILC is corrected by this rate and the absolute poverty threshold is set for 2017. The obtained relative and absolute child poverty rates in 2007 and 2017 are shown in the following section.

After the determination of poor and non-poor children according to the poverty lines, possible determinants of child poverty are decided for the model. Since child poverty is examined, variables such as age, employment status and education levels of household head and his/her spouse, number of people between different age groups living in the households which could affect household income are selected for the model. Afterwards, compositional changes in the determinants of each year are examined in detail in order to see the change in the compositions between the years.

As the followed methodology, since the dependent variable is decided to be poverty status of children; poor or non-poor in this study, logistic regression is used for investigating determinants of child poverty.

Logistic Function with k independent variables can be explained as:

P: Probability of the occurrence of an event

1-P: Probability of the non-occurrence of an event

$$P = (Y = 1 / X_1, X_2, X_3, \dots, X_k) \quad (3.2.1)$$

$$p = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \dots + \beta_k X_{ki})}} \quad (3.2.2)$$

where $X_1, X_2, X_3, \dots, X_k$ are independent variables, β_0 is the constant term and $\beta_1, \beta_2, \beta_3, \dots, \beta_k$ are the coefficients of independent variables of the model.

The probability of occurrence of the event over the probability of non-occurrence of the event is computed in the logistic regression which is odds of the event:

$$\text{Odds of the Event: } p/(1 - p) \quad (3.2.3)$$

P is the probability of the occurrence of an event and (1-p) is the probability of the non-occurrence of the event.

Logit transformation of function is conducted for the linearization of the function. The transformation is shown in the below formula:

$$\text{Log Odds} = \ln \frac{p}{(1-p)} = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \dots + \beta_k X_{ki} \quad (3.2.4)$$

The transformed logit function is linear and increases when there is an increase in p, decreases when there is a decrease in p. If p is lower than 0.5 then the function will have positive values while it will have negative values if p is higher than 0.5.

$$0 \leq p \leq 1$$

$$0 \leq \text{Odds} \leq \infty \quad (3.2.5)$$

$$-\infty \leq \text{Log Odds} \leq \infty$$

When it comes to the interpretation of a logistic model, one unit increase in the independent variable does not cause β unit change in the dependent variable unlike a linear regression model. Different from linear regression, logistic regression gives the effects of explanatory variables on the response variable as probabilities.

The coefficients belong to the transformed model (logit) and have negative and positive signs that illustrate the direction of the relationship. The coefficients can also be explained with the interpretation that one unit increase in the independent variable causes β unit change in log odds of the model. However, the interpretation of marginal effects is easier than the coefficients.

Marginal effects can be used in order to make direct comments on the logistic regression results. Therefore, marginal effects are used for interpreting regression results in this study. Marginal effect gives how much change is observed in the probability of occurrence of the event when the independent variable increases one unit and the other independent variables are fixed.

Marginal effects are calculated differently for categorical and continuous variables. For a categorical variable, marginal effect shows the discrete change according to predicted probabilities whereas marginal effect of a continuous variable shows the instantaneous rate of change. The marginal effect can be shown with the below formula for the categorical variable, “ X_j ”:

$$\text{Marginal Effect of } X_j = P(Y = 1|X, X_j = 1) - P(y=1|X, X_j = 0) \quad (3.2.6)$$

In addition, the formula of the marginal effect of the continuous variable “ X_m ” can be shown as:

$$\text{Marginal Effect of } X_m = \lim[\Pr(Y = 1|X, X_m+\Delta) - \Pr(y=1|X, X_m)] / \Delta \quad (3.2.7)$$

as Δ gets closer and closer to 0 (Williams, 2019).

The values of other independent variables are fixed according to three different methods while calculating the marginal effects. First of all, mean values of independent variables are used when calculating an independent variable’s marginal effect at the mean (MEM). Secondly, average marginal effect (AME) of an independent variable is calculated by using actual observations of other variables. Lastly, specific ranges can also be determined for other independent variables in order to have the marginal effect of an independent variable at representative values (MER). In this study, average marginal effects are used in order to interpret the magnitudes of the impacts of the explanatory variables in the models.

Taking into account all of the mentioned information and assumptions, four different models are constructed for child poverty. In the first model, the data of SILC 2007 is used and logistic regression is conducted for child poverty. Poor children are determined according to the relative poverty line set at 60% of median equivalised household disposable income of 2007. Another model is generated by using the data of SILC 2017 and poor children are obtained according to the relative poverty line determined as 60% of median equivalised household disposable income of 2017. In the third model, absolute poverty line calculated for 2017 is used for determining poor children and an additional model is constructed for 2017 within this respect.

The last model is constructed in order to compare the differences in child poverty throughout years. In this model, the data of 2007 and 2017 are combined by adding a year variable and interaction variables to the model. The significance of

differences is handled according to the marginal effects of explanatory variables in the model, and the change is explained in detail.

The dependent variable in the models is “poor child”, and the dummy variable takes the value of “0” for non-poor children and “1” for poor children. In the following chapter, the results obtained from the multiple logistic regression analyses are discussed.



CHAPTER 4

CHILD POVERTY AND ITS DETERMINANTS

4.1. Child Poverty in Turkey

Since monetary poverty is investigated for children, it is important to focus on distribution of incomes of children in 2007 and 2017 in Turkey. The change in income levels of children would be expected to be reflected to poverty status of children accordingly. In order to make comparisons between years, incomes of children in 2007 are also adjusted according to the same CPIs that used for calculation of absolute poverty threshold in 2017⁵.

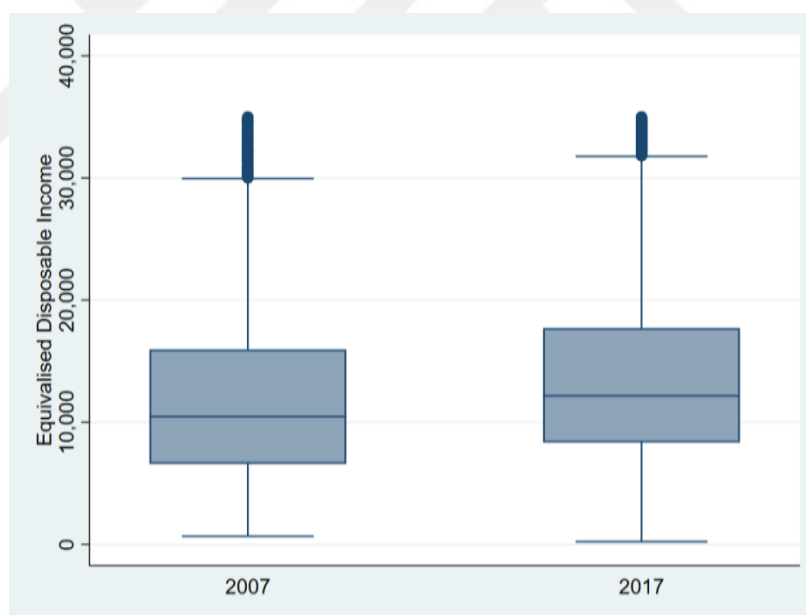


Figure 1: Equivalised Disposable Incomes of Children - 2007 and 2017

Note: Outliers higher than 35,000 are not included to the figure. Incomes are corrected for inflation. 2007 incomes are expressed in 2017 incomes.

Source: SILC 2007 and 2017

⁵ Same method explained in Section 3.2 is used for all adjustments in this thesis.

Box plots of equivalised disposable income of children obtained from SILCs are presented in the figure above. The distribution and range of income for the years 2007 and 2017 are illustrated. The lines at the bottom and the top belong to the lowest and the highest values of children incomes respectively. Second, third and fourth lines also show quartiles from lower to upper. As it can be observed that since the box plots of income are right skewed, income is not distributed equally among children in both years. In addition, the density of low income is high when they are compared with the higher income levels in both years. When the income distributions of children in 2007 and 2017 are compared, distribution in 2017 is more dispersed than 2007. Moreover, it is observed that low income region moved up to higher levels in 2017. The mean and median income of children in 2007 and 2017 together with percentiles are given in Table 3.

Table 3: Disposable Income Percentiles of Children - 2007 and 2017

Years	2007	2017
<i>Mean</i>	14,471	18,591
<i>St. Dev.</i>	15,159	23,491
1%	2,016	2,683
5%	3,370	4,577
10%	4,474	6,025
25%	6,757	8,735
50% (Median)	10,858	13,102
75%	17,110	20,376
90%	26,529	33,848
95%	35,034	46,303
99%	74,861	103,305

Note: Incomes are corrected for inflation and given in Turkish Liras. 2007 incomes are expressed in 2017 incomes.

Source: SILC 2007 and 2017

As the percentiles of disposable income are examined in detail, it is also identified that average disposable income has increased over the years. Standard deviation in 2007 is close to the mean, while the difference is wider in 2017. It means that

children incomes are close to the mean income in 2007 since there is more compact distribution in 2007 in comparison with 2017. Thus, children incomes are farther away from the mean income in 2017.

The median income of all individuals is found to be 13,264 TL for 2007 and 15,953 TL for 2017. The poverty threshold is 60% of these figures, as given Table 4. Accordingly, the relative poverty thresholds for SILC 2007 and SILC 2017 are calculated as 7,959 TL and 9,572 TL, respectively.

Table 4: Poverty Thresholds

	Equivalised Median Income	Poverty Thresholds (Relative)
2007 SILC	13,264	7,959
2017 SILC	15,953	9,572

Note: Incomes are corrected for inflation and given in Turkish Liras. 2007 incomes are expressed in 2017 incomes.

Source: SILC 2007 and 2017

Before concentrating on children in poverty, poverty rates for all individuals are calculated in order to see the “big picture”. Within this context, poor and non-poor people are determined according to their incomes.

Table 5: Poverty Rate (%) - 2007 and 2017

According to 60% of Equivalised Median Income	
2007 SILC	2017 SILC
23.3%	19.9%

Note: The poverty rates are calculated according to the weighted results.

Source: SILC 2007 and 2017

According to the SILC data, the general poverty rate calculated for 2007 is 23.3% whereas it is calculated as 19.9% for 2017. There is a 3.4 percentage point decrease in poverty rates when two years are taken into account. The poverty incidence is slightly different from the figures published by TURKSTAT (2019). The reason for the difference is due to the fact that children are defined as persons

younger than 15 in this study. Thus, equivalised incomes vary and the percentages change proportionally.

Following the calculation of general poverty rates in Turkey, relative child poverty rates in 2007 and 2017 are examined since children are the main focus of this study.

Table 6: Child Poverty Rate (%) - 2007 and 2017

According to 60% of Equivalised Median Income	
2007 SILC	2017 SILC
33.2%	29.5%

Note: The poverty rates are calculated according to the weighted results
Source: SILC 2007 and 2017

As it is illustrated in Table 6, relative child poverty rate in 2007 is 33.2% whereas the rate is calculated at 29.5% in 2017. The numbers are much higher than the numbers calculated for Turkey in general. Thus, it can be suggested that children are exposed to the effects of poverty more than adults.

When the change in child poverty rates is considered, it is seen that child poverty decreased over time. However, the rates are calculated according to the relative poverty thresholds. The decrease in absolute child poverty is also expected since median income in 2017 is higher than median income in 2007. In this regard, relative and absolute child poverty rates in 2017 are calculated as follows:

Table 7: Child Poverty Rate (%) - Relative and Absolute Calculations

2017	Child Poverty Rate (%)
Relative Threshold	29.5%
Absolute Threshold	20.5%

Note: The poverty rates are calculated according to the weighted results
Source: SILC 2017

While 9,571 TL is set as the relative poverty threshold in 2017, the absolute poverty threshold is calculated as 7,959 TL for 2017. According to the figures, it is seen that absolute child poverty has declined to 20.50% in 2017.

The number seems close to the general poverty rate in 2017, but when the general poverty rate of 2017 is also calculated according to the absolute poverty threshold, the rate is decreased from 19.9% to 13.1%. Therefore, a similar gap between general poverty rate and child poverty rate calculated for 2017 can be observed with the absolute threshold as well.

Since absolute child poverty is calculated based on the relative poverty threshold in 2007, there is no difference in relative and absolute child poverty rates in 2007. However, absolute child poverty is lower than relative child poverty in 2017 because the increase in absolute poverty threshold is smaller than the increase in relative poverty threshold.

In order to see income differences between 2007 and 2017, the Cumulative Distribution Function (CDF) of equivalised disposable incomes of children for the years 2007 and 2017 are given place in the below figure.

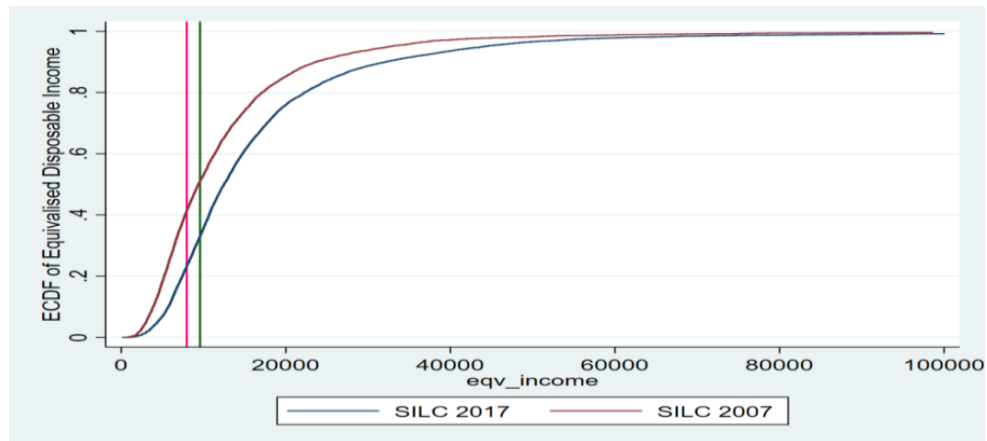


Figure 2: CDF of Equivalised Disposable Incomes of Children - 2007 and 2017

Note: Incomes are corrected for inflation. 2007 incomes are expressed in 2017 incomes.
Source: SILC 2007 and 2017

The bottom line illustrates the CDF of 2017 whereas the line on the top belongs to the CDF of 2007. As it can be observed from CDFs, cumulative distribution of children incomes in 2017 first degree dominates cumulative distribution of children's incomes in 2007. Thus, children are better off in 2017 in comparison with 2007 regardless of poverty thresholds.

The change in relative and absolute child poverty can also be observed from the figure with the help of the poverty lines. The first vertical line shows the relative poverty threshold set for 2007 whereas the second vertical line shows the relative poverty threshold set for 2017. According to the figure, around 30% of children have income less than relative poverty line in 2017 whereas the number is around 40% for 2007. In terms of absolute poverty, the first vertical line which is the relative poverty threshold set for 2007 also shows the absolute poverty line set for 2017. Thus, it can also be seen from the CDF graph that over 20% of children have an income less than the absolute poverty threshold in 2017.

While searching for an answer to the question of whether incomes of children have increased in real terms from 2006 to 2016, minimum wages can also be considered, since children incomes are directly linked to the incomes of parents. The minimum monthly net wage, which was 380.46 TL in 2006⁶, was raised to 1300.99 TL in 2016 due to the increased living costs in Turkey. When the amount of minimum wage is adjusted according to inflation, it increases to 825.60 TL for 2016. The rise of minimum wage between years can also be considered as a proof of change in children incomes. Since there are different factors effective on determining minimum wage rather than economic outcomes, it is assumed that the difference between the adjusted wage and the actual wage in 2016 is a result of collective-labour bargaining in Turkey.

⁶ Reference period of income is the previous calendar year.

4.2. Determinants of Child Poverty

A multiple regression model is constructed and the model is estimated for 2007 and 2017 in this study in order to investigate the determinants of child poverty throughout the years. Independent variables which are evaluated as possible determinants of child poverty are included into the model. Age and gender of child are two of these variables introduced to the model in order to include demographic information of children. Since monetary child poverty is examined in this study, it is important to consider variables which have can potentially affect household income directly. Therefore, demographic characteristics, educational qualifications, employment status of the household heads are crucial since they are attributed as the “bread-winners” who carry the major part of economic burden of the family. Household heads at their early ages are expected to earn less money when their potential is considered in the labour market. In this respect, age of household head is another explanatory variable included into the model. The age of household head is grouped under four categories. The first group includes the ages “34 and younger” whereas the second group consists of the ages “35 and older but younger than 44”. The third group has the ages “45 and older but younger than 59 years” similarly. The fourth also includes the ages “60 and older”.

In line with the human capital theory, productivity can be increased with education and higher incomes can be received from the labour market. Therefore, education level of the household head is another categorical variable included to the model in addition to age of the household head. The categories of education are arranged according to the different education levels; “illiterates and literates without a diploma” are combined under a category which is “below primary school”, “primary school graduates” are grouped under another category of “primary school” whereas “secondary school graduates” are considered under “secondary school” category. “High school graduates” and “university and higher graduates” are also categorized as “high school” and “above high school” in the model.

As the employment status of the household head directly affects the income level of household, it is also one of the explanatory variables in the model. Working household heads are grouped under one category and job seeker household heads are collected under another category whereas the third category consists of the retired household heads. In addition, household heads who are out of the labour market - apart from the retirees - are placed under the last category constituted for the employment status of the household head.

Alongside the household head, spouses of the household heads are also assumed as household members who have the potential to make contribution to the income of the family. Thus, age and education level of spouses⁷ are included in the model. Same categories of household heads are also used for spouses.

When women headed households are considered in Turkey, a significant relationship is expected in terms of poverty status of children. When wage levels of women are researched in Turkey, it is observed that they receive less income compared to men due to several reasons such as low educational attainment in Turkey. Unemployment rate of women in Turkey is higher than men and the percentages of higher education levels of them are also lower than men (TURKSTAT, 2019). Therefore, women headed households are also added as an explanatory variable into the model in order to see general situation and the relationship with child poverty.

The number of people in different age groups in the households is another explanatory variable in the model. It is assumed that it helps to understand the effects of different household compositions on child poverty. In this regard, four categories are formed for the number of persons according to their ages. The age groups are determined as “below 4 years old”, “between 5 to 14 years old”, “between 15 to 64 years old” and “above 64 years old”.

⁷ The information of six households in 2007 and four households in 2017 are not taken into consideration in the regressions because of missing information on the education status of spouses.

Finally, employment opportunities and education facilities are not the same for every region in Turkey. As a result, the NUTS-1 regions are also included in the model. The relationship between the child poverty and different regions is investigated in this way.

With the help of these explanatory variables, logistic regressions are estimated for the years 2007 and 2017 in order to examine determinants of child poverty. Within this scope, poor child is the response variable of the model which is categorized as “poor” and “non-poor”. There are non-responses of some household heads to the employment and education related questions. It is found that missing observations of household heads belong to the same persons. Therefore, a dummy variable; “Missing Obs” is included to model in order to use other information of these persons in the analyses.

Before running regressions, it is important to see the summary statistics of independent variables. Within this regard, descriptive statistics obtained from SILC 2007 and SILC 2017 for children are given in Table 8:

Table 8: Descriptive Statistics of Independent Variables

Table 8A: Descriptive Statistics (2007)

VARIABLES	2007 (Relative and Absolute)					
	Children (All)		Children (Poor)		Children (Non-Poor)	
	Mean	SD	Mean	SD	Mean	SD
CHILD						
Age						
Age < 4	0.309	0.462	0.299	0.458	0.314	0.464
5 < Age < 11	0.488	0.500	0.505	0.500	0.480	0.500

Table 8 (Continued)

Table 8A: Descriptive Statistics (2007)

	12 < Age < 14	0.202	0.402	0.196	0.397	0.205	0.404
Gender							
	Female	0.487	0.500	0.494	0.500	0.483	0.500
HOUSEHOLD HEAD							
Age							
	Age < 34	0.308	0.462	0.316	0.465	0.304	0.460
	35 < Age < 44	0.446	0.497	0.424	0.494	0.457	0.498
	45 < Age < 59	0.183	0.387	0.181	0.385	0.184	0.388
	Age > 60	0.063	0.243	0.079	0.271	0.055	0.228
Female Household Head		0.049	0.217	0.059	0.236	0.045	0.206
Education Level							
	Below Primary School	0.122	0.327	0.252	0.434	0.057	0.232
	Primary School	0.532	0.499	0.595	0.491	0.501	0.500
	Secondary School	0.120	0.325	0.082	0.274	0.139	0.346
	High School	0.152	0.359	0.066	0.248	0.195	0.396
	Above High School	0.074	0.262	0.005	0.069	0.108	0.311
	Missing Obs	0.004	0.061	0.005	0.068	0.003	0.058
Employment Status							
	Working	0.814	0.389	0.715	0.451	0.863	0.344
	Looking for a job	0.058	0.234	0.121	0.326	0.027	0.163
	Retired	0.050	0.219	0.022	0.146	0.065	0.246
	Not Working	0.077	0.267	0.142	0.349	0.045	0.207
SPOUSE							
Age							
	Age < 34	0.511	0.500	0.501	0.500	0.516	0.500
	35 < Age < 44	0.330	0.470	0.317	0.465	0.337	0.473
	45 < Age < 59	0.122	0.327	0.130	0.336	0.118	0.322
	Age > 60	0.037	0.189	0.052	0.222	0.029	0.169

Table 8 (Continued)

Table 8A: Descriptive Statistics (2007)

Education Level						
Below Primary School	0.300	0.458	0.546	0.498	0.178	0.382
Primary School	0.458	0.498	0.352	0.478	0.511	0.500
Secondary School	0.060	0.237	0.025	0.157	0.077	0.266
High School	0.096	0.294	0.018	0.133	0.134	0.341
Above High School	0.035	0.185	0.001	0.038	0.052	0.223
Household with No Spouse	0.051	0.220	0.057	0.232	0.048	0.213
HOUSEHOLD STRUCTURE						
Number of Persons by Age Groups						
aged below 4	0.797	0.916	1.060	1.051	0.666	0.810
aged b/w 5 and 14	1.825	1.334	2.486	1.564	1.496	1.060
aged b/w 15 and 64	2.813	1.391	3.073	1.643	2.684	1.226
aged over 64	0.129	0.402	0.161	0.455	0.113	0.372
REGIONS						
İstanbul	0.165	0.371	0.017	0.130	0.238	0.426
West Marmara	0.034	0.180	0.020	0.140	0.040	0.196
Aegean	0.104	0.305	0.076	0.265	0.118	0.322
East Marmara	0.074	0.263	0.039	0.194	0.092	0.289
West Anatolia	0.087	0.283	0.042	0.200	0.110	0.313
Mediterranean	0.131	0.338	0.153	0.360	0.121	0.326
Central Anatolia	0.056	0.230	0.050	0.218	0.059	0.236
West Black Sea	0.062	0.241	0.060	0.238	0.063	0.243
East Black Sea	0.031	0.173	0.019	0.136	0.037	0.188
Northeast Anatolia	0.039	0.194	0.059	0.236	0.029	0.168
Central East Anatolia	0.068	0.252	0.122	0.328	0.042	0.199
Southeast Anatolia	0.148	0.355	0.342	0.475	0.052	0.221

Note: Since relative and absolute thresholds are the same in 2007, descriptive statistics of poor and non-poor children in 2007 are given in the same table.

Source: SILC 2007

Table 8 (Continued)

Table 8B: Descriptive Statistics (2017/Relative)

VARIABLES	2017 (Relative)					
	Children (All)		Children (Poor)		Children (Non-Poor)	
	Mean	SD	Mean	SD	Mean	SD
CHILD						
Age						
Age < 4	0.342	0.474	0.313	0.464	0.354	0.478
5 < Age < 11	0.467	0.499	0.487	0.500	0.458	0.498
12 < Age < 14	0.192	0.394	0.200	0.400	0.188	0.391
Gender						
Female	0.487	0.500	0.490	0.500	0.485	0.500
HOUSEHOLD HEAD						
Age						
Age < 34	0.234	0.423	0.226	0.418	0.238	0.426
35 < Age < 44	0.485	0.500	0.491	0.500	0.483	0.500
45 < Age < 59	0.204	0.403	0.199	0.399	0.206	0.404
Age > 60	0.077	0.267	0.085	0.279	0.074	0.262
Female Household Head	0.072	0.258	0.080	0.271	0.069	0.253
Education Level						
Below Primary School	0.107	0.310	0.221	0.415	0.060	0.237
Primary School	0.404	0.491	0.522	0.500	0.354	0.478
Secondary School	0.145	0.352	0.136	0.343	0.149	0.356
High School	0.196	0.397	0.107	0.309	0.233	0.423
Above High School	0.148	0.355	0.013	0.112	0.205	0.403
Missing Obs	0.001	0.026	0.001	0.029	0.001	0.025
Employment Status						
Working	0.815	0.388	0.721	0.448	0.855	0.352

Table 8 (Continued)

Table 8B: Descriptive Statistics (2017/Relative)

	Looking for a job	0.059	0.235	0.123	0.328	0.032	0.176
	Retired	0.063	0.244	0.053	0.223	0.068	0.251
	Not Working	0.062	0.242	0.103	0.304	0.045	0.208
SPOUSE							
Age							
	Age < 34	0.446	0.497	0.440	0.496	0.448	0.497
	35 < Age < 44	0.393	0.488	0.399	0.490	0.390	0.488
	45 < Age < 59	0.121	0.326	0.120	0.325	0.121	0.326
	Age > 60	0.041	0.197	0.041	0.198	0.040	0.197
Education Level							
	Below Primary School	0.259	0.438	0.505	0.500	0.156	0.363
	Primary School	0.327	0.469	0.296	0.457	0.339	0.473
	Secondary School	0.120	0.325	0.086	0.281	0.134	0.341
	High School	0.132	0.338	0.038	0.191	0.171	0.376
	Above High School	0.102	0.303	0.003	0.059	0.143	0.350
	Household with No Spouse	0.061	0.239	0.071	0.258	0.057	0.231
HOUSEHOLD STRUCTURE							
Number of Persons by Age Groups							
	aged below 4	0.827	0.850	1.056	1.017	0.731	0.749
	aged b/w 5 and 14	1.642	1.178	2.275	1.349	1.377	0.984
	aged b/w 15 and 64	2.764	1.286	3.012	1.505	2.660	1.166
	aged over 64	0.130	0.403	0.159	0.449	0.117	0.382
REGIONS							
	İstanbul	0.183	0.386	0.072	0.258	0.229	0.420
	West Marmara	0.032	0.177	0.021	0.142	0.037	0.190
	Aegean	0.099	0.299	0.061	0.239	0.115	0.319

Table 8 (Continued)

Table 8B: Descriptive Statistics (2017/Relative)

East Marmara	0.085	0.279	0.031	0.175	0.107	0.310
West Anatolia	0.092	0.289	0.057	0.233	0.107	0.309
Mediterranean	0.134	0.341	0.141	0.349	0.131	0.337
Central Anatolia	0.053	0.223	0.046	0.210	0.055	0.229
West Black Sea	0.046	0.210	0.032	0.177	0.052	0.221
East Black Sea	0.030	0.170	0.021	0.142	0.033	0.180
Northeast Anatolia	0.031	0.174	0.046	0.209	0.025	0.157
Central East Anatolia	0.058	0.233	0.117	0.322	0.033	0.178
Southeast Anatolia	0.157	0.364	0.354	0.478	0.075	0.263

Note: Poor children are determined according to the relative poverty line.
Source: SILC 2017

Table 8C: Descriptive Statistics (2017/Absolute)

VARIABLES	2017 (Absolute)					
	Children (All)		Children (Poor)		Children (Non-Poor)	
	Mean	SD	Mean	SD	Mean	SD
CHILD						
Age						
Age < 4	0.342	0.474	0.310	0.463	0.350	0.477
5 < Age < 11	0.467	0.499	0.489	0.500	0.461	0.498
12 < Age < 14	0.192	0.394	0.201	0.401	0.189	0.392
Gender						
Female	0.487	0.500	0.492	0.500	0.485	0.500
HOUSEHOLD HEAD						
Age						
Age < 34	0.234	0.423	0.221	0.415	0.238	0.426
35 < Age < 44	0.485	0.500	0.494	0.500	0.483	0.500

Table 8 (Continued)

Table 8C: Descriptive Statistics (2017/Absolute)

45 < Age < 59	0.204	0.403	0.199	0.399	0.205	0.404
Age > 60	0.077	0.267	0.086	0.280	0.075	0.263
Female Household Head	0.072	0.258	0.082	0.274	0.069	0.254
Education Level						
Below Primary School	0.107	0.310	0.253	0.435	0.070	0.255
Primary School	0.404	0.491	0.523	0.500	0.373	0.484
Secondary School	0.145	0.352	0.126	0.331	0.150	0.357
High School	0.196	0.397	0.089	0.285	0.223	0.416
Above High School	0.148	0.355	0.009	0.097	0.184	0.387
Missing Obs	0.001	0.026	0.001	0.029	0.001	0.026
Employment Status						
Working	0.815	0.388	0.684	0.465	0.849	0.358
Looking for a job	0.059	0.235	0.146	0.353	0.036	0.187
Retired	0.063	0.244	0.055	0.228	0.065	0.247
Not Working	0.062	0.242	0.115	0.319	0.049	0.216
SPOUSE						
Age						
Age < 34	0.446	0.497	0.419	0.494	0.453	0.498
35 < Age < 44	0.393	0.488	0.415	0.493	0.387	0.487
45 < Age < 59	0.121	0.326	0.119	0.324	0.121	0.326
Age > 60	0.041	0.197	0.046	0.210	0.039	0.194
Education Level						
Below Primary School	0.259	0.438	0.566	0.496	0.180	0.384
Primary School	0.327	0.469	0.269	0.443	0.341	0.474
Secondary School	0.120	0.325	0.072	0.258	0.133	0.339
High School	0.132	0.338	0.024	0.152	0.159	0.366
Above High School	0.102	0.303	0.002	0.042	0.128	0.334
Household with No Spouse	0.061	0.239	0.068	0.252	0.059	0.236

Table 8 (Continued)

Table 8C: Descriptive Statistics (2017/Absolute)

HOUSEHOLD STRUCTURE							
Number of Persons by Age Groups							
	aged below 4	0.827	0.850	1.143	1.074	0.746	0.761
	aged b/w 5 and 14	1.642	1.178	2.454	1.384	1.433	1.019
	aged b/w 15 and 64	2.764	1.286	3.091	1.580	2.679	1.184
	aged over 64	0.130	0.403	0.167	0.466	0.120	0.385
REGIONS							
	Istanbul	0.183	0.386	0.061	0.240	0.214	0.410
	West Marmara	0.032	0.177	0.018	0.131	0.036	0.187
	Aegean	0.099	0.299	0.050	0.218	0.112	0.315
	East Marmara	0.085	0.279	0.028	0.166	0.100	0.299
	West Anatolia	0.092	0.289	0.045	0.208	0.104	0.306
	Mediterranean	0.134	0.341	0.143	0.350	0.131	0.338
	Central Anatolia	0.053	0.223	0.037	0.188	0.057	0.231
	West Black Sea	0.046	0.210	0.030	0.171	0.050	0.218
	East Black Sea	0.030	0.170	0.016	0.126	0.033	0.179
	Northeast Anatolia	0.031	0.174	0.041	0.199	0.029	0.167
	Central East Anatolia	0.058	0.233	0.126	0.332	0.040	0.196
	Southeast Anatolia	0.157	0.364	0.404	0.491	0.094	0.292

Note: Poor children are determined according to the absolute poverty line.
Source: SILC 2017

When the compositions of variables are examined, it is tested that there is no significant compositional change in terms of child gender between 2007 and 2017. The proportions also do not vary significantly between poor and non-poor children in 2007 and 2017 at 5% level according to both relative and absolute poverty thresholds.

It is observed from Table 8 that the figures of all age groups of children are close to each other. Despite the similar figures, proportional changes of each age group

of children between 2007 and 2017 are found as statistically significant - at 5% level. In other words, there are significant differences in compositions of age groups of children between years. When age compositions of poor and non-poor children are considered in both years, significances of proportional differences vary according to the age groups. For instance, there is no significant difference between poor and non-poor children aged between 0 and 4 in 2007 whereas the difference between poor and non-poor children aged between 0 and 4 is found as statistically significant at 5% level in 2017.

Household heads of children are composed of mostly young and middle-aged individuals in both years but the figures show that household heads were younger in 2007 in comparison to 2017. For instance, 30.8% of household heads are 34 years old and younger and 44.6% of household heads are between 35 and 44 years old in 2007 while these percentages are 23.5% and 48.5% in 2017 respectively. The compositional changes of household heads' all age groups between 2007 and 2017 are all statistically significant at 5% level. Older household heads can therefore be attributed to the decrease in child poverty from 2007 to 2017.

On the other hand, when education levels of household heads are considered, compositional changes in education levels of household heads between 2007 and 2017 are found to be statistically significant at 5% level. There are considerable increases in the proportions of higher education levels from 2007 to 2017. Proportional differences between poor and non-poor children according to relative and absolute thresholds are also statistically significant at 5% level. The proportion of heads holding higher degrees of education is higher for non-poor children while there is an exact opposite situation for children in poverty both in 2007 and 2017. Thus, it can be inferred that poor children have less educated household heads. When poor children are examined according to the absolute thresholds, there are fewer changes observed in the proportions of education levels of household heads from 2007 to 2017 in comparison to relative thresholds. Therefore, it can be claimed that the effect of compositional changes in education

levels of household heads on poverty reduction for children is less important when poverty is considered in absolute terms.

The majority of household heads of children were working in 2007 and 2017, with an approximate percentage of 81%. There is no statistically significant difference in the proportions of working and job seeker household heads in 2007 and 2017 at 5% level. On the other hand, proportional changes in other two employment categories which compose of retired and non-working household heads are found to be statistically significant at 5% level. In this regard, the proportion of retired household heads has increased, whereas the proportion of non-working household heads has decreased slightly in years. According to relative and absolute thresholds, compositional differences between poor and non-poor children are statistically significant for all employment categories at 5% level both in 2007 and 2017. The proportions of working and retired household heads of non-poor children are higher in comparison to heads of poor children. On the contrary, poor children have more job seeker and non-working household heads than non-poor children.

When compositions of poor children in 2007 and 2017 are compared, it is found that there is no statistically significant difference in the proportions of working household heads of poor children between years according to the relative thresholds however decrease in the proportions of these household heads among poor children is found statistically significant at 5% level according to the absolute thresholds. A similar result was also obtained for job seeker household heads of poor children, that the proportions in years are found as statistically equal according to relative threshold, whereas the increase in the proportion of them is statistically significant at 5% level according to absolute thresholds. These results are evaluated as a clue for different compositional effects on the decline in child poverty from 2007 to 2017 to be obtained according to the relative and absolute thresholds. In the forthcoming sections, the total effect of characteristics of variables on child poverty is investigated in detail.

Similar to household heads, it is illustrated in the tables that spouses of household heads are mostly young and middle-aged individuals both in 2007 and 2017. Only the proportions of 34 years old and younger spouses and spouses who are aged between 35 and 44 have changed dramatically between the years with these changes being statistically significant at 5% level. When age compositions of spouses are examined according to poor and non-poor children, it is seen that the proportions of age groups are generally close to each other in both years. Only the difference between poor and non-poor children in terms of proportions of spouses older than 60 is found to be statistically significant at 5% level according to relative thresholds. According to the absolute threshold in 2017, compositional changes between poor and non-poor children are remarkable for children whose household heads have spouses younger than 35 and aged between 35 and 44. These changes are also found as statistically significant at 5% level.

When compositions of education levels of spouses are examined, it is seen that the education level of most spouses is low in both 2007 and 2017. However, as a positive development, the proportions of secondary school and high school graduate spouses have increased remarkably from 2007 to 2017 and these changes are found to be statistically significant at 5% level. Moreover, spouses of household heads of non-poor children are more educated in comparison to those of poor children both in 2007 and 2017. Some proportions of education levels also change according to the poverty thresholds. As a noticeable result for poor children, the proportion of spouses who have below primary school level of education is 54.6% in 2007 whereas the percentage decreases to 50.5% in 2017 based on the relative thresholds. The decrease is found to be statistically significant at 5% level. Although the same proportion increases to 56.6% in 2017 depending on the absolute thresholds, the change is not found to be significant at 5% level. Therefore, it can be again considered that the effect of compositional differences on decline in child poverty rates may also be different with respect to poverty thresholds used for determining poor children.

Compositional differences between the years regarding number of household members according to different age groups are found to be statistically significant at 5% level, except for the last category (household members older than 64 years old.) It is observed that poor children are coming from households in which children comprise the majority of household members. One of the reasons behind the high rates of child poverty in Turkey can also attributed to the fact that poor families have more children (Dayıoğlu, 2007).

Proportions of poor children in regions can also be observed in Table 8. According to the figures, İstanbul has the highest proportion of children among NUTS-1 regions and poor children mostly live in Southeast Anatolia region both in 2007 and 2017. Compositional changes between years in İstanbul, East Marmara, West Black Sea, Northeast Anatolia, Central East Anatolia, Southeast Anatolia regions are found statistically significant at 5% level. However, since same poverty threshold is used for all regions, regional differences cannot be explained only with descriptive statistics. Therefore, it is better to look at the effects of each variable of child poverty in order to obtain specific results.

4.3. Effects of Child Poverty Determinants

The purpose of this section is to look at the effects of each determinant of child poverty and investigate the change of those effects from 2007 to 2017. Since the logit model is used in the analyses, it is possible to see how the determinants affect the probability of becoming poor for children. In order to see the change in effects between years, the datasets of SILC 2007 and SILC 2017 are combined and the same model is estimated for child poverty. Different from other estimations, interaction variables are created for each independent variable and they are all included into the regressions. Interaction variables are created with the help of a dummy variable called “Year” where the value “1” is assigned for 2007 and “0” for 2017. In this regard, the differences between years are obtained with the help of these interaction variables.

In the first analysis, relative child poverty is examined with the results of regressions run for each year whereas the effects of the determinants according to the absolute poverty thresholds are investigated in the second analysis.

4.3.1. Child Poverty Based On Relative Poverty Threshold

In this section, children in poverty are determined according to the relative poverty lines and the model is estimated for 2007 and 2017 separately. Coefficients and average marginal effects of independent variables are presented in Table 9. The effects of each independent variable on the probability of being poor for children are shown in detail within this respect. Significances of differences between years which are obtained from interaction variables are given at the last columns in the tables.

Table 9: Correlates of Relative Child Poverty

Table 9A: Coefficients Based On Relative Poverty Line

VARIABLES	2007 Probability of Being Poor Coefficients (SE)	2017 Probability of Being Poor Coefficients (SE)	Significance Level of Interaction Variable
CHILD			
Age (Ref. & < 4)			
5 < Age < 11	-0.077 (0.076)	-0.016 (0.067)	

Table 9 (Continued)

Table 9A: Coefficients Based On Relative Poverty Line

	12 < Age < 14	-0.106 (0.095)	0.034 (0.080)	
Gender				
	Female	0.046 (0.054)	-0.002 (0.046)	
HOUSEHOLD HEAD				
Age (Ref. Age < 34)				
	35 < Age < 44	-0.484*** (0.076)	-0.103 (0.071)	***
	45 < Age < 59	-0.652*** (0.114)	-0.407*** (0.096)	*
	Age > 60	-1.032*** (0.161)	-0.957*** (0.148)	
Female Headed		-0.404** (0.192)	-0.550*** (0.153)	
Education Level (Ref. Below Primary School)				
	Primary School	-0.787*** (0.092)	-0.623*** (0.082)	
	Secondary School	-1.316*** (0.119)	-0.889*** (0.096)	***
	High School	-1.614*** (0.123)	-1.459*** (0.099)	
	Above High School	-3.181*** (0.286)	-2.702*** (0.170)	
	Missing Obs	-1.126*** (0.318)	0.559 (0.614)	**
Employment Status (Ref. Working)				
	Looking for a job	1.343*** (0.131)	1.358*** (0.096)	

Table 9 (Continued)

Table 9A: Coefficients Based On Relative Poverty Line

	Retired	-0.723*** (0.146)	-0.121 (0.128)	***
	Not Working	1.108*** (0.123)	1.079*** (0.131)	
SPOUSE				
Age (Ref. Age < 34)				
	35 < Age < 44	0.001 (0.078)	0.250*** (0.062)	**
	45 < Age < 59	-0.356*** (0.125)	-0.272** (0.107)	
	Age > 60	-0.027 (0.197)	-0.447*** (0.173)	
Education Level (Ref. Below Primary School)				
	Primary School	-0.622*** (0.072)	-0.734*** (0.063)	
	Secondary School	-1.066*** (0.145)	-0.717*** (0.0855)	**
	High School	-1.809*** (0.160)	-1.445*** (0.102)	*
	Above High School	-2.549*** (0.463)	-2.828*** (0.295)	
	Household with No Spouse	-0.590*** (0.198)	-0.325** (0.156)	
HOUSEHOLD STRUCTURE				
Number of Persons by Age Groups				

Table 9 (Continued)

Table 9A: Coefficients Based On Relative Poverty Line

	aged below 4	0.181*** (0.039)	0.360*** (0.036)	***
	aged b/w 5 and 14	0.379*** (0.025)	0.384*** (0.026)	
	aged b/w 15 and 64	0.024 (0.022)	-0.013 (0.023)	
	aged over 64	-0.120* (0.069)	-0.024 (0.072)	
REGIONS				
(Ref. Southeast Anatolia)				
	İstanbul	-4.069*** (0.187)	-2.091*** (0.102)	***
	West Marmara	-1.432*** (0.141)	-1.117*** (0.120)	*
	Aegean	-1.177*** (0.111)	-1.149*** (0.090)	
	East Marmara	-1.664*** (0.134)	-1.766*** (0.113)	
	West Anatolia	-1.742*** (0.134)	-0.902*** (0.095)	***
	Mediterranean	-0.697*** (0.105)	-0.713*** (0.079)	
	Central Anatolia	-1.170*** (0.122)	-0.860*** (0.095)	**
	West Black Sea	-0.955*** (0.114)	-0.978*** (0.115)	
	East Black Sea	-1.498*** (0.139)	-1.002*** (0.145)	**
	Northeast Anatolia	-0.773*** (0.097)	-0.527*** (0.092)	*
	Central East Anatolia	-0.765*** (0.098)	0.033 (0.087)	***
	Constant	1.376*** (0.154)	0.626*** (0.149)	***

Table 9 (Continued)

Table 9A: Coefficients Based On Relative Poverty Line

Wald chi2	2300.990	3204.410	5533.480
Prob > chi2	0.000	0.000	0.000
Pseudo R2	0.360	0.325	0.344
Observations	12,061	19,072	31,133

Notes: Last column includes only information of interaction variables: X*Year.

Sampling weights are used.

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: SILC 2007 and SILC 2017

Table 9B: Average Marginal Effects Based On Relative Poverty Line

VARIABLES	2007 Probability of Being Poor AMEs (SE)	2017 Probability of Being Poor AMEs (SE)	Significance Level of Interaction Variable
CHILD			
Age (Ref. Age < 4)			
5 < Age < 11	-0.010 (0.010)	-0.002 (0.009)	
12 < Age < 14	-0.014 (0.012)	0.005 (0.011)	
Gender			
Female	0.006 (0.007)	0.000 (0.006)	

Table 9 (Continued)

Table 9B: Average Marginal Effects Based On Relative Poverty

		Line		
HOUSEHOLD HEAD				
Age (Ref. Age < 34)				
35 < Age < 44	-0.064*** (0.010)	-0.014 (0.009)	***	
45 < Age < 59	-0.082*** (0.014)	-0.052*** (0.012)	*	
Age > 60	-0.123*** (0.017)	-0.113*** (0.015)		
Female Headed	-0.051** (0.023)	-0.068*** (0.018)		
Education Level (Ref. Below Primary School)				
Primary School	-0.103*** (0.012)	-0.081*** (0.010)		
Secondary School	-0.158*** (0.012)	-0.109*** (0.011)	***	
High School	-0.194*** (0.013)	-0.176*** (0.010)		
Above High School	-0.288*** (0.013)	-0.255*** (0.010)		
Missing Obs	-0.132*** (0.032)	0.078 (0.090)	***	
Employment Status (Ref. Working)				
Looking for a job	0.191*** (0.019)	0.201*** (0.015)		
Retired	-0.090*** (0.017)	-0.016 (0.016)	***	
Not Working	0.157*** (0.018)	0.157*** (0.020)		

Table 9 (Continued)

Table 9B: Average Marginal Effects Based On Relative Poverty

Line				
SPOUSE				
Age (Ref. Age < 34)				
35 < Age < 44	0.000 (0.010)	0.033*** (0.008)	**	
45 < Age < 59	-0.046*** (0.016)	-0.035*** (0.013)		
Age > 60	-0.004 (0.026)	-0.056*** (0.021)		
Education Level (Ref. Below Primary School)				
Primary School	-0.085*** (0.010)	-0.097*** (0.008)		
Secondary School	-0.129*** (0.016)	-0.090*** (0.010)	**	
High School	-0.204*** (0.014)	-0.168*** (0.010)	**	
Above High School	-0.246*** (0.027)	-0.249*** (0.013)		
Household with No Spouse	-0.074*** (0.023)	-0.041** (0.019)		
HOUSEHOLD STRUCTURE				
Number of Persons by Age Groups				
aged below 4	0.024*** (0.005)	0.047*** (0.005)	***	
aged b/w 5 and 14	0.050*** (0.003)	0.051*** (0.003)		
aged b/w 15 and 64	0.003 (0.003)	-0.002 (0.003)		

Table 9 (Continued)

Table 9B: Average Marginal Effects Based On Relative Poverty

	Line		
aged over 64	-0.016* (0.009)	-0.003 (0.010)	
REGIONS (Ref. Southeast Anatolia)			
Istanbul	-0.372*** (0.008)	-0.235*** (0.008)	***
West Marmara	-0.164*** (0.013)	-0.128*** (0.012)	*
Aegean	-0.144*** (0.012)	-0.136*** (0.009)	
East Marmara	-0.192*** (0.013)	-0.192*** (0.009)	
West Anatolia	-0.201*** (0.012)	-0.109*** (0.010)	***
Mediterranean	-0.087*** (0.012)	-0.088*** (0.009)	
Central Anatolia	-0.139*** (0.013)	-0.103*** (0.010)	**
West Black Sea	-0.116*** (0.013)	-0.115*** (0.012)	
East Black Sea	-0.170*** (0.013)	-0.117*** (0.014)	***
Northeast Anatolia	-0.094*** (0.011)	-0.065*** (0.011)	*
Central East Anatolia	-0.092*** (0.011)	0.004 (0.012)	***
Observations	12,061	19,072	31,133
Mean of Poor Child	0.295	0.332	

Notes: Last column includes only information of interaction variables: X*Year.

Sampling weights are used.

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: SILC 2007 and SILC 2017

Prior to interpreting the results, it is better to underline child poverty rates which are the means of poor children calculated for 2007 and 2017. The poverty rate of children is calculated as 33.2% for 2007 and 29.5% for 2017, according to the relative poverty lines. Since the logit model is used in the study to analyse poor children, coefficients of independent variables are given in log-odds units together with the robust standard errors in the parentheses in Table 9A. In addition, Table 9B illustrates average marginal effects that indicate changes in the probability of becoming poor for children. They can also be explained as the average change in probability, when an explanatory variable increases 1 unit by leaving all other explanatory variables as they are. Within this scope, when age of child is examined according to p-values, it is observed that in reference to 0-4-year-olds, all age categories are found to be insignificant, both in 2007 and 2017. In other words, age of child does not affect child poverty according to the regression results. Similarly, child poverty is also not affected by gender of child. These results can be attributed to the fact that poverty status of children is determined at household level and there is no information in the data regarding the intra household sharing of income among children. Therefore, age and gender of child are not found to be significant determinants of child poverty both in 2007 and 2017.

On the other hand, children coming from households headed by older persons face a lower probability of being poor. This likelihood of being poor reduces monotonically as the household head ages. We can attribute this to the higher earnings of older than younger household heads. It is assumed that older household heads are more skilled and experienced, and the possibility of finding well-paid jobs is higher than younger household heads.

Female headed households are quite diverse. When the household incomes of male and female headed households are compared, the latter fare worse according to the Figures 3 and 4.

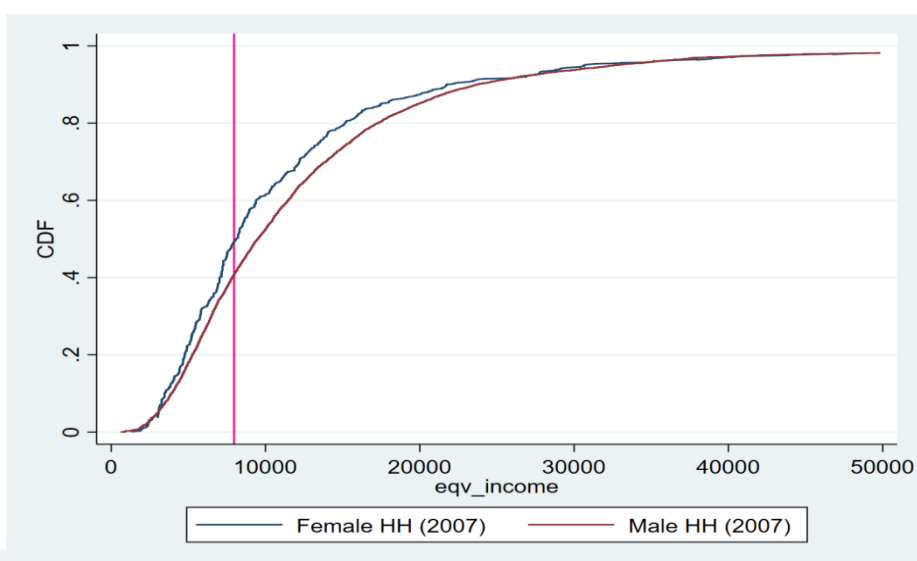


Figure 3: CDF of Equivalised Disposable Incomes of Children - Male and Female Headed Households in 2007

Note: Incomes are corrected for inflation. 2007 incomes are expressed in 2017 incomes. Vertical line illustrates the relative poverty line set for 2007.
Source: SILC 2007

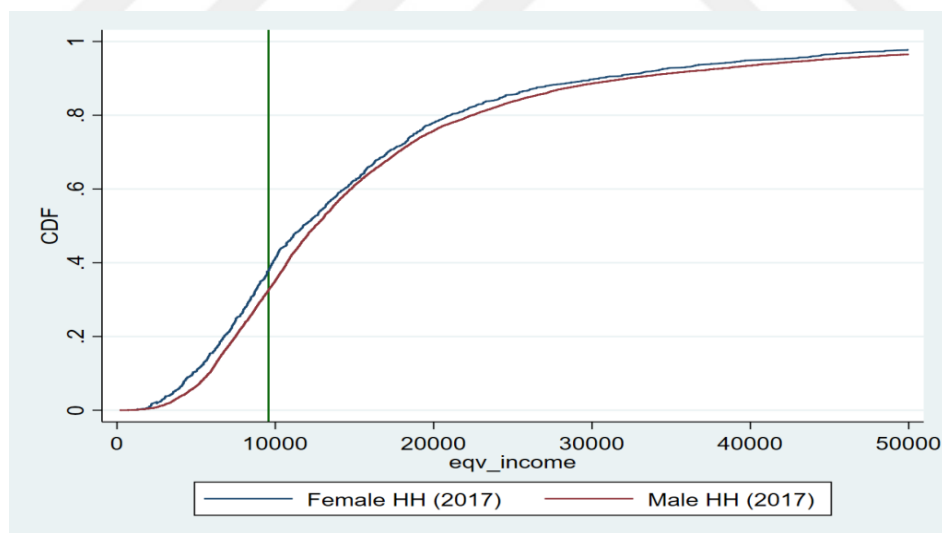


Figure 4: CDF of Equivalised Disposable Incomes of Children - Male and Female Headed Households in 2017

Note: Incomes are corrected for inflation. 2007 incomes are expressed in 2017 incomes. Vertical line illustrates the relative poverty line set for 2017.
Source: SILC 2017

However, in the estimation, we observe a negative coefficient and this effect arises when we control for other household characteristics, foremost the employment status of household heads. Although female headed households receive more transfer income as shown in Table 10, their labour income is lower on average.

Table 10: Inter-household Transfers of Households

Inter-household Transfers		Children (All)		Children (Poor)		Children (Non-Poor)	
		Mean	SD	Mean	SD	Mean	SD
2007	Female Headed	17,623	18,418	10,879	7,578	23,165	22,455
	Male Headed	7,084	8,932	5,549	6,058	8,284	10,500
2017	Female Headed	20,328	21,873	12,107	10,481	25,091	25,120
	Male Headed	10,076	16,634	6,545	8,319	11,616	18,960

Note: Inter-household transfers include transfers in cash and in kind together with alimonies. Poor children are determined according to the relative poverty lines. Incomes are corrected for inflation and given in Turkish Liras. 2007 incomes are expressed in 2017 incomes.

Source: SILC 2007 and SILC 2017

A number of reasons may be behind the higher transfer incomes of female headed households. For instance, female headed households might be those where the child's father is away working and sending money to his family, or after divorce, female heads start receiving alimonies. Income coming from these transfers helps female heads to cover household needs.

Different results were also reached by other studies conducted on households with female heads. For instance, according to the study of Woolard (2002), female headed households have a higher probability of being poor than households with male heads. Additionally, Dayıoğlu (2007) examined the effects of female household heads on child poverty and found no significant effect for children living in urban areas in her study. Therefore, this issue needs further investigation before coming up with a more satisfactory conclusion.

The results stated in Table 9 also illustrate that household heads' education reduce the risk of child poverty in 2007 and 2017. The poverty reducing impact of education is increased by higher levels of schooling both in 2007 and 2017. For 2007, the possibility of becoming poor for children was almost 15.8 percentage points lower on average when household heads had a secondary school level of education, when compared to household heads that have no diploma. The possibility of this is 10.9 percentage points lower in 2017 for the same group of household heads and different from other levels, coefficient of interaction variable is statistically significant at 1% significance level. This means that the effect of secondary school education of household heads on child poverty has decreased from 2007 to 2017.

The average marginal effects show that the probability of becoming poor for a child varies according to the employment status of household head. Job seeker and non-working household heads increase the risk of child poverty both in 2007 and 2017. In brief, job seeker household heads raise the probability of child poverty by 19.1 percentage points whereas the effect of non-working heads on the probability of child poverty is 15.7 percentage points higher when compared to working household heads in 2007. The effects of non-working and job seeker household heads on child poverty in 2017 are very close to effects in 2007. In contrast to 2017, retired household heads decrease the risk of being poor for children in 2007. When we look more closely at retired household heads in 2007, CDFs are given for children who have working and retired household heads in Figure 5. The first vertical line shows the relative threshold set for determining poor children in 2007 whereas the second vertical line is drawn to show the intersection point of two lines.

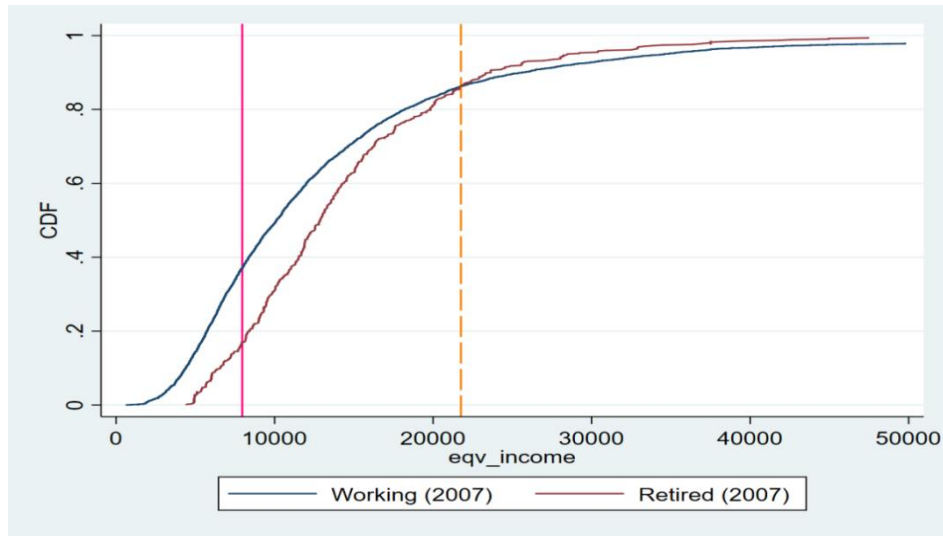


Figure 5: CDF of Equivalised Disposable Incomes of Children - Retired and Working Household Heads in 2007

Note: Incomes are corrected for inflation, 2007 incomes are expressed in 2017 incomes.
Source: SILC 2007

The above figure shows that the cumulative distribution of children who have retired household heads first degree dominates the distribution of children who have working household heads for equivalised household disposable income below approximately 21,755 TL in 2007. In other words, children with retired household heads are better off than children with working household heads until a certain point of income which also exceeds the poverty line set for children.

When CDFs of the same group of children in 2017 is examined according to the Figure 6, the lines of CDFs are close to each other at some income levels but retired household heads' children are worse off than working household heads' children generally.

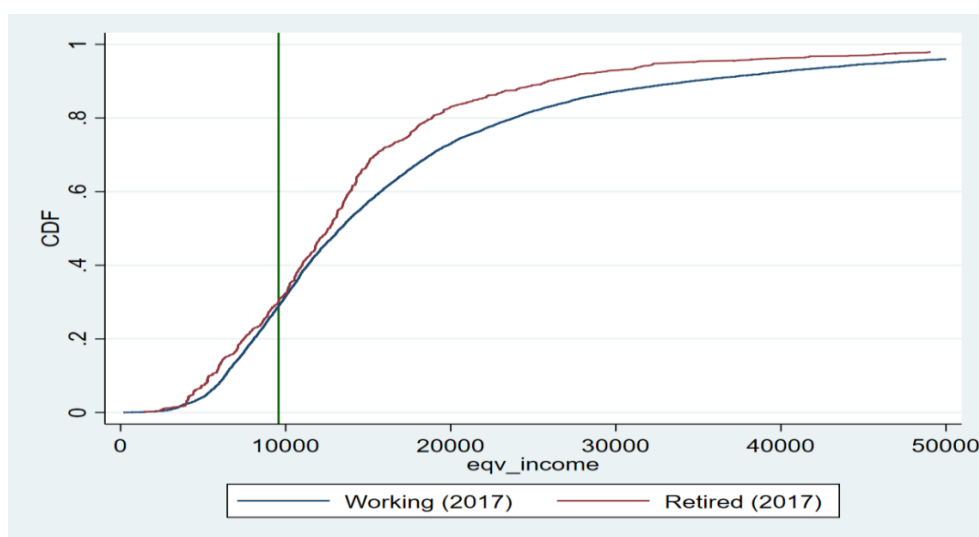


Figure 6: CDF of Equivalised Disposable Incomes of Children - Retired and Working Household Heads in 2017

Note: Incomes are corrected for inflation. 2007 incomes are expressed in 2017 incomes. Vertical line illustrates the relative poverty line set for 2017.
Source: SILC 2017

On 1 October 2008, The Social Security and Universal Health Insurance Act No. 5510 entered into force on under Social Security Reform in Turkey. Thus, the Social Security System in Turkey was re-regulated and the scope of social security system of Turkey has been broadened with this act. Provisions of insurance holders are regulated under three main groups which are “persons who are working under service contracts⁸”, “persons who are self-employed⁹” and “civil servants¹⁰”. Within this scope, wages and pensions are determined and adjusted for each insurance type according to collective bargaining between representatives of trade unions and government representatives and main economic indicators such as inflation. Table 11 shows the minimum pensions of persons working under service contracts and net minimum wages in 2006 and 2016.

⁸ Regulated under Article “4/a” of the Law.

⁹ Regulated under Article “4/b” of the Law.

¹⁰ Regulated under Article “4/c” of the Law.

Table 11: Minimum Pensions and Wages in 2006 and 2016

	Minimum Pension (TL) (Jan - Jun)	Minimum Pension (TL) (Jul - Dec)	Annual Pension (TL) (Total)	Minimum Wage (TL) (Monthly)	Annual Minimum Wage (TL) (Total)
2006	463.1	476.9	5,640.1	380.5	4,565.5
2016 (Adjusted*)	1,007.7	1,037.7	12,272.9	828.0	9,934.5
2016 (Actual)	1,242.5	1,287.6	15,180.1	1,301.0	15,611.9

Note: Annual pension and annual wage are calculated according to the monthly net numbers in Turkish Liras.

*2006 figures are corrected for inflation.

Source: Social Security Institution (SSI) and Ministry of Family, Labour and Social Services (MoFLSS) Statistics

When pensions and minimum wages are compared, it is seen that minimum pension is more than the minimum wage in 2006 which is the base year for information of income in SILC 2007, while the numbers are close to each other in 2016 which is also the base year for SILC 2017. In real terms, minimum wage has increased more than minimum pension according to the adjusted figures. The numbers can be assumed as a supporting evidence of the result obtained from the AMEs in 2007.

Education of household heads' spouses¹¹ is also found to be an important determinant of child poverty. As it can be seen from Table 9B, higher education levels of spouses decreases the risk of child poverty. Spouses who are secondary school and high school graduates lower the possibility of child poverty by 12.9 and 20.4 percentage points respectively in reference to spouses who do not have any formal education in 2007. The same effects are calculated as 9 percentage points lower for secondary school graduate spouses and 16.8 percentage points

¹¹ The information of three households in 2007 and 12 households in 2017 data is not used in the regressions since there is more than one spouse in these households.

lower for high school graduate spouses in 2017. The differences between the effects in 2007 and 2017 are found statistically significant at 5% level. It can be inferred from these results that although spouses who have secondary school and high school levels of education lower the possibility of becoming poor for children both in 2007 and 2017, these groups became less important from 2007 to 2017 in terms of their poverty reducing impacts in reference to spouses who do not hold any diploma.

Concerning age groups of spouses, it is seen that only the spouses aged between 45 and 59 years old have poverty reducing impact in 2007. In addition, spouses in age groups between 45-59 years old and 60 years and older decrease the possibility of child poverty in 2017 in reference to spouses who are 34 years old and younger. On the contrary, household heads' spouses aged between 35 and 44 years old increase the risk of child poverty in 2017 in reference to spouses who are 34 years old and younger. There is no monotonic result obtained for age groups of spouses unlike the household heads both in 2007 and 2017.

When it comes to household structure, children coming from the households which have more children are more likely to be poor both in 2007 and 2017. The number of household members younger than 4 years old raises the possibility of child poverty by 2.4 percentage points in 2007 while it raises the possibility of child poverty by 4.7 percentage points in 2017. The 2 percentage points difference between 2007 and 2017 in the possibility of becoming poor for children according to the number of children younger than 4 years old in the households is found statistically significant at 1% level. Moreover, the number of household members aged between 5 and 14 also raises the possibility for the child of becoming poor by approximately 5 percentage points in both 2007 and 2017.

According to the regional results, the data shows that the risk of child poverty is less for children in İstanbul than other regions. On the other hand, children in Southeast Anatolia region are worse off than children in other regions with regard to becoming poor according to the average marginal effects. In addition, children

in other regions seem more advantaged in terms of child poverty compared to the Southeast Anatolia region. There are decreases on the effects of regions concerning the possibilities of being poor for children from 2007 to 2017. The differences between 2007 and 2017 on the effects of West Anatolia, East Black Sea and İstanbul regions are found to be significant at 1% level. Similarly, decreases in the child poverty reduction effects of Central Anatolia, West Marmara and Northeast Anatolia regions between the years are also significant at 5%, 10%, 10% levels respectively. In other words, decreases in the average marginal effects from 2007 to 2017 in these regions are statistically significant according to different significance levels. Since economic conditions differ according to the region, CPI values and changes in CPIs within years are given in the below table in order to look any possible relationship between the changes in the poverty reducing effects of the regions and the change in CPIs.

Table 12: CPIs in 2006 and 2016

Regions	CPI Value June 2006 (2003=100)	CPI Value June 2016 (2003=100)	Change (%)
İstanbul	132.22	285.68	116.06
İstanbul	132.22	285.68	116.06
West Marmara	131.29	287.21	118.76
Edirne	131.68	281.69	113.92
Balıkesir	130.81	294.00	124.75
Aegean	129.63	281.68	117.30
İzmir	131.44	284.66	116.57
Denizli	130.27	281.43	116.04
Manisa	126.02	277.77	120.42
East Marmara	131.99	283.40	114.71
Bursa	132.73	280.58	111.39
Kocaeli	131.30	285.83	117.69
West Anatolia	131.59	287.63	118.59
Ankara	132.83	292.26	120.03

Table 12 (Continued)

Konya	128.94	279.66	116.89
Mediterranean	127.67	277.48	117.35
Antalya	129.27	270.83	109.51
Adana	126.71	286.88	126.41
Hatay	125.54	276.12	119.95
Central Anatolia	125.33	284.60	127.07
Nevşehir	124.89	281.98	125.78
Kayseri	125.71	286.93	128.25
West Black Sea	126.19	275.73	118.50
Zonguldak	128.34	274.32	113.74
Kastamonu	123.41	273.78	121.85
Samsun	127.01	279.28	119.89
East Black Sea	127.55	278.75	118.54
Trabzon	127.55	278.75	118.54
Northeast Anatolia	126.16	283.17	124.45
Erzurum	126.02	281.02	123.00
Ağrı	126.37	286.35	126.60
Central East Anatolia	124.27	277.02	122.91
Malatya	123.80	275.83	122.80
Van	125.01	278.80	123.02
Southeast Anatolia	120.85	276.36	128.68
Gaziantep	121.27	284.14	134.30
Şanlıurfa	122.02	285.53	134.00
Mardin	119.05	257.12	115.98
TURKEY	128.63	279.33	117.16

Note: As CPIs are not calculated at NUTS-1 level by TURKSTAT, NUTS-2 level CPIs are weighted according to the Gross Domestic Product Per Capita (2009 Base) published by TURKSTAT and NUTS-1 level CPIs are obtained within this respect.

Source: TURKSTAT regional accounts database

In reference to the Southeast Anatolia region, Central Anatolia and Northeast Anatolia are the two regions which have the lowest average marginal effects with statistically significant differences between the effects in 2007 and 2017 on child poverty. Children in these regions are more likely to be poor than children in other regions. In this regard, when the regional changes in CPIs are examined, it is observed that biggest changes at NUTS-1 level belong to these two regions. There

is 124.45% increase in inflation from 2006 to 2016 in Northeast Anatolia region whereas the increase is calculated as 127.07% in Central Anatolia region. It means that cost of living became much higher in these regions, compared to the overall level for Turkey, which is calculated as 117.16%. Thus, the results show that children in these regions are more disadvantaged in terms of poverty in comparison to other regions. Apart from CPIs, regional results can also be explained with other regional factors such as migration. More specific results for regions can be obtained with studies which concentrate on regional poverty thresholds in order to investigate poverty status of children in these regions.

Finally, the coefficient of dummy variable, “Year” which helps with the creation of interaction variables between years is given in the table below, with robust standard error. Although it is not a determinant of child poverty, it shows the change in child poverty within years when all other variables are controlled.

Table 13: Coefficient and Robust Standard Error of Year Dummy (Relative)

Variable	Poor Child (Relative) Coefficient (SE)
YEAR ("1"=2007,"0"=2017)	0.750*** (0.215)

Notes: Robust standard errors in parentheses

*** p<0.01

Source: SILC 2007 and SILC 2017

It is illustrated in Table 13 that the risk of poverty was higher for children in 2007. This result is statistically significant at 1% level.

4.3.2. Child Poverty Based On Absolute Poverty Threshold

In addition to child poverty based on relative poverty threshold and child poverty in relation to a fixed poverty line in real terms are also analysed in this section. Children in poverty are determined according to the absolute poverty lines set for each year and the model is estimated for 2007 and 2017 separately. In this regard, coefficients and average marginal effects of independent variables are presented in Table 14. As indicated in the previous section, significances of differences between years which are obtained from interaction variables are given in the last columns in the tables.

Table 14: Correlates of Absolute Child Poverty

Table 14A: Coefficients Based On Absolute Poverty Line

VARIABLES		2007 Probability of Being Poor Coefficients (SE)	2017 Probability of Being Poor Coefficients (SE)	Significance Level of Interaction Variable
CHILD				
Age (Ref. Age < 4)				
	5 < Age < 11	-0.077 (0.076)	0.015 (0.071)	
	12 < Age < 14	-0.106 (0.095)	0.095 (0.087)	
Gender				
	Female	0.046 (0.054)	-0.004 (0.050)	

Table 14 (Continued)

Table 14A: Coefficients Based On Absolute Poverty Line

HOUSEHOLD HEAD				
Age (Ref. Age < 34)				
35 < Age < 44	-0.484*** (0.076)	-0.114 (0.077)	***	
45 < Age < 59	-0.652*** (0.114)	-0.454*** (0.108)		
Age > 60	-1.032*** (0.161)	-1.107*** (0.162)		
Female Headed	-0.404** (0.192)	-0.346** (0.171)		
Education Level (Ref. Below Primary School)				
Primary School	-0.787*** (0.092)	-0.616*** (0.082)		
Secondary School	-1.316*** (0.119)	-0.804*** (0.102)	***	
High School	-1.614*** (0.123)	-1.392*** (0.107)		
Above High School	-3.181*** (0.286)	-2.506*** (0.221)	*	
Missing Obs	-1.126*** (0.318)	0.718 (0.456)	***	
Employment Status (Ref. Working)				
Looking for a job	1.343*** (0.131)	1.382*** (0.094)		
Retired	-0.723*** (0.146)	0.019 (0.138)	***	
Not Working	1.108*** (0.123)	1.275*** (0.142)		

Table 14 (Continued)

Table 14A: Coefficients Based On Absolute Poverty Line

SPOUSE			
Age (Ref. Age < 34)			
35 < Age < 44	0.001 (0.078)	0.429*** (0.068)	***
45 < Age < 59	-0.356*** (0.125)	-0.144 (0.117)	
Age > 60	-0.027 (0.197)	-0.019 (0.188)	
Education Level (Ref. Below Primary School)			
Primary School	-0.622*** (0.072)	-0.748*** (0.067)	
Secondary School	-1.066*** (0.145)	-0.677*** (0.100)	**
High School	-1.809*** (0.160)	-1.677*** (0.134)	
Above High School	-2.549*** (0.463)	-3.192*** (0.354)	
Household with No Spouse	-0.590*** (0.198)	-0.499*** (0.175)	
HOUSEHOLD STRUCTURE			
Number of Persons by Age Groups			
aged below 4	0.181*** (0.039)	0.422*** (0.037)	***
aged b/w 5 and 14	0.379*** (0.025)	0.419*** (0.027)	
aged b/w 15 and 64	0.024 (0.022)	0.024 (0.024)	
aged over 64	-0.120* (0.069)	-0.009 (0.076)	

Table 14 (Continued)

Table 14A: Coefficients Based On Absolute Poverty Line

REGIONS (Ref. Southeast Anatolia Region)				
	İstanbul	-4.069*** (0.187)	-1.888*** (0.119)	***
	West Marmara	-1.432*** (0.141)	-0.950*** (0.139)	**
	Aegean	-1.177*** (0.111)	-0.997*** (0.105)	
	East Marmara	-1.664*** (0.134)	-1.450*** (0.138)	
	West Anatolia	-1.742*** (0.134)	-0.835*** (0.114)	***
	Mediterranean	-0.697*** (0.105)	-0.469*** (0.084)	*
	Central Anatolia	-1.170*** (0.122)	-0.866*** (0.110)	*
	West Black Sea	-0.955*** (0.114)	-0.722*** (0.129)	
	East Black Sea	-1.498*** (0.139)	-0.973*** (0.170)	**
	Northeast Anatolia	-0.773*** (0.097)	-0.615*** (0.092)	
	Central East Anatolia	-0.765*** (0.098)	-0.024 (0.087)	***
	Constant	1.376*** (0.154)	-0.617*** (0.152)	***
Wald chi2		2300.990	3152.150	5701.910
Prob > chi2		0.000	0.000	0.000
Pseudo R2		0.360	0.330	0.358
Observations		12,061	19,072	31,133

Notes: Last column includes only information of interaction variables: X*Year.

Sampling weights are used.

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 14 (Continued)

Table 14B: Average Marginal Effects in Relative Analysis

VARIABLES	2007 Probability of Being Poor AMEs (SE)	2017 Probability of Being Poor AMEs (SE)	Significance Level of Interaction Variable
CHILD			
Age (Ref. Age < 4)			
5 < Age < 11	-0.010 (0.010)	0.002 (0.008)	
12 < Age < 14	-0.014 (0.012)	0.010 (0.009)	
Gender			
Female	0.006 (0.007)	0.000 (0.005)	
HOUSEHOLD HEAD			
Age (Ref. Age < 34)			
35 < Age < 44	-0.064*** (0.010)	-0.012 (0.008)	***
45 < Age < 59	-0.082*** (0.014)	-0.046*** (0.010)	
Age > 60	-0.123*** (0.017)	-0.100*** (0.012)	
Female Headed	-0.051** (0.023)	-0.035** (0.016)	

Table 14 (Continued)

Table 14B: Average Marginal Effects in Relative Analysis

Education Level (Ref. Below Primary School)				
	Primary School	-0.103*** (0.012)	-0.065*** (0.009)	
	Secondary School	-0.158*** (0.012)	-0.079*** (0.009)	***
	High School	-0.194*** (0.013)	-0.129*** (0.008)	
	Above High School	-0.288*** (0.013)	-0.175*** (0.008)	**
	Missing Obs	-0.132*** (0.032)	0.085 (0.059)	***
Employment Status (Ref. Working)				
	Looking for a job	0.191*** (0.019)	0.178*** (0.014)	
	Retired	-0.090*** (0.017)	0.002 (0.015)	***
	Not Working	0.157*** (0.018)	0.160*** (0.020)	
SPOUSE				
Age (Ref. Age < 34)				
	35 < Age < 44	0.000 (0.010)	0.046*** (0.007)	***
	45 < Age < 59	-0.046*** (0.016)	-0.015 (0.012)	
	Age > 60	-0.004 (0.026)	-0.002 (0.020)	
Education Level (Ref. Below Primary School)				
	Primary School	-0.085*** (0.010)	-0.079*** (0.007)	

Table 14 (Continued)

Table 14B: Average Marginal Effects in Relative Analysis

Secondary School	-0.129*** (0.016)	-0.067*** (0.009)	**
High School	-0.204*** (0.014)	-0.140*** (0.008)	
Above High School	-0.246*** (0.027)	-0.187*** (0.008)	
Household with No Spouse	-0.074*** (0.023)	-0.049*** (0.016)	
HOUSEHOLD STRUCTURE			
Number of Persons by Age Groups			
aged below 4	0.024*** (0.005)	0.045*** (0.004)	****
aged b/w 5 and 14	0.050*** (0.003)	0.044*** (0.003)	
aged b/w 15 and 64	0.003 (0.003)	0.003 (0.003)	
aged over 64	-0.016* (0.009)	-0.001 (0.008)	
REGIONS (Ref. Southeast Anatolia)			
Istanbul	-0.372*** (0.008)	-0.164*** (0.007)	****
West Marmara	-0.164*** (0.013)	-0.086*** (0.011)	****
Aegean	-0.144*** (0.012)	-0.093*** (0.008)	
East Marmara	-0.192*** (0.013)	-0.124*** (0.009)	
West Anatolia	-0.201*** (0.012)	-0.079*** (0.009)	****
Mediterranean	-0.087*** (0.012)	-0.047*** (0.008)	*

Table 14 (Continued)**Table 14B: Average Marginal Effects in Relative Analysis**

Central Anatolia	-0.139*** (0.013)	-0.081*** (0.009)	*
West Black Sea	-0.116*** (0.013)	-0.069*** (0.011)	
East Black Sea	-0.170*** (0.013)	-0.088*** (0.013)	**
Northeast Anatolia	-0.094*** (0.011)	-0.059*** (0.008)	
Central East Anatolia	-0.092*** (0.011)	-0.003 (0.009)	***
Observations	12,061	19,072	31,133
Mean of Poor Child	0,332	0,205	

Notes: Last column includes only information of interaction variables: X*Year.

Sampling weights are used.

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Since the relative poverty threshold in 2007 is also accepted as the absolute threshold for both 2007 and 2017, estimated coefficients and average marginal effects of 2007 in Table 14 are the same as in the relative analysis. As it is calculated at the beginning of Section 4, absolute child poverty is 20.5% in 2017 where it is 33.2% in 2007.

According to the results, age and gender of child are not significant determinants of child poverty as in the relative poverty analysis. It is also seen in the absolute poverty analysis that ages of household heads have a poverty-reducing impact for children since older household heads decrease the risk of child poverty. In addition, children from female headed households are less likely to be poor similarly as in the relative poverty analysis.

On the other hand, higher education levels of household heads decreases the possibility of child poverty. However, in contrast to relative analysis, in addition to secondary school education level of household heads, difference between the

effects of household heads which hold education degree higher than high school is also statistically significant at 5% level. This means that education level of household heads which is higher than high school degree become less important within years in terms of child poverty since average marginal effect in 2007 is bigger than the effect in 2017.

The probability of child poverty decreases with higher education levels of household heads' spouses as in the relative analysis. In addition, the change in the effects of high school education level of spouses is not statistically significant, unlike in the relative analysis. Therefore, only the decline between the effects of spouses who are secondary school graduates is statistically significant at 5% level in the absolute analysis.

Concerning age groups of spouses, only spouses aged between 45 and 59 years old decrease the risk of poverty in 2007 whereas spouses aged between 35 and 44 years old increase the risk of poverty in 2017 in reference to spouses who are 34 years old and younger. On the other hand, the effects reveal that number of children living in the households raises the probability of child poverty in the absolute analysis as in the relative analysis of child poverty.

When it comes to regions, children in Istanbul are less likely to be poor in reference to Southeast Anatolia region. In addition, children in other regions have less probability of becoming poor than in the Southeast Anatolia region. Since average marginal effects in 2017 differ from relative analysis, significance levels of some variables vary in the absolute analysis. In this regard, the difference between the average marginal effects in 2007 and 2017 became significant for Mediterranean region at 10% level whereas they were insignificant for Northeast Anatolia region differently from relative analysis.

Lastly, coefficient and robust standard error of the year dummy are given in the below table.

Table 15: Coefficient and Robust Standard Error of Year Dummy (Absolute)

Variable	Poor Child (Absolute) Coefficient (SE)
YEAR ("1"=2007,"0"=2017)	1.993*** (0.217)

Notes: Robust standard errors in parentheses

*** p<0.01

Source: SILC 2007 and SILC 2017

As can be seen in Table 15, the probability of child poverty was higher in 2007 in comparison to 2017 when other variables are controlled.

4.4. Decomposition of Child Poverty Determinants

Child poverty determinants are examined in detail and differences in the effects of each determinant in 2007 and 2017 are analysed according to the different poverty thresholds previously. In order to gain a clear understanding about a decade of change in child poverty, compositional changes between years are also important. Therefore, differences in the magnitudes of each determinant between 2007 and 2017 are also examined in this section. Oaxaca (1973) method of decomposition is used to investigate the effects of covariates and coefficients of the model estimated for child poverty in 2007 and 2017 in the previous sections.

According to the original method:

For 2007;

$$Y_i^{2007} = \beta^{2007} X_i^{2007} + \varepsilon_i^{2007} \text{ and} \quad (4.5.1)$$

For 2017;

$$Y_i^{2017} = \beta^{2017} X_i^{2017} + \varepsilon_i^{2017} \quad (4.5.2)$$

Where X and β are the vectors of determinants of child poverty and coefficients¹². Oaxaca decomposition method explains the change in child poverty by the effects of X 's and β 's separately.

$$\bar{Y}_i^{2007} - \bar{Y}_i^{2017} = \Delta \bar{X} \hat{\beta}^{2007} + \Delta \hat{\beta} \bar{X}^{2017} \quad (4.5.3)$$

or

$$\bar{Y}_i^{2007} - \bar{Y}_i^{2017} = \Delta \bar{X} \hat{\beta}^{2017} + \Delta \hat{\beta} \bar{X}^{2007} \quad (4.5.4)$$

Where $\bar{Y}_i^{2007} - \bar{Y}_i^{2017}$ is the mean difference between years, $\bar{X}$'s are the mean vectors of covariates and $\Delta \bar{X}$ shows differential in years due to the differences in X 's. In addition, $\Delta \hat{\beta}$ illustrates differential in years due to the differences in β 's (O'Donnell, van Doorslaer, Wagstaff & Lindelow, 2007).

Since Oaxaca method is used for the linear regression models, above decomposition is needed to be extended to our non-linear model thus $E(Y_i^{2007}|X_i^{2007})$ and $E(Y_i^{2017}|X_i^{2017})$ may not be equal to $\bar{X}^{2007} \hat{\beta}^{2007}$ and $\bar{X}^{2017} \hat{\beta}^{2017}$ respectively. $E(Y_i^{2007}|X_i^{2007})$ refers to conditional expectation of Y_i^{2007} where $E(Y_i^{2017}|X_i^{2017})$ refers to conditional expectation of Y_i^{2017} . Within this regard, following Bauer & Sinning (2008), extended versions of decomposition are given in the below equations.

$$\bar{Y}_i^{2007} - \bar{Y}_i^{2017} = [E_{\beta^{2007}}(Y_i^{2007}|X_i^{2007}) - E_{\beta^{2007}}(Y_i^{2017}|X_i^{2017})] + \quad (4.5.5)$$

$$[E_{\beta^{2007}}(Y_i^{2017}|X_i^{2017}) - E_{\beta^{2017}}(Y_i^{2017}|X_i^{2017})]$$

or

$$\bar{Y}_i^{2007} - \bar{Y}_i^{2017} = [E_{\beta^{2017}}(Y_i^{2007}|X_i^{2007}) - E_{\beta^{2017}}(Y_i^{2017}|X_i^{2017})] + \quad (4.5.6)$$

$$[E_{\beta^{2007}}(Y_i^{2007}|X_i^{2007}) - E_{\beta^{2017}}(Y_i^{2007}|X_i^{2007})]$$

¹² Including intercepts

The first parts of the equations (4.5.5) and (4.5.6) show the differential in years due to the differences in X's whereas the second parts show the differential in years due to the differences in β 's (Bauer & Sinning, 2008).

According to the original Oaxaca method, equations (4.5.3) and (4.5.4) can be combined as;

$$\bar{Y}_i^{2007} - \bar{Y}_i^{2017} = \Delta \bar{X} [D \hat{\beta}^{2007} + (I-D) \hat{\beta}^{2017}] + \Delta \hat{\beta} [\bar{X}^{2007}(I-D) + \bar{X}^{2017}D] \quad (4.5.7)$$

Where I is an identity matrix and D is a weighting matrix. β 's can be weighted according to the different assumptions (Reimers, 1983; Cotton, 1988). However, “0” or “1” is assigned as a weight according to the Oaxaca method. When “1” is assigned as a weight, equation (4.5.3) is obtained and equation (4.5.4) is reached when the weight is determined as “0” similarly. The weighted coefficient vectors can be shown with β^* below.

$$\beta^* = D \hat{\beta}^{2007} + (1-D) \hat{\beta}^{2017} \quad (4.5.8)$$

Original decomposition formula can be written as (Sinning, Hahn & Bauer, 2008):

$$\bar{Y}_i^{2007} - \bar{Y}_i^{2017} = \Delta \bar{X} \beta^* + \bar{X}^{2007}(\hat{\beta}^{2007} - \beta^*) + \bar{X}^{2017}(\beta^* - \hat{\beta}^{2017}) \quad (4.5.9)$$

When equation (4.5.9) is extended for non-linear models, below equation (4.5.10) is obtained.

$$\begin{aligned} \bar{Y}_i^{2007} - \bar{Y}_i^{2017} = & [E_{\beta^*}(Y_i^{2007} | X_i^{2007}) - E_{\beta^*}(Y_i^{2017} | X_i^{2017})] + \quad (4.5.10) \\ & [E_{\beta^{2007}}(Y_i^{2007} | X_i^{2007}) - E_{\beta^*}(Y_i^{2007} | X_i^{2007})] + \\ & [E_{\beta^*}(Y_i^{2017} | X_i^{2017}) - E_{\beta^{2017}}(Y_i^{2017} | X_i^{2017})] \end{aligned}$$

When equation (4.5.10) is applied to our model estimated for 2007 and 2017 and “0” is assigned as a weight following Oaxaca method; β^* equals to $\hat{\beta}^{2017}$ and equation (4.5.11) is obtained. In this regard, 2007 is chosen as the reference group and 2017 as the comparison group in the equations (4.5.11) and (4.5.12).

$$\bar{Y}_i^{2007} - \bar{Y}_i^{2017} = [E_{\beta^{2017}}(Y_i^{2007}|X_i^{2007}) - E_{\beta^{2017}}(Y_i^{2017}|X_i^{2017})] + \quad (4.5.11)$$

$$[E_{\beta^{2007}}(Y_i^{2007}|X_i^{2007}) - E_{\beta^{2017}}(Y_i^{2007}|X_i^{2007})]$$

First part of the equation (4.5.11) shows the differential in years due to the differences in X's whereas second part shows the differential in years due to the differences in β 's. Since logistic regression is used in this study, conditional expectations stated in equation (4.5.11) are replaced with sample counterparts of these conditional expectations in the equation (4.5.12) (Sinning, Hahn & Bauer, 2008).

$$\bar{Y}_i^{2007} - \bar{Y}_i^{2017} = [\sum_{i=1}^{N^{2007}} \frac{\Lambda(X_i^{2007} \hat{\beta}^{2017})}{N^{2007}} - \sum_{i=1}^{N^{2017}} \frac{\Lambda(X_i^{2017} \hat{\beta}^{2017})}{N^{2017}}] + \quad (4.5.12)$$

$$[\sum_{i=1}^{N^{2007}} \frac{\Lambda(X_i^{2007} \hat{\beta}^{2007})}{N^{2007}} - \sum_{i=1}^{N^{2007}} \frac{\Lambda(X_i^{2007} \hat{\beta}^{2017})}{N^{2007}}]$$

Where Λ is the cumulative logistic density function (Bauer & Sinning, 2008). Similar to equation (4.5.11) and equation (4.5.12), when “1” is assigned as a weight following Oaxaca method; β^* equals to $\hat{\beta}^{2007}$ and equation (4.5.13) and equation (4.5.14) are obtained following Sinning, Hahn & Bauer (2008). In these equations, the reference group is 2017 while the comparison group is 2007.

$$\bar{Y}_i^{2007} - \bar{Y}_i^{2017} = [E_{\beta^{2007}}(Y_i^{2007}|X_i^{2007}) - E_{\beta^{2007}}(Y_i^{2017}|X_i^{2017})] + \quad (4.5.13)$$

$$[E_{\beta^{2007}}(Y_i^{2017}|X_i^{2017}) - E_{\beta^{2017}}(Y_i^{2017}|X_i^{2017})]$$

And

$$\bar{Y}_i^{2007} - \bar{Y}_i^{2017} = [\sum_{i=1}^{N^{2007}} \frac{\Lambda(X_i^{2007} \hat{\beta}^{2007})}{N^{2007}} - \sum_{i=1}^{N^{2017}} \frac{\Lambda(X_i^{2017} \hat{\beta}^{2007})}{N^{2017}}] + \quad (4.5.14)$$

$$[\sum_{i=1}^{N^{2017}} \frac{\Lambda(X_i^{2017} \hat{\beta}^{2007})}{N^{2017}} - \sum_{i=1}^{N^{2017}} \frac{\Lambda(X_i^{2017} \hat{\beta}^{2017})}{N^{2017}}]$$

According to equation (4.5.12) and equation (4.5.14), estimated magnitudes of characteristics and coefficients to the change of child poverty between 2007 and 2017 are given in the below table.

Table 16: Magnitudes of Characteristics and Coefficients

	D=0		D=1	
Magnitudes	Relative	Absolute	Relative	Absolute
Characteristics	0.058	0.046	0.067	0.067
Coefficients	-0.021	0.081	-0.030	0.060
Total	0.037	0.127	0.037	0.127

Notes: STATA results are given according to the regressions run for child poverty in 2007 and 2017.

According to relative poverty analysis, there is 3.7 percentage points decrease in the relative child poverty rates from 2007 to 2017 which are 33.2% to 29.5% respectively. When “0” considered as a weight for decomposition of magnitudes of characteristics and coefficients and extended version of Oaxaca decomposition method indicated in equation (4.5.12) is applied to our datasets, it is obtained that X’s made a poverty reducing effect which is equal to 5.8 percentage points on average. It means that if only the effects of X’s were considered, the relative child poverty rate in 2017 would be calculated as 27.4% since composition of determinants changed positively from 2007 to 2017 in terms of child poverty. However, it is also obtained that changes in β ’s caused negative effect on child poverty which is equal to 2.1 percentage points. Therefore, together with changes in the effects of coefficients and covariates, relative child poverty is calculated as 29.5% for 2017. Alternatively, when the weight is considered as “1” for the same decomposition, the effect of X’s is also calculated as 6.7 percentage points where the negative effect of β ’s is obtained as 3 percentage points.

As indicated in Table 16, the decrease in absolute child poverty rates from 2007 to 2017 is 12.7 percentage points since the rates are calculated as 33.2% and 20.5% for 2007 and 2017 respectively. When the same decomposition method is conducted for absolute child poverty with a weight of “0”, it is seen that both changes in X’s and β ’s made poverty reducing impact for children. 8.1 percentage points decrease in child poverty from 2007 to 2017 can be explained by the changes in β ’s while 4.6 percentage points decrease can be explained with the changes in X’s. To illustrate, child poverty rate in 2017 would increase 4.6

percentage points if the same people in 2007 lived in 2017. The effects of β 's are more than the effects of X's. It means that β 's have the biggest role in 12.7 percentage points decrease in absolute child poverty rate from 2007 to 2017. When the weight is changed as "1" instead of "0", the poverty reducing effects of X's and β 's are also calculated as 6.7 and 6 percentage points respectively.

Since different thresholds are used in the relative and absolute analyses, different results are obtained accordingly. It is assumed that as the absolute threshold is lower than the relative one in 2017, the effects of coefficients of determinants become more influential in absolute child poverty analysis in comparison to relative analysis.

4.5. Sources of Household Incomes of Children

This thesis determines poor children according to the household income. Therefore, sources of household incomes of children are another important point for investigation of child poverty in 2007 and 2017. In this section, household incomes of children are grouped under six categories according to different sources and examined in detail. The first category consists of household heads' labour market earnings. Annual total net earnings of household heads who are employees, employers or own account workers are included in this category. In addition to household heads, incomes coming from labour market earnings of other family members aged 15 and above, and incomes received from household members aged 15 and below are also grouped together as a separate category.

Unemployment, old-age, survivor, sickness, disability benefits and other social benefits together with children, housing and education related allowances are grouped under a category of income source as social transfers. Inter-household transfers including alimonies and regular inter-household payments receipt by the households are considered as another category of source related with transfer payments.

Other than labour market earnings and transfer payments, rental and property income are grouped as another category of source of household income. Imputed rent for households and incomes which are not considered under the other categories are also included in the other income category.

Within this regard, sources of household incomes of children in 2007 and 2017 are given below.

Table 17: Household Income by Income Source (2007 and 2017)

Table 17A: Income Sources of Household Incomes of Children (2007)

Income Sources	Children 2007		
	Mean Eqv. Income	Receiving (%)	Share (%)
Household Head's Earnings	9516	87	30
Other Family Members' Earnings	5367	34	7
Social Transfers	3621	45	6
Inter-Household Transfers	8398	19	5
Rental and Property Income	10826	49	19
Other Income (Including Imputed Rent)	9266	99	33
Total	27807	100	100

Notes: Incomes are corrected for inflation and given in Turkish Liras. 2007 incomes are expressed in 2017 incomes. The percentages in the third column named “Share (%)” are calculated by multiplying mean equivalised incomes of children under each category with the percentages in the second column named “Receiving (%)” and dividing into total mean equivalised income.

Source: SILC 2007

Table 17 (Continued)

**Table 17B: Income Sources of Household Incomes of
Poor and Non-Poor Children in 2007**

Income Sources	Poor Children 2007 (Relative & Absolute)			Non-Poor Children 2007 (Relative & Absolute)		
	Mean Eqv. Income	Receiving (%)	Share (%)	Mean Eqv. Income	Receiving (%)	Share (%)
Household Head's Earnings	3439	85	21	12375	89	32
Other Family Members' Earnings	1829	32	4	6994	36	7
Social Transfers	2931	60	13	4224	35	4
Inter-Household Transfers	6230	25	11	10102	15	4
Rental and Property Income	4760	36	12	12738	58	21
Other Income (Including Imputed Rent)	5295	99	39	11246	99	32
Total	13572	100	100	34890	100	100

Notes: Incomes are corrected for inflation and given in Turkish Liras. 2007 incomes are expressed in 2017 incomes. The percentages in the third columns named "Share (%)" are calculated by multiplying mean equivalised incomes of children under each category with the percentages in the second columns named "Receiving (%)" and dividing into total mean equivalised incomes.

Source: SILC 2007

Table 17 (Continued)**Table 17C: Income Sources of Household Incomes of Children (2017)**

Income Sources	Children 2017		
	Mean Eqv. Income	Receiving (%)	Share (%)
Household Head's Earnings	13084	87	39
Other Family Members' Earnings	8762	40	12
Social Transfers	4317	49	7
Inter-Household Transfers	11657	14	6
Rental and Property Income	11310	35	14
Other Income (Including Imputed Rent)	8649	73	22
Total	28963	100	100

Notes: Figures are given in Turkish Liras. The percentages in the third column named “Share (%)” are calculated by multiplying mean equivalised incomes of children under each category with the percentages in the second column named “Receiving (%)” and dividing into total mean equivalised income.

Source: SILC 2017

Table 17 (Continued)

**Table 17D: Income Sources of Household Incomes of
Poor and Non-Poor Children in 2017 (Relative)**

Income Sources	Poor Children 2017 (Relative)			Non-Poor Children 2017 (Relative)		
	Mean Eqv. Income	Receiving (%)	Share (%)	Mean Eqv. Income	Receiving (%)	Share (%)
Household Head's Earnings	4960	81	28	16203	90	42
Other Family Members' Earnings	2695	29	5	10432	45	14
Social Transfers	3743	68	18	4718	40	5
Inter-Household Transfers	7549	15	7	13532	14	5
Rental and Property Income	3281	23	5	13233	40	15
Other Income (Including Imputed Rent)	7382	73	37	9164	73	19
Total	14337	100	100	35107	100	100

Notes: Figures are given in Turkish Liras. The percentages in the third columns named "Share (%)" are calculated by multiplying mean equivalised incomes of children under each category with the percentages in the second columns named "Receiving (%)" and dividing into total mean equivalised incomes.

Source: SILC 2017

Table 17 (Continued)**Table 17E: Income Sources of Household Incomes of
Poor and Non-Poor Children in 2017 (Absolute)**

Income Sources	Poor Children 2017 (Absolute)			Non-Poor Children 2017 (Absolute)		
	Mean Eqv. Income	Receiving (%)	Share (%)	Mean Eqv. Income	Receiving (%)	Share (%)
Household Head's Earnings	4234	78	24	15097	90	41
Other Family Members' Earnings	2380	30	5	9897	43	13
Social Transfers	3818	74	20	4541	42	6
Inter-Household Transfers	7481	14	7	12664	14	5
Rental and Property Income	3369	23	5	12466	38	15
Other Income (Including Imputed Rent)	7289	72	39	8984	73	20
Total	13528	100	100	32942	100	100

Notes: Figures are given in Turkish Liras. The percentages in the third columns named “Share (%)” are calculated by multiplying mean equivalised incomes of children under each category with the percentages in the second columns named “Receiving (%)” and dividing into total mean equivalised incomes.

Source: SILC 2017

When the figures are examined, it is observed that majority of household heads of poor and non-poor children are working both in 2007 and 2017 since more than 80% of households are receiving incomes from the heads of households. According to percentages, the budget shares of household heads’ earnings of those with poor children are lower in comparison to those with non-poor children.

In other words, household heads of poor children brought less income than household heads of non-poor children. It can be assumed that poor children are coming from households headed by low paid persons since there are supporting various findings, such as education levels are lower than household heads of non-poor children. According to both absolute and relative thresholds, the mean difference between poor children in 2007 and 2017 is statistically significant at 5%. The same result is also obtained for non-poor children in 2007 and 2017. It can be commented that budget shares of earnings of household heads of poor and non-poor children increased from 2007 to 2017, although the number of households receiving household heads' earnings decreased slightly for poor children. This means that household heads earned more in 2017 in comparison to 2007.

Another significant finding concerns incomes coming from other family members' earnings. The mean differences of this source of income between 2007 and 2017 are statistically significant at 5%. When poor and non-poor children are considered, it is also found that the changes in mean income between years are significant at 5%. The budget shares of income coming from other family members' earnings increased from 2007 to 2017 for all children. As can be observed from the figures, similar to household heads, the percentage of households receiving additional income from other members in 2017 is slightly less than the percentage in 2007 for poor children. However, budget shares show that contributions of other member's earnings to household incomes are higher in 2017 for poor children according to absolute and relative thresholds. Developments to other family members' human capital such as education levels of household heads' spouses can also be observed from the descriptive statistics stated in Section 4.2.

The test results for mean differences of social and inter-household transfers between 2007 and 2017 are significant at 5% for all children and also for poor and non-poor children according to absolute and relative poverty thresholds. In this

regard, a remarkable result is obtained concerning the social transfers. It is observed that the proportion of households receiving income from social transfers is higher in 2017 than 2007. In addition, more than half of poor children are coming from households that are receiving social transfers, both in 2007 and 2017. Approximately 19% of the income of poor children belonged to social transfers in 2007, whereas this percentage rose to 25% in 2017 according to the relative threshold. When poverty is examined according to the absolute threshold, the same percentage is calculated as 29% for poor children in 2017. On the other hand, there are small changes in the budget shares of non-poor children's incomes in terms of social transfers. As a result, it can be inferred that social transfers made a contribution to child poverty reduction from 2007 to 2017 and the effect of social transfers is more apparent when absolute child poverty is considered.

When it comes to rental and property income, it should be indicated that retirement bonuses which are received once just after the retirement are included in this category since they are counted as property income in 2007, instead of collected via a separate variable as was the case in 2017. Therefore, children's incomes based on rental incomes, interests, dividends and profits from capital investments are grouped together with retirement bonuses under this category. The mean differences of incomes between poor and non-poor children both in 2007 and 2017 are statistically significant at 5%. According to the numbers, the percentages of households of non-poor children receiving rental and property incomes are much more than the percentage of households of poor children both in 2007 and 2017 not surprisingly since it is expected that non-poor children are coming from households receiving more income from their land and properties in comparison to households of poor children. However, the mean difference of rental and property income between 2007 and 2017 is not found statistically significant at 5% for all children. This means that there is no significant change in rental and property incomes of children from 2007 to 2017 on average. To sum up briefly, the change in some income sources of children such as household heads'

and other family members' earnings and social transfers are attributed to decrease in child poverty from 2007 to 2017.



CHAPTER 5

CONCLUSION

This thesis aims to examine determinants of child poverty and investigate the change in child poverty from 2007 to 2017. In order to measure child poverty, micro datasets of SILC 2007 and SILC 2017 are used and all income variables in SILC 2007 are adjusted according to the CPIs published by the TURKSTAT. In this regard, child poverty rates in 2007 and 2017 are calculated as 33.2% and 29.5% respectively according to the relative poverty thresholds, which are 60% of median equivalised household disposable income. Moreover, child poverty is also measured according to a fixed poverty threshold which is determined as the relative poverty threshold in 2007. It is observed that child poverty in 2017 decreases to 20.5% when it is measured under the absolute poverty concept. The reason behind this is due to the fact that poverty threshold decreases when the relative threshold in 2007 is adjusted according to the inflation. Thus, less children remain below the poverty line under the absolute concept of poverty which is used in this study.

In order to better understand the child poverty in 2007 and 2017, characteristics of child poverty determinants are analysed together with the compositional changes between the two years. It is observed that household heads of children are mostly composed of individuals younger than 45 years old both in 2007 and 2017. On the other hand, compositional differences in education levels of poor and non-poor children are noteworthy since poor children have less educated household heads than non-poor children. It is seen that majority of household heads of children are working but the proportions of working household heads of non-poor children are larger than working household heads of poor children both in 2007 and 2017.

When it comes to spouses of household heads, they consist of young individuals similar to household heads. Furthermore, it is observed that fewer spouses have higher education levels in Turkey. Regarding child poverty in regions, it is also found out that İstanbul has the highest proportion of children among NUTS-1 regions and poor children mostly live in Southeast Anatolia region. As a general observation, some changes in characteristics of variables selected to examine child poverty in 2007 and 2017 are statistically different when poor children are assessed according to the absolute poverty thresholds in reference to relative ones.

Following the review of characteristics, relative and absolute analyses are conducted to investigate the effects of each determinant of child poverty according to the model estimated for 2007 and 2017. The results obtained from relative analysis show that the probability of child poverty decreases with older household heads of children. In addition, children in male headed households are better off than children in female headed households in both years according to the CDFs. However, negative coefficients are observed in the estimations for female household heads.

When employment status of household head is considered, it is seen that non-working and job seeker household heads raise the risk of child poverty in reference to working household heads in 2007 and 2017. Different from 2017, retired heads in 2007 lowered the possibility of being poor for children in comparison to working household heads. It is also observed that retired household heads were better off than working heads in 2007. Moreover, regional results illustrate that children in İstanbul are less likely to be poor than other regions while children in Southeast Anatolia region have the highest risk of child poverty. When changes in regional CPIs are examined, no straight or clear answer is received for the question about the relationship between the change in the effects of determinants and regional CPIs. However, a notable result is obtained for the Northeast Anatolia and Central Anatolia regions, since the biggest changes in inflation and the lowest effects to decrease the risk of being poor for children

belong to these regions in comparison to regions which have statistically significant differences between the effects in 2007 and 2017.

According to the results obtained from absolute analysis of poverty, more educated and older household heads and educated spouses of household heads decrease the risk of child poverty similar to relative analysis. On the other hand, the significance statuses of some variable categories are found to be different than in the relative analysis. For instance, the difference between the average marginal effects of spouses who are high school graduates on child poverty is not found statistically significant unlike in the relative analysis. It is considered that the effects differ since the profile of poor children change with different poverty thresholds.

When it comes to household compositions, it is seen that the probability of child poverty increases with the number of children living in the households. Moreover, children in İstanbul have lower risk of child poverty among other regions, and children in Southeast Anatolia region are worse off than children living in other regions. In terms of marginal effects of regions on child poverty, there are also some changes that can be observed from 2007 and 2017 specifically. For instance, the difference between the average marginal effects of Mediterranean region is significant unlike in the relative analysis.

In order to explain the decrease in child poverty from 2007 to 2017, the effects of covariates and coefficients of determinants are investigated separately. Oaxaca decomposition is conducted for the relative and absolute estimations of child poverty. As a result, compositional changes from 2007 to 2017 cause the decrease in child poverty through years rather than the estimated coefficients according to the relative analysis of child poverty. When children are examined under the absolute poverty concept, the total effect of estimated coefficients is found more influential on the decrease in child poverty in comparison to the effect of compositional changes from 2007 to 2017.

Sources of household incomes of children are also examined comprehensively in order to see whether there is a dramatic change in income sources which affect poverty statuses of children from 2007 and 2017. It is observed that the majority of household heads are working in both years and the household income share of earnings of household heads is more in 2017 than in 2007. Moreover, contribution of other family members to household income increases in 2017 for poor children according to the absolute and relative thresholds.

On average 45% of households of poor children are receiving social transfers in 2007 and same proportion increases to 49% in 2017. In addition, the budget share of social transfers increased from 19% to 25% dramatically for poor children's households according to relative thresholds. When absolute thresholds are considered, it is seen that the same budget share increases to 29%.

It is also observed that non-poor children are coming from the households that receive more income from their lands and properties. As a result, the proportion of rental and property income is larger in households of non-poor children than poor children's households. The budget shares of income sources of children such as household heads' and other family members' labour market earnings increases from 2007 to 2017. In a nutshell, it is inferred that income sources of children such as labour market earnings of household heads and household members together with social transfers played active roles on poverty reduction from 2007 to 2017 in Turkey.

In conclusion, there is a substantial decrease in child poverty in Turkey from 2007 to 2017. When children are assessed under the absolute poverty concept, the difference between the child poverty rates in 2007 and 2017 becomes more remarkable. Significant child poverty determinants behind this change have been investigated and this study has aimed to examine various prominent and relevant issues. As poverty is a broad concept, similar studies can also be conducted by using different variables and datasets. Child poverty literature in Turkey could be enriched by this way.

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APPENDICES

A. TURKISH SUMMARY / TRKE ZET

Bu alıřmanın amacı, Trkiye’deki ocuk yoksulluęunun belirleyicilerini incelemek ve 2007-2017 yıllarındaki ocuk yoksulluęu karřılařtırmaktır. alıřmada ilk olarak ocuk yoksulluęu zerine literatrde yer alan bazı alıřmalardan bahsedilmiř daha sonra alıřmada kullanılan yntem ve veri setleri aıklanmıřtır. Bu kapsamda, yoksulluk gelir yoksulluęu olarak ele alınmıř ve analizler Trkiye İstatistik Kurumu tarafından yrtlen Gelir ve Yařam Kořulları Arařtırması’nın 2007 ve 2017 yıllarındaki mikro veri setleri yardımıyla yapılmıřtır. Gelir ve Yařam Kořulları Arařtırması’nda tabakalı, iki ařamalı kme rnekleme kullanılmaktadır. 2007 yılı arařtırmasına 12.736 hane seilmiř daha sonra arařtırma sonularının NUTS-1, kırsal ve kent dzeylerinin yanı sıra NUTS-2 dzeyinde de sonu verebilmesi iin 2017 yılının rnekleme 24.498 hane dahil edilmiřtir. SILC ile hanelere televizyon, amařır makinası, buzdolabı gibi temel eřyalara sahip olup olunmaması gibi yařam kořullarına iliřkin soruların yanı sıra hanede yařayan bireylerin ekonomik olarak aktif olup olmaması, alıřma kořulları, eęitim ve saęlık durumları gibi detaylı sorular sorulmaktadır.

SILC kapsamında gelir ile ilgili bilgiler bir nceki takvim yılı baz alınarak Trk Lirası cinsinden toplanmaktadır. Bu minvalde, hanehalkı kullanılabilir geliri, hanedeki bireyler ve hane dzeyi olmak zere iki temel dzeyde toplanıp birleřtirilmektedir. Hane bireyleri dzeyindeki gelirler her bir bireyin iřgc piyasasından elde ettikleri gelirler ile iřsizlik, yařlılık, sakatlık, hastalık ve eęitim gelirleri birleřtirilerek elde edilmektedir. Hane dzeyindeki gelirler ise ocuk ve konut yardımları gibi haneye yapılan sosyal yardımlar ile hanenin kira gelirleri gibi dięer temel gelir kalemlerinin birleřtirilmesiyle elde edilmektedir.

Hanehalklarının büyüklük ve kompozisyonu açısından bir düzeltme yapabilmek adına eşdeğer kullanılabilir hanehalkı geliri, modifiye edilmiş OECD metodu kullanılarak elde edilmiştir. Buna göre, hanehalkı reisine “1”, hanehalkı reisinin eşine “0,5” ve her bir çocuğa “0,3” değeri atanarak elde edilen toplam değer, hanehalkı gelirine bölünmüştür. 2007 yılına ait veri setinde hanede yaşayan bireylerin yaşları sürekli değişken olmayıp “0-4”, “5-11”, “12-14”, “15-19” şeklinde devam eden yaş gruplarına göre toplandığı için çalışmada hanelerde yaşayan 15 yaşından küçük bireyler çocuk olarak değerlendirilmiştir. Böylelikle, OECD’nin 15-64 yaş aralığındaki bireylerden oluşan çalışma çağından nüfus, hedef grup olan çocuklardan ayrılmıştır. Çalışmada 2007 ve 2017 yıllarındaki gelirleri kıyaslamak adına 2007 yılı araştırmasında toplanan gelirler tüketici fiyat endeksine göre düzeltilmiştir. Araştırmalardaki gelir bilgileri bir önceki takvim yıllarına ait olduğundan yapılan düzeltmede 2006 ve 2016 yıllarındaki Haziran ayı tüketici fiyat endeks değerleri temel alınarak bir hesaplama yapılmıştır. Yapılan hesaplama göre 2006 yılından 2016 yılına %117 lik bir enflasyon olduğu gözlemlenmiştir. Çalışmada gelire ilişkin tüm hesaplamalarda işbu enflasyon düzeltmesi kullanılmıştır.

Çalışmada hedef grup yoksul çocuklar olduğundan, çocuklar yoksulluk çizgilerine göre yoksul ve yoksul olmayan çocuklar olarak ikiye ayrılmıştır. Çocuk yoksulluğu analizinde kullanılacak bağımlı değişken kategorik olduğundan çalışmadaki analizlerde lojistik regresyon yöntemi kullanılmıştır. Çocuk yoksulluğunun belirleyicilerinin yapmış olduğu etkiler ortalama marjinal etkiler ile açıklanmıştır. Analiz kısmına geçmeden önce çocuk yoksulluğu, görel ve mutlak olarak 2007 ve 2017 yılları için ayrı ayrı hesaplanmıştır. Görel çocuk yoksulluğu hesabında her yıl için yoksulluk sınırı eşdeğer hane halkı kullanılabilir medyan gelirin %60’ına göre hesaplanmıştır. Buna göre 2007 yılındaki görel çocuk yoksulluğu %33,2 olarak hesaplanırken 2017 yılındaki görel çocuk yoksulluğu %29,5 olarak elde edilmiştir. Görel çocuk yoksulluğu oranlarına bakıldığında 2017 yılında, 2007 yılına göre büyük bir düşüşün olduğu gözlemlenmiştir.

Görelî çocuk yoksulluğuna ek olarak mutlak çocuk yoksulluğu hesabında 2007 yılı için hesaplanan görelî yoksulluk sınırı aynı zamanda mutlak yoksulluk sınırı olarak kabul edilmiştir. Bu göre, Türkiye’deki mutlak çocuk yoksulluğu 2007 yılında %33,2 ve 2017 yılında %20,5 olarak hesaplanmıştır. Görelî çocuk yoksulluğuna göre kıyaslandığında mutlak çocuk yoksulluğunda yıllar arasındaki düşüşün çok daha fazla olduğu görülmüştür. Bunun nedeni ise, 2007 yılındaki görelî yoksulluk sınırı enflasyona göre düzeltildiğinden 2017 yılındaki mutlak yoksulluk sınırının 2017 yılı için hesaplanan göre yoksulluk sınırından düşük olması olarak açıklanmıştır. Durum başka türlü, 2017 yılı mutlak çocuk yoksulluğu hesabında daha az çocuk yoksulluk çizgisinin altında kalması şeklinde ifade edilebilmektedir.

Hem görelî hem mutlak olarak hesaplandığında 2007’den 2017 yılına çocuk yoksulluk oranlarında kayda değer bir düşüş olduğu gözlemlenmiştir. Söz konusu düşüşün arkasındaki nedenler çocuk yoksulluğunun belirleyicileri incelenerek araştırılmaya çalışılmıştır. Bu minvalde, çeşitli değişkenler belirlenerek bir model kurulmuş ve kurulan bu model 2007 ve 2017 yılları için logistik regresyon yöntemi kullanılarak hem görelî hem mutlak çocuk yoksulluğu konseptleri altında tahmin edilmiştir. Çocuğun yaş ve cinsiyeti bu bağlamda modele dahil edilen değişkenler arasındadır.

Hanehalkı reisi kazancının haneyi geçindirmede önemli rol üstlendiği düşünülmüştür. Bu kapsamda, hanehalkı reisinin yaşı modele dahil edilen açıklayıcı değişkenlerden bir tanesidir. Hanehalkı reisinin yaşı “34 yaş altı”, “35 ile 44 yaş arası”¹³, “45 ile 59 yaş arası” ve “60 yaş üzeri” olmak üzere 4 kategoriye ayrılmıştır. Hanehalkı reisinin yaşı olduğu kadar eğitim düzeyi de hanenin getirilen geliri etkileyecek önemli bir faktör olarak değerlendirildiğinden hanehalkı reisinin eğitim düzeyi de modele dahil edilen bağımsız değişkenler arasındadır. Hanehalkı reisinin eğitim düzeyi de “ilkokul altı”, “ilkokul”, “ortaokul”, “lise” ve “lise üstü” olarak beş kategoriye ayrılmıştır.

¹³ Sınır yaşlar kategoriye dahil edilmiştir.

Hanehalkı reisinin istihdam durumu hane gelirini doğrudan etkilediğinden modeldeki açıklayıcı değişkenler arasında yer almaktadır. Bu kapsamda, çalışan hanehalkı reisleri birinci kategoride, iş arayan hanehalkı reisleri ikinci kategoride, emekli ve işgücü piyasasına dahil olmayan hanehalkı reisleri de üçüncü ve dördüncü kategoriler altında değerlendirilmiştir.

Hanehalkı reislerinin yanı sıra hanehalkı reislerinin eşleri de hane gelirine katkı sağlayabilecek fertler olduğu düşünülmüştür. Bu nedenle, hanehalkı reislerinin eşlerinin yaş ve eğitim durumları modele dahil edilen bağımsız değişkenler arasında yer almaktadır. Son olarak, hanelerde yaşayan fert sayıları, “4 yaş altı”, “5 ile 14 yaş arası”, “15 ile 64 yaş arası”, “65 yaş üstü” olmak üzere dört kategori olarak NUTS-1 bölgeleriyle birlikte modele dahil edilmişlerdir.

Modele dahil edilen değişkenlerden hanehalkı reisinin eğitim ve istihdam durumunda cevapsızlıktan kaynaklanan eksik gözlemler bulunmaktadır. Bu gözlemler incelendiğinde cevapsızlıkların aynı kişilere ait olduğu belirlenmiştir. Bu nedenle, tüm açıklayıcı değişkenlere ek olarak eksik gözlemlerin kapsayan ayrı bir değişken cevapsız kişilerin diğer bilgilerini modelde kullanabilmek adına modele dahil edilmiştir. Modeldeki bağımsız değişken ise “yoksul” ve “yoksul olmayan” kategoriler altında değerlendirilen çocuklardır.

Modeldeki bağımlı ve bağımsız değişkenler belirlendikten sonra model tahminine geçmeden 2007 ve 2017 yıllarında belirlenen değişken profillerinde çocuk yoksulluğuna etki edebilecek herhangi bir değişiminin olup olmadığı incelenmek istenmiştir. Bu kapsamda, değişkenlerin betimleyici istatistikleri çıkartılmıştır. Elde edilen rakamlar incelendiğinde, bazı değişken profillerinde 2017 yılında 2007 yılına göre önemli değişimler olduğu gözlemlenmiştir. Bu gözlemler, göreceli ve mutlak yoksulluk kapsamında ayrı ayrı değerlendirilmiştir.

Değişkenlerden biri olan çocuk cinsiyetinin kompozisyonunda yıllar içerisinde önemli bir değişim gözlemlenmemiştir. Çocukların yaş gruplarında ise istatistiksel olarak anlamlı çok küçük değişimler gerçekleşmiştir.

Hanehalkı reislerinin yaş profillerine bakıldığında ise çocukların her iki yılda da genç ve orta yaşlı hanehalkı reislerine sahip oldukları ancak 2007 yılındaki hanehalkı reislerinin 2017 yılına kıyasla daha genç oldukları görülmüştür. Örneğin, 2007 yılında hanehalkı reislerinin %30,8'i 35 yaşından küçük iken 2017 yılında bu oran %23,5'e düşmekte ve bu düşüş %5 düzeyinde istatistiksel olarak anlamlı olmaktadır. Hanehalkı reislerinin ortalama yaşlarındaki gözlemlenen düşüşün 2007 ve 2017 yılları arasındaki çocuk yoksulluğu oranlarındaki düşüşle bağlantılı olduğu değerlendirilmiştir.

2007 ve 2017 yıllarındaki hanehalkı reislerinin eğitim düzeyleri incelendiğinde, yıllar içerisinde değişen kompozisyon farkları dikkat çekmektedir. Gözlemlenen bu farklar %5 düzeyinde istatistiksel olarak anlamlı bulunmuştur. Buna göre, yüksek eğitim düzeylerine sahip hanehalkı reislerinin oranları 2017 yılında 2007 yılına kıyasen artmıştır. Yoksul olmayan ve yoksul olan çocukların hanehalkı reislerinin eğitim düzeyleri karşılaştırıldığında ise yoksul olmayan çocukların hanehalkı reislerinin daha eğitilmiş oldukları görülmüştür. Mutlak yoksulluk kapsamında yoksul çocuklar incelendiğinde, hanehalkı reislerinin eğitim düzeylerindeki yıllar içerisindeki değişimin göreceli yoksulluğa göre daha az olduğu gözlemlenmiştir. Bu nedenle, mutlak yoksulluk kapsamında bakıldığında, çocuk yoksulluğunun azalmasında hanehalkı reislerinin eğitim düzeyleri arasındaki kompozisyon farklarının göreceli yoksulluğa kıyasen daha az olduğu değerlendirilmiştir.

Hanehalkı reislerinin işgücü piyasasındaki durumları incelendiğinde ise, çoğu hanehalkı reisinin çalıştığı gözlemlenmiştir. Çalışan ve iş arayan hanehalkı reislerinin kompozisyonlarında yıllar içerisinde meydana gelen istatistiksel olarak anlamlı herhangi bir değişim bulunamamıştır ancak az oranlarda olsa da emekli hanehalkı reislerinin oranı yıllar içerisinde artış gösterirken çalışmayan hanehalkı reislerinin oranı azalmıştır. Emekli ve çalışmayan hanehalkı reislerinin kompozisyonlarında meydana gelen bu değişim %5 düzeyinde istatistiksel olarak anlamlı bulunmuştur. Göreceli ve mutlak yoksulluk kapsamında incelendiğinde

yoksul ve yoksul olmayan çocukların hanehalkı reislerinin istihdam durumlarındaki kompozisyon farkları da hem 2007 hem de 2017 yılları içerisinde %5 düzeyinde anlamlı bulunmuştur. Bu kapsamda, çalışan ve emekli hanehalkı reislerinin oranları yoksul olmayan çocuklarda yoksul çocuklara kıyasen daha fazladır. Yoksul çocukların 2007 ve 2017 yılları arasındaki hanehalkı reislerinin istihdam durumlarındaki kompozisyon değişimleri görelî yoksulluk kapsamında incelendiğinde, çalışan ve iş arayan hanehalkı reisleri için istatistiksel olarak anlamlı bulunmazken, mutlak yoksulluk kapsamında bakıldığında %5 düzeyinde anlamlı bulunmuştur. Bu sonuçlar, çocuk yoksulluğunun yıllar içerisindeki değişimine kompozisyon değişimlerinin etkisinin görelî ve mutlak yoksulluk kapsamında farklı olabileceğine ilişkin bir ipucu olarak değerlendirilmiştir.

Hanehalkı reislerinde olduğu gibi, hanehalkı reislerinin eşlerinin yaş profillerinin iki yılda da düşük olduğu gözlemlenmiştir. Yıllar içerisinde sadece 35 yaşından küçük ve 35 ile 44 yaş arasında olan eşlerin oranlarında bariz değişimler vardır. Söz konusu bu değişimler %5 düzeyinde istatistiksel olarak anlamlı bulunmuştur. Yoksul ve yoksul olmayan çocuklara göre incelendiğinde yaş kompozisyonlarındaki farklılıkların istatistiksel olarak anlamlılıkları görelî ve mutlak yoksulluk sınırlarına göre değişiklik göstermektedir. Görelî yoksulluğa göre bakıldığında 60 yaş üstü eşlerin yaş oranlarındaki değişimler hariç tüm oransal değişimler istatistiksel olarak anlamsız bulunurken, 2017 yılı mutlak yoksulluk kapsamında incelendiğinde 35 yaşından küçük ve 35 ile 44 yaş arasında olan eşlerin yaş oranlarındaki değişimler istatistiksel olarak %5 düzeyinde anlamlı bulunmuştur.

Hanehalkı reislerinin eşlerinin eğitim durumlarına bakıldığında, hem 2007 hem 2017 yılında eşlerin eğitim seviyelerinin düşük olduğu görülmüştür. Olumlu bir gelişme olarak ortaokul ve lise düzeyi eğitime sahip olan eşlerin oranının 2017 yılında arttığı gözlemlenmiş ve bu artış istatistiksel olarak %5 düzeyinde anlamlı bulunmuştur. Eşlerin eğitim seviyeleri yoksul ve yoksul olmayan çocuklara göre kıyaslandığında ise her iki yılda da yoksul olmayan çocukların hanehalkı

reislerinin eşlerinin yoksul çocuklara göre daha eğitimli oldukları gözlemlenmiştir. Eşlerin eğitim düzeylerindeki bazı oranlar da görelî ve mutlak yoksulluk sınırlarına göre değişmektedir. Örneğin, 2007 yılında eşlerin %54,6'sı ilkököl seviyesi altı eğitim düzeyine sahipken, görelî yoksulluk sınırına göre bakıldığında bu oran %50,5'e düşmektedir. Bu değişim %5 düzeyinde istatistiksel olarak anlamlı bulunmuştur. Mutlak yoksulluk sınırı kapsamında incelendiğinde ise aynı oranın %56,6'ya çıktığı görülmüştür ancak söz konusunun artış istatistiksel olarak anlamlı bulunmamıştır.

Hanehalkı fertlerinin yaş kompozisyonlarına bakıldığında ise yoksul çocukların genellikle fazla çocuğa sahip olan hanelerde yaşadıkları sonucuna ulaşılmıştır. Bölgesel sonuçlara göre, her iki yılda da NUTS-1 bölgeleri arasında İstanbul çocuk oranının en çok olduğu bölgedir. Benzer şekilde, Güneydoğu Anadolu bölgesi de her iki yıl için yoksul çocuk oranının en çok olduğu bölge olarak gözlemlenmiştir.

Çocuk yoksulluğunun muhtemel belirleyicilerinin kompozisyonları incelendikten sonra model 2007 ve 2017 yılları için görelî ve mutlak yoksulluğa göre tahmin edilmiştir. Görelî çocuk yoksulluğu analiz sonuçlarına göre hem 2017 hem de 2007 yıllarında çocuğun yaşı ve cinsiyeti çocuk yoksulluğunu belirlemede anlamsız bulunmuştur. Bunun nedeni, hane içerisinde gelirin nasıl dağıtıldığına ilişkin bir bilginin bulunmamasıdır.

Görelî çocuk yoksulluğu analizinden çıkarılan bir diğer önemli sonuç ise yaşı büyük hanehalkı reislerine sahip olan çocukların yoksul olma olasılıklarının azalmasıdır. Yoksul olma olasılıkları yaş ilerledikçe monoton olarak düşmektedir. Bu önemli sonucun, hanehalkı reislerinin yaşları ilerledikçe işgücü piyasasında deneyim sahibi olmaları ve daha yüksek maaşlarla iş bulabilmeleriyle ilişkili olduğu düşünülmektedir.

Hanehalkı reisinin erkek olduğu hanelerde yaşayan çocukların, kadın hanehalkı reisine sahip çocuklara göre daha iyi durumda oldukları kümülatif dağılım

fonksiyonlarından görülmüştür. Ancak, 2007 ve 2017 yılları için yapılan tahminler kadın hanehalkı reislerinin çocuklar için yoksul olma olasılıklarını düşürdüğü sonucunu vermektedir.

Hanehalkı reisinin eğitim düzeyi de her iki yılda çocuk yoksulluğu riskini azaltan önemli yoksulluk belirleyiciler arasındadır. Bu bağlamda, hanehalkı reislerinin eğitim düzeyleri arttıkça çocukların yoksul olma olasılıkları düşmektedir. 2007 yılında ortaokul düzeyinde eğitime sahip olan hanehalkı reisleri herhangi bir diploma sahibi olmayan reislere göre çocukların yoksul olma olasılıklarını %15,8 düşürmektedir. 2017 yılında aynı eğitim düzeyine sahip olan reisler ise çocukların yoksul olma olasılıklarını %10,9 düşürmektedir. Yapılan etkiler arasında yıllar içerisindeki değişim %99 güvenilirlik düzeyinde anlamlı bulunmuştur. Diğer bir deyişle, ortaokul düzeyinde eğitime sahip olan hanehalkı reisinin çocuk yoksulluğunu azaltmadaki önemi yıllar içerisinde azalmıştır.

Hanehalkı reislerinin işgücü piyasasındaki durumları ile çocuk yoksulluğu arasındaki ilişkiye bakıldığında iş arayan veya çalışmayan hanehalkı reislerinin hem 2007'de hem de 2017'de çocuklar için yoksulluk riskini arttırdıkları sonucuna ulaşılmıştır. 2007 yılında çalışan hanehalkı reislerine göre kıyaslandıklarında iş arayan hanehalkı reislerinin çocuk yoksulluğu olasılığını %19,1 bunla birlikte çalışmayan hanehalkı reislerinin ise aynı olasılığı %15,7 arttırdığı gözlemlenmiştir. 2017 yılındaki iş arayan ve çalışmayan hanehalkı reislerinin çocuk yoksulluğuna yaptıkları etkilere bakıldığında 2007 yılındaki etkilere çok yakın olduğu görülmüştür. 2017 yılından farklı olarak 2007 yılında emekli hanehalkı reislerine bakıldığında çalışan hanehalkı reislerine kıyasla çocuk yoksulluğu riskini azalttıkları elde edilen sonuçlar arasındadır. 2007 yılında emekli hanehalkı reisleriyle çalışan hanehalkı reislerinin gelirlerine ilişkin kümülatif dağılım fonksiyonları incelendiğinde görece yoksulluk çizgisinin altında ve belirli bir gelir seviyesine kadar görece yoksulluk çizgisinin üstünde emekli hanehalkı reislerinin çalışanlara kıyasla daha iyi bir pozisyonda oldukları görülmüştür. 2017 yılında 2007 yılından farklı olarak aynı grup hanehalkı

reislerinin gelirlerinin kümülatif dağılım fonksiyonları incelendiğinde görece yoksulluk seviyesinin altında ve üstünde genel olarak çalışan hanehalkı reislerinin emekli hanehalkı reislerine göre daha iyi bir pozisyonda oldukları görülmüştür. Daha detaylı olarak, gelir bilgilerinin toplanmış olduğu 2006 ve 2016 yıllarındaki asgari ücret ve en düşük emekli maaşı incelendiğinde en düşük emekli maaşının asgari ücretten 2006 yılında fazla olduğu, 2016 yılında ise en düşük asgari ücretin en düşük emekli maaşını geçtiği bilgisine ulaşılmıştır. Bu bağlamda, elde edilen sonuçlar işbu çalışmanın sonuçlarıyla örtüşmektedir.

Yapılan tahminlere göre hanehalkı reisinin yanı sıra hanehalkı reislerinin eşlerinin eğitim düzeyi de görece çocuk yoksulluğunun önemli belirleyicileri arasında yer almaktadır. Hanehalkı reislerinde olduğu gibi hanehalkı reislerinin eşlerinin de eğitim düzeyi arttıkça yoksulluk riski azalmaktadır. 2007 yılındaki eşlerin eğitim düzeyleri incelendiğinde ortaokul ve lise mezunu eşlerin herhangi bir eğitim düzeyine sahip olmayan eşlere göre çocuk yoksulluğu olasılığını sırasıyla %12,9 ve %20,4 azalttıkları gözlemlenmiştir. Aynı grup eğitim düzeylerine sahip olan eşlerin etkileri 2017 yılı için incelendiğinde çocuklar için yoksulluk olasılığının ortaokul mezunu eşlerde %9, lise mezunu eşlerde %16,8 oranında azaldığı ve yıllar arasındaki etki farklılıklarının %95 güvenirlilik düzeyinde istatistiksel olarak anlamlı olduğu sonucuna ulaşılmıştır. Hanehalkı reislerinin eşlerinin yaşlarıyla alakalı olarak; 35 yaşından küçük eşlere kıyasla, 2007 yılında sadece 45 ve 59 yaş arasında olan eşlerin çocuk yoksulluğunu azaltmada etkisi görülürken, 2017 yılında farklı yaş gruplarında olan eşlerin çocuk yoksulluğu üzerinde farklı etkilere sahip olduğu gözlemlenmiştir.

Hanehalkı kompozisyonlarına bakıldığında ise hem 2007 hem de 2017 yıllarında hanelerde yaşayan çocuk sayısının çocuklar için yoksul olma olasılıklarının yükselttiği görülmüştür. Örnek olarak, 2007 yılında hanelerde yaşayan 4 yaş ve altı çocuklar çocuk yoksulluğu olasılığı %2,4 artırırken, 2017 yılında bu olasılık %4,7 artmaktadır. Hanelerde yaşayan 4 yaş ve altı çocukların sayısının çocuk yoksulluğu olasılığında yıllar içerisindeki değişimi %99 güvenirlilik düzeyinde

istatistiksel olarak anlamlı bulunmuştur. Ayrıca, hanelerde yaşayan 5 ile 14 yaş arasındaki çocuk sayısının 2007 ve 2017 yıllarında çocuk yoksulluğunu yaklaşık olarak %5 düşürdüğü de gözlemlenen sonuçlar arasında yer almaktadır.

Bölgesel sonuçlar, Güneydoğu Anadolu bölgesi referans alındığında çocuk yoksulluğu riskinin İstanbul'da en az olduğu sonucunu ortaya çıkarmıştır. Bölgelerin çocuk yoksulluğu olasılığına olan etkileri 2007 yılından 2017 yılına düşüş göstermektedir. Yıllar içerisindeki etkiler arasındaki düşüş Batı Anadolu, Doğu Karadeniz ve İstanbul için %99, Orta Anadolu için %95 ve Batı Marmara ve Kuzeydoğu Anadolu bölgeleri için %90 güvenirlilik düzeyinde istatistikse olarak anlamlı bulunmuştur. Her bölgedeki ekonomik koşullar farklı olduğundan bölgelerde yer alan tüketici fiyat endeksleri arasındaki değişim de ayrıca incelenmiştir. Bu minvalde, Güneydoğu Anadolu bölgesi referans alındığında Orta Anadolu ve Kuzeydoğu Anadolu bölgeleri çocuk yoksulluğu üzerine yapılan etkilerin yıllar arasındaki farkının istatistiksel olarak anlamlı olduğu ve diğer bölgelere kıyasla en düşük çocuk yoksulluğunu azaltıcı etkilere sahip olan iki bölgedir. Bölgelerdeki tüketici fiyat endeksleri incelendiğinde Orta Anadolu ve Kuzeydoğu Anadolu bölgelerindeki enflasyon artışının diğer bölgelere göre daha fazla olduğu gözlemlenmiştir. Bu nedenle, bu bölgelerde yaşayan çocukların diğer bölgelere kıyasla yoksulluk açısından dezavantajlı oldukları savunulabilir ancak bölgeler bazındaki çocuk yoksulluğu bölgeler için ayrı ayrı hesaplanan yoksulluk sınırlarıyla farklı çalışmalar kapsamında daha detaylı incelenebilir.

Görelî çocuk yoksulluğu analizinden sonra mutlak çocuk yoksulluğu kapsamındaki yoksulluk belirleyicileri incelenerek söz konusu belirleyicilerin yıllar içerisinde çocuk yoksulluğuna yapmış oldukları etkiler detaylı olarak analiz edilmiştir. Elde edilen sonuçlara bakıldığında, gelirin hane içerisinde nasıl ve neye göre dağıtıldığına ilişkin bir değişken bulunmadığından görelî çocuk yoksulluğunda olduğu gibi çocuğun yaş ve cinsiyeti çocuk yoksulluğunu belirlemede anlamlı bulunmamıştır. Bunun yanı sıra, hanehalkı reislerinin bulundukları yaş grupları ilerledikçe, mutlak yoksulluk riskinin çocuklar için

azaldığı gözlemlenmiştir. Ayrıca, hanehalkı reisleri ve eşlerinin eğitim düzeylerinin çocuk yoksulluğuna yapmış oldukları etkiler incelendiğinde bu kişilerin eğitim düzeyleri arttıkça çocukların yoksul olma olasılıklarının azaldığı da analiz sonuçlarından elde edilen çıktılar arasındadır. Görelî analizden farklı olarak ortaokul düzeyi eğitime sahip olan hanehalkı reislerinin çocuk yoksulluğuna yıllar içerisinde yapmış olduğu etkilerin farkı da anlamlı bulunmuştur. 2017 yılında 2007 yılına göre incelendiğinde çocukların yoksulluk olasılığını azaltmada hanehalkı reisleri ortaokul düzeyi eğitiminin daha az önemli hale gelmesi %95 güvenirlilik düzeyinde anlamlı bulunmuştur. Mutlak yoksulluk analizinde, görelî yoksulluk sonuçlarından farklı olan bir diğer sonuç ise hanehalkı reisleri eşlerinin lise düzeyi eğitiminin çocuk yoksulluğunu azaltmada yıllar içerisindeki etkisinin anlamsız bulunmasıdır. Bu kapsamda, sadece hanehalkı reisleri eşlerinin ortaokul düzeyi eğitiminin çocuk yoksulluğunu azaltmada etkilerinin yıllar içerisindeki değişimi %95 güvenirlilikte anlamlı bulunmuştur. Hanehalkı reislerinin eşlerinin yaşlarıyla alakalı olarak mutlak çocuk yoksulluğu kapsamında da 2007 yılında 35 yaşından küçük eşlere kıyasla 45 ve 59 yaş aralığındaki eşlerin çocuk yoksulluğu olasılığı düşürdükleri gözlemlenmiştir. 2017 yılında ise görelî yoksulluk analizi sonuçlarından farklı olarak sadece 35 ve 44 yaş aralığındaki eşlerin çocuk yoksulluğu üzerinde etkilerinin olduğu ve yoksulluk olasılığını arttırdığı sonuçlarına ulaşılmıştır.

Hanelerde yaşayan çocuk sayısının görelî yoksullukta olduğu gibi çocuklar için yoksulluk riskini artırdığı ve İstanbul’da yaşayan çocukların Güneydoğu Anadolu bölgesi referans alındığında diğer bölgelere göre daha az yoksulluk riski altında oldukları mutlak çocuk yoksulluğu analizinde de gözlemlenmiştir.

2007 ve 2017 yılları için görelî ve mutlak çocuk yoksulluğu belirleyicileri ve bu belirleyicilerin söz konusu yıllarda çocuk yoksulluğuna yapmış oldukları etkiler detaylı bir şekilde incelendikten sonra çocuk yoksulluğu oranlarındaki düşüşün belirleyicilerin etkilerinden mi yoksa kompozisyonlarındaki değişimlerden mi kaynaklı olduğunu görebilmek adına dekompozisyon analizi yapılmıştır. Bu

kapsamda, çocuk yoksulluğunun belirleyicilerinin kompozisyonlarında yıllar içerisinde meydana gelen değişimlerden kaynaklı etkiler de Oaxaca (1973) dekompozisyon analizi yöntemi ile elde edilmiştir. Buna göre, göreceli çocuk yoksulluğu analizi kapsamında yoksulluk oranlarındaki düşüş çocuk yoksulluğu belirleyicilerinin kompozisyonlarında meydana gelen değişimlerle açıklanırken, mutlak çocuk yoksulluğu analizi kapsamında yoksulluk oranlarındaki düşüş çocuk yoksulluğu belirleyicilerinin kompozisyonlarının yanı sıra yoksul olma olasılığına yapmış oldukları etkiler ile de açıklanmaktadır.

Son olarak, bu çalışmada gelir yoksulluğu kullanıldığından hane gelirlerinden elde edilen çocuk gelirleri, kaynaklarına göre gruplanarak ayrıca incelenmiştir. Bu kapsamda, gelirler altı alt kategoriye ayrılmıştır. Birinci kategori hanehalkı reisinin işgücü piyasasındaki kazançlarından oluşmaktadır. Hanede yaşayan 15 yaş ve üzeri fertlerin işgücü piyasasından elde ettikleri gelirler ile hanede 15 yaşından küçük fertlerin elde ettikleri gelirler ayrı bir kategori olarak değerlendirilmiştir. İşsizlik, yaşlılık, kaza, hastalık, sakatlık gelirleri ve diğer sosyal yardımlar, çocuk, konut ve eğitim yardımlarıyla birleştirilip sosyal transferler altında bir diğer kategoride toplanmıştır. Buna ek olarak, nafaka ve diğer hane veya kişilerden gelen gelirler ise haneler arası transferler olarak gruplandırılmıştır. İşgücü piyasasından kaynaklı olmayan ve transfer geliri olarak değerlendirilmeyen varlık ve kira gelirleri ayrı bir kategoride toplanmıştır. Son olarak izafi kira ve diğer gelirler ayrı bir kategori olarak değerlendirilmiştir.

Gelir kalemleri incelendiğinde, çoğu hanehalkı reisi çocuklara gelir sağlamasına rağmen, yoksul çocukların hanehalkı reislerinin yoksul olmayanlara göre daha az gelir getirdikleri gözlemlenmiştir. Genel olarak bakıldığında hanehalkı reislerinin ve diğer hanehalkı fertlerinin işgücü piyasasındaki kazançları ile sosyal transferler kapsamında elde edilen gelirlerin ana gelir kaynakları içerisindeki payının yıllar içerisinde arttığı gözlemlenmiş ve gelir kaynakları içerisindeki bu değişimin çocuk yoksulluğunda meydana gelen düşüşte payının olduğu da ayrıca değerlendirilmiştir.

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