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Doctor of Philosophy (PhD)

ESSAYS ON DYNAMICS OF POVERTY IN TURKEY

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DECLARATION

I hereby declare that this doctoral thesis titled as “Essays on Dynamics of Poverty in Turkey” has been written by myself in accordance with the academic rules and ethical conduct. I also declare that all materials benefited in this thesis consist of the mentioned resources in the reference list. I verify all these with my honor.

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ABSTRACT
Doctoral Thesis
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Essays on Dynamics of Poverty in Turkey
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Dokuz Eylül University
Graduate School of Social Sciences
Department of Economics
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There is an increasing number of studies related to poverty for developed economies, however, research explaining structure of poverty dynamics in Turkey is relatively limited. This study investigates the poverty transitions and its main determinants associated in Turkey using panel data of Survey of Income and Living Conditions from 2011 to 2014. The main objective of this study is to shed light on the main characteristics of poverty in Turkey and to contribute to the policies that can be designed to overcome this problem. To this end, first, the study provides an examination on the probability of exiting from and re-entering into poverty regarding the spell length via survival analysis. According to our results, individuals are less likely to escape poverty as its spell length becomes longer. Second, we estimate two panel probit regression models for both individuals and heads of households. Our results suggest that females have higher probability of exiting poverty compared to males. By the same token, female-headed households are more capable of exiting poverty. Empirical results show that human capital endowment exhibits a significant role in preventing poverty. Overall, higher education and employment status are found as the most important factors to keep the non-poor status of individuals in Turkey over the sample period.

Keywords: Poverty dynamics, poverty spell, survival analysis, probability of exit, probability of re-entry, panel probit regression.

ÖZET
Doktora Tezi
Türkiye’de Yoksulluk Dinamikleri Üzerine Makaleler
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Dokuz Eylül Üniversitesi
Sosyal Bilimler Enstitüsü
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Gelişmiş ekonomiler için yoksullukla ilgili artan sayıda çalışma olmasına karşın, Türkiye’nin yoksulluk dinamiklerine ilişkin araştırmalar göreceli olarak sınırlıdır. Bu çalışmada, Türkiye’de yoksulluk geçişleri ile hanehalkı ve bireylerle ilişkili olarak temel belirleyiciler 2011-2014 dönemi için Gelir ve Yaşam Koşulları Araştırması panel verileri kullanılarak incelenmiştir. Amacımız, Türkiye’de yoksulluğun temel özelliklerinin anlaşılmasına ışık tutmak ve yoksulluğa karşı mücadelede düzenlenebilecek politikalara katkı sunmaktır. Çalışmada ilk olarak, yoksulluk süreleri göz önünde bulundurularak, sağkalım analizi ile yoksulluktan çıkış ve yoksulluğa tekrar giriş olasılıkları hesaplanmıştır. Elde edilen sonuçlara göre, bireylerin yoksullukta kalış süreleri uzadıkça yoksulluktan çıkış olasılıklarının azaldığı gözlenmiştir. İkinci olarak, kişiler ve hanehalkları için iki ayrı panel probit regresyon modeli oluşturulmuştur. Çalışma sonuçları, erkek bireylerle karşılaştırıldığında, kadın bireylerin yoksulluktan çıkış olasılıklarının daha yüksek olduğunu göstermiştir. Aynı şekilde, kadın aile reisleri tarafından yönetilen hanehalklarının yoksulluğu terk etmede daha başarılı oldukları ortaya konulmuştur. Ampirik sonuçlar, beşeri sermaye donanımının yoksulluğu engellemede belirgin bir rolü olduğunu desteklemiştir. Buna göre, eğitim düzeyinin artması ve istihdam statüsünün devamı, kişileri yoksulluktan korumaktadır.

Anahtar Kelimeler: Yoksulluk dinamikleri, yoksulluk dönemi, sağkalım analizi, çıkış olasılığı, yeniden giriş olasılığı, panel probit regresyon.

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ABBREVIATIONS

APPI	Aggregate Index of Persistent Poverty
BHPS	British Household Panel Survey
CDF	Cumulative Distribution Function
ECA	Europe and Central Asia
ECHP	European Community Household Panel
EU	European Union
EUROSTAT	European Statistical Institute
FGT	Foster, Greer and Thorbecke
HBS	Household Budget Survey
HIES	Household Income and Expenditure Survey
HILDA	Household, Income and Labor Dynamics
MES	Monthly Employment Survey
OECD	Organization for Economic Co-operation and Development
PDHS	Pakistan Demographic and Health Survey
PPI	Poverty Persistence Index
PPP	Purchasing Power Parity
PSLM	Pakistan Social and Living Standard Measurement Survey
RIHS	Romanian Integrated Household Survey
SIPP	Surveys of Income and Program Participation
SILC	Survey of Income and Living Conditions
THBS	Turkish Household Budget Survey
TURKSTAT	Turkish Statistical Institute
UK	United Kingdom
US	United States

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INTRODUCTION

Poverty has been a major issue both in developed and developing countries. It is a multidimensional subject that lies behind the most controversial problems in the economies, such that it has economic, social and psychological extensions. The literature on economic growth and poverty has shown that economic growth is negatively related with the changes in poverty (see for example Ferreira, 2010: 24). However, even though the world economy has experienced unprecedented growth since the last four decades, the poverty has not remarkably diminished. It seems that the growth has been succeeded at the expense of the poor in the world.

Poverty has a dynamic feature. Individuals might experience poverty more than once through their lives. The dynamic approach concentrates on two issues: one is “spell analysis” which concentrates on the probability of poverty and non-poverty periods. The other is about investigating the ingredients of transient and persistent poverty with a deep understanding.

Poverty persistence is important since the duration of past poverty is directly connected with the current poverty status of individuals (see for example, Jenkins, 2000; Bigsten and Shimeles, 2008; Seker, 2011, Andriopoulou and Tsakloglou, 2011b; Polin and Raitano, 2012; Jenkins and Kerm, 2012). Therefore, the division between transient and persistent poverty is vital for policymakers to fight against long-term deprivation.

The comprehensive studies evaluating poverty along with the duration of spell, exit and re-entry probabilities suggest that in most countries probability of exiting poverty in the first year is higher compared to the preceding years (see for example, Bane and Ellwood, 1986; Andriopoulou and Tsakloglou, 2011a; Andriopoulou and Tsakloglou, 2011b; Fouarge and Layte; 2005). Bane and Ellwood (1986) are the pioneers in measuring spell length of poverty. They define poverty spell as “...continuous periods during which income falls below the poverty line”. Their studies depend on single spell approach. However, the individuals who moved out poverty in the past could become poor again in the following years. Therefore, the multiple spell approach detecting poverty duration is replaced by single spell approach in literature. It is agreed that the higher is the duration of poverty spell, the harder

people escape from being poor. Andriopoulou and Tsakloglou (2011a) suggest that in most countries, probability of exiting poverty in the first year is higher than 50 percent. For the United States (US), Stevens (1994) finds that more than half of the individuals that escape poverty re-enter poverty within the first five years.

In literature, to measure the mobility into and out of poverty, survival analysis and hazard rate models are widely used (see for example, Jenkins, 2000; Fouarge and Layte, 2005; Bigsten and Shimeles, 2008; Andriopoulou and Tsakloglou, 2011a; Navicke, 2015). In many studies, non-parametric Kaplan-Meier survival function is preferred since it has simple structure and easy to draw a right inference. As a further research, some studies focus on the role of triggering events that cause individuals to fall in poverty (Bane and Ellwood, 1986; Devicienti, 2002; Andriopoulou and Tsakloglou, 2011a; Polin and Raitano, 2012; Navicke, 2015). Navicke (2015) suggests that income level has the major role to trigger poverty periods. Similarly, Polin and Raitano (2012) obtain similar results, suggesting that poverty transition is related to economic events. For Turkey, Seker (2011) and Seker and Dayioglu (2015) also conclude that the most important triggering event making individuals fall under poverty line is the changes in income.

In Turkey, poverty has wide extensions in terms of economic and social parameters. The main determinants are in contact with means of production, structure of households, social exclusion, distribution of population and idiosyncratic culture in different regions. Taking these facts into account, Turkey exhibits different characteristics in poverty from developed countries. From this point of view, the studies analyzing poverty in Turkey are limited understanding the reasons and to offering suitable solutions to annihilate it.

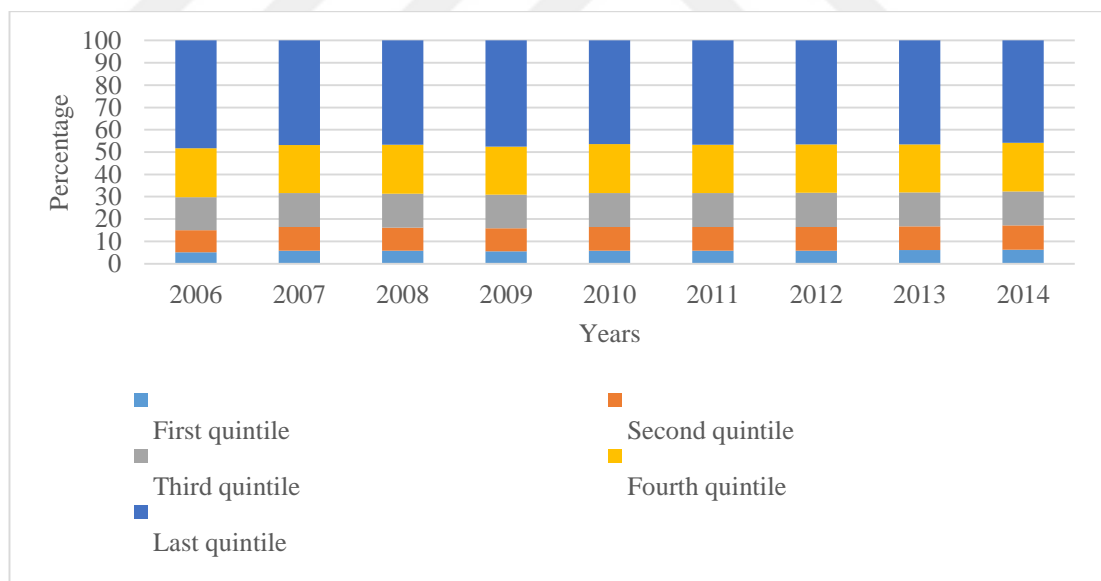
The studies related to poverty have mainly focused on the cross-section methodology (see for example Yukseler and Turkan, 2008; Canbay and Selim, 2010). However, Turkish Statistical Institute (TURKSTAT) started to conduct Survey of Income and Living Conditions (SILC) in 2006 and this new data set gave an inter-temporal perspective for households' poverty. From this date on, the studies based on dynamic analysis of poverty were launched (see for example Seker, 2011; Acar and Baslevant, 2014; Seker and Dayioglu, 2015; Limanli, 2015; Dalgic et al., 2015; Sigeze et al., 2018). According to Seker (2011), the persistent poor composes nearly a quarter

of the poor in Turkey. Seker and Dayioglu (2015) find the probability of exiting from poverty after one year to be 49.7 percent. Most of the studies indicate that age, gender, education level and employment status are important determinants affecting poverty in Turkey.

SILC managed by TURKSTAT comprises main social, economic and demographic indicators as well as deprivations of individuals and households. It allows us to observe changes in poverty and deprivation situation of the same individuals with four-year periods. Besides, some statistics indicating the distribution of income in the society is reported by TURKSTAT within a regular schedule. In this way, income groups are divided into five-percentiles. It enables us to compare the welfare level of various socio-economic class in the country.

Figure 1 indicates the poverty profiles in Turkey from 2006 to 2014 by comparing the five-percentiles of income groups.

Figure 1: Distribution of Annual Equivalised Households' Disposable Income by Quintiles¹



Source: TURKSTAT, SILC: 2006-2014.

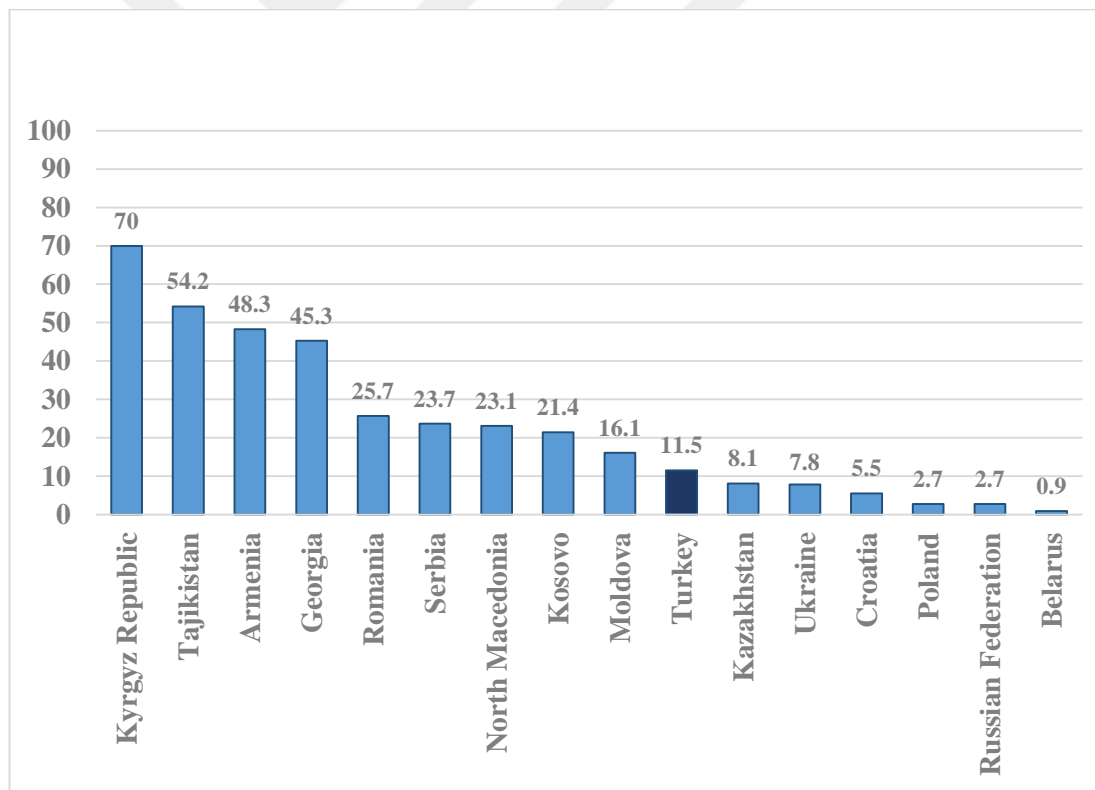
First quintile displays the individuals having the lowest income level and the last quintile has the highest one in the society (When individuals are divided into five

¹ Equivalised household disposable income is total income after tax divided by the number of household members using equivalence scale.

groups ordered by equivalised household disposable income ascendingly, the first quintile symbolizes the bottom income group and the last quintile identifies the top income group). According to Figure 1, the total share of the first two quintiles is below 20. In a similar way, we can observe that the sum of the third and fourth quintiles is nearly 30. However, the share of the fifth quintile is more than 40 and its value is nearly equal to the total share of the first four quintiles. This picture shows that there is a tremendous gap between the income groups, so, the distribution of income is very unfair in Turkey. Moreover, there is no change in this trend through the periods.

From a regional perspective, Figure 2 shows the poverty rate ranking of Turkey among Europe and Central Asia (ECA) countries.

Figure 2: Poverty Rates in ECA Countries in 2015 (% of population)²



Source: World Development Indicators, The World Bank.

Notes: The rates are based on EU-SILC and Household Budget Survey (HBS) with poverty line at \$5.50 a day (2011 PPP).

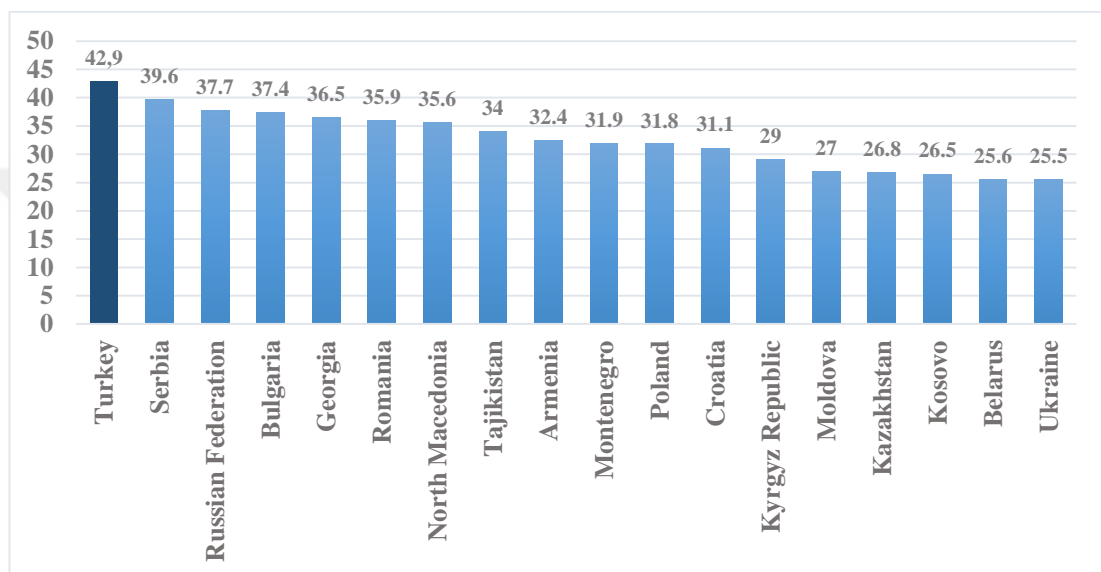
Poverty rate is the ratio of number of people whose income falls under poverty line.

² 2015 is the most recent year for which the World Bank published poverty data for ECA countries.

As can be seen from Figure 2, the poverty rate in Turkey was 11.5 percent in 2015 and this was the tenth highest rate in ECA countries. Among the members of EU countries in the graph, Turkey has the second highest poverty rate.

Figure 3 shows the inequality in the distribution of income in ECA countries measured by the Gini coefficient.

Figure 3: Gini Coefficient in ECA Countries in 2015

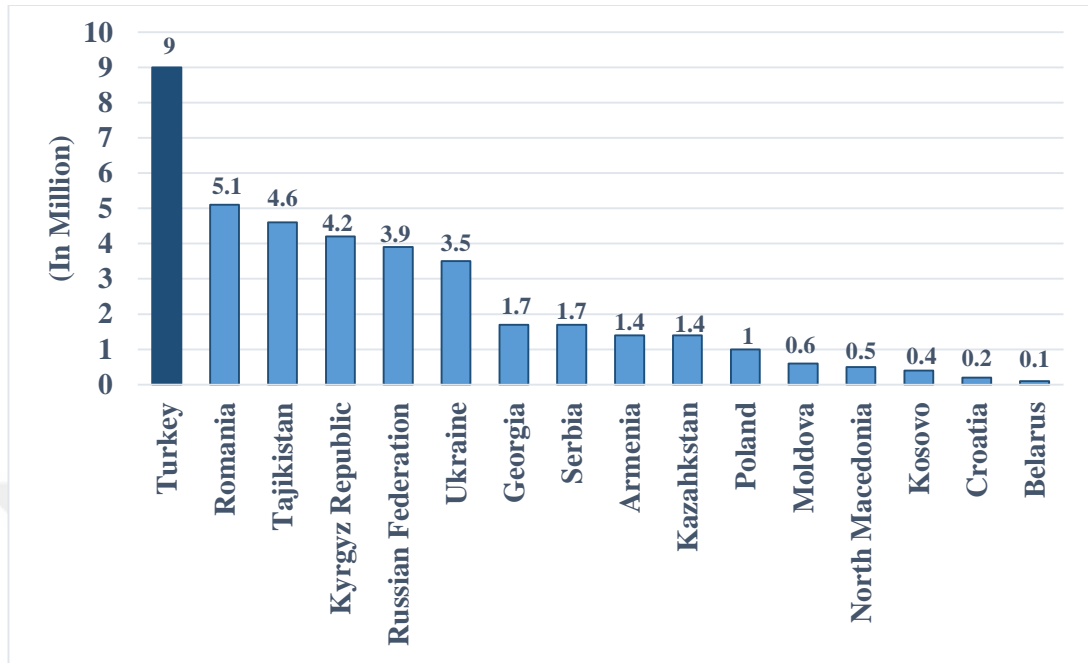


Source: World Development Indicators, The World Bank.

Turkey has the highest Gini coefficient by 42.9 percent compared to other countries in ECA region. It exhibits that the distribution of income is relatively uneven in Turkey.

Regarding another poverty indicator, Figure 4 presents the total number of poor living in ECA countries. Similar inclination is observed in the number of poor.

Figure 4: Number of Poor in ECA Countries in 2015



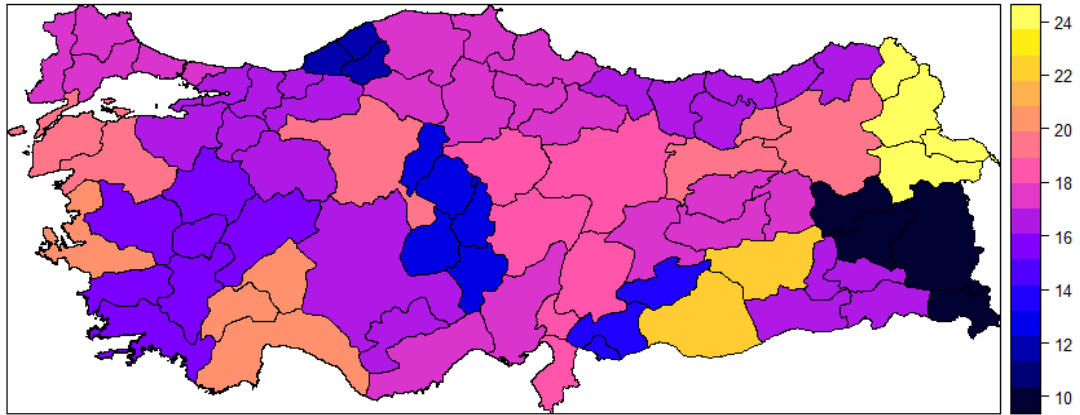
Source: World Development Indicators, The World Bank.

Notes: The number of poor is based on EU-SILC and Household Budget Survey (HBS) with poverty line at \$5.50 a day (2011 PPP).

Figure 4 displays that there were 9 million people living under poverty line in Turkey in 2015. This value is the highest value in ECA countries. Other countries have relatively low level of poor compared to Turkey. The picture exhibits that the poverty reduction in Turkey is crucial to alleviate total average number of poor in ECA area.

Figure 5 indicates the poverty rates in Turkey according to regional level 2 (subregions).

Figure 5: Regional Distribution of Poverty in Turkey in 2015



Source: TURKSTAT, Regional Statistics, Regional Level 2 (Subregions), 2015.

Notes: The poverty rates are based on 60 % of median income.

As can be seen from the Figure 5, Ardahan, Kars, Iğdir and Ağrı have the highest poverty rate by 24 %. However, Van, Mus, Bitlis and Hakkari have the lowest rate by % 10. The second highest poverty level belongs to Sanliurfa and Diyarbakır by 22 %.

It is observed that İzmir and Antalya share the same poverty rate. İzmir has the highest poverty rate in the Aegean region. Similarly, Antalya, Burdur and Isparta have the highest level of poverty in the Mediterranean region.

Even though the highest poverty rates are observed in the Eastern and the Southeastern regions of Turkey, the poverty level can change significantly among different cities located in the same regions.

CHAPTER ONE

MOTIVATION OF THE STUDY

This chapter presents a general view about the study. To begin with, problem definition is explained. Second, aim of the study is expressed. Thirdly, methodological approach is summarized and the structural framework and limitations of the study are mentioned in the following parts.

1.1. PROBLEM DEFINITION

Poverty reduction has been one of the most popular discussions in many countries for several decades. When assessing basically, although the world economy has achieved many scientific and technological capabilities to end the poverty, most of the arguments are still far away from understanding the problem of the poor and finding perceptible solutions for them.

The poverty is at a higher severity level in developing countries. In Sub-Saharan Africa, although there were 278 million people living under extreme poverty in 1990, it increased to 413 million in 2015 (World Bank, 2018: 2). Most of the people living in this area are deprived of the main well-being, for instance essential nutrition, medical care and they are exposed to several environmental risks. Even though poverty is handled as an urgent concept by the international institutions, such as World Bank, the acceptable reduction in the number of poor in the world is still far away from targets.

Although, poverty is widely experienced in developing countries, it is a major problem for the developed world as well. In fact, the existing literature about poverty mainly focuses on the developed countries to a great extent. The pioneering methods to measure and analyze the dynamic structure of poverty can be seen in the mentioned literature concerning Western countries (see for example, Corcoran et al., 1985; Bane and Ellwood, 1986; Stevens, 1994, Stevens, 1999; Jenkins, 2000; Devicienti, 2002; Andriopoulou and Tsakloglou, 2011a; Andriopoulou and Tsakloglou, 2011b, Mendola et al., 2011; Polin and Raitano, 2012, Navicke, 2015). These are fulfilling to analyze dynamic relations in the sense of spell duration, persistency and trigger events of

poverty. However, the studies concerning developing economies have relatively low share in the literature (see for example Yaqup, 2002; Niimi et al., 2007; Bigsten and Shimeles, 2008; Dhamija and Bhide, 2010; Machado and Ribas, 2010; Salahuddin and Zaman, 2012; Ward, 2016).

The static version of poverty research provides the prevalence and the intensity of poverty at a given year. However, poverty persistency is complicated to understand that persistent poor might come from different groups in the society. Therefore, persistent poverty requires a broader attention since its origins could depend on several economic and social factors as well as cultural patterns. The history of individuals' poverty can play an important role in most situations. To put it in a different way, the longer duration spell makes escape from poverty harder. State dependence is substantial, implying the past experience of poverty plays a crucial role on current poverty status (Andriopoulou and Tsakloglou, 2011b; Polin and Raitano, 2012; Jenkins and Kerm, 2012). Additionally, the chronic and persistent poor suffer from lack of asset in terms of both human capital and wealth (see for example, Baulch and Hoddinott, 2000; Yaqup, 2002; Tesliuc and Pop, 2005; Carter and Barrett, 2006).

Assessing the studies related to poverty in Turkey, while most of them concentrate on the cross-sectional approach using one-year data set, there are a few number of studies regarding dynamic perspective (Seker, 2011; Seker and Dayioglu, 2015; Acar and Baslevant, 2014; Limanli, 2015; Dalgic et al., 2015; Sigeze et al., 2018).

The opportunity to make a research for dynamics of household poverty in Turkey is a very recent issue because the intertemporal survey conducted by TURKSTAT has been available since 2006. Before this date, data set was only composed of annual HBS. On the other hand, by using this annual data set, it was not possible to follow the same households or individuals for several periods. Therefore, in Turkey, the studies including duration of poverty spell, transition of poverty and relationship between various determinants have been investigated very recently and the studies have not reached at a satisfactory volume. Furthermore, the dynamic structure of poverty requires to be broadly studied through historical data and perpetual trends of poverty year by year. Moreover, in Turkey, the features of poverty are distinct in terms of households' type, different regions and cultures. To this end, our study is

based on the period of 2011-2014. This period with data set has not been studied before. Therefore, the motivation of this study is twofold: First, to investigate the characteristics of persistent and transient poor and second, to analyze the determinants of poverty in Turkey for the period that was not studied previously.

In summary, we aim to get better understanding about transient and persistent poverty and to identify the main elements lying behind them. The findings of this study would probably shed light on the causes of poverty, help policy makers to minimize the duration of poverty spells of individuals and enable them to improve real policies to solve it several ways.

1.2. AIM OF THE STUDY

There are three basic objectives of this study:

The first objective is to understand the transitions in the poverty spell of individuals in Turkey. First, the transient and persistent poor are evaluated in terms of the duration of person's experience in poverty by using the length of spell analysis. According to this analysis, spells are calculated depending on the number of years that individuals have experienced poverty for the given period. In addition, the distinct characteristics of transient and persistent poor are presented regarding education level, income situation and employment status of people.

The second objective of this research is to calculate the exit and re-entry probabilities of poor in Turkey by applying survival analysis. To calculate these rates, the given periods are separated into number of poverty and non-poverty spells and the total people who survive at the end of each year are detected, then the hazard rates are calculated for these spells.

The third objective of the study is to investigate the crucial factors affecting the status of poor and to perceive the relationship between chosen variables and poverty status. When evaluating these elements, household heads' and individuals' characteristics such as age, gender, employment status, education and income level are handled separately to obtain more detailed analysis.

To fulfill these calculations, SILC panel data set is used for the period between 2011 and 2014. SILC data set is acquired from TURKSTAT.

To this end, several research questions used in this study are summarized as follows:

- Does poverty in Turkey have a persistent or transient characteristic?
- To what extent poverty is transient or persistent in Turkey?
- What is the rate of persistent poverty in the given period?
- What are the distinctive characteristics of transient and persistent poor?
- What are the probabilities of exiting from and re-entering into poverty?
- Which individuals or households are more inclined to experience exiting from and entering into poverty? What are the main determinants behind the poverty transitions?

1.3. METHODOLOGY

In this study, three methods are used to examine poverty transitions and determinants of poverty:

(1) Descriptive statistics: As a starting point, descriptive statistics are accounted regarding the duration of poverty spells of individuals for the period between 2011 and 2014. The characteristics are chosen as age, gender, employment status, income and education level.

(2) Survival analysis: In the following part of the study, survival analysis is used to detect poverty exit and re-entry probabilities depending on the number of spells by using panel data set. After calculating the survival rates, two hazard rates are derived from survival function and these are admitted to be exit and re-entry probabilities.

(3) Determinants of poverty: Panel probit regression analysis is applied to examine the determinants of poverty via panel data set over the period of 2011 and 2014. Two probit regression models are used for both household heads and individuals to estimate the probability of exiting from and entering into poverty. Accordingly, there are two dependent variables as 1 and 0 representing the poor and non-poor status. The independent variables are composed of personal features such as age, gender, educational and employment status, source of income, sectoral division, job changes

status and household characteristics as household with dependent children and house ownership.

1.4. STRUCTURE OF THE STUDY

This thesis consists of four chapters. Following the introduction chapter, the second chapter is related to basic concepts of poverty including definition, equivalence scale, determination of poverty line and methods used for poverty measurement. This section also gives general information about poverty status in Turkey for the analysis period and the descriptive statistics related to poverty rates and poverty lines used by TURKSTAT. Moreover, accompanied by the number of main macroeconomic indicators and poverty rates, the trends of relationships are observed in the following part.

The third chapter presents a broad analysis of poverty transitions starting with the literature review. To highlight the poverty trends in Turkey for the given period, some descriptive statistics are reported. The distinction between transitory and persistent poverty are also mentioned in this part. Apart from these, survival analysis is applied and the results of poverty exit and re-entry rates are presented. Subsequently, detailed evaluation of analysis and comparison with the previous studies are presented.

The fourth chapter involves the empirical analysis by running two probit regression models, in order to investigate the relationship between status of being poor and the main determinants of it. The chosen variables are established by separating into two groups, namely individuals' and household heads' characteristics. After explaining the method of model structure drawn with the help of data process, some descriptive statistics are presented in the following part. Estimation results are reported in comparison with previous studies. At the end of the chapter, there is a conclusion part including remarkable reasons behind poverty and suggestions of tangible actions to reduce it.

1.5. LIMITATIONS OF THE STUDY

The first limitation of the study is related to the panel data set covering four-year period. The length of data set has two drawbacks. First, having short panel data does not give satisfied information about the previous poverty status of individuals. On the other hand, using long data set provides right observations to make a detail research. We study with short data set since TURKSTAT produces panel data set of poverty to be four-year periods.

Second, due to short data set, we have to ignore left censored data and this might cause a bias in average duration of poverty that an individual has experienced. Pursuing individuals attending the survey for longer periods enables us to calculate persistent poverty accurately. In addition, we would have an opportunity to obtain the magnitude of chronic poverty in case of having long data set. As a consequence, multiple spell analysis can be attainable when the panel data set covers high number of years. In these circumstances, our research is based on single spell approach because of data shortage.

Another limitation is related to data for regional variables. Even though we intend to contribute the determinants giving information about different parts of Turkey, it is not possible for us to make a regional analysis because lack of data.

The attrition problem is another difficulty to establish the individuals attending to the survey. The individuals started to survey at the beginning of the period could leave until following years and this creates attrition problem because we have not a chance to follow them anymore. To overcome this situation, we used balanced panel data by choosing the same people attended to survey for all studied periods.

CHAPTER TWO

DEFINITIONS AND MEASUREMENTS OF POVERTY

This chapter presents the general framework and the concepts of poverty used in the thesis; these are the definition of poverty, equivalence of scale, poverty line and poverty measures.

2.1. BASIC CONCEPTS OF POVERTY

2.1.1. What Is Poverty?

Poverty, in a general perspective, is the status of having not sufficient assets and income or being in deprivation of foods, water, accommodation, dressing, health services and security services for a sustainable life.

According to World Bank (2018), “poverty encompasses a shortfall in income and consumption, but also low educational achievement, poor health and nutritional outcomes, lack of access to basic services, and a hazardous living environment”. In line with this definition, it is reported that most of the poor live in middle-income countries in the world and the threshold of poverty is determined to be \$3.20 and \$5.50 per day for low and middle-income countries (World Bank, 2018: 7).

When defining poor, the main point is assessing whether households or individuals have enough resources to meet their needs. On this pathway, poverty can be measured by comparing individuals’ income or consumption according to determined poverty line. In this view, poverty is based on the monetary values. This method is commonly used in the literature (see for example Cappellari and Jenkins, 2002; Aassve, Burgess, 2006a; Buddelmeyer and Verick, 2007; Ravallion and Chen, 2011; Devicienti et al., 2011; Coppola, Di Laurea, 2016). In the second approach, the concept of well-being comes to the forefront. In this situation, the way to know the poverty status of individuals is to ask people whether they have sufficient calories a day, they have enough opportunity for accommodation, medical care or education.

Adam Smith defined wealth as a material prosperity of the country. According to him, poverty resulted from the production of real wealth incapability (Smith, 2007:

734). From “Wealth of Nations” framework, poverty means an ability to sustain the necessities through wage income. People can obtain all goods which are compulsory for a decent life via subsistence earning. Earning wages above this minimum level enables the bottom classes in the society to buy “luxuries” in some cases, for instance “tobacco, sugar, rum and beer”. On the other hand, wages under this lowest level reflect an incapability to buy a complete ration of requirements except for seeking outside the labor market (Gilbert, 1997: 283-284). Along with the neoclassical economists, the cause of poverty has been articulated in terms of the allocation of scarce resources in the economy. This new definition leads the concept of scarcity to gain importance (Clark, 2002: 416).

Modernization concept is decisive for definitions and contents of poverty (Oktik, 2008: 7). This notion requires multidimensional approach to the poverty, implying that *“a world in which poverty is a broader, more entrenched problem, underlining the importance of investing more in human capital”* (World Bank, 2018:5). As a next step to World Bank’s definition of multidimensional poverty, the concept of “new poverty” is emerged. It is claimed that global institutions use the word poverty in terms of quantitative framework. When defining poverty in a classical way, the facts that what the social relations are in the society and in which situations poverty are created are not taken into account. In fact, with the compliance of the real poverty situation, three subjects are substantial: *“Social exclusion, underclass and marginality”*. These factors come to exist in different areas which have typical social structure and are needed to be implemented distinctive social policy (Bugra and Keyder, 2003: 20).

As a starting point of analyzing poverty, it is taken to be the first step by estimating the welfare of individuals. From the microeconomic point of view, the most important concept of welfare is utility. The non-welfare approach, on the contrary, is related to social implications and consequences of poverty. It can be suggested that the welfare approach implies the measurable variables and living standards, such as income, consumption or expenditure. However, the non-welfare approach focuses on the social patterns, for instance, unemployment and education level as a part of human capital or social exclusion.

In the societies, different economic conditions of individuals give rise to assessing their well-being both according to their private status and the relative economic situations of other people in the economy. This basic view brings out the concept of **relative poverty** and **absolute poverty**.

Absolute poverty means the situation in which the poor's income or resources are below the level of basic needs or socially reasonable living conditions, generally depending on nutritional necessities and other goods. Relative poverty refers to the living standards as compared to the economic conditions of other people in the sample or population. In other words, relative poverty compares the lowest categories of population with higher categories and it can be measured in income quintiles or deciles (Philip and Rayhan, 2004: 7).

Depending on the duration of poverty, being poor at one point in time is not the same thing with being persistent poor in that period (Mendola and Busetta, 2012: 356). The longer duration spell in poverty implies chronic poverty in the economy. Being chronically poor can be also stated in terms of absolute and relative poverty definitions. Chronic absolute poverty explains the situation of persistent poor in the society and chronic relative poverty refers to being the persistent poorest. Whilst chronic absolute poverty helps us to determine individuals having low socioeconomic growth, chronic relative poverty means low socioeconomic grading of individuals (Yaqub, 2002: 6).

Absolute poverty is incapability of meeting basic needs and measured by real value. For example, World Bank's \$1 poverty line, which is used for setting same purchasing power parity in different places, is an absolute line. In contrast, relative poverty is a comparison of deprivation. Relative poverty line, such as 40 % to 60 % of the median income of sample, is set to be a constant proportion (Ravallion and Chen, 2011: 1251). The choice of analysis method depends on the development level of countries due to the fact that the absolute poverty needs to be used by national poverty line regarding real values currency. While low and middle-income countries are inclined to choose absolute lines, most of high-income countries use generally relative poverty threshold to evaluate poverty status (Chen and Ravallion, 2013: 2).

Therefore, the concept of poverty might be discerned to be absolute when it is defined as deprivation of capability, however, it is relative in the meaning of people's well-being, opportunities, valuable capabilities and functionings (Frediani, 2007: 137).

Vulnerability is another side of the poverty and generally refers to exposure to tough situations and stress, and difficulty in struggling with them. Having assets enables the resistance of individuals or households, implying capability of mobilizing and guiding in the conditions of hardship (Philip and Rayhan, 2004: 5). As a result, one side of vulnerability is strictly related to asset ownership. The people having more assets might reach the security at a desired level.

Governments have aims of reducing poverty in all countries but the poverty levels are not similar in terms of national poverty rates. It causes existence of several arguments for poverty which are embraced at various degrees by the authorities in those countries. These situations can be summarized into three main categories: poverty as personal inadequacy; poverty stemming from defective public policy; and poverty referring unfair distribution of income in the society. The low level of education and the bad status of employment are the corner stone when assessing poverty. It is rather the interaction of these characteristics with public policy that leads to poverty. Reducing poverty requires public policies that equalize the distribution of economic and other resources in the society (Raphael, 2013: 7).

According to Organization for Economic Co-operation and Development (OECD) (2013), poverty is not only related to money, but also related to depth combination of deprivations in fields for instance employment, medical service, nutrition, education, accommodation and assets.

From these points of view, poverty measurement and economic development can not only become part of income. Poverty, at the same time is related to inequality and well-being in the society. These factors must be adopted by government authorities comprising their development policies. By this way, the global development can be achieved and poverty can be eradicated.

European Statistical Institute (EUROSTAT) (2002) uses alternative poverty rate in addition to "head-count ratio" in terms of a constant at-risk-of poverty line. This new poverty threshold assigns a proportion of poverty, which is ordered as value of 1 for the poorest and 0 for the richest group, to each individual based on the situation of

the income distribution. This supplemental measurement method supports the analysis of comparing different risk groups in the population by considering both the income level of the poor and the congestion of risk of poverty, especially for the bottom group at the end of the income distribution.

2.1.2. What Is Equivalence Scale?

Equivalence scale is a measurement that makes easier to calculate the change in the individual's welfare and it is estimated by using consumer's behavior. Scaling demographic features provides us with comparing the various welfare levels of households having different ages and wideness (Sengul and Cafri, 2010: 51).

OECD uses three equivalence scales. The first is called old **OECD scale** and it assigns 1 for the household head, 0.7 to each additional adult and 0.5 to each child. The second one is **OECD modified scale** and it was adopted by EUROSTAT in the end of the 1990's after use of old scale. It gives 1 for the household head, 0.5 for the additional adult member and 0.3 to each child. This scale has been used in most of the poverty studies. The third is **square root scale** that divides household income by the square root of household size and it allows an opportunity to compare inequalities and poverty through countries.

TURKSTAT uses OECD modified scale that assigns 1 for the household reference member, 0.5 for household members who are 14 and over and 0.3 for household members who are less than age of 14.

The main objective of using an equivalence scale is to take income inequalities and the differences among persons in the household into consideration. To this end, total income of the household is transformed into the person's income. Dividing the total income as an equal share to each individual is not appropriate. The number of adults and children in the households should be separately considered because the children consume less than the adults. In this framework, number of adults and children depending on the household size are accounted by using the definite weight that is called **equivalence scale**. Equivalised individual income for the household can be called as equivalised household disposable income (TURKSTAT, 2013).

It is calculated as;

$$\frac{HI}{EHS} \quad (1)$$

where HI is household income and EHS is equivalence household scale.

2.1.3. Poverty Line

When estimating poverty line, there may exist two approaches, either in terms of individuals' income or expenditure. In many developed economies, poverty is measured by using income, while generally in developing economies the expenditure of people is taken as a reference to determine poverty threshold. The main intuition behind this; in rich countries, income is relatively simple to measure because it comes from the registered payment such as wages or salaries, conversely, expenditure is sophisticated to evaluate and to count. However, in developing countries income is hard to measure since the sources are not always reliable and based on the unregistered patterns for example agriculture sector or self-employment. Therefore, expenditure is simple to measure and obtained from the statistical data (Luna, 2016: 30).

Regarding absolute and relative poverty, there are two different poverty lines to be used in the studies. In developing economies, mostly absolute lines are preferred aiming to achieve the same real value at different times and production level. Actually, those countries use such lines at the global level, \$ 1 per day is admitted as an absolute line according to World Bank's standard, targeting to equalize purchasing power in the countries at different times. Meanwhile, developed countries mostly employ relative poverty lines, for instance 40%, 50% and 60% of the median income. There are two supportive ideas about relative poverty lines. The first view asserts that relative poverty lines can be devices for measuring utility and individuals attribute value to their income relative to the mean or median in their country. Since this view assumes that the utility can be measured by relative income, welfare approach is the basic argument behind the relative poverty threshold (Ravallion and Chen, 2011: 1251).

The second idea behind using relative poverty lines is that it is neutral to income changes. Income growth has no influence on the poverty measures when the

threshold is fixed at a proportion of the median or mean. That is to say, economic growth in the country is likely to reduce absolute poverty, however, it leads to relative poverty unaltered (Chen and Ravallion, 2013: 2).

In the literature, several poverty lines are used, which are generally defined in terms of median or average income of the sample. Instead of choosing one kind of poverty line, the segments of the population depending on various levels of income distribution could be ordered, such as the line 40%, 50% and 60 % of the mean, and 40%, 50% and 60 % of the median. Between these kinds of poverty line, the second line based on percent of median is more favorable. Among three percentages, 60 % of the median is the most widely used in relevant studies (EUROSTAT, 2002: 25).

2.1.4. Methods of Poverty Measurement

In order to analyze poverty, there are several indices in the literature. Some of them are generally based on the simple calculations and reflect the rate of poor under poverty line in the population. Some other indices are developed to calculate different factors influencing poverty and give an idea about the severity and the depth of poverty. The most widely used indices are defined below:

2.1.4.1. Headcount Index

The most frequently used measure is the headcount index (see for example Buddelmeyer and Verick, 2007; Bigsten and Shimeles, 2008; Dhamija and Bhide, 2010; Andriopoulou and Tsakloglou, 2011a; Chen and Ravallion, 2012; Ferreira, 2010; Salahuddin and Zaman, 2012). It is a member of the FGT (Foster, Greer, Thorbecke) class of poverty measures³. The headcount index is simply the rate of poverty dividing number of poor by total population. It is shown as below:

$$P_H = \frac{P_n}{P} \quad (2)$$

³The FGT class of decomposable poverty measures was introduced in “The Class of Decomposable Poverty Measures” by Foster, Greer and Thorbecke in 1984.

where P_n is the number of poor and P is the number of total sample or population. This index is simple for calculating and it shows the general situation of the poverty in the sample. However, it does not give the depth of poverty and difference in subdivision income status of individuals in the population. All people under the poverty line are admitted as poor. It does not present an idea about the distance of income level to the poverty line, for instance, income level of extremely poor.

2.1.4.2. Poverty Gap Index

The poverty gap index is a popular measure since it considers the individuals falling below poverty threshold and shows it as a percentage of the value of poverty line. This index gives the mean distance under the poverty line as a percentage of the threshold in which the mean exceeds the total population, as determining the non-poor without poverty gaps. Poverty gap index can be calculated as below;

$$P = \frac{1}{n} \sum_{i=1}^n \frac{g_i}{z} \quad (3)$$

where g_i is poverty gap, $z > 0$ is poverty line, n is number of poor and i is i th individual in the sample.

Poverty gap (g_i) is calculated as;

$$g_i = \sum_{i=1}^n (z - y_i) \quad (4)$$

In equation (4), z is poverty line, y is income level, n is the number of poor and i is i th individual. g_i takes positive values for the poor and negative values for others.

In contrast to headcount index, poverty gap index reflects the changes in income of individuals by measuring the difference between individual's income and poverty threshold.

The headcount ratio shows that the percentage of people below the poverty threshold, the gap index gives us the percentage of their mean shortfall from poverty level. Although the headcount index is insensitive to the poverty gap per person, the poverty gap ratio is insensitive to the number of poor (Sen, 1976: 223).

TURKSTAT and EUROSTAT calculate poverty gap index by considering the median equivalised income as below:

It can be shown as;

$$P = \left(\frac{z - MEI_i}{z} \right) * 100 \quad (5)$$

In equation (5), z is poverty line, MEI_i is median equivalised income of poor and i is i th individual.

Poverty gap index is frequently used in many studies (see for example, Seker, 2011; Devicienti, 2002; Bigsten and Shimeles, 2008; Machado and Ribas, 2009; Dhamija and Bhide, 2010; Alkire and Foster, 2011; Mendola et al., 2011; Mendola and Busetta, 2012; Polin and Raitano, 2012; Seker and Jenkins, 2013; Limanli, 2015).

In this study, following Seker (2011), the poverty gap rates are calculated by taking into account the method of poverty gap index used by TURKSTAT and EUROSTAT.

2.1.4.3. Squared Poverty Gap Index

In the literature, squared poverty gap index is used to measure inequalities of poor and severity of poverty. Even though the poverty gap index gives the same weight to the poor when accounting the income difference among individuals, the squared poverty gap index assigns more weights to the individuals falling under poverty line. Its formula is;

$$P = \frac{1}{n} \sum_{i=1}^n \left(\frac{g_i}{z} \right)^2 \quad (6)$$

This index is used in some studies (see for example, Bigsten and Shimeles, 2008; Machado and Ribas, 2009; Dhamija and Bhide, 2010; Alkire and Foster, 2011; Seker and Jenkins, 2013). In fact, it is not commonly used since it is not easy to make an inference. Foster, Greer and Thorbecke (1984) formulate the squared poverty gap index as below:

$$P_{\alpha} = \frac{1}{n} \sum_{i=1}^n \left(\frac{g_i}{z} \right)^{\alpha}, (\alpha \geq 0) \quad (7)$$

In equation (7), α represents the sensitivity of index to the poverty. As mentioned before, g is the poverty gap, z is the poverty line, n is the number of poor and i is i th individual. If parameter α is equal to 0, then the index turns to be headcount ratio. When α is equal to 1, the ratio is equal to the poverty gap index and when α is equal to 2, the index gives an idea about the severity of poverty.

Another important feature of this index is that it makes possible to measure the contribution of each subgroup in the sample to the national poverty (Haughton and Khandker, 2009: 72).

2.1.4.3. Sen Index

Sen (1976) suggests an index which is developed to merge the effects of number of poor, the depth of poverty and the distribution of poverty in the subgroups. It is stated as;

$$P_s = P(1 - (1 - G^p) \frac{M^p}{z}), \quad (8)$$

In Equation (8), P is the headcount index, G^p is Gini coefficient among the poor, M^p is mean income of the poor and z is the poverty line. The index is developed since the other indices do not have detailed structures.

The Sen-index provides a dimensional measure that gathers different elements of the risk of income poverty, such that, incidence, intensity and inequality between individuals who are at risk of poverty (EUROSTAT, 2002: 25). In the literature, it has

been used in several studies to measure the poverty rate, the income shortfall and the income inequality (see for example, Jenkins and Lambert, 1997; Xu and Osberg, 2002; Hoover et al., 2004; Ram, 2013).

2.1.5. Poverty Profiles in Turkey

The profiles of poverty are considered in this part according to different poverty levels including absolute and relative poverty lines and income distribution in the society. The poverty lines are analyzed under rural-urban separation since there is a significant development gap between urban and rural areas in Turkey. Poverty in rural areas is more severe than that of urban areas. The major reasons behind this are related to several geographic and socioeconomic factors and structural problems in agriculture.

The degree of poverty is vital as well as the structural intensity of it. As in many developing countries in the world, in Turkey, poverty is basically prevalent among employees in the agricultural industry and among farmers without landowning.

Table 1 displays the poverty rates in Turkey in terms of food, non-food poverty, accepted absolute poverty lines as 1\$, 2.15 \$ and 4.3\$ and relative poverty line based on expenditure measured by TURKSTAT. TURKSTAT produces Household Budget Survey (HBS) as the main data source of poverty and it has been applied annually since 2002. In the poverty study conducted by TURKSTAT, the absolute poverty lines involving food and non-food, expenditure elements and relative poverty threshold, consumption or income level are chosen as a welfare measure. Other poverty lines in terms of international comparisons are calculated as 1 \$, 2.15 \$ and 4.30 \$ per capita per day based on PPP by TURKSTAT. In the study for the period 2002-2009, the food basket composing the base of food poverty, the third and fourth 10 % segments are taken as reference classes and determined 80 items which are the biggest share in the food expenditure of the households are determined as food basket. These 80 items should be equal to 2100 calories per day and the cost of this basket is used for food poverty threshold. Moreover, 50 % of the median value of the consumption expenditure is admitted as relative poverty line.

Table 1: The Poverty Rates According to Poverty Line Methods: 2005-2014

Percent of Poor Individuals (%)										
Turkey	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Food poverty	0.87	0.74	0.48	0.54	0.48	.	.	.	.	.
Complete poverty (Food-Non-Food)	20.50	17.81	17.79	17.11	18.08	.	.	.	.	.
Below 1\$ per capita per day	0.01	.	.	.	.	.	.	.	.	.
Below 2.15 \$ per capita per day	1.55	1.41	0.52	0.47	0.22	0.21	0.14	0.06	0.06	0.03
Below 4.3 \$ per capita per day	16.36	13.33	8.41	6.83	4.35	3.66	2.79	2.27	2.06	1.62
Relative poverty based on expenditure	16.16	14.50	14.70	15.06	15.12	.	.	.	.	.
Urban										
Food poverty	0.64	0.04	0.07	0.25	0.06	.	.	.	.	.
Complete poverty (Food-Non-Food)	12.83	9.31	10.36	9.38	8.86	.	.	.	.	.
Below 1\$ per capita per day	.	.	.	.	.	.	.	.	.	.
Below 2.15 \$ per capita per day	0.97	0.24	0.09	0.19	0.04	0.04	0.02	0.02	0.02	.
Below 4.3 \$ per capita per day	10.05	6.13	4.40	3.07	0.96	0.97	0.94	0.60	0.64	.
Relative poverty based on expenditure	9.89	6.97	8.38	8.01	6.59	.	.	.	.	.
Rural										
Food poverty	1.24	1.91	1.41	1.18	1.42	.	.	.	.	.
Complete poverty (Food-Non-Food)	32.95	31.98	34.80	34.62	38.69	.	.	.	.	.
Below 1\$ per capita per day	0.04	.	.	.	.	.	.	.	.	.
Below 2.15 \$ per capita per day	2.49	3.36	1.49	1.11	0.63	0.57	0.42	0.14	0.13	.
Below 4.3 \$ per capita per day	26.59	25.35	17.59	15.33	11.92	9.61	6.83	5.88	5.13	.
Relative poverty based on expenditure	26.35	27.06	29.16	31.00	34.20	.	.	.	.	.

Source: TURKSTAT, Poverty Study, 2015 (Poverty Statistics Based on Expenditure).

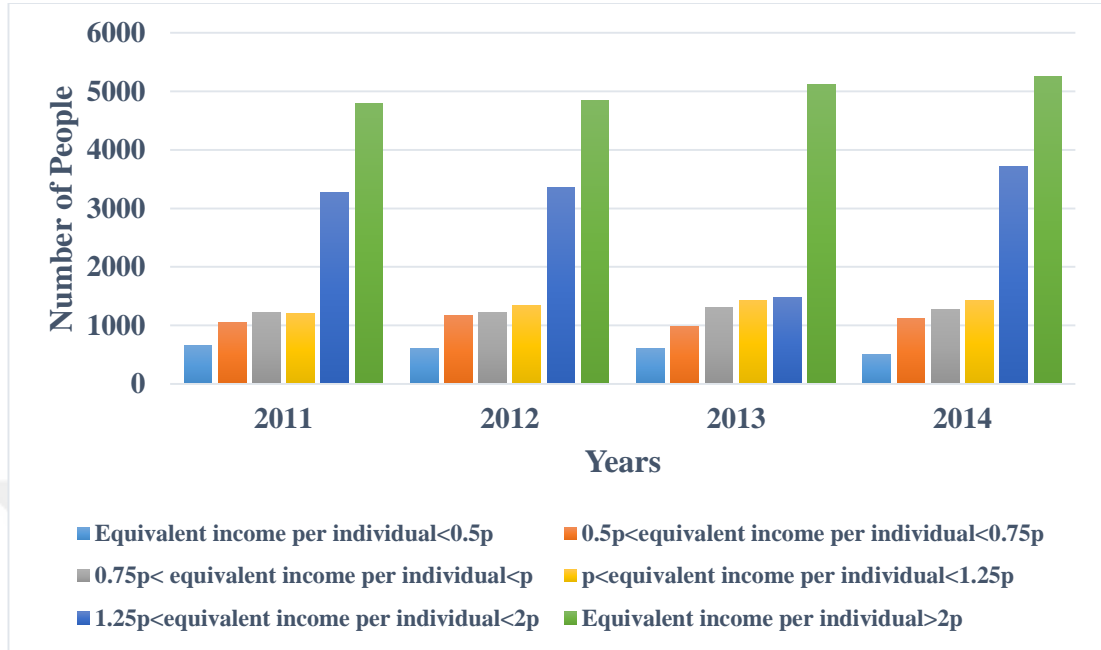
Note: The relative poverty line is based on the 50 % of equivalised median consumption expenditure.

The table presents the poverty indicators according to urban and rural areas for the period of 2005-2014. It provides an idea about the level and the trend of poverty throughout the given period.

The first type of poverty line is based on “deprivation of food”. Table 1 implies that the highest level of food poverty is observed among the poor living in the rural areas. Complete poverty including both food and non-food is approximately three times higher in rural than urban areas. Table 1 also indicates that over the sample period, there were no individuals living under 1\$ per capita per day. The percentage of poor individuals living respectively under 2.15 \$ and 4.3 \$ per capita per day both in urban and rural decreased substantially from 2005 to 2014. Actually, the percentage of poor according to relative poverty line increased in rural areas from 2005 to 2009. While this percentage was 26.35 % in 2005, it reached 34.20 % in 2009. Although poverty ratio increased in rural areas, it decreased incrementally in urban areas. This ratio was 9.89% for urban in 2005 and 8.01 % in 2008, then it declined again in 2009. The rise in poverty rate in rural areas may stem from low economic growth in those years due to the effects of global financial crisis in the world. Turkey’s economic growth was 7.1 % in 2006, it decreased -4.7 % in 2009. We infer that the decline in economic growth mostly affect the agricultural sector. Due to the rise of poverty in rural areas, the total rate of relative poverty remained nearly the same from 2005 to 2009. The food, non-food poverty and relative poverty based on expenditure given in Table 1 have not been accounted since 2010 by TURKSTAT due to the revision studies. Therefore, there is no data about poverty lines between the years of 2010-2014.

Figure 6 summarizes the poverty profiles in Turkey between 2011-2014.

Figure 6: Poverty Profiles in Turkey



Source: Author's Computations, SILC: 2011-2014.

In Figure 6, we categorize people regarding their equivalent household income divided into five income intervals and p represents the poverty line.

Throughout four years, the number of people in the first four categories is close to each other, whereas the number of people whose income is very close to the poverty line declined substantially in 2013. It seems to be the case that individuals belonging to this income group can be treated as transient poor because of the closeness of their income to the poverty line. The other income groups seem to be in a consistent path. Despite no significant change in the ratio of each income level, the number of transient and non-poor increased each year and arrived at the highest level in 2014. The reason for this, in those years, new people attended the survey and the new attendants could be classified as either transient or non-poor. Furthermore, at a first glance, it can be seen that there is a tremendous gap between the two highest income level and other categories. This figure reveals the unfair income distribution in Turkey.

2.1.6. Poverty and Macroeconomic Indicators in Turkey

Determining type of macroeconomic policies that are essential to end poverty is one of the major objectives of the policy makers. To this end, it is worth investigating the relationship between poverty and main economic causes. In this context, poverty is closely linked to the other macroeconomic indicators in Turkey. It is expected that pioneering macroeconomic indicators and poverty follow similar trends. Table 2 provides information about major macroeconomic indicators, namely GDP growth rate, unemployment, inflation, P80/P20 ratio (is calculated as the ratio of the total income received by the 20 % of the population with the highest income to that received by the 20 % of the population with the lowest income), Gini coefficient and poverty rates for the sample period.

Table 2: Major Macroeconomic Indicators

	2006	2007	2008	2009	2010	2011	2012	2013	2014
GDP growth	7.1	5	0.8	-4.7	8.5	11.1	4.8	8.5	5.2
Unemployment	10.2	10.3	11	14	11.9	9.8	9.2	9.7	9.9
Inflation	9.7	8.4	10.1	6.5	6.4	10.5	6.2	7.4	8.2
P80/P20 ratio	9.6	8.1	8.1	8.5	7.9	8	8	7.7	7.4
Gini coefficient	39.6	38.4	39	39	38.8	40	40.2	40.2	41.2
Poverty rate	25.4	23.4	24.1	24.3	23.8	22.9	22.7	22.4	21.8

Source: TURKSTAT Statistics, World Bank.

Notes: Poverty rates are based on 60% of median equivalised disposable income.

Table 2 shows that GDP growth rate was 7.1 % in 2006 and it decreased to 5 % and 0.8 % in the following years, then it was realized as -4.7 % in 2009 as an impact of global financial crisis. After reaching 11.1 % in 2011, GDP growth rate decreased again to 4.8 % level and in 2014, it remained close to the rate of previous year (5.2%). Unemployment rate for that period was relatively steady, such that it was 10.2 % in 2006 and it reached its highest level in 2009 (11.9%), then from that year it decreased incrementally to 9.9 %. It can be seen that trend of inflation rate was also wavy. That is to say, at the beginning it was 9.7 % and after a slight reduction in 2007 (8.4 %), it increased 10.1 % in 2008. In 2009-2010 it was average 6.3 %. In the

following years, its trend changed from decline to rise. At the end of 2014, it reached 8.2 %.

P80/P20 and Gini coefficient give an idea about the income distribution in an economy. P80/P20 is a ratio that measures income distribution of individuals. It is obtained by the share of the first 20 % dividing by the share of the last 20%. P80/P20 followed a decreasing trend from 2006 to 2014, such that while it was 9.6 in the first year, it declined to 7.4 in 2014. This declining trend indicates that the portion of the richest income group obtained almost ten times higher income than that of the poorest group in 2006, whereas this ratio decreased to 7.4 %. It points out a slight recovery in the income distribution.

Gini coefficient shares the similar characteristic with P80/P20 ratio. It is also a cursor for the inequality in distribution of income in the society. A value approaching 1 indicates rising, income inequality among individuals. Table 2 indicates that, starting by 39.6, it reached 41.2 at the end of the period. On the contrary, whilst poverty rate was 25.4 %, it declined to 21.8 % in 2014. Generally speaking, 2008 and 2009 were the worst years regarding all the indicators. It might stem from the effects of the global financial crisis. After those years, the trends have flowing characteristics. Even though there is a constant recovery in the poverty rate after 2009, there is not any recruitment in the distribution of income (Gini coefficient).

Table 3 summarizes basic indicators of poverty, namely number of poor, poverty rate and poverty gap rate in Turkey over 2006 and 2014 period.

Table 3: Basic Indicators of Poverty in Turkey: 2006-2014

	Years								
	2006	2007	2008	2009	2010	2011	2012	2013	2014
40 %									
Poverty threshold (TL)	1881	2433	2531	2818	2972	3255	3611	4008	4443
Number of poors (Thousand person)	8665	6799	7021	7485	7355	7288	7344	6788	6572
Poverty rate (%)	12.8	9.9	10.1	10.6	10.3	10.1	10.0	9.1	8.7
Poverty gap (%)	29.1	24.5	23.7	25.6	24.0	25.4	23.7	22.6	22.3
50 %									
Poverty threshold (TL)	2351	3041	3164	3522	3714	4069	4515	5007	5554
Number of poors (Thousand person)	12548	11163	11580	12097	12025	11670	11998	11137	11332
Poverty rate (%)	18.6	16.3	16.7	17.1	16.9	16.1	16.3	15.0	15.0
Poverty gap (%)	31.7	26.4	25.6	28.0	26.6	26.3	26.9	26.0	24.4
60 %									
Poverty threshold (TL)	2821	3649	3797	4227	4457	4883	5418	6012	6665
Number of poors (Thousand person)	17165	16053	16714	17123	16963	16569	16741	16706	16501
Poverty rate (%)	25.4	23.4	24.1	24.3	23.8	22.9	22.7	22.4	21.8
Poverty gap (%)	33.6	28.4	27.9	29.6	28.7	29.2	29.2	26.7	27.2
70 %									
Poverty threshold (TL)	3291	4257	4430	4931	5200	5697	6320	7016	7775
Number of poors (Thousand person)	21611	20595	21358	21938	21816	21730	22252	21979	22223
Poverty rate (%)	32.0	30.1	30.9	31.1	30.6	30.0	30.2	29.5	29.4
Poverty gap (%)	34.8	31.2	31.3	32.4	31.9	31.0	31.2	29.0	29.3

Source: TURKSTAT-SILC

TURKSTAT establishes four poverty lines regarding 40 %, 50 %, 60% and 70 % of median value of equivalised household disposable income. According to all poverty lines, the number of poor, poverty rate and poverty gap rate seem to decline from 2006 to 2014. However, when taking poverty line as 70 % of the median equivalised household disposable income, there is a rise in the number of poor despite the fact that other rates tend to decline.

In most studies, 50 % and 60 % of median equivalised household disposable income take place as a gauge of poverty line (see for example, Cappellari and Jenkins; 2002; Fouarge and Layte, 2005; Buddelmeyer and Verick, 2007; Devicienti et al., 2011; Mendola et al., 2011). In the table, poverty indicators have a diminishing trend by four measurement methods. In 2009, number of poor, poverty rates and poverty gap rates were at a higher level compared to the previous years. This result may probably have resulted from the influence of financial crisis experienced through the world in that year. Rising values of all indicators started to turn to a normal magnitude as of 2010.

The following chapter includes the poverty rates and poverty gap rates based on our calculations. These rates are calculated according to 60 % of median equivalised household income, following the relevant literature. We find that poverty rate is 24 % in 2011. It slightly decreases through the three years and it reached 21.9 % in 2014. Poverty gap rate is 30.7 % in 2011 and has nearly the same value in the following year. However, it declined to 28.4 % in 2014. When comparing the rates in Table 3, our results seem to be slightly higher in the first two years for poverty rates and in all years for poverty gap rates. In 2014, our poverty rate is nearly the same with the rate in Table 3. Even though TURKSTAT statistics and our findings are different from each other, the trend of poverty rate and poverty gap rate is the same in two tables. These indicators have declining trend through the four years in Turkey. It is obvious that a recovery in the poverty indicators requires a rise in the growth rate. However, we observe that GDP growth rate has decreased in the given period.

CHAPTER THREE

POVERTY TRANSITION AND PERSISTENCE IN TURKEY

3.1. INTRODUCTION

Poverty has been one of the most controversial and dynamic issues in the economics literature. Poverty has been generally studied by using static measurement methods. However, it has a great importance to study poverty dynamically to determine its real effects on individuals' lives and to implement the policies which enable policy makers to determine and overcome the origins of households' poverty in the economy. People who are considered as poor at one point in time may include those who have been non-poor in the past or the ones that might have experienced poverty several times before. These inquiries provide economists with a range of dynamic analysis in terms of transition and persistence of poverty.

With regard to interval of poverty, it is obvious that poverty sometimes continues for a longer period. However, some people might experience poverty shorter than others. In other words, poverty might exhibit transitory characteristics.

The question is that how do we distinguish the transitory poverty from permanent one. This issue is determined through estimation of spell length of poverty. In literature, there are few methods to estimate spell length of poverty. One of them is non-parametric survival analysis which was introduced by Kaplan-Meier (1958). In literature, first single spell analysis was used by Bane and Ellwood (1986) and their estimates of exit probabilities about poverty were run for longitudinal data of US. However, in the following study, multiple spell analysis was stated to be more convenient and accurate to calculate the exit and entry rates due to the fact that individuals who could escape from poverty might fall under poverty line in proceeding years (Stevens, 1994). As a result, multiple spell analysis gained importance in studies. While the poverty studies related to developed countries have a wide coverage in literature, for Turkey, even though poverty has been one of the most important issues, all aspects of this issue have not been handled until recently. Therefore, it is necessary and significant to study poverty in Turkey with combining various components.

In literature, many studies of dynamic poverty emphasize the mobility of poverty across the years. Mobility of poverty has several definitions reflecting its own structure. Nature of mobility changes from transition to persistency depending on the duration of poverty.

The measurement and defining ways of persistency in poverty seem to be variable. According to one classification, *“the transient poor can be defined as poor only once during the accounting period and the persistent poor means that poor for a consecutive period at least three consecutive years”* (Fouarge and Layte, 2005: 411). Another definition of persistent poor is based on individuals who are currently poor and they also were poor two out of three precedent years. On the other hand, long-term poor refers to people experiencing poverty for four or more years (Vaalavuo, 2015: 12). Transient poverty generally comprises of the individuals whose income and assets are only slightly above the poverty line and who have little insurance and assets to endure exogenous shocks. Regarding these factors, transient poors might cross over or below the poverty line from time to time (Mowafi and Khawaja, 2005: 261).

In some studies, the long-term poverty is called as chronic poverty. *“In the spells approach, the chronic poor identification is based on the number or length of spells of poverty they experience so that all poor households are classified as either chronic poor or transient poor”* (Mckay and Lawson, 2003: 427). From another perspective, the chronic poverty includes less resources in comparison to high needs, thus chronically poor people suffer from persistent deprivation for a long time (Mowafi et. al., 2005: 261). The notion of chronic poverty is based on the concept of ‘permanent’ income derived by averaging current incomes over longer time periods. Individuals and households whose permanent income proves to be consistently below the poverty threshold are considered to be ‘chronically’ poor in spite of the volatility of their income above and below the poverty line during the reference period (Navicke, 2015: 7). Definition of chronic poverty includes severe deprivations for period of five years (Hulme and Shepherd, 2003: 405). Thus, chronically poor represents the individuals who are poor in every wave and it is not meaningful to define the chronically poor in two waves data set because estimation of chronically poor needs to obtain longer periods of poverty data. (Yaqup, 2000: 4).

3.2. THEORETICAL BACKGROUND

One method of studying poverty dynamics is the “spell approach” which analyzes the length of individuals’ poverty spell via longitudinal data including long periods. In this analysis, same individuals or households are observed through several years. Spell approach gives an access us to evaluate in what circumstances individuals might enter into or exit from poverty.

One significant approach to analyze poverty spell has been applied by Bane and Ellwood (1986). They calculate exit probabilities by using Panel Study of Income Dynamics of US., from 1970 to 1982. They choose to use the single spell method when defining the main income determinants that end or start the poverty spell such as changes in earnings of head and other members or the level of transfer income. Their results show that ending events of poverty are very different from the beginning types. The earnings of wives and other household members have a significant effect on exiting from poverty.

Stevens (1994) was the first to analyze multiple or repeated spells by examining the persistency in poverty. In other words, she extends the study of Bane and Ellwood (1986) by assessing the individuals who suffer from more than one spell of poverty for the US⁴. The results for the period 1970-1987 indicate that more than half of the individuals that escape from poverty again enter poverty within the first five years. Similarly, by using US Panel Study of Income Dynamics (PSID) data from 1967 to 1988, Stevens (1999) studies poverty persistence by applying hazard rate model with multiple spells method. She concludes that the probability of poverty exit after one year is 53 % and this rate decreases to 23 % after four years spent in poverty.

There are several studies about persistence of poverty in the US. One of them belongs to Corcoran et al. (1985). They study on PSID data for the period 1969-1978 and find that the rate of individuals falling poverty at least one year is 24.4 % and the rate of individuals who persistently poor is 2.2 % for that period. The research also suggests that there are two main ways causing poverty which are family composition changes, for instance death or divorce and labor market changes such as job loss.

⁴ Stevens (1994) stresses that households who escape from poverty might fall below poverty line following periods. Therefore, the spell of poverty should be measured by observing the individuals for longer periods.

With regard to dynamic approach, one of the most important questions is how poverty level of households or individuals change over time. To what extent the duration of spell might affect people to escape from poverty. There are many studies concluding that as the duration of spell becomes longer, it is less likely to exit from poverty. According to Muffels et al. (2000), the prevalence of poverty in a society is not only based on the number of poor people, but also on the other factors, for instance, income mobility, the length of poverty spells and the extent of recurrent poverty. The higher income mobility or income volatility is in a certain time period and the shorter is the spell duration, the higher is the prevalence of poverty in society.

In the literature, some studies focus both on the exit and re-entry rate for poverty and the role of triggers that make people poor or non-poor in different periods. (Bane and Ellwood, 1986; Devicienti, 2002; Fouarge and Layte, 2005; Andriopoulou and Tsakloglou, 2011a). In these studies, the triggers are handled in two different classifications. The first trigger event is related to subject affecting income level in a positive or negative way, in other words income shocks. The other is connected with changes in demographic structure of households.

Devicienti (2002) points out the importance of persistency in poverty and follows the question that whether poverty is transitory or it affects people who have different characteristics for several years. The study measures low income poverty by using British Household Panel Survey (BHPS) data for the period 1991-1997. He calculates the exit and re-entry rates and the results show that in that period 41% of low-income individuals whose incomes are below poverty line have a possibility to exit from poverty after one year, however, 10 % of those will be again under poverty line after first year.

Regarding European countries, Fouarge and Layte (2005) calculate the exit probability for the first year as 48 % for the period 1994-1998⁵. The rates are respectively, 34 % and 27% for the second and third year. They mention that when income mobility or volatility increases during a certain period, the prevalence of poverty in the society is likely to be high. In the same way, the low level of income mobility gives rise for poor individuals to remain below poverty line and in this case,

⁵ Ireland, UK, Denmark, Netherlands, Belgium, France, Italy, Greece, Spain, Portugal, Germany.

the poverty rate will be approximately equal the cross-sectional poverty rate in the society.

Andriopoulou and Tsakloglou (2011a) examine the exit and re-entry rates for the European Union countries by using European Community Household Panel (ECHP) for the period 1994-2000⁶. They conclude that in most countries probability of exiting from poverty in the first year is higher than the probability of not escaping from it in the first year. Furthermore, for individuals who have been poor in the previous year, the probability of poverty exiting ranges from 30% to 46%. Netherlands and Denmark have the highest exit rate, whereas, the probabilities of entering poverty in the current year varies from 4% to 9.5%, although they are non-poor in the previous year. The highest entering rates belong to Spain, Greece and Ireland.

Andriopoulou and Tsakloglou (2011b) also test the state dependency of poverty by using ECHP from 1994 to 2001. The main question in their study is whether poverty experience in the past has a substantial effect on the current poverty status of households. Their findings demonstrate the state dependence of poverty is significant in all conditions tested. It means that the past experience of poverty status makes individuals more likely to stay in poverty following years.

Polin and Raitano (2012) extend the study of Andriopoulou and Tsakloglou (2011a) by taking into account new countries after enlargement of EU in 2005⁷. There are different transition rates between Anglo-Saxon, Southern Countries and Eastern Europe Continental groups. Comparing the main factor in transition of poverty, most of the movements are connected with economic events than demographic events.

Mendola et al. (2011) propose a different path to measure the persistent poverty by deriving individual inter-temporal poverty index which is used for comparing with other indices at different length of observation period⁸. They select young people from ECHP between the years of 1995-2001. The results suggest that more than one-third young people in European countries experience poverty at different levels⁹. Among

⁶ Austria, Belgium, Germany, Denmark, Spain, Greece, France, Finland, Italy, Ireland, Luxemburg; Netherlands, Portugal, UK.

⁷ Sweden, Poland, Hungary, Czech Republic, Slovakia, Slovenia, Latvia, Lithuania and Estonia

⁸ $BCD = \frac{1}{T} \sum D_t p(t)$, D_t : length of the spell, T : length of the observation period, $p(t)$: measure of poverty. BCD is an individual intertemporal poverty measure and represents the abbreviation of Bossert, Calvo and Dercon.

⁹ Denmark, Netherlands, Belgium, France, Ireland, Italy, Greece, Spain, Portugal, Germany, UK.

Mediterranean countries, Italy has the highest persistent poverty rate (48.3%) and Portugal has the lowest one (31.4%). They adapt their model to the three I (intensity, inequality, incidence)'s of poverty curve and estimate that Belgium and Germany have the lowest incidence of poverty (23.6% and 24.7%) and intensity rate (0.034 and 0.040)¹⁰. They also put down to the fact that young individuals with low education level have tendency to become poor.

When analyzing the association between persistent poverty and current poverty, Jenkins and Kerm (2012) assess the EU-SILC data and ECHP data. They obtain that there is a near-linear relationship between poverty persistence rate and current poverty rate across member states the period of 2004-2007. However, there are some countries revealing different trends in given period such as Latvia, Lithuania and Ireland.

Another study explaining poverty as an income shock perspective is Tesliuc and Pop (2005)¹¹. They present a different framework for transient poverty by adding a new parameter. They suggest that poverty depends on income shock or low level of assets with growth-inelastic returns. The transient poor is an individual whose income and other assets including labor income would fall below the poverty line from time to time due to the bad situations in the economy and labor force lost. These periods may be temporary, because those individuals would gain the labor force when economy enters in recovery. However, permanently poor are individuals who are not capable of escaping from poverty even if the economy returns to the normal level¹².

Valletta (2006) extends the comparative study of poverty dynamics in advanced countries by elaborating the role of public transfer and tax policies in four countries via inter-temporal six-year panels from the 1990's¹³. The results show that among all countries, Great Britain has a low rate of always poor or chronically poor individuals, reflecting low persistent poverty. On the other hand, the highest level of poverty persistence belongs to Canada and it is nearly the same rate of the United States. The relationship between the tax or transfer system of government and

¹⁰ It was first used by Jenkins and Lambert (1997), "Three I's of Poverty Curves: UK Poverty Trends"

¹¹ The study is based on data from The Romanian Integrated Household Survey over the 1995-1998 period.

¹² This category generally comprises of the disabled and poor elderly who are not capable of working (Tesliuc and Pop, 2005: 30).

¹³ Canada, Germany, Great Britain and United States.

persistent poverty is significant in Germany and Britain, accompanying decline in the incidence of chronic poverty by more than half.

By using panel data of the years from 2001 to 2004 of Household, Income and Labor Dynamics (HILDA), Buddelmeyer and Verick (2007) analyze the permanent poverty for Australian households. They find that although only 4.5% of working age individuals living in non-poor households become poor in the following period, most of the poor (53.4%) exit from poverty in the next period. For one and two years out of four years, respectively, 8.0% and 2.6% of sample are defined to be income poor, however, approximately 1% of individuals remains poor through four years.

For analyzing transition and persistency in poverty, hazard rate models which are generally used to calculate transition periods have a great impact on predicting the number of individuals who live as persistently poor (For example, Bane and Ellwood, 1986; Jenkins, 2000; Bigsten and Shimeles, 2008; Devicienti et al., 2011, Navicke, 2015).

Jenkins (2000) explains four models to measure poverty. These are longitudinal poverty pattern models, transition probability models, variance components models and structural models. They use Kaplan-Meier transition model and estimates annual exit and re-entry rate from BHPS for the 1990's. The results suggest that the exit rate from poverty is 47 % after one year and 32 % after four years. These rates decline substantially when facing with re-entry of poverty. After one year, re-entry rate is 11 % and it decreases 3% after four years.

Devicienti et al. (2011) apply hazard rate model to Italian household data by using multi-spell approach and their analysis depends on two different definitions of poverty. These are income poverty and multidimensional index of life-style deprivation. They conclude that approximately 25 % of the individuals is likely to fall below poverty line after first year and almost 46 % of the poverty escapers seems to be poor after four years. In addition, the probability of re-entry is 25 % after one year and it is only 8 % after four years. Similarly, Coppola and Di Laurea (2016) study on Italian dynamics of persistent poverty by using EU-SILC data from 2007 to 2010. Persistently poor individuals are defined to be staying in risk of poverty at current year and at least two out of preceding three years. They suggest that the persistent at risk of poverty rate is very high compared to the other countries of European Union and Italian

welfare regime is not sufficient to protect poor people from experiencing persistence of poverty (Coppola et al., 2016: 15).

In a similar vein, using conditional transition probabilities by spell length, Navicke (2015) examines how poverty transition rates vary with the length of time spent poor or non-poor. In his study, the conditional poverty exiting or re-entry probabilities are estimated for Lithuania through non-parametric Kaplan-Meier survival function. He insists on the importance of secondary earnings because the results show that income events have the major role on triggering poverty.

In addition to the research focusing on transition probabilities of poverty, some studies emphasize on the comparing the poverty level by using different methods. Jenkins and Lambert (1997) follow distinctive way to calculate poverty in United Kingdom (UK) including three periods: 1979, 1981 and 1988-1989. By using three I's of poverty which are intensity, inequality and incidence of poverty, they show that although the recurrence of income poverty is higher in 1981 than that of 1988 and 1989, the poverty gaps decline substantially in these periods.

Mendola and Busetta (2012) propose a poverty persistence index (PPI) and the aggregate index of persistent poverty (APPI) to measure the depth and spell duration of poverty in the society. The first index takes into account two main points: First is the late poverty situation that is used to make a relevance between overall poverty experience and the recentness of poverty. Second one is path dependence situation to evaluate the total effect of consecutive periods in poverty. An aggregate index of persistence in poverty includes the average weight of individual indices and allows the ability to calculate the distribution of persistently poor through the society. The indices are beneficial to make true policies for eradicate poverty.

Although many studies related to the poverty are conducted for European countries and US, there are several studies that investigating the main socio-economic reasons, trigger events and spell lengths of poverty for developing countries. For instance, Bigsten and Shimeles (2008) analyze the rural and the urban poverty level in Ethiopia for the years of 1994-2004. They follow Kaplan and Meier (1958) non-parametric survival analysis to predict persistent poverty in both rural and urban areas. They calculate two hazard rates for exit and re-entry rate in poverty concluding that

for rural areas, the probability of exit absolute poverty after spending one year is approximately 39 %, and for urban areas this rate is 28 %.

In the case of poverty transitions in rural areas, Dhamija and Bhide (2010) conduct a study focusing on the relationship between poverty rate and growth in consumption expenditure for rural households in India and they find a tendency for lower per capita consumption expenditure to become higher and this helps the poor push out of poverty.

With the framework of absolute poverty measurement, Chen and Ravallion (2008) calculate the incidence of poverty in the world's poorest countries by using purchasing power parity from the 1980s. Their measurement supports that the developing world is poor and there has been no remarkable proceed since the 1980s.

Generally speaking, poverty studies in Turkey were based on cross-sectional analysis until recently because TURKSTAT conducted the first SILC in 2006. Before this time, the surveys conducting by TURKSTAT did not provide us with information about the same individuals including consecutive years. The studies involving static analysis are based on measurement of poverty by classical indexes or the determinants of being poor using poverty data for one year (World Bank, 2003; Yukseler and Turkan, 2008; Canbay and Selim, 2010; Caglayan and Dayioglu, 2011; Caglayan et al., 2012).

Yukseler and Turkan (2008) present statistical results by analyzing Survey of Household, Labor Force, Budget, Poverty and Living Satisfaction managed by TURKSTAT between the years of 2002-2006. They conclude that the lowest level of poverty rate is among wage earners and employers and the highest level belongs to unpaid family workers. While the poverty rate in agriculture sector is 34 %, this rate is respectively 10 % and 7 % in industry and services sectors.

Canbay and Selim (2010) analyze the determinants of household poverty in rural and urban area in Turkey by using HBS data for 2004. The results of logistic regression model indicate that the poverty rate is higher among the household heads who are unemployed and have low level of education. They conclude that rural poverty is much deeper than poverty in urban areas.

Caglayan and Dayioglu (2011) apply the parametric and semi-parametric logit models to estimate factors affecting being poor or non-poor and living standards of

household heads. Their study is based on data of Turkish HBS (2008) managed by TURKSTAT. They also see that the rate of poverty in the rural area is on a large extent.

In the light of logistic model analysis, Caglayan et al. (2012) by employing data of HBS in 2009 for Turkey, explore that people living in rural areas are closer to poverty than those of urban areas in line with Caglayan and Dayioglu (2011). Other spectacular finding is that rise in disposable income and educational level, being married, having private health insurance are negatively related with being poor, on the other hand, employees in agriculture and trade sectors, social aids receivers and men are more likely to enter into poverty.

Although in recent years studying poverty has become popular, the literature dynamics of poverty in Turkey related is limited. Moreover, most of the dynamic studies take into consideration determinants of poverty rather than analyzing transitions or persistency in poverty. The pioneering studies about transitions of poverty are Seker (2011) and Seker and Dayioglu (2015). Seker (2011) focuses on the transitions into and out of poverty by using 2006-2007 SILC data. They analyze main triggering events and the characteristics of individuals who are defined to be transient poor. They find that change in income is the most important triggering event that enables poor people to be out of from poverty.

Seker and Dayioglu (2015) apply non-parametric duration model to estimate the probability of entering into and exiting from poverty in Turkey by using SILC panel data for the years of 2006-2009. Their findings show that when individuals experience poverty for 1 year, exit probability is 49.7 % and when spell of poverty is 2 years, exit probability decreases 40.7 %. On the other hand, re-entry probabilities are 35.5 % and 32.6 % respectively for the same period. In line with Seker (2011), their results demonstrate that the most important factor for entering poverty is household's head earnings. Other significant factors are income of the other members of household and rental-property income. The factors related to the poverty spell endings have similar relationship with those variables.

Limanli (2015) applies two-sided methodology in his study. In the first step, he calculates the inter-temporal poverty index to determine the length of poverty spells and in the second step, he runs dynamic probit regression model by using SILC panel

data from 2006 to 2009. His main estimations about being poor are related to the household size and dependents individuals in households.

With regard to the static analysis of poverty, Seker and Jenkins (2013) calculate absolute poverty in Turkey for the years of 2003-2011 by comparing 2003-2008 and 2008-2011 periods. Their results present that although the absolute poverty decrease rapidly in the period of 2003-2008, the declining rate of poverty is very small between 2008 and 2011 compared to the previous term. Besides that, they suggest that the declining in poverty rate in the first period is prevalence in all sub-groups, however, in the second period, the diminishing rate of poverty does not realize in all sub-groups at the same rate.

3.3. METHODOLOGY

3.3.1. Analyzing Poverty Spells

In literature, spell approach is the main way to analyze the probabilities of exit from and re-entering into poverty for a certain period and to detect the characteristics of households or individuals by using parametric or non-parametric methods. Generally speaking, non-parametric methods are quite strong in estimating the probabilities of exit and re-entering poverty compared to parametric approach to spell analysis (Bigsten and Shimeles, 2008:1561).

Both methods might be evaluated through survival analysis. Survival analysis based on duration data of poverty spells enables us to estimate what proportion of people remain poor after t periods and how many people can succeed leaving poverty in that duration. Regarding estimation of probabilities, censorship is a kind of limitation that we have not available data about previous poverty status of individuals. This creates censoring problem for obtaining unbiased results.

In left censorship, it is not possible to know when the poor got poor or when the period of poverty started. On the other hand, right censorship means that there is no information available about the end of the poverty status (Vaalavuo, 2015:10).

In most studies, although right censored spell approach is easily accommodated, left censored spell might not be applied. The reason of this stems from

the fact that most researchers take into consideration sample from the second wave because the first year is considered as a reference year.

There are few studies that attempt to include the left-censored spells in the analysis (Steven, 1999; Devicienti, 2011). However, the result of these studies show that the inclusion of left-censored spells does not make a significant difference. About the issue of right and left censoring, many studies show that the bias which results from lack of information when we evaluate the determined period of exit and re-entry is minimal (Bigsten and Shimeles, 2008: 3).

In our spell duration analysis, exit rates are related to individuals who have just started a poverty spell and “at risk of” exit from poverty in the following periods. For our case, a spell of poverty starts in 2012 for individuals who were non-poor in 2011. In this context, individuals who fail to move out of poverty comprise a right-censored observation. In the same way, when calculating re-entry rates, a non-poverty spell begins in 2012 for people that were poor in 2011 and “at risk of” re-entering poverty in the next periods. People who fail to enter into poverty compose a right-censored observation. Given that we have four-year panel data, the observations for calculating the probabilities of exit and re-entry are the spells that happen in wave 2 or wave 3 due to the fact that we ignore left-censored observations.

We follow single spell approach which was first used by Bane and Ellwood (1986). They define spells as “continuous periods during which income falls below the poverty line” (Bane and Ellwood, 1986: 6). Exiting from poverty refers to spell in which poverty comes to an end. However, re-entering into poverty refers to spell in which individuals who exited from poverty in the previous periods again fall into poverty. The single spell approach has some drawbacks. One of the shortcomings is that after exiting from poverty, the individuals may seem to fall under the poverty line following years (Stevens, 1999: 560)¹⁴. In other words, when researchers focus on this approach, it means that they are likely to underestimate the individuals who experience poverty more than one spell. (Stevens; 1994: 36). Due to the fact that we have only four-year data set and the first year is designated to be the reference year, single spell

¹⁴ Stevens (1999) finds that half of all persons coming to the end of poverty spell will fall below the poverty line within four years. These results make a difference in analysis of total years spent below the poverty line than that of analysis of single spells.

analysis is more suitable than that of multiple spell. Besides, re-entry rate of poverty we calculate can be a helpful device for us to compensate lack of information about persons who experience poverty more than once.

Following methodology of Bigsten and Shimeles (2008), we calculate two hazard rates which are derived from survival function and we name them as exit and re-entry rates.

The survival function formula is;

$$S(t) = \prod_{j/t_j \leq t} \left(\frac{n_j - d_j}{n_j} \right) \quad (9)$$

In equation (9), n_j is the number of individuals at risk at time j , and d_j is the number of failures at time t_j . $S(t)$ is the probability of survival after t . The survival function above includes all observed failure periods which are less than or equal to t .

The hazard rates can be calculated from;

$$h(t) = \begin{cases} 1 - S(\hat{t}) & \text{if } t = 1, \\ \frac{S(\hat{t}) - S(\hat{t} - 1)}{S(\hat{t})} & \text{if } t > 1 \end{cases} \quad (10)$$

Our risk set of exit rate is comprised of the individuals whose poverty spell begins at period t and that were called as non-poor in previous period. Re-entry rate refers to people who are non-poor at period t and were observed poor at period $t-1$. According to this definition, exit and re-entry rates start in wave 2 or consecutive periods due to the fact that we exclude the left-censored observations.

3.4. DATA AND DESCRIPTIVE STATISTICS

There was limited data about household poverty in Turkey until 2006. In that year, TURKSTAT started to conduct SILC which follow the same individuals and collect information about income and other characteristics from persons as well as households. In fact, this new data set has a panel feature and allows us to observe the

poverty status of individuals through several years. Hence, data set is based on panel data of SILC between the years of 2011-2014 managed by TURKSTAT.

On the other hand, studying poverty with TURKSTAT-SILC data has some limitations. First, the individuals and households are followed for four-year period and the spell analysis of poverty needs some better adopting models. However, due to the fact that we have short term data about poverty, we have limitations in using best fit models. The other drawback is about attrition problem. The individuals or household heads can withdraw from the survey before the ending year and it can create attrition problem, hence, we have not an opportunity to follow them anymore. To overcome this issue, in our study, we analyzed the data of same individuals or household head who attended to the survey through four years. This decreased our number of observations, however, it helped us to obtain with more accurate results.

In the survey conducted by TURKSTAT, to account the main indicators of income, poverty, social exclusion and other living conditions, some information is collected which are classified as housing, economic situation, social exclusion, owning of real estate, education, demography, health situation, employment status and income conditions (TURKSTAT, 2018).

In line with the framework of European Union rules, TURKSTAT launches panel survey which produces data on living conditions, social exclusion and relative income poverty as well as income distribution¹⁵. Variables related to household members contain characteristics such as age, gender, closeness of reference person, education status, marital status, health situation, employment status, income from working life, income of assets, social transfer and employment dates of individuals who are at the age 15 and older (TURKSTAT, 2018).

The survey has been applied to 5.045 households and 12.196 members of households in 2011. We use balanced panel data which include individuals (the age of 15 and over) who remained in the sample from 2011 to 2014. Therefore, we have observations of 48.784 individuals and 20.180 households for four years. We take into consideration only individuals who attended the survey for four years. In other words, we ignore the individuals withdrawing from the survey at any given period.

¹⁵ The survey includes all members of households except institutional population which reside in nursing home, dormitory, military post, hospital, hotel and nursing school.

In accordance with the methodology of EUROSTAT, we use relative income poverty line determined as 60 % of median equivalent disposable income in each year¹⁶. Then, we define an individual as “poor” in a given year if her/his equivalent median income is below the poverty line. In order to obtain equivalent median income of household, equivalent scale of OECD is used and it gives a weight of 1 for reference household member, 0.5 for other household members whose ages are 14 and over and 0.3 to each child whose age is less than 14.

Table 4 presents the poverty line, poverty rates and poverty gap rates which are derived from the panel data of SILC from 2011 to 2014 in Turkey. Poverty rates generally known as headcount indexes, are the main indicators for poverty and are computed as the number of poor divided by total population. According to the rates below, poverty rate decreased from 24 % to 21.9 % from 2011 to 2014. However, the poverty rates in all years are very close to each other. The decline in poverty rates between 2011 and 2014 does not seem to be remarkable. In parallel to the poverty rates, poverty gap rates also decreased at the end of the period by approximately 2.5 %. The decline in the poverty gap rate might be stemmed from two reasons. The first reason is a decrease in the number of poor. The second one is a fall in the difference between the income of poor and the poverty line.

Table 4: Poverty Line, Poverty Rate and Poverty Gap Rate

	2011	2012	2013	2014
Poverty line (TL)	4772.17	5190.00	5761.32	6416.35
Poverty line (USD)	2514.31	2905.60	2699.39	2757.46
Poverty rate (%)	24.0	23.9	22.5	21.9
Poverty gap rate (%)	30.7	30.6	28.5	28.04

Source: Author’s Own Calculations, SILC: 2011-2014.

¹⁶ Household Disposable Income= Disposable Income of Members of Households+ Annual Income- Total Taxes-Social Transfer.

Disposable Income of Members of Households: Wage, Entrepreneur income, Pension, Widowed-orphan salary, Unpaid grants.

Households’ Annual Income: Rental property income, Unpaid transfer, Income of members under age of 15.

Table 5 presents the descriptive statistics about the employment status of persistent and transient poor. “Persistent poor” is composed of the household head who was poor in the last year and at least two preceding years. The “transient poor” symbolizes the household head who is poor in at least one year or maximum two years. According the table below, transient poor and persistent poor among employees have almost the same rates. Among the employer/self-employed, there is no significant difference in terms of becoming transient and persistently poor. However, for unemployed, pensioners and not active individuals, the duration of poverty spell demonstrate different features. While 30 % of the unemployed household head was transient, 70% of them was belonging to the group of persistently poor. Most of the pensioner by 67.5 % was transient poor and this ratio declined to 32.5 % in persistent poverty. This case may suggest that regular retirement salary protects people from falling under the poverty line for longer periods. Another reason for this could be that the poverty status of pensioners might depend on the bad economic situation rather than low income level. Not active group represents elderly and disabled persons and individuals dealing with nursing of them. The majority of this group has stayed in poverty more than two or three years.

Table 5: Employment Status of Household Head

	Employee	Employer/Self Employed	Unemployed	Pensioner	Not active
Transient Poor	47.5	51.1	30	67.5	34.7
Persistent Poor	52.5	48.9	70	32.5	65.3
Total	100	100	100	100	100

Source: Author’s Own Calculations, SILC: 2011-2014.

Table 6 and 7 show the status of household head education level of those who are transient or persistent poor. We also provide these figures for the female and male heads, separately. According to Table 6, transient and persistent poor female household heads do not indicate significant difference among different education levels except for high school and university graduates. However, all of the female household heads with high school and university education can be defined to be transient poor. For the female household head having higher education level, the risk of living in persistent poverty is lower.

Compared to Table 6 and Table 7, there is no similarity in educational level between the poverty transition of male household heads and female ones. Most of the male heads who are illiterate and literate with no diploma are persistently poor in the given period. This ratio is reversed in high school and university graduation. The minority of those getting higher education suffer from poverty persistence for that period. In fact, most of the individuals graduated from university fell below the poverty line for shorter term between the years of 2011-2014. There is a significant difference between the poverty status of female and male heads who have secondary, high school, university and tertiary diploma. For each level of education, women have a higher capability of creating an opportunity to escape persistent poverty when comparing the male counterparts. This indicates that the education level of women is crucial for the poverty status of households. In other words, households with female head having high school, university or tertiary diploma have not experienced poverty persistence in the sample period. However, male household heads having the same education level suffer from persistent poverty. The results are in line with Sigeze et al. (2018), implying that female household head with a high education level decreases the risk of being in chronic poverty. This implies that policy makers should enable women to attain an equality of education opportunity in our country. Government should provide more education to women in the society to alleviate poverty.

Table 6: Education Level of Female Household Head

	Transient Poor	Persistent Poor	Total
Illiterate	40.2	59.8	100
Literate (no diploma)	50	50	100
Primary	54.5	45.5	100
Secondary	75	25	100
High School	100	-	100
University or more	100	-	100

Source: Author's Own Calculations, SILC: 2011-2014.

Table 7: Education Level of Male Household Head

	Transient Poor	Persistent Poor	Total
Illiterate	28	72	100
Literate (no diploma)	29	71	100
Primary	45	55	100
Secondary	58	42	100
High School	64	36	100
University or more	83	17	100

Source: Author's Own Calculations, SILC: 2011-2014.

When we come to the income level, it is important to exhibit which level of income is decisive to lead households to become poor. Table 8 demonstrates that the difference between the income level of households that is related to the poverty transitions between 2013 and 2014. We define these six income levels following the relevant literature (see for example, Seker, 2011; Caglayan et al., 2012; Sigeze et al., 2018). To this end, we can analyze the individuals having income below than poverty line in three groups. People are called “extremely poor” if they have income less than the half of the poverty line. Individuals having income higher than the half of the poverty line but less than 75 % of it are called “moderate poor” and having income higher than 75% of poverty line, however, less than poverty line are called “transitory poor”. Similarly, if individuals have income level near the poverty line but less than 125 % of it are called “vulnerable”. Those whose income is higher than 125 % of poverty line and less than 200 % of it are defined as “transient non-poor” and if this level is higher than 200 % of poverty line, they are called “non-poor”. According to the table below, it is not surprising that the individuals having income close to the poverty line are more likely to exit from or enter into the poverty the following year. That is to say, those who escape from poverty this period could fall under the poverty line after a short time. While 61 % of individuals whose income level is very slightly lower than the poverty line can leave poverty next year, 60.6 % of non-poor whose income level is a bit higher than poverty line fall into the poverty the following year. While the exit rate is 6.5 % for “extremely poor”, this rate is 32.5 % for individuals in “moderate poor” category. Regarding poverty entry, the transition rate for people having two times higher income than poverty line is 7 %. However, this rate is 32.4 % for transient non-poor. Consequently, when we pair the six income levels, it is observed that the transition rates are very similar for extremely poor-non-poor,

moderate poor-transient non-poor and transitory poor-vulnerable. It indicates that the income level close to the poverty line has the highest transition rate of exiting and entering poverty.

Table 8: Equivalent Disposable Income According to Poverty Exit and Poverty Entry: 2013-2014

Income level before transition		Poverty Exit	Income level before transition		Poverty Entry
$I < 0.5 * p$	Extremely poor	6.5	$p \leq I < 1.25 * p$	Vulnerable	60.6
$0.5p \leq I < 0.75 * p$	Moderate poor	32.5	$1.25 * p \leq I < 2 * p$	Transient non-poor	32.4
$0.75 * p \leq I < p$	Transitory poor	61	$2 * p \leq I$	Non-poor	7
Total		100	Total		100

Source: Author's Own Calculations, SILC: 2011-2014.

Note: I: Equivalent income per individual, p: poverty line, $I < 0.5 * p$: extremely poor, $0.5p \leq I < 0.75 * p$: moderate poor; $0.75 * p \leq I < p$: transitory poor, $p \leq I < 1.25 * p$: vulnerable, $1.25 * p \leq I < 2 * p$: transient non-poor, $2 * p \leq I$: non-poor.

Our findings mainly support the results of some studies conducted in developed countries. Stevens (1999) finds that the majority of individuals in two-parent households can be assigned to be transient poor. The education level of them also plays a significant role in estimating the duration of the poverty spell. In addition, if household head is a single female, or has below a high school education, poverty is substantially persistent. Similarly, McKay et al. (2003) assess that the results of some studies indicate that rise in educational level mainly reduces transient poverty. This implies that more educated households are capable of protecting themselves from fluctuations in the economy.

Seker (2011)'s findings indicate that regarding the educational status of whole sample, the highest rate of poverty belongs to individual having primary school graduation. Except this group, poverty decreases at an increasing rate as education level goes upwards. Furthermore, her findings concerning distribution of income exhibit that among the individuals with income less than 1.25 times the poverty threshold, 22 % fall under poverty line following year and this rate is 1.3% for individuals having income two times poverty line. Similarly, 48.6 % of all exits come

from the individuals with income very close to the poverty line. Only 15.6 % of extremely poor, whose income is at the lowest level, has an ability of escaping poverty.

3.5. EMPIRICAL RESULTS

The rate of persistent poverty is measured by the proportion of individuals in the country or group who are currently poor and who were poor in at least two of the preceding three years (EUROSTAT, 2017: 11). We assign “persistent poor” as the definition used in EUROSTAT. In our data set, the persistent poverty rate refers to the proportion of individuals who were poor in 2014 as well as in at least two of three previous years (2011-2013). In this respect, the percentage of persistent poor is calculated as a ratio of number of poor at least three years or more over total number of poor in four years. Using our data set, it is observed that the total number of poor through four years is 10.481 and the number of poor for at least three years or more is 1.785. Therefore, the rate of persistent poor in the given period is 17 %.

In terms of incidence of poverty, over the studied period, the poverty rate measured at 60 % of the median income changes between 21.9 % and 24 %. The highest poverty rate is observed in 2011 as 24 % and the lowest poverty rate is observed in 2014 as 21.9%. Therefore, 2011 is the worst and 2014 is the best year in terms of poverty rate. In parallel to the poverty rate, poverty gap rate has also declined from 30.7 % in 2011 to 28.04 % in 2014. Seker (2011) finds that poverty rate is 21.2 % in 2005 and 19.2 % in 2006. On the other hand, Dalgic et al. (2015) estimate this rate as 25.79 % in 2005 and 24.35 % in 2011. Their poverty rates are very close to our results. For the same years, Dalgic et al. (2015) find poverty gap rate respectively as 33.8 % and 29.6 %. Their findings are also coherent with our calculations. It means that poverty rate and poverty gap rate in Turkey have not changed substantially from 2005 to 2014.

3.5.1. Probabilities of Transition Into and Out Of Poverty

Regarding longitudinal data of SILC conducted by TURKSTAT, the transitions of individuals into and out of the poverty can be observed through a

transition matrix of poverty status movements. It allows us to compare between the ratio of the poor/non-poor at time t-1 and the ratio of poor/non-poor at time t. The transition probabilities are based on the total number of individuals in the data and the distribution of individuals entering or exiting poverty. The possible transitions may be that an individual who had been poor in the initial wave could remain poor or become non-poor, an individual that had been non-poor could remain non-poor or become poor.

Table 9 presents the probabilities of transition into and out of poverty for the periods of 2011-2014. According to Table 9, 30 % of individuals that were poor in 2011 moved out poverty in 2012. This rate of transition out of poverty is the same from 2012 to 2013. However, 8% of people who were non-poor in 2011 entered into poverty in 2012. The rate of poverty entry is 6 % from 2012 to 2013. While 27 % of individuals that became poor in 2013 completed the wave as non-poor, 6 % of non-poor in 2013 fell below the poverty line in 2014. Therefore, it is observed that the average rate of transition out of poverty in Turkey is 29 % and the average rate of entry into poverty is 6.6 % for that period. There may exist two reasons explaining this result. The first reason is that there might be a high number of poor having income near the poverty line. Hence, they could exit from poverty as a result of a slight increase in their income. Correspondingly, the second one is that the income level of non-poor is much higher from the poverty threshold. Therefore, the gap between income level and poverty line has protected them from falling into poverty in the given period.

Table 9: Poverty Transition Matrices: 2011-2014

		2012	
2011	Poor	Poor	Non-poor
	Non-poor	70 %	30 %
2012	Poor	8%	92 %
	Non-poor	2013	
2013	Poor	Poor	Non-poor
	Non-poor	70 %	30 %
2014	Poor	6 %	94 %
	Non-poor	2014	
2015	Poor	Poor	Non-poor
	Non-poor	73 %	27 %
2016	Poor	6 %	94 %
	Non-poor		

Source: Author's Computations, SILC: 2011-2014.

In order to obtain better measurement of poverty transitions or poverty persistence, it is vital to manage survival analysis. To this end, we can for detect the length of poverty spell that has begun and ended during the specific terms.

This study follows the non-parametric Kaplan-Meier survival function to estimate the exit and re-entry rates. According to Kaplan-Meier (1958) methodology, fail number is calculated in each year by excluding from the total sample. The survival ratio is equal to the number of survivors divided by initial number of individuals in the sample. When calculating the probability of exiting from poverty, survival ratio provides us to find the number of individuals that fail to escape poverty. In other words, survivor is defined as the people that fail to escape poverty. Similarly, when calculating re-entry rate, survival ratio indicates that people who escape poverty. Remaining individuals after survival process comprises the new sample size of “at risk of” exit from or re-entering into poverty.

Table 10 shows the estimates of poverty exit and re-entry rates by using Kaplan-Meier estimator based on relative poverty.

Table 10: Poverty Exit and Re-entry Rates by Kaplan-Meier Estimates

Number of spell	Exit probability	Re-entry probability	Sample Size	
			At Risk of Exit	At Risk of Re-Entry
1	0.4912 (0.0259)	0.3290 (0.0207)	2579	4498
2	0.3403 (0.0367)	0.3195 (0.0300)	735	769

Source: Author’s Own Calculations, SILC: 2011-2014.

Note: Terms in parentheses are standard errors.

In our study, having four- year panel data, the first spell starts in wave 2 and terminates in wave 4, as a result, the highest duration spell in poverty is only two waves. Our wave starts from the second year because the first year, which is 2011 in our case, is the reference year. Therefore, wave 1 refers to the first spell that starts in the second year and ends in 2014. Following the survey, the probability of individuals moving out of poverty after first wave in poverty is 49 %, whereas, after spending 2 waves below the poverty line, the possibility of escaping from being poor is 34 %.

However, the probabilities rates indicate that longer period spent in poverty makes harder to exit from being poor. When we analyze re-entry rates, they may suggest that experience through non-poverty spell for 1 or 2 years does not create a great difference on the possibility of re-entering into the poverty spell. The re-entry rates are close to each other. Whilst it is 32.9 % for the first spell, the rate decreases to 31.9 % for the second spell.

Compared to the results of studies comprising developed countries, Turkey has a high probability of re-entry. In the study of Jenkins (2000), probabilities of exit rate and re-entry are respectively 34 % and 11% after staying in poverty one year. Andriopoulou and Tsakloglou (2011a) find that the average exit rate for 14 EU countries is 35.3 % and the average enter rate is 7 %. Netherlands and Denmark have the highest probability of poverty exit, respectively 46 % and 44.5 %. On the contrary, the probability of entry into the poverty is the highest in Spain with 9.5 %, Greece with 9.4 % and Ireland with 9.2 %. Buddelmeyer and Verick (2007) calculate transition rate to exit for poor is to be 44.7 % and entry rate is 6.6 % after one year.

For Turkey, there is only one study conducted on probabilities of poverty exit and re-entry belonging to Seker and Dayioglu (2015). They estimate the probability of exiting from poverty to be 49 % after one year and this ratio declines 40% after two years. In the same vein, while re-entry probability of the poor after one year is 35 %, for the individuals staying two years in non-poor status the re-entry rate decreases to 32%. Our results are very similar to Seker and Dayioglu (2015). The first-year exit rates are nearly the same and there is also a convergence between the re-entry rates. However, our findings show that it is much harder to leave poverty after two years compared to the probability rate in Seker and Dayioglu (2015). As we see, in comparison to the EU countries and Australia, escaping poverty is a difficult issue in Turkey. We have slightly higher exit rate compared to the average rate in EU. Moreover, our re-entry rates for poverty are also very high in respect to the most EU countries. It implies, whilst exiting poverty is difficult particularly for longer periods, falling below the poverty line is much easier than the developed countries. It is particularly harder for individuals to exit from poverty after staying two years.

3.6. CONCLUSION

Measuring poverty has a great importance in order to implement right policies in the economy. In literature, there are several methods to estimate structure of poverty in terms of calculating probability of exiting from and re-entering into poverty. These calculations can be obtained by observing the individuals for sufficient years and detecting how many years individuals experience poverty once they have fallen into it. The length of staying in poverty gives us two types of poverty in the literature, namely transient and persistent poverty. The characteristics of transient poverty are significantly different from those of persistent poverty. Therefore, the distinction between transient and persistent poverty is a vital phenomenon from perspective of policies to be applied. As the length of poverty spell increases, chronic poverty appears and brings about more complex problems.

In this section, we study spell length of poverty by using SILC panel data from 2011 to 2014. In addition, some descriptive statistics are presented regarding the distinguished characteristics between transient poor and persistent poor. The transient poor is defined to be only once or maximum twice poor during the given period and the persistent poor is assumed to be currently poor and at least two out of three preceding years.

Firstly, we analyze the poverty status of different groups in terms of employment status, education level and gender of household head. Our results show that women household heads who are illiterate and literate with no diploma can be either transient or persistent poor. This case differs when it coming to the male household heads. The male household heads can be transient or persistent poor in all education levels. However, the rate of persistent poor is relatively low in university graduation.

As expected, unemployed and not active people are more likely to experience persistency in poverty than the other groups. On the contrary, a large percentage of pensioners are transient poor. It might be concrete evidence that regular salary protects individuals from staying under poverty line for a long time.

The results strengthen the idea that the higher is the educational level in female heads, the lower is the probability to spend more time under poverty line. In our case,

all of the female heads getting university or high educational diploma are transient poor over the sample period. This indicates that as women get the higher level of diploma, their participation of labor force rises and the duration of staying in poverty diminishes. However, the situation has a different path for male heads. That is to say, male household heads graduating from university are transient poor at a large extent, however, they may also suffer from persistent poverty time to time.

Furthermore, in this section the length of poverty spell is calculated for two poverty waves. The empirical results suggest that as the poverty spell becomes longer, the probability of escaping poverty is harder. While the poverty exit rate is 49 % after one year, this rate falls to 34 % after staying two years in poverty. Conversely, the re-entry rate nearly remains at the same level after two years. It means that the risk of falling below the poverty line is not different for the individuals who experience poverty either one or two years.

Compared to the EU countries Turkey has a high re-entry rate of poverty. It may stem from the role of labor market. Low level of wages causing people fall in poverty after a short time from moving out it. This indicates that people do not protect their non-poor status since income level of them is close to the poverty line. The rate of informal employment is high and it plays an important role in poverty dynamics of Turkey. The high level of turnover in informal employment affect easily exit and entry rates of poverty. As a result, the transition of individuals from informal working to the formal sectors is a crucial policy to prevent people from poverty.

Moreover, social transfer system can be an appropriate device to decrease the poverty risk of individuals. Our finding related to the rate of entry indicates that social assistance has limited role in Turkey in comparison with the EU countries. It may possible to decrease the transitions into poverty by increasing social transfer particularly in the case of job losing. Additionally, our result shows that female household heads having high education level do not experience persistent poverty. Therefore, right education policies should be implemented to diminish prevalence rate of persistent poverty.

CHAPTER FOUR

DETERMINANTS OF POVERTY

4.1. INTRODUCTION

Studying poverty on a cross-sectional or quantitative basis does not provide us information about determinants of poverty. In many cases, cross sectional perspective of poverty gives rise to obtain misleading implications of the cause and effect relation regarding the characteristics of the poor. Because of this reason, in this chapter, we try to pursue the main determinants of poverty and to determine the corner stones of moving out of poverty by using longitudinal data.

When examining poverty intertemporally, the household behavior becomes an important issue. The poverty period depends on characteristics of household members as well as behavior of them in inter-temporal framework. In some cases, it is proposed that the poor has some determined behavior stemming from psychological reasons and these behaviors affect their human capital, achievement and keep them being poor. In addition, these behaviors not only lead them to experience persistent poverty, but also to pass their poverty from one generation to the other (Corcoran et al., 1985: 532).

Moreover, poverty exhibits different structures depending on its duration. Transitory poverty generally results from fluctuations in the economy and covers a short time. Those leaving poverty have vulnerable income which is very close to the poverty line and they are inclined to falling under poverty threshold when the economy experiences a turbulence. In literature, longitudinal data indicates that some characteristics of individuals are associated with chronic poverty. According to this aspect, chronic poverty is related to demographic characteristics of household and low level of human capital and assets. (Yaqub, 2002: 22). When proposing the chronic poverty definition, it should be perceived that the measurement requires micro data covering the longer periods.

Concerning the poverty in developing countries, it generally refers to the low level of public and private investment. In these countries, income is used for basic needs. Low level of public resources is allocated for human capital and investment (Hulme and Shephard, 2003: 413).

From a different point of view, the main part of poverty can be explained by some concrete evidences causing households to behave in a similar manner. Instead of behavioral approach, we elaborate the reasons declaring the classification and characteristics of households and their members. The households defined as poor tend to have some similar features in such a manner that they generally have a lack of better education opportunities, low income level, less diversified income types, are not equipped with ability to find a sustainable and satisfactory occupation.

The main objective of our study is to investigate the important factors affecting poverty in Turkey and to understand the relationship between selected variables and poverty status of individuals. This research is one of the few studies that analyzing determinants of poverty in Turkey in a dynamic approach. One of the contributions of this study is to determine the relationship between individuals' and households' characteristics and the poverty by using panel data of 2011-2014. Additional contribution of our study is that we handle the household heads and the members of households separately. To begin with, all individuals in our sample are taken into account in the model to estimate the determinants affecting their poverty status. Secondly, we only study on household heads to determine the effect of their characteristics on the households' poverty transitions. Hence, we study with more observations.

In this context, household characteristics can be classified in various profiles. Individual and household head characteristics are composed of age, gender, education level, health status, sector decomposition, social security coverage, job changes, experience, income types and changes in employment status. Additionally, there are two household variables: These are home ownership and dependent children. Education level includes all levels from literate with no diploma to tertiary graduation. Illiterate individuals are taken as the base group. Having chronic disease or not refers the health status of individuals. Assuming that agriculture is a basic sector, sector decomposition is presented in two categories as industry and services. Job changes involve the last one year. Changes in employment status also indicate the job changes since previous year. However, this variable is considered in three different groups: from unemployed to employed, from employed to unemployed or not active and from not active to employed. Income types include only transfer income and retirement

income since they are two main income groups in SILC. With respect to household variables, home ownership refers that whether households reside in their household or not and dependent children variable includes the households having dependent children.

4.2. THEORETICAL BACKGROUND

Most of the studies in literature focus on the main characteristics of household and household head such as age, gender, education level, employment status and the state dependence of poverty (Cappellari and Jenkins, 2002; Aassve et al., 2006a; Bigsten and Shimeles, 2008; Andriopoulou and Tsakloglou, 2011b). Some others also investigate the impacts of some specific factors, such as landownership, life-changing events, having disability, ethnicity and the effect of farming system on becoming poor (Devicienti, 2002; Tesliuc et al., 2005; Valletta, 2006; Buddelmeyer et al., 2007; Bigsten and Shimeles, 2008).

Andriopoulou and Tsakloglou (2011b) study on European Community Household Panel (ECHP) of 14 EU member countries during the period 1994-2000¹⁷. They distinguish the groups as household head characteristics such as, age, gender, graduation diploma, household with single adult or dependent children and the previous poverty status of household head. Their main findings suggest that being member of a household with a head whose age is less than 30 or more than 64 rises the probability of being poor in all countries. The effect is more powerful for young headed households in Finland, the Netherlands and Denmark in comparison to the other countries. Another result is that living in a female-headed household in Portugal has significant converse effect on the probability of being poor. In addition, the level of education of the household head also has a vital role on declining the risk of poverty. Furthermore, they indicate that state dependence making the individuals stay in poverty to a great extent.

Bigsten and Shimeles (2008) give weight to different variables in their study to examine main determinants affecting poverty status. These variables are classified

¹⁷ Austria, Belgium, Germany, Denmark, Spain, Greece, France, Finland, Italy, Ireland, Luxemburg, Netherlands, Portugal, UK.

as household size, gender of head, mean age of household, farming systems, wealth, access to markets and exogenous shock both in rural and urban areas. They use panel data of Ethiopia for the period of 1994-2004 and apply the dynamic probit model. With regard to explanatory variables, size of household, primary education diploma of household head, market access, rainfall levels are significantly related with exit and re-enter poverty in rural areas. In urban areas, in addition to household size and education level of household head, location and ethnic structure have an impact on both rate of exit and re-entry. Another main conclusion is that being poor in the past is significantly connected with the current poverty experience.

By using BHPS data for the years of 1991-1999, Cappellari and Jenkins (2002) estimate first-order Markov model to determine the main variables for poverty persistence and re-entry rates with initial condition problem. Their results suggest that among those who live in household with female household head, with multi-family household and with 3 or 11-year-old children, rates of poverty persistence are higher.

Aassve et al. (2006a) also focus on the British household poverty by using BHPS data for the period of 1991-1996 and elaborate on three explanatory variables: the marital status of individuals, number of dependent children and having or leaving employment. They suggest that finding or preserving a job has a remarkable effect on poverty for most of the groups.

Devicienti (2002)'s study on poverty indicates that the number of children in household declines the probability of escaping poverty. On the other hand, if children's age is less than 6 in the household, this brings low hazard rates because they are nursed by their family. Ethnicity is specific variable measured in his study. That is to say, non-white individuals have 35 % less possibility of leaving poverty.

Tesliuc et al. (2005) examine the determinants of poverty by using Romanian Integrated Household Survey (RIHS) for the period of 1995-98. They conclude that households that are larger in size, residing in towns with high unemployment rate and presence of unemployed members affect negatively being poor. With regard to the education and employment status, high education level and professional job lead the risk of being poor to decline. On the other hand, if the household heads work in labor market and their jobs are not stable, this case adversely affect the poverty risk. In addition, for the household heads who are employees in agriculture or education sector

and for pensioner households, the tendency to fall under poverty line is higher. Furthermore, owning of land has a positive influence on diminishing the risk of poverty.

Valletta (2006) presents the comparative analysis of variables explaining poverty in developed economies. According to his findings, the highest ratio of poverty persistence belongs to Canada, because public transfer payments has low share to save individuals from poverty in working-age households compared to social transfers in Germany and Britain. In the US, these payments have significant impact on poverty exits, in fact, this effect is related to other characteristics of individuals such as education level, being single parent and stability in employment status. On the other hand, Germany has a separated situation from other countries, implying the social transfer system provides individuals defined in high risk group with remarkable support. In addition, tax and transfer policies of government are also relatively influential in Britain. Regarding the structure of families in Canada, it is suggested that the households composing single adult with children are more likely to fall in poverty than those with two adults and no children.

Fouarge and Layte (2005) examine the main characteristics of poverty such as household with children, household members' employment status, health condition and being single parents or not, by using ECHP from 1994 to 1998. In addition to these main determinants, they also analyze the role of the welfare regime of countries on risk of poverty. They show that partners with children and being single parent have a significant role on poverty risk. In addition, bad health status of household head rises probability of being poor. On the other hand, if partners have a job, this case reduces the probability of poverty because of providing additional income to the household. By comparing different countries' welfare regimes, they obtain significant results about risk of poverty. These results suggest that the risk of poverty is the lowest in social democratic regimes and the highest in those liberal regimes. However, corporation regimes are in the middle of two systems in terms of role on poverty.

Buddelmeyer and Verick (2007) use Australian HILDA data from 2001 to 2004 to analyze the roles of education level, employment status disability and life-changing events on becoming poor. They find that tertiary education and employment are the most significant elements in explaining poverty. Having disability and life-changing

events have also powerful explanatory variables to estimate probability of becoming poor. That is to say, disabled individuals and separated household heads cause households to remain in persistent poverty. Besides, there is a positive relationship between remoteness of household's location and probability of being poor.

Muffels et al. (2000) investigate the status of poverty based on comparison between three countries: The Netherlands, Germany and UK by using Dutch and German socio-economic panel started in 1984 and BHPS started in 1991. The observation periods are divided into three categories as short, medium and long term and these terms represent respectively one year, five years and ten years. They find that persistent poverty displays modest characteristic in the long term, however, it is more powerful in the medium period. Regarding the definition of persistent poverty, the permanent income is only income source which is taken into account among the other resources in the study. The most significant conclusion is that the inequality and incidence rate of poverty in the UK are more than those in German and the Netherlands. In the Netherlands, young heads have more tendency to become persistently poor as well as female heads and unemployed heads. The results of estimates for the UK and Germany are similar to those of the Netherlands. Besides, being separated head and having large number of children lead the probability of being persistent poor to increase.

Machado and Ribas (2010) investigate the effect of a change in aggregate demand on poverty using survival models and Monthly Employment Survey (MES) data from 2002 to 2007 for Brazil. According to their findings, the household with older head have more chance of leaving poverty and a one-fourth of one percent increase in average income diminishes the probability of moving out poverty ranging from 0.6 to 0.9 percent.

Navicke (2015) asserts that for Lithuanian households, income triggers have the most important role on the probability of poverty exit and re-entry into the poverty. In fact, nearly half of the poverty transition including both exit and re-entry is connected with the decline in income of household head. One of the most controversial conclusions is related to secondary earners in household. If there is a work-related regular income in the households except heads, it is more likely to escape from poverty for them. With regard to the other determinants of poverty, pensions play a

strengthened role to leave poverty. On the contrary, households with dependent person, for example, elderly, disabled or jobless adult have a less chance to move out poverty.

In accordance with the results of many studies, Polin and Raitano (2012) suggest that moving in and out poverty are more likely associated with the income and demographic events. Whilst the negative events causing re-entry are connected with the rise in number of individuals in household and decline in income, exit depends on replacing the negative events with the positive ones.

Among the recent studies, Ward (2016) selects two groups as vulnerable and non-vulnerable to find main determinants influencing poverty status by using balanced panel data of rural China from 1991 to 2006. He demonstrates that vulnerable households obtain majority of their income from agriculture, on the other hand, non-vulnerable households get only 45 % of their earnings from this sector. In addition to this fact, it is presented that the share of wage employment income is higher for non-vulnerable than that of vulnerable. As expected, vulnerable is mainly composed of young and less educated individuals and having low level of asset ownership. One of the most important results is related with the households with female headed. For these households, vulnerability is less likely to happen compared to the male headed households.

Salahuddin and Zaman (2012) calculate the Alkire-Foster Measure by using three different panel data set: Household Income and Expenditure Survey (HIES), Pakistan Social and Living Standard Measurement Survey (PSLM) from 1998 to 2006 and Pakistan Demographic and Health Survey (PDHS) for 2006-2007. They divide individuals in terms of different dimensions such as living standart, health, water and sanitation, air quality, assets, education and livelihood and they show that poverty in Pakistan is a multidimensional fact. The Alkire-Foster Measure suggests that 99.3 % of Pakistan population experiences deprivation in at least one of the selected dimensions.

Yaqub (2002) studies on the main characteristics of chronic poverty in developing and rich countries. He classifies important results of many studies on poverty by dividing countries into two groups as developing and developed and demonstrates that chronic poverty in these two groups has three mobility patterns and four mobility correlates. The mobility patterns are connected with economic

insecurity, closeness to the poverty line and duration of poverty. Poverty has different characteristics between countries, however, the common point for those countries is that people share poverty unfairly. One of the main determinants stressed in the study is path dependence problem which reflects the longer poverty duration, lower probability of escaping poverty. In developing country models, the result about the relationship between being female head and poverty is generally found to be statistically insignificant. On the other hand, in rich countries, it is handled as a major issue which trigger much of the poverty spells. Another factor that are commonly thought as related to the poverty status is higher level of education. However, he emphasizes that in several models the effect of education level on exiting poverty is not satisfactory and rise in income stemming from high education level is low for developing countries. For these countries, it is suggested that following social market democracies is vital policy against to the poverty because these systems is important factor strengthening the rich countries.

In a similar manner, Baulch and Hoddinott (2000) bring a more systematic analysis on the methods of poverty measure existing in the literature and they present six studies depending on longitudinal data and investigate dynamics of poverty and economic mobility through the periods varying 18 months to 18 years. In the study, while individual's permanent income or welfare is defined as the inter-temporal average of their income, chronic poverty is defined as the situations in which individual's inter-temporal average welfare is lower than the poverty threshold, implying transitory poverty is the difference between chronic poverty and total poverty in different periods. Their results show that there is a remarkable trend between transition rates. In addition, vulnerability is not special to one group, suggesting that it changes according to households' assets, wealth and certain types of households that are more prone to dimension of poverty shocks such as households with young children and elderly people.

Using Surveys of Income and Program Participation (SIPP) in the United States the years between 1990 and 2001, Card and Blank (2008) compare the incidence of poverty spells including different types of households with female headed. They conclude that in those years average poverty rates diminish in the households, however, the incidence of poverty spell increases. Poverty spells are experienced often,

but the persistency of poverty fall. Furthermore, the Black and Hispanic women are more exposed to poverty.

Aassve et al. (2006b) measure the rate of young poverty for 13 European Union countries by using ECHP and find that youth poverty is higher in Southern European countries, UK and Ireland. While in UK, poverty is more likely related to child poverty, in Scandinavian countries, it is associated with leaving home.

Finnie (2002) analyzes the poverty dynamics of Canada covering the period of 1992-1996 and they focus on the characteristics of households with low income. Their results show that family structure and the duration of previous poverty spells are two significant factors for staying in poverty. Younger families with children and individuals experiencing poverty over the long-run tend to have higher entry rates and lower exit rates in contrast to other individuals.

Arranz and Canto (2012) study the effect of spell repetition on poverty exit and re-entry rates by using longitudinal data for Spain for the period of 1994-2001. Their findings exhibit that spell duration of lagged and non-poverty have a remarkable influence on the probabilities of exit and re-entry. They also find that the individuals having a high number of earners in the households with shorter spell of poverty are able to move out poverty at a highest level.

Concerning about asset approach, Carter and Barrett (2006) offer a novel example of poverty measurement based on asset approach. They derive asset poverty line depending on the utility or income from total assets that individuals have and therefore, this new poverty line is the main criteria for defining people as poor. The transition from poor to non-poor status can be stemmed from two events. They have been poor previously due to bad luck or transition may be structural because of accumulation of new assets. In contrast to getting non-poor status, poor are poor because of the deterioration of their assets. The extensions of their study come into contact with three important results. First, it reflects the minimum asset level of households in order to escape poverty. Second, the role of insurance for household to protect its assets from unexpected shocks. Finally, households under asset poverty line have a low possibility to recover because of permanent deterioration of their assets.

Analyzing the relationship between main trade indicators and household poverty in Vietnam, Niimi et al. (2007) bring a new perspective on thinking way of

poverty. They focus on two study periods: 1992-1993 and 1997-1998 and investigate the relationship between main trade precursors and household poverty by applying multinomial logit models. They offer that the trade reforms in 1990s affect the poverty status of households in Vietnam by reducing poverty. Exports and imports of Vietnam reach at a high level and by this way, the prices of some major tradable goods increase. Therefore, the rise in prices of those goods improve the real income of the households' members working in rice, coffee and light manufactures sectors.

There are few studies estimating determinants of poverty in Turkey. Seker (2011) investigates the factors that lead household to experience poverty for shorter and longer periods by using SILC panel data for the years of 2006-2009. They find that changes in income sources such as labor income, rental and property income and social transfers are the main triggering events for poverty transition. However, the characteristics of households who are persistent poor are very different from transient ones in terms of education level, employment status and residing whether in rural or urban areas. According to the findings, less educated individuals, casual and own account workers and people living in the rural areas are more likely to be persistently poor. In addition, number of the children in the household and state dependence negatively affect the probability of staying in the poverty.

Caglayan and Dayioglu (2011) compare the parametric and semi-parametric logit model by using Turkish Household Budget Survey data for the year 2008. It is concluded that semi-parametric logit models are the best at estimating some variables such as income and number of workers in households. In the sense of the most important results, it is seen that part-time workers, rural workers and casual workers are more likely to become poor.

Caglayan et al. (2012) use HBS data for 2009 and examine the main factors affecting household poverty in Turkey by ordered logit and generalized ordered logit model. They create five dependent variables by dividing income into different levels; namely extremely poor, chronically poor, poor, vulnerable, transient non-poor and non-poor. Main results from the study exhibit that being married, men, employed in agriculture and trade sector, being rural settler and households receiving social aids increase the risk of poverty. While in the poor category, age of household head increases the risk of poverty, in the rich group young age rises the probability of

richness. In addition to age, rise in experience, disposable income, and educational level also affect the probability of being rich positively, whereas a large number of households decreases the chance of richness.

Acar and Baslevant (2014) estimate the determinants of transient poverty by using SILC panel data for the years of 2007-2010 and applying two-year and three-year binary choice models. There is an expectation that in developing countries, the female household head as an independent variable in the model is statistically insignificant on the probability of poverty exit because of the role of female in the society. Contrary to expectations, Acar and Baslevant (2014)'s estimates imply that if household's head is female, the probability of exiting from poverty is high, similarly, household with female headed is less likely to fall under poverty line. Regarding with the other characteristics of household head, both two-year and three-year probit models suggest that years of schooling, full year employment, retiree, home ownership, increase in monetary amounts of labor, rental/property, entrepreneurship and retirement incomes, namely an augmentation in all sources of income are positively correlated with the probability of poverty exit and have a negative effect on the risk of entering into poverty. Moreover, rise in household size, inactive adults, part or full year workers and retirees in households decrease the probability of movement from poverty.

Seker and Dayioglu (2015) explore the events that start poverty spell or end it. They handle two vital events which were first mentioned by Bane and Ellwood (1986), analyzing the changes in income and demographic events in the households. Their main findings are that household head's earning is the most important event triggering individuals to enter into poverty. The other important event leading to begin poverty spell is the decrease in other member's earnings. However, the demographic events have not a great impact on poverty transitions as they are considered.

Gursel and Acar (2015) investigate the factors affecting poverty status by using SILC panel data for the years of 2008-2011. One of the most significant results that there is a positive relationship between being poor and low level of education. In addition to this, individuals whose earnings depend on their labor force are more likely to being poor. Furthermore, poor household are generally crowded and having high number of children compared to the non-poor.

Another study on determinants of poverty in Turkey is Dalgic et al. (2015). They use probit regression model for 2006-2009 and 2009-2012 period and investigate the relationship between multidimensional variables of household characteristics and poverty. It is obtained that household head's age, being female head and high education level have positive effect on the probability of exiting from poverty. Contrarily, the number of children affect negatively the probability of exiting from poverty and positively the risk of being poor. Although job change from being non-active to being employed in labor market has no significant effect on the chance of poverty exit, experience decreases the risk of enter into poverty.

Limanli (2015) runs several probit models to estimate the main factors of household poverty. The findings about the gender and employment status of household head relating to being poor are not conform with the previous research estimations. They suggest that female household heads are more vulnerable to poverty in comparison to other members and unemployed headed households are more likely to enter into poverty. Households with dependents have negative influence on poverty exit because they do not contribute to the household income. On the other hand, being healthier and more educated members have positive effect on escaping poverty. All employment status for both individuals in household and household head are positively related to the probability of being non-poor except unpaid family worker.

By applying random effect multinomial logit model, Sigeze et al. (2018) investigate the general profiles of transitory and chronic poor in Turkey from 2009 to 2012. Their findings suggest that female headed household, higher education level, having regular salary and social security system, income level of household and being retired household head decrease the risk of chronic poverty. On the other hand, the retired household head affects adversely the possibility of exit from poverty. Home ownership is not found statistically significant on the chance of poverty exit, whereas it increases the risk of entry into chronic poverty. In addition to these findings, households without dependent children are more likely to enter into poverty compared to the single ones, whereas, for those households having dependent children, this effect is more powerful.

4.3. METHODOLOGY

We use two probit regression models to estimate the probability of exiting from and entering into poverty. To this end, in the model for poverty exit, the dependent variable is 1, if individuals are not poor in period (t) and are poor in the previous term (t-1). This value is 0 for the individuals who are poor in two consecutive years. In the same way, in the model for poverty entry, the dependent variable is 1 for the individuals who are poor in the current period (t) and are not poor in period (t-1). The value of dependent variable takes 0, if the individuals are not poor in two periods. In this way, we pooled the four-year panel data and estimated two probit regression models from this sample.

A panel probit model is denoted as follows:

$$Y^*_{it} = \beta_i X_{it} + u_{it} \quad (11)$$

$$Y_{it} = \begin{cases} 1, & \text{if } Y^*_{it} > 0 \\ 0, & \text{if } Y^*_{it} \leq 0 \end{cases} \quad (12)$$

It is useful to write equation (12) in terms of indicator function denoted 1(.). This function takes the value one whenever the statement in the brackets is true and zero otherwise.

$$Y_{it} = 1(Y^*_{it} > 0), \text{ for } i=1 \dots n, t=1 \dots 4 \quad (13)$$

We can obtain the distribution of Y_{it} given X_{it} from here.

$$\begin{aligned} P(Y_{it} = 1 | X_{it}) &= P(Y^*_{it} > 0 | X_{it}) = P(\beta_i X_{it} + u_{it} > 0 | X_{it}) \\ &= P(u_{it} > -\beta_i X_{it} | X_{it}) = 1 - \Phi(-\beta_i X_{it}) = \Phi(\beta_i X_{it}) \end{aligned} \quad (14)$$

where $\Phi(\cdot)$ shows the cumulative distribution function (CDF) of standard normal distribution.

Within this framework, our model is denoted as follows:

$$Y = X\beta + \varepsilon \quad (15)$$

where Y shows the status of exiting from or entering into poverty, X is the vector of individual/household characteristics for each person and β is the vector of coefficients associated with the exogenous variables. The X vector consists of the following explanatory variables:

- A: Age
- G: Gender
- E: Education
- C: Chronic disease
- SD: Sectoral decomposition
- S: Social security coverage
- JC: Job change
- JE: Job experience
- I: Income type
- CE: Changes in employment
- H: Home ownership
- D: Dependent children

In our model, the independent variables are chosen accordingly in terms of individual and household characteristics. The individual characteristics are composed of age, gender, education level, having social security coverage, job changes, job experience, type of income, having chronic disease, sectoral decomposition and changes in employment status¹⁸. Age (A) variable begins the age of 15 since TURKSTAT issues SILC panel data set as two tables. The first table includes all household members. However, in the second table, there are only individuals who are at the age of 15 and over. Gender (G) reflects the poverty status of female and male. The female is considered as 1. Education levels (E) denote illiterate, literate with no

¹⁸ This variable involves the transfer income and retirement income. The transfer income sources comprise of unpaid scholarship and donation income, orphan and widow pension and disability, veteran and invalidation out of service pension.

diploma, primary school, secondary school, high school and tertiary education. The illiterate is taken as base category. The health status of individuals is confined to chronic disease (C). Sectoral decomposition (SD) is divided into three main sectors. These are agriculture, industry and services. The agriculture is considered as base sector. Social security coverage (S) reflects whether or not the individuals have social security registration in their current job. Job change (JC) indicates whether the individuals change their job in the last year or not. Job experience (JE) indicates the total number of years spent in working life. Income type (I) includes transfer income and retirement income. Changes in employment (CE) status indicate three different groups: People whose status are from unemployed to employed, from employed to unemployed or not active and from not active to employed. The characteristics related to household are selected as household with home ownership (H) and dependent children (D)¹⁹. Home ownership means the state of owning currently resided of households' home. Subsequently, in addition to the determinants mentioned above, the new model with two additional independent variables is estimated for only household heads. The reason for estimating two different model is to emphasize the roles and the characteristics of household heads in the poverty status in addition to the individuals. Job experience and age are considered as years. Except age and job experience, all variables are taken as dummy because they are qualitative variables.

In the probit model, dependent variable is dummy variable. There is not a linear relationship between independent variables and the probability of dependent variable. In this respect, calculating marginal effects is important in the probit models. Therefore, the impacts of the independent variables on realizing probability of events are expressed by taking into consideration marginal effects of coefficients in the model.

4.4. DATA AND DESCRIPTIVE STATISTICS

As we explain in the chapter two, our data set is composed of the balanced panel data of SILC covering the period of 2011-2014. In the data set, household

¹⁹ Household type is total of one adult and at least one dependent child, two adults and one dependent child, two adults and two dependent children, two adults and three or more dependent children, other households with dependent children.

members aged 15 and over are taken into consideration. The survey involves mainly two data sets, one of which includes information at household level and the other is prepared on individual basis. The data set comprising households includes questions from different categories such as the households with dependent children or single household, home ownership, average expenditure of home, ownership of basic devices for instance washing machine, television, refrigerator, access for internet or capability of buying new clothes etc. The main investigation field of the other data set provides information about gender, marital status, education level, health situation, employment status, sectoral decomposition, having a chronic disease, job changes, total wage, salary, entrepreneur income, transfer income and pension income.

We designate the poverty status of individual as 1, if individual is not poor in the current year and is poor in the previous year, otherwise it takes 0. In the same way, for the model of poverty entry, the dependent variable is 1 for the individual who is poor in the current period and is not poor in the previous period, otherwise it is 0. After pooling the individuals regarding changes in their poverty status mentioned above, we obtain 2.752 observations to estimate the determinants of poverty exit and 12.769 observations when estimating the model of poverty entry. On the contrary, when estimating the model for household heads, the number of observations declines to 1.497 and 7.398 respectively for exit and entry.

We select individual characteristics as age, gender, education level, having chronic disease, having social security coverage, job changes, job experience, types of income namely transfer income and retirement income, sectoral decomposition and changes in employment status. We expect that age has a positive impact on the probability of poverty exit and negative effect on the probability of entry since as the people become older, their income sources and savings increase. The education level of individuals would affect exiting from poverty and entry into poverty in a similar way. A higher education diploma would enhance the job opportunities of people and decreases the possibility of being poor. Job experience is also expected to have positive effect on exiting from poverty and negative impact on entry of poverty. Due to the fact that labor force participation of women is low in our country, it would be harder to move out of poverty for female individuals and heads once they have fallen into and be easier to enter once they have escaped from poverty. The most important factor that

prevent people from falling under poverty line is income. Therefore, it is expected that individuals having transfer income and retirement income are less likely to enter into poverty. Besides, once they have fallen into poverty, they would have more chance to get rid of it.

Regarding employment status of people, job changes would influence the probability of poverty exit and poverty entry both positively or negatively. As might be expected, the change is from status of unemployed to employed or not active to employed increases the chance of exiting from poverty and decreases the risk of poverty. However, an adverse change in employment, namely from employed to unemployed is expected to increase the risk of entry and decreases the poverty exit. Social security system indicates the formal employment. For this reason, we expect that the individuals in social security system have more chance to escape from poverty and have less risk of entry compared to the people that are out of this system. It is expected that people employed in industry and services sector are more inclined to move out of poverty compared to those working in agriculture sector. Moreover, the possibility of poverty entry of them would be low since the rate of informal employment in agriculture sector is high and the wages in this sector are low. In addition, industry and services sector provide people with more strengthened and long-term work agreement. When coming to the variables of household, it would be harder to move out of poverty for household with dependent children and be easier to enter. Homeownership of the households would not have significant effect on the probability of exiting from poverty, however it might decrease the risk of poverty entry.

Table 11 presents the descriptive statistics about poverty status of individuals regarding duration of poverty.

Table 11: Descriptive Statistics of Individuals by Poverty Status

	Never Poor	Always Poor	Poor Once	Poor Twice
Age of head (mean)	42	46	39	49
Age composition (%)				
-15-34	35	46	42	44
-35-44	20	24	22	23
-45-59	28	17	22	19
-60+	17	13	14	14
Gender of household head (%)				
-Female head	14	13	83	28
-Male head	86	87	17	72
Person type (%)				
-Male adult	47	45	54	46
-Female adult	52	55	46	54
Education (%)				
-Illiterate	8	31.5	21	25
-Literate (no diploma)	6	19	10	15
-Primary education	39	31	39	33
-Secondary education	15	15	20	20.3
-High school	18	3	9	6
-Tertiary education	14	0.5	1	0.7
Employment status (%)				
-Gainfully employed	59.6	21	34	29
-Casual worker	5	31	15	20.3
-Employer	5.4	0.4	1	0.7
-Own-account	18	24.6	26	25
-Unpaid family worker	12	23	24	25

Source: Author's Own Calculations based on SILC panel data: 2011-2014.

In the first panel of the Table 11, we observe that the mean age of household head changes from 42 to 49 through all the poverty durations. The mean age is 42 for individuals who have not fallen under poverty line through four years. While the mean age is 46 for those who are always poor, it is 49 for people who have experienced poverty twice.

In the second panel of the Table 11, regarding age composition of household head, it can be inferred that young individuals whose ages are between 15-34 are more inclined to suffer from poverty. It is obvious that this age group has the highest rate in all durations of poverty. The people whose ages are between 45 and 59 have the second highest rate in “never poor” category by 28 %. Among individuals who are always poor, the age of 35-44 has also the second highest rate by 24 %. These two groups have the same rate for people who are poor once. Besides, the lowest level in all poverty durations belongs to the age of 60 and over.

In the third panel of the Table 11, we observe that the rate of female-headed households who have never been poor is 14 %. This rate is 13 % for those who are always poor. While the rate of female-headed households experiencing poverty only once is 83 %, this rate is 28 % for those who have fallen in poverty twice. It is obvious that households with female head are more likely to become transient poor. In all poverty periods except “poor once”, the percentage of female-headed ones is low. While the rate of male-headed households who are never poor is 86 %, this rate is nearly the same for those who are always poor by 87 %. The rate of male-headed ones who have experienced poverty once is 17 %, however, the rate of those falling below poverty line twice is 72 %. It can be observed that although the rate of male-headed households who have not fallen under poverty line for the given period is high, they experience poverty more persistently compared to female-headed counterparts.

In the fourth panel, regarding the gender composition of adult individuals, we observe that the rates of male and female adults are very close to each other. While the rate of male adults is 47 % for “never poor” category, this rate is 52 % for the female adults. The male and female share nearly the same rates in “always poor” and “poor twice” categories. However, the rate of male adults who have experienced poverty once is 54 % and it is 46 % for the female adults.

In the fifth panel, it is observed that in the “never poor” category, the illiterate individuals and people who are literate with no diploma have the lowest level, respectively 8 % and 6 %. Among illiterate individuals, the rate of people who are always poor is 31.5 % and it is the highest level in this category. Individuals completed primary school have the highest rate in all spell durations. The reason might be that there is a high number of people graduated from primary school in Turkey. While the

rate of individuals with primary school diploma is 39 % in people who are never poor, this value is 31 % in “always poor” category. For secondary education, the rate of people who have fallen under poverty line once or twice is 20 %. However, in this education level, the rate of individuals who have not experienced poverty is 15 %. This rate is the same for the people who are always poor. In high school education, the rate of individuals who are never poor is 18 % and it is 3% for those who are always poor. The rate of people who have experienced poverty once and twice in that period is respectively 9 % and 6 %. For the individuals who have tertiary education diploma, while the rate of those who are never poor is 14 %, the rate of people who are always poor declines to 0.5 %. These results show that as the education level of people increases, the rate of the persistent poor decreases and poverty becomes more transient.

With regard to the employment status, the rate of gainfully employed individuals is 59.6 %. This is a high ratio among the people who have not experienced poverty in the given period. It shows that regular salary protects gainfully employed from falling into poverty. Among them, the rate of those who are poor once and twice is respectively 34 % and 29 %. Among all employment status, the highest rate of “always poor” and the lowest level of “never poor” belong to casual workers, namely 31 % and 5 %, respectively. Casual workers have more tendency to remain in poverty for a long period. It means that they are more likely to suffer from persistent poverty among all groups. High percentage of employers belongs to “never poor” category, namely 5.4 %. Only 0.4 % of them are poor in the four years. Among individuals who are always poor, people working on their own account has the second highest level by 24.6 %. The rates of those who have experienced poverty once and twice are nearly the same, respectively 26 % and 25 %. The rate of individuals who are never poor is only 18 %. Hence, we infer that the percentage of both persistent poor and transient poor are high among people working their own account.

Unpaid family workers have similar status with people working on their own account. The rate of unpaid family workers who are not poor in four years is 12 %. However, individuals in status of “always poor”, “poor once” and “poor twice” have similar percentage from 23 % to 25 %. Therefore, among all employment status, gainfully employed and employer are considered as transient poor due to their duration

of poverty spell. However, casual workers, people working own account and unpaid family workers have more tendency to experience poverty for a long period.

4.5. EMPIRICAL RESULTS

In this section, the estimation results related to the main determinants of the probability of poverty exit and poverty entry are presented. Analyzing the factors affecting poverty of individuals are reported in Table 12.

In accordance with our expectations, there is a negative relationship between age of individuals and the probability of being poor. Namely, as the individuals are getting older, the probability of exiting from poverty increases and the risk of entering into poverty decreases. It might be related to the higher saving level of individuals at older ages. Our result contradicts to the finding of Devicienti (2002). They obtain that elderly individuals face relatively higher risks of staying in poverty longer. Similarly, Polin and Raitano (2012) find that the individuals aged 55-64 have higher poverty risk in comparison with the other age groups in Nordic countries.

Gender has a statistically significant effect on the probabilities of exiting and entering poverty such that 1 % change in the state of being female rises the probability of escaping poverty by 14 % and decreases the risk of entry by 3 %. Contrary to our expectations, female individuals have more chance of leaving poverty compared to males, correspondingly, they are less likely to enter poverty proceeding periods. Our estimation contradicts to the result of Devicienti et al. (2011) who suggest that being female increases the risk of being poor. Polin and Raitano (2012) also find that being female rises the probability of poverty entry in Nordic countries. One reason for this result might be related to the marital status of women in our country. The labor force participation of women in Turkey is lower than that of the European Union countries. Concerning this issue, we can infer that being married protects female from the risk of poverty in Turkey.

Education level of individuals has a significant impact on poverty transitions. As might be expected, getting higher education level remarkably rises the probability of escaping poverty for each graduation level and diminishes the probability of entering into poverty at 1% significance level. However, there is not a significant

relationship between having no diploma and the probability of exiting poverty. Our result is in compliance with Polin and Raitano (2012) whose estimation shows that high educational level is associated with a lower probability to fall under poverty line in EU countries.

We find that chronic disease has not a considerable impact on the possibility of exiting poverty. However, as in accordance with our expectation, it is significant for the poverty entry.

Contrary to our expectation, working in industry or services sector is not significantly correlated with poverty exit. However, as we expect, it declines the probability of entering into poverty. Namely, while 1 % increase in the state of working industry sector slows down the risk of being poor by 2 %, 1 % increase in the state of working services sector decreases the probability of entering into poverty by 3 %.

It seems that two notable variables having influence on poverty transitions are social security coverage and job changes. As expected, having social security coverage has significant effect on both the probability of exit and the probability of entry. Namely, 1 % change in the state of having social security coverage increases the probability of escaping poverty by 15 % and decreases the possibility of entry by 3 %.

As we expect, job changes have two-sided effect on the poverty transitions. Job changes have a statistically significant positive impact on the poverty exit and poverty entry. Namely, 1 % increase in the state of changing the job increases the probability of poverty exit by 7 % and probability of poverty entry by 1 %. The prime reason for this is that job changes cover both higher and lower position and contribute to individuals' income with positive or negative way.

Contrary to our expectation, job experience has not a significant effect on the probability of exiting from poverty. However, as we expect, it is significantly and negatively correlated with the probability of poverty entry.

Analyzing the effect of income types on poverty, we handle two sources of individuals' income, namely, transfer income and retirement income. In accordance with our expectation, transfer income rises the probability of exiting from poverty and retirement income has a remarkable impact on the probability of entering into poverty. However, contrary to our expectation, transfer income has no significant effect on the possibility of poverty entry and retirement income is not significantly correlated with

the poverty exit. It can be seen that the effect of transfer income on moving out poverty is powerful, namely, 1 % rise in the transfer income of household increases the probability of escaping poverty by 31 %. Besides, 1 % increase in retirement income decreases the risk of poverty by 2 %. It might be stemmed from that getting a regular salary plays a vital role for individuals to be protected from the economic fluctuations.

In the case of changes in employment status of individuals from employed to unemployed, as expected, it diminishes the probability of exit and rises the risk of entry. However, the status from unemployed to employed has no significant effect on either poverty exit or entry. 1 % increase in the status from not active to employed rises the probability of exiting from poverty by 4 %.

To summarize, there is a positive relationship between age of individuals, education level, having social security coverage, job changes, transfer income and the probability of exiting from poverty. On the other side, chronic disease, job experience, retirement income and working in industry or services sector have not a significant effect on the probability of poverty exit. Regarding probability of poverty entry, people working in industry or services sector have lower risk of being poor compared to those working in agriculture sector. Although job changes, job experience and retirement income have a significant and negative effect on the probability of entering into poverty, having social security coverage and transfer income have not a remarkable impact on the probability of poverty entry. The case of changes in employment status of individuals from employed to unemployed diminishes the probability of poverty exit and rises the risk of entry. However, the status from unemployed to employed has no significant effect on either poverty exit or poverty entry.

Table 12: The Determinants of Poverty by Individual Characteristics

Variables	Poverty-exit		Poverty-entry	
	Coefficient	Marginal effect	Coefficient	Marginal effect
Individual Characteristics	β	dy/dx	β	dy/dx
Age	0.007*	0.0026	-0.015***	-0.0014
	(0.004)	(0.001)	(0.003)	(0.0002)
Gender (Male)	0.388***	0.1436	-0.448***	-0.0376
	(0.067)	(0.025)	(0.048)	(0.003)
Education level (Ref. Illiterate)				
Literate with no diploma	0.060	0.0219	-0.317***	-0.2359
	(0.105)	(0.038)	(0.088)	(0.005)
Primary school	0.392***	0.1412	-0.653***	-0.0580
	(0.082)	(0.029)	(0.068)	(0.006)
Secondary school	0.753***	0.2889	-0.860***	-0.0504
	(0.110)	(0.042)	(0.084)	(0.003)
High school	0.864***	0.3335	-1.174***	-0.0651
	(0.130)	(0.048)	(0.090)	(0.003)
Tertiary education	0.883***	0.3412	-1.678***	-0.0787
	(0.254)	(0.092)	(0.129)	(0.003)
Chronic disease	-0.050	-0.0182	0.084**	0.0083
	(0.058)	(0.092)	(0.041)	(0.004)
Sector (Ref. Agriculture)				
Industry	0.074	0.0270	-0.240***	-0.0217
	(0.069)	(0.025)	(0.049)	(0.004)
Services	0.069	0.0254	-0.431***	-0.0375
	(0.077)	(0.028)	(0.056)	(0.004)
Social Security Coverage (SSC)	0.417***	0.1557	-0.360***	-0.0367
	(0.063)	(0.024)	(0.044)	(0.004)
Job Changes	0.189*	0.0702	0.145***	0.0152
	(0.074)	(0.028)	(0.055)	(0.006)
Job experience (year)	0.003	0.0013	-0.005*	-0.0005
	(0.004)	(0.001)	(0.145)	(0.0002)
Income types				
Transfer income	0.814**	0.3157	-0.173	-0.0142
	(0.369)	(0.138)	(0.145)	(0.010)
Retirement income	-0.203	-0.0696	-0.375*	-0.0263
	(0.391)	(0.126)	(0.136)	(0.006)
Changes in employment status				
From unemployed to employed	-0.097	-0.0345	0.265	0.0314
	(0.123)	(0.042)	(0.628)	(0.090)
From employed to unemployed/not active	-0.253**	-0.0860	0.190***	0.0206
	(0.124)	(0.039)	(0.058)	(0.007)
From not active to employed	0.118**	0.0428	-0.044	-0.0040
	(0.053)	(0.019)	(0.418)	(0.036)
Number of observations	2752		12769	
Log-likelihood	-1648		-2894	
LR chi2	214***		828***	

Source: Author's computations. Standard errors are in parenthesis.

*, ** and *** indicates significance level at 10%, 5% and 1%.

Table 13 demonstrates the estimated findings of household heads' poverty transitions. The empirical results show that as the household head is getting older, the chance of leaving poverty of households rises. This result is in line with Dalgic et al.

(2015), however it contradicts to estimation of Caglayan et al. (2012) who find that an increase in age of household head brings a rise in the risk of poverty.

Being female headed household is a statistically significant on the probabilities of both exiting and entering poverty at 1 % significance level. It is observed that if household head is female, it leads to increase in the possibility of exit and decrease in the risk of entry. Indeed, the marginal effects of these variables exhibit that for households, 1% rise in the state of being headed by female increases the possibility of leaving poverty by 17 % and decreases the risk of entry by 2 % compared to male headed households. This result is in line with the previous literature. That is to say, Devicienti (2002) suggests that people living in household with female headed are not under higher risk of remaining in poverty. Correspondingly, Acar and Baslevent (2014) find that female headed households are more likely to exit from poverty and less likely to enter into poverty. In a similar way, Dalgic et al. (2015) mention that households with female head have less risk of being poor. The result is also consistent with Sigeze et al. (2018), implying that the possibility of being transient or chronically poor for the households with female heads is lower than those with the male heads. Certain studies attain contradictory results with our finding related to female-headed households (Cappellari and Jenkins, 2002; Polin and Raitano, 2012; Limanli, 2015). Their results suggest that households with female-headed have less chance to move out of being poor or they are more vulnerable to poverty.

We find that each education level of household heads significantly increases the probability of leaving poverty and decreases the possibility to come back again in poverty for the households. Only in literate with no diploma the effect is not significant. This result is similar to finding of Andriopoulou and Tsakloglou (2011a) who observe that higher education of the household head significantly increases the possibility to exit poverty in most EU countries. Our result is also consistent with the previous literature related to Turkey (Acar and Baslevent, 2014; Dalgic et al., 2015 and Sigeze et al., 2018).

Regarding chronic disease variable, our result indicates that there is no significant relationship between bad health situation of household head and the probabilities of exiting from and entering poverty. This finding contradicts with Dalgic

et al. (2015) who observe that there is no significant correlation between poverty exit and chronic disease, however, it increases the household's risk of poverty.

We observe that the industry and services sectors are significantly correlated with the probability of entering into poverty. Even though working in industry and services sector decreases the risk of being poor, it has no remarkable effect on the probability of moving out poverty. In parallel with our result, Dalgic et al. (2015) also find that working in industry or services sector relatively decreases the risk of poverty.

Another important variable is social security coverage which has a strong effect on both possibilities of exiting and entering poverty. On the other hand, its effect on the exit probability is higher than that of the risk of entry such that 1% rise in the state of having social security increases the probability of escaping poverty by 14%. Also, we observe that while job experience has an only impact on the possibility of poverty entry, job changes of household heads influence both probability of poverty exit and entry. As we mentioned in the previous table, job changes are positively related with two dependent variables. To put it in a different way, depending on the status of new job, it leads to fall or rise in regular income and it might affect the households' income level positively or adversely.

With regard to the income types, only retirement income is estimated in our model for household heads. Surprisingly, retirement income has no significant impact on the probability of poverty exit, however, it diminishes the risk of entering into poverty, which is in line with Acar and Baslevent (2014). This result indicates that households have not an ability to leave poverty when the household heads earn only retirement income. In other words, this type of income does not help households exit from poverty especially when the economy is in bad situations. In fact, they need to have other sources of income and assets to overcome the situation of being poor. In some periods, it can protect them from falling under poverty line, however, this effect is very low with magnitude. In case of 1% increase in retirement income provides households with 3 % decrease in the risk of being poor. In contrast to our result, Dalgic et al. (2015) find that there is no significant relationship between retirement income and the probability of transitions into poverty and transfer income has an adverse effect on both the probability of poverty exit and entry.

Considering employment status of household heads, it is observed that a change in the status of household head from unemployed to employed does not make a significant impact on the probability of transition. Conversely, if the direction of change is from inactive to employed (%1), it provides a rise in the probability of exiting from poverty (%4). It seems a paradoxical situation at a first glance, however one of the reasons for this might be unemployment insurance. In the case that households' heads find a job after unemployment period, due to losing the unemployment insurance, having a new job does not make a difference in terms of poverty status. When employment status of household head changes from employed to unemployed or not active, as expected, it makes easier to enter into poverty for this household.

We would like to emphasize that home ownership and dependent children are other notable factors that to be expected powerful impact on transitions of poverty. Contrary to expectations, our findings show that home ownership is not significantly related with probability of exiting, on the other side, it makes harder to fall under poverty line by decreasing the probability of being poor, which contradicts to the observations of some previous studies (Polin and Raitano, 2012; Acar and Baslevent, 2014). In these studies, it is found that home owner households have a higher possibility in order to exit from poverty.

Finally, our finding about dependent children seems to be outstanding. This variable is significantly related to the probability of poverty exit and entry. In accordance with our expectation, households with dependent children are more likely to enter into poverty compared to those without dependent children. That is to say, 1% rise in the state of having dependent children increases the probability of entering into poverty by 2%. However, contrary to our expectation, having dependent children also gives rise to increase in the probability of poverty exit by 6%. Consequently, this variable affects poverty exit and entry in the same direction and its impact on the possibility of poverty exit higher than the probability of falling below poverty line. Our result is in compliance with Andriopoulou and Tsakloglou (2011a) who find that in Denmark, Finland, Austria and Ireland families with dependent children have high chance to exit from poverty. However, it is opposite effect for those living in other EU

countries. Devicienti et al. (2011) also indicate that people living in households with many children have higher risk of poverty.



Table 13: The Determinants of Poverty by Household Head Characteristics

Variables	Poverty-exit		Poverty-entry	
	Coefficient β	Marginal effect dy/dx	Coefficient β	Marginal effect dy/dx
Household Head Characteristics				
Age	0.005 (0.006)	0.0019 (0.002)	-0.008* (0.004)	-0.0007 (0.0004)
Gender (Male)	0.448*** (0.175)	0.1714 (0.069)	-0.419*** (0.122)	-0.0264 (0.005)
Education level (Ref. Illiterate)				
Literate with no diploma	0.121 (0.160)	0.0443 (0.059)	-0.236 (0.148)	-0.0169 (0.008)
Primary school	0.369*** (0.136)	0.1288 (0.0046)	-0.591*** (0.121)	-0.0503 (0.010)
Secondary school	0.595*** (0.173)	0.2282 (0.068)	-0.843*** (0.138)	-0.0439 (0.004)
High school	0.844*** (0.193)	0.3255 (0.073)	-1.150*** (0.142)	-0.0593 (0.005)
Tertiary education	1.338*** (0.438)	0.4894 (0.121)	-1.821*** (0.195)	-0.0770 (0.005)
Chronic disease	-0.084 (0.075)	-0.0300 (0.026)	0.047 (0.054)	0.0042 (0.004)
Sector (Ref. Agriculture)				
Industry	-0.038 (0.091)	-0.0138 (0.032)	-0.174*** (0.066)	-0.0147 (0.005)
Services	-0.068 (0.103)	-0.0240 (0.036)	-0.369*** (0.074)	-0.0302 (0.005)
Social Security Coverage (SSC)	0.400*** (0.077)	0.1459 (0.028)	-0.409*** (0.057)	-0.0412 (0.006)
Job changes	0.211** (0.094)	0.0777 (0.035)	0.159** (0.072)	0.0155 (0.007)
Job experience (year)	0.009 (0.005)	0.0032 (0.002)	-0.010** (0.004)	-0.0008 (0.004)
Income types				
Retirement income	0.341 (0.492)	0.1294 (0.194)	-0.701*** (0.185)	-0.0352 (0.004)
Changes in employment status				
From unemployed to employed	-0.032 (0.175)	-0.0116 (0.061)	0.111 (0.645)	0.0106 (0.067)
From employed to unemployed/not active	-0.168 (0.180)	-0.0578 (0.059)	0.306*** (0.088)	0.0335 (0.011)
From not active to employed	0.130* (0.072)	0.0464 (0.025)	0.569 (0.648)	0.0793 (0.129)
Home ownership	-0.084 (0.079)	-0.0301 (0.028)	-0.205*** (0.055)	-0.0183 (0.005)
Dependent children	0.175*** (0.070)	0.0621 (0.024)	0.281*** (0.058)	0.0224 (0.004)
Number of observations	1497		7398	
Log-likelihood	-891		-1603	
LR chi2	111***		478***	

Source: Author's computations. Standard errors are in parenthesis.

*, ** and *** indicates significance level at 10%, 5% and 1%

4.6. CONCLUSION

In this section, we study on the main determinants of being poor by explaining methodology, selected characteristics and estimation results. To begin with, descriptive statistics are presented regarding age composition, gender, education and employment status. In addition to this, the independent and dependent variables are mentioned in order to understand the structure of panel probit regression model. Following, the models are estimated for the dependent variables, namely, the probability of exiting from and entering into poverty and finally the empirical results are presented.

For the studied period, people are classified into four categories depending on their durations of poverty spell as never poor, always poor, poor once and poor twice. According to this classification, it is observed that male-headed households experience persistent poverty substantially in comparison with female-headed counterparts. Female-headed households are more likely to experience poverty as transient poor. However, the rates of female and male adults are very close in all poverty periods. Compared to older individuals, young people between 15-34 ages have more tendency to suffer from persistent poverty. Descriptive statistics show that regarding education level, individuals graduated from primary school commonly exist in all spell durations. Although the rate of gainfully employed individuals is high among the people who are never poor, casual workers are inclined to remain in poverty for a long period.

Our empirical results exhibit that age and gender are statistically significant on the probabilities of exit and entry. Young individuals have less chance to exit from poverty compared to older ones. In this respect, young people are highly needed to support by government in terms of transfer income. One of the main policies in order to encourage them may be allocating high level of social aid from the budget. In the same manner, female individuals are more likely to moving out poverty in comparison to male individuals. People working in industry and services sectors face with a lower poverty risk compared to individuals taking part in agriculture sector. While social security coverage and job changes increase the possibility of exiting from poverty, they have negative effect on the probability of entering into poverty.

Regarding income types, even though transfer income has positive impact on the possibility of poverty exit, retirement income is significant on the probability of poverty entry. Employment status is another important variable related to poverty. When individuals' job changes are from employed to unemployed or not active to employed, these new situations affect significantly their poverty status. As expected, the first change influences positively the chance of poverty exit and negatively the risk of poverty entry. The second type of change, namely, not active to employed, plays a positive role on the probability of exiting from poverty.

Estimation results of households point out two important observations. First, whilst home ownership is not statistically significant on the probability of poverty exit, it has a significant impact on preventing households from falling into poverty. Second, the number of dependent children influences the household's probabilities of moving out and entering into poverty in the same direction.

Regarding policies in order to reduce poverty, our findings confirm that there are substantial contributions of educational level, work status and types of income for staying out of poverty. This assigns vital roles for individual behavior and public policies that strengthen education, work attachment and economic growth. With regard to employment decomposition, people working in the industry or services sectors are inclined to maintain their non-poverty status compared to those taking part in agricultural sector. People working in agriculture have in difficulty to close poverty spell. The reason behind this, in our country as in many developing countries, there is a high level of hidden unemployment rate in agricultural sector. In addition, low productivity level is another reason for the poverty in this sector. The development of rural economy by supporting social and physical infrastructure of agriculture can be offered as primary solutions.

Transfer income and retirement income have also remarkable effect on the poverty status of individuals. While the transfer income is especially significant on escaping from being poor, the retirement has two-sided impacts. Having only retirement income does not ease ending vicious circle of poverty. That is to say, it has not a significant effect on the probability of poverty exit. However, it is determinant to prevent from falling in poverty. Therefore, social transfer is needed to support people in addition to retirement income. In a similar way, homeownership is another

factor to preserve people away from status of poor. However, it does not play a significant role on the possibility of leaving poverty. Consequently, anti-poverty policies should involve combining more than one-side policy instead of following one-development pathway. In this respect, government has an important role in enhancing personal skills of people as part of education and unemployment policies in Turkey.

Having dependent children for the family is another important variable. As expected, dependent children make harder leaving poverty. On the other hand, it has also positive effect on preventing from transition into the poverty. It may stem from that social aid is used to support people with dependent children by government. However, due to the fact that these aids might not be attainable for all such families in the society, it does not play an effective role on pushing individuals out of poverty.

CONCLUDING REMARKS

Poverty has been one of the most important issues in Turkish economy. In developed countries, there are many studies depending on investigating different relationships between poverty and its wide extensions. In recent years, particularly the dynamic aspect of poverty has been studied in many countries involving both developed and underdeveloped. However, in Turkey, the studies are more confined to the static version and the number of studies emphasizing dynamic structure of poverty is very limited. That is to say, many sides of dynamic relations between determinants of poverty are still unknown.

Recent studies tend to apply new methods of poverty. One side of methods using dynamic approach is called spell analysis. In this method, the studied period for individuals is partitioned in one-year term and in the second way, the combining factors that make individuals stay under poverty line are reported. The existing studies in this framework focus on developed countries and they bring new questions on how poverty is linked to the characteristics of individuals and households.

In our study, first, we calculate the length of poverty spell for two poverty waves. The results suggest that the probability of escaping poverty is getting harder when the poverty spell becomes longer. Conversely, the re-entry rates nearly remain the same level after two years. In other words, there is no change in the risk of falling below poverty line for the individuals who experience poverty either one year or two years.

Regarding transient poor and persistent poor, most of the unemployed household heads were persistent poor. However, a high level of the pensioners was transient poor in the given periods. Another group suffering from persistent poverty was not active group. The majority of this group experienced poverty more than two or three years. Besides, our result show that the female household heads having high school or university diploma experience poverty to be transient poor. Concerning the poverty transition rate, we obtain that whilst the average rate of transition out of poverty in Turkey is 29 %, the average rate of poverty entry is 6 % for that period. When considering the difference between poverty transition rates and the prevalent of poverty in the unemployed people, producing policies that provide people with

sufficient income and sustainable job is decisive for reducing the risk of persistent poverty.

Second, we analyze the main determinants of poverty to perceive the answer of what the relationships are between some socio-economic and structural types of individuals or households and the possibility of being poor. Moreover, to what extent those variables are significant on the status of poverty. These inquiries require concentrating on the variables that members of households can influence for instance, finding or losing a job, types of industry, sources of income, educational diploma and having social security coverage. Using two probit models, we estimate these relationships for both members of households and only heads of households separately.

The implication of this part gives weight on variables related to human capital, income level, gender of household head, health status of individuals and structure of household. Our empirical results show that age, gender, social security coverage, job changes, experience in working life, sectoral decomposition, educational level, transfer/retirement income, chronic disease, households having dependent children and homeownership are significantly related to being poor. Although age, gender, level of diploma, having social security and job changes have an influence on the probabilities of poverty exit and entry, chronic disease, working in industry or services sector, working experience and retirement income have only remarkable impact on the probability of poverty entry.

Social security coverage is another important factor. People remaining out of this system are more inclined to fall in poverty. In this context, informal employment should be prevented by way of governmental policies.

Given the model, we research the durations of poverty spell and the crucial parameters to explain which situations make individual living in poverty conditions. One of the most important results is connected with the education level. As individuals get the higher level of diploma, the possibility of escaping poverty rises and the risk of transition into poverty diminishes. We can directly make an inference that the education policy should be one of the most important public objectives to be comprised and implemented in a reasonable way for reducing poverty by policy makers. Besides, the estimation results indicate that keeping and losing job have a remarkable impact

on the possibility of being poor. Therefore, sustainable economic growth and creating new employment areas are necessary to be succeeded by public policies.

We also find that women conducting their family play a crucial role to end poverty circle of the households. As the same in several previous studies, our result suggests female-headed households are more capable of keeping away from being poor. Once they have fallen in poverty, they accomplish to get rid of it. The reason for this, women might manage the decision-making process in a rational way, particularly in the patterns that require economic perspective. Furthermore, this result strengthens the idea that positive discrimination policy not only affects the balance in the working life, but also helps for economic recovery in the country. In line with this result, it is necessary to increase the labor force participation of women in the working life.

As a consequence, one reason why poverty is such a complicated issue is that there is no short-cut cure of poverty, implying that it is combined with more than one factor. It is worth giving significant attention to the poverty, since it is an indicator for understanding the real conflicting patterns in the economy. Therefore, it needs well-developed cures to reduce poverty in Turkey. A major part of policy to cope with risk of poverty should be strengthening the income level of the poor, suggesting systems which maintain their non-poverty status in a long term. In order to succeed it, there must exist sustainable growth process in the country. Moreover, government should support people living under poverty line with social aids since our study show that transfer income works effectively in exiting from poverty. Given that the development of human capital such as education, intellectual skills and employment qualities are gained in a long run, the fact that public policies supervising in the short-run should be also taken into consideration by policy makers.

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