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Master programme in Economic History

Income Inequality and Education in Turkey

1980-2005

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Abstract: Income inequality is a significant problem we face today. The study examines the correlation between income inequality and education in Turkey during the 1980 - 2005 period by using data from national surveys, Gini coefficient, Lorenz Curve and income quintile share ratio methods. The study concludes that the declining trend of Turkish income inequality is partly due to the education. Regarding the correlation between income distribution and education, distribution of income by level of education, average years of schooling, educational attainments, rates of return on education and expenditure on education are examined. The results show that there is a significant positive correlation between education and income distribution. This result suggests that more equal access to education led more equal income distribution.

Key words: Income inequality, education, Turkey

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LIST OF ABBREVIATIONS

GDP	Gross Domestic Product
IMF	International Monetary Fund
MONE	Ministry of National Education
OECD	The Organization for Economic Cooperation and Development
SPO	State Planning Organization
TL	Turkish Lira
TURKSTAT	Turkish Statistical Institute (Turkstat)
TUSIAD	Turkish Industry and Business Association
UN	United Nations

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CHAPTER 1

INTRODUCTION

1.1 The Current State

There is a widespread concern about unequal income distribution all around the world. Organization for Economic Cooperation and Development (OECD, 2008), indicated that a multitude of theoretical and empirical studies show income inequality is increasing across the globe.

There are plenty of supporting arguments which indicate that income inequality has increased more or less continuously in many developing and developed countries. For instance, a United Nations (UN) report (2013) indicates that income inequality has been increasing in the majority of developed economies and in some of the developing economies over the last few decades. The report asserts that inequality in disposable income rose in 65 out of 130 countries between 1990 and 2012. The population of these countries covers more than two thirds of the world population.

Furthermore, the International Monetary Fund (IMF, 2014), indicated that disposable income inequality has risen in a majority of European countries between 1990 and 2010. In addition, it has claimed that inequality increased in many countries in Asia and the Pacific, in the Middle East, and in North Africa. During this period there was a decline on average inequality in sub-Saharan Africa. Even though there was a slight reduction in income inequality between 1990-2012, it has remained high in Latin America and the Caribbean regions which have one of the highest levels of inequality after Africa between 1990 and 2012 (UN, 2013).

The OECD has claimed that income inequality started to increase at least in the mid 1980s and most probably from the mid 1970s, in a study examining 30 developed OECD nations (OECD, 2008). In OECD countries the average of the Gini coefficient of income inequality was 0.29 in the mid 1980s; however, it has risen by almost 10 percent to 0,316. Income inequality has increased in 17 OECD countries, for instance Finland, Germany, Israel, Luxembourg, New Zealand, Sweden, and the United States. It has, however, decreased in Turkey, Greece, France, Hungary, and Belgium in the mid 1980 to 2000 era (Stand, 2011).

Despite growing income inequality across the globe, Turkey has a decreasing trend of income inequality. The indicator has steadily fallen from 0.52 to 0.40 between 1980 and 2012 (Turkish Statistical Institute (TURKSTAT), 2011).

1.2 Problem Statement and Research Question

A lot of theoretical and empirical studies have been performed in order to explain the causes behind income inequality. Particularly, recently there has been a growing interest in examining income inequality all around the world, due to the negative influence of income inequality on social, political and economic developments (UN, 2013).

More specifically, unequal income distribution constructs an inadequate economic system that creates a barrier for economic growth and participation of every segment of society in the labor market (Stiglitz, 2012). Furthermore unequal income distribution has a negative impact on social development by slowing the poverty reduction that creates restrictions for social mobility opportunities (UN, 2013). In addition to this, income inequality creates gaps among people by restricting access to education facilities, whereas it is widely accepted fact that education is in the center determinants of income inequality in terms of improving income distribution. The importance of education is not only significant for individuals - education influences, directly or indirectly, every aspect of society in terms of economic, political and social life.

Due to the all these implications, it is important to put income inequality and its determinants in the center of the studies.

It is clear that there are many sources of income inequality; however, education is accepted on a large scale as a significant determinant of income inequality. Therefore, in this study education will be examined.

The main aim of this study is to discover whether decreased income inequality in Turkey can be related to educational developments. On account of this, the study analyzes the relationship between education and income inequality in order to explain the recent decline of income inequality in Turkey for the period of 1980-2005. In the light of theoretical and empirical literature, the study attempts to answer the following questions:

- Is there a correlation between education and income inequality? If yes, how?
- Is education the driver for the fall of income inequality in Turkey since 1980 and how? Why?

Different types of income inequality have been studied by researchers from different perspectives throughout history. In the literature, the most researched types of income

inequality are functional, individual, sectoral and regional income inequality. However, in this study, individual income inequality, which is defined as the share of total income received by individuals or households at a point in time, will be analyzed.

1.3 Significance of the Study

The reason why Turkey has been selected as the case for the study is that in terms of economic growth among OECD countries, Turkey is one of the most significant economies. It plays a significant role in the global financial markets as an emerging economy. Furthermore, Turkey is a country that is the center of economic and cultural integration with the world and has a growing 70 million market. In addition, the economical and political relationship between Europe and Turkey is increasing recently due to its potential membership of the European Union (Pamuk, 2007). In addition, in terms of income inequality, Turkey is one of the OECD members that present highest income inequality rate after Mexico (OECD, 2008). Even though there has been a decline since 1980, Turkey still has a relatively high income inequality rate compared to other countries in the world. This rate raises the concern of the Turkish government as well as national-international economists (OECD, 2008). This study may attract attention of policymakers to show that income distribution, an important indicator of countries developments, is getting better by education expanding.

Another significant point is that there is a growing trend of income inequality in many countries around the world, while Turkey has a decreasing trend. To understand this trend may help countries which have increased inequality trends.

Therefore, Turkey's declining income inequality trends and its relation to education developments has been find an interesting topic to be analyzed. Answering these questions may present an important result to be taken as advices for policy makers.

1.4 Contribution of Study to the Literature

There has been a growing literature about unequal income distribution in Turkey. However, the majority of these studies are descriptive and they consist of only general theoretical explanations, usually because of the limited number of related surveys and the lack of data. Furthermore, studies have focused only on the degree of high inequality, without an explanation of its causes, or they examine limited time period. In addition, there are a limited number of studies that analyze the declining trends. For instance, there is a significant study,

which is conducted by Sari (2002), however, it has examined a very limited geographical area. In addition, Gursel et al. (2000) has presented a comprehensive study, but it is descriptive and does not include the recent decline trend. On the other hand, a few significant studies were conducted by Ozgur (2005), Turkmen (2002) and Tek (1987). These studies have presented important evidence regarding relationship of income distribution and education and recent decline of income inequality in Turkey. However, these studies have examined very short time period.

This study tries to fill the gaps by compiling these studies and using the latest data for an extensive time period. Also, the study emphasized the recent decline of income inequality by examining all these theoretical and empirical studies. In addition, this study provides a comprehensive summary of Turkish income inequality with its causes by gathering studies.

1.5 An Overview

This study analyzes the relationship between income inequality and education and examines its dynamics in Turkey for the period 1980-2005. The study consists of 4 chapters, including the introduction.

In the first chapter, current state of the problem, the significance of the study, problem statement, research questions and contributions of the study are presented. In addition, literature concerning income inequality was introduced.

In the second chapter, methodology and data are presented. Further, the methods used in the study: namely, the Gini coefficient, the Lorenz curve and the income quintiles share ratio are introduced.

In the third chapter, the association between income distribution and education is explained. Besides, the main findings of various studies concerning the subject and theoretical background are examined.

In the fourth chapter, the correlation between income distribution trends and education in Turkey is investigated. In this context, first of all, a summary of the general sources of income inequality in Turkey is presented. Second of all, income inequality trends for the specified period are analyzed by using national survey data. Then, the structure of the Turkish education system is presented in order to be able to understand the connection between education and income development. Thirdly, in order to evaluate the effect of education on income inequality, income distribution by different levels of education is examined. For this reason, the average years of schooling of total population aged 15 and over are analyzed and

compared to developing, developed and world indicators. Furthermore, educational attainments of different income groups are examined by using income quintiles share ratio method. Fourthly, return on education and education expenditure are investigated. In this part, first, return to education by level of schooling is examined to find out the transition of income among different educated groups. Secondly, public education expenditure trends and public education expenditure per student by level of education are examined.

Finally, a summary and conclusion considering the result of the study and suggestions to policies are presented.

1.6 Literature Concerning Determinants of Income Inequality

A number of studies have tried to explain the origin of income inequality by using a variety of models and theories. In order to understand the mechanism and causes of income inequality, it is necessary to explore previous theoretical and empirical studies regarding the most important determinants on income inequality.

In this part, the literature review is concentrated around trade openness, financial openness, technological progress and education. Special attention will be paid to education in the next chapters.

The Heckscher-Ohlin and Stolper-Samuelson theories are the most applied theories in the literature in order to explain how global integration affects labor markets. First of all, the Heckscher-Ohlin theory examines the relationship between trade and wages for skilled and unskilled labor. It focuses on the product prices in both developing and developed countries. According to the model, developed countries should specialize in order to get a comparative advantage over developing countries, which have an abundance unskilled labor (Wood, 1998).

Similarly, the Stolper-Samuelson theorem, which adopted the Heckscher-Ohlin theory, claims that trade openness produces factor price equalization, thus it narrows international distinctions in factor prices and per capita income levels because of competition. That is, trade openness increases demand for unskilled labor and as a result narrows the wage gap between skilled and unskilled labor (Meschi and Vivarelli 2007).

In the same vein, O'Rourke and Williamson (1999) stated that globalization provides a considerable increase in the international movement of goods and capital. Due to these movements wage gaps narrow.

Another study which supports this view has conducted by Adrian Wood (1997), investigated the relationship between openness and income inequality in developing East Asian countries during the 1960s and 1970s. He has claimed that openness to trade tended to decrease income inequality by narrowing the wage gap between skilled and unskilled labor.

A similar study was conducted by Munshi (2012). He investigated the relationship between liberal trade and wage inequality. Munshi has used the panel data regarding trade openness and wage inequality in Bangladesh in the 1975-2002 period. According to his findings, free trade has a positive impact on income distribution.

Moreover, in 1990, Frankel and Romer (1999) examined the relationship between trade and income distribution by using data from 150 countries for the year 1985. According to their findings, there is a significant positive correlation between income distribution and trade.

Sala-I-Martin (2002) analyzed the correlation between income inequality and global processes by using aggregate data within countries to specify a level of income for each person in the world for the 1975 and 2002 period. According to his finding, trade openness decrease wage inequality in developing countries.

Milanovic (2002), to the contrary, examined the effect of openness and foreign direct investment on income for his analysis by using household surveys. He indicated that the globalization process increases income inequality in the world. Also, he claimed that income distribution may base on the countries' initial level.

On the other hand, there are significant studies which explain the association between income inequality and technological developments. For instance, Caselli (1999) examined the interaction between skills and technology in the United States in order to find out the effects of wage structure on income inequality. He has concluded that technology has an impact on increasing income inequality.

According to the model developed by Acemoglu (1999a), which testes the share of information and communications technology in total capital stock, technological developments increase the income gap between unskilled and skilled labor both in developing and developed countries. In addition, Acemoglu has stated that international trade may cause skilled-biased technological change both in developing and developed countries.

Apart from these there are plenty of significant studies on the relationship between education and income inequality. For example, Flug et al. (1998) analyzed the correlation between school enrollment and GDP per capita in 122 counties in 1970-1990 periods. According to their findings, there is a negative relationship between income inequality and education.

In the same vein, Mohan and Sabot (1988) conducted a study that explains the relationship between income inequality and education. They argue that educational expansion will reduce income inequality because the labor supply of highly skilled workers will increase, which creates wage differentials.

Literature concerning the association and income distribution will be presented in more detailed in the education and income inequality chapter.

CHAPTER 2

MEDHODOLOGY AND DATA

2.1 The Methods of Income Inequality Measurement

Measurements of income inequality have been made from various perspectives by using the following methods: the Lorenz curve, the Gini coefficient, income shares and income quintile ratios, the Theil index, the Atkinson index, the relative mean deviation, the variance, and standard deviation of the logarithms. However, in this study the Gini coefficient, income shares and income quintile ratios, and the Lorenz curve will be used in order to explain income inequality.

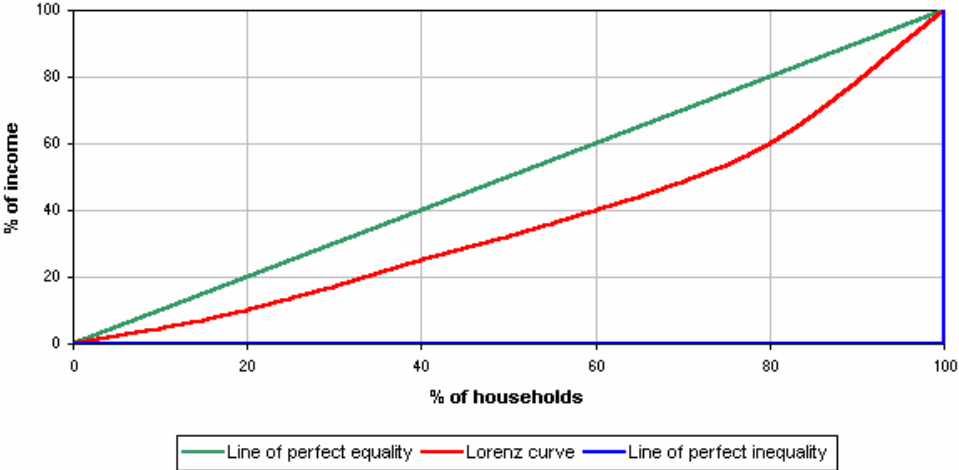
These methods were chosen for analysis because they are the most preferred methods in the literature in terms of easy evaluation and also, they are more understandable. Therefore, these methods will be described in the next part of the study.

2.1.1 Lorenz Curve

A Lorenz Curve is a graphical technique which represents the income distribution of a society. More specifically, it is generally used for analysis of individual income distribution. The curve demonstrates the correlation between the percentages of the population receiving a proportion of national income in an economy (Baris, 2011). The horizontal axis of the Lorenz Curve demonstrates the population, and the vertical axis shows the cumulative percentage of income. It is important to know that the curve must lie below 45 degrees, which represents the perfect equality. In other words, a Lorenz Curve is generally used in the personal income

distribution analysis, and demonstrates the relationship between the proportions of the population receiving a percentage of income in an economy (Clarke, 1995)

Figure 1: Lorenz Curve



Source: Baris, (2011)

2.1.2 Gini Coefficient

The Gini coefficient, which was formulated in 1912 by the Italian statistician Corrado Gini, is one of the most widely used methods in the literature to measure income inequality. The ease of interpretation associated with this method makes it a popular one (Charles and Jorge, 2011).

More specifically, the Gini coefficient can be used to compare the income distribution of various groups of populations, countries, regions and geographical areas. With the Gini coefficient method, it is possible to analyze the evolution of income distribution in different time periods (Charles and Jorge, 2011).

As can be seen from Figure 1, in the Lorenz diagram, the area between perfect equality line and Lorenz Curve indicates A, and the area between the perfect inequality line and Lorenz Curve indicates B. That is to say, the Gini coefficient is a ratio of A to A+B. It ranges from 0 to 1. A low Gini coefficient signifies a relatively equal income distribution, whereas a high coefficient signifies a relatively unequal income distribution. In other words, a Gini coefficient of zero demonstrates perfect income equality; it means that every individual has the same income. When the Gini coefficient equals one, it refers the perfect income inequality,

which means only one individual has all income while everyone else has zero income (Xiaochuan, 2009).

The Gini coefficient is calculated by the following formula:

Figure 2 Gini Coefficient

$$G = \left[\frac{1}{N^2} \sum_{i=1}^N \sum_{j=1}^N |Y_i - Y_j| f(Y_i) f(Y_j) \right] / 2\bar{Y}$$

Source: TURKSTAT, (2014)

- G: Gini coefficient
- Y_i : Total income of the group,
- Y_j : j. Total income of the group,
- $f(Y_i)$: i. Multitude of the group,
- $f(Y_j)$: j. Multitude of the group,
- N: Number of units,
- \bar{Y} : Aritmethic means of the income.

2.1.3 Income Quintile Share Ratio

Another commonly used method for measurement of income inequality is the income quintile share ratio. The income quintile share ratio is one of the most detailed methods (State Planning Organization, 2001). This method consists of dividing a sample of data into five groups defined as quintiles. Each quintile has the same number of observations. The income received by the 20 percent of a country's population with the highest income, called the top quintile, to that received by the 20 percent of the population with the lowest income, called bottom quintile (TURKSTAT, 2011).

This study argues that the recent improvements in income distribution in Turkey are partly due to developments in education, since no significant sign of economic, political or global development exists which could account for the change. On the other hand, there have been many significant developments in education recently. For example, educational reforms have been implemented, such as extension of compulsory education, campaigns to ensure the

continuity of girls' education. Also, spread of institutions across the country to reduce illiteracy.

This paper examines the effects of education on individual income by analyzing national survey data and theoretical and empirical previous research.

The majority of data will be provided from the Household, Income and Consumption Expenditure Surveys and Household Budget Surveys conducted by TURKSTAT that covers the 1980-2005 period. Surveys covered all geographical regions throughout the country, which include different types of income and cover most of the population. In addition, there are plenty of reports on this subject which have been published by the respected international institutions – for instance, OECD, UN and IMF reports for Turkey. The study also will benefit from these publications.

CHAPTER 3

INCOME INEQUALITY AND EDUCATION

3.1 The Association between Income Distribution and Education

Distribution of income has been an important concept throughout human history, in terms of social justice, ensuring social peace and for the protection of moral values. There are many economic and social factors that affect the distribution of income. Education is one of these factors, since education is closely associated with income distribution because of the role of individuals in relations to production, and determining individual income levels and social conditions (UN, 2013). According to Gregorio and Lee (2002), income and education mutually influence each other. Unequal income distribution creates educational inequality; educational inequality leads to income inequality. In other words, they claim that educational factors, such as higher education attainment and more educational opportunities have a significant impact on improving income distribution. Because, education can reduce poverty, and narrow large income gaps between individuals by equalize their income. Education can also facilitate social mobility for poor families, and reduces intergenerational inequalities (Senergin, 2010).

Since Kuznets (1955), researchers have studied the relationship between income and education. A vast quantity of theoretical and empirical studies is testament to the efforts to determine education as a determinant of income (Abdullah and Doucouliagos, 2011).

Even though there are some theoretical models that claim there is not a clear relation between education and income inequality, for instance Stiglitz (1973), most empirical studies indicate that education diminishes income inequality for example, Schultz (1961), Mincer (1974), Becker (1962). This study assumes that better access to educational opportunities generally leads to more equal income distribution. More specifically, the study suggests that there is a positive relationship between education and earning profiles. According to the scope of this study, education influences the income distribution through three channels, namely: schooling attainments, expenditure on education and rate of returns from education. In this context the link between education and income trend will be presented in the light of human capital theory.

2.2 Theoretical Background and Prior Evidence

Different theories have attempted to explain the association between education and income distribution. Human capital theory is one of the most applied theories used to explain the effects of education on income distribution. The concept of human capital was first studied by the classical economists Adam Smith and A. Marshall. Regarding human capital, Adam Smith (1776) suggested that the returns to education should not be less than the return on the capital investment. Marshall has argued that the most important implication is increase in educational attainment, which improves human capital (Berber et al., 2013).

More recently, M. Friedman and Kuznets have drawn attention to the role of human capital in economic developments. However, the concept of human capital theoretically was first examined by T.W. Schultz. This theory was improved by Gary Becker in his study “Human Capital”. Also, Edward Denison and Jacob Mincer have contributed to the theory of human capital over time. The broadest definition of the theory of human capital has been identified as the investment in areas like education, health and vocational training in order to increase the efficiency of individuals in the labor market or non-market activities. In other words, human capital is the value of an individual’s skills, knowledge and other attributes (Sharp, 2001).

Schultz (1961) emphasized that human capital consists of a combination of innate and acquired abilities. Acquired abilities are achieved through education, experience and health

status opportunities. In order to improve human capital, these abilities should be promoted by investments, like physical capital. These investments enhance human qualification and increase productivity. Therefore, a significant portion of an increase in the real income per capital consists of investment in human capital. In other words, Schutz has expressed human capital investments as the sum of useful abilities of the human.

Denison (1962) supported Schultz's view, also stating that human capital investment is much more important than the physical capital investment because the return on human capital is much higher than physical capital.

Becker (1962) asserted that human capital will become more important than physical capital over time, and that human capital accumulation has a key role in economic activity. Becker has claimed that education is the main driver of human capital. Furthermore, Becker has indicated that education increases labor skills, core competencies and their productivity, and that wages are shaped in the competitive labor market.

Mincer (1974) draws attention to the human capital theory by investigating education, training, health, information and migration as major sources of human capital, hence the individual's earning capacity. He notes that education and experience determine earning profiles. Further, education and experience determine individual income.

Even though Schultz, Becker and Mincer, and Denison have different views on the concept of human capital, the main idea is quite clear: that human capital increases labor productivity, and gains from education. The structure of human capital does not only depend on education, however. There are other dimensions characterizing labor productivity, which is not accounted for by education (Acemoglu, 1999). For this reason, knowledge of the sources of human capital theory and its influence on formation of earning profiles is vital.

The basic determinants of human capital are innate ability schooling, schooling quality and non- schooling investment, training, and pre-labor market influences. Innate ability, labor can have inborn. That is to say, even individuals who have the same education level or the same investment in their education can have different returns due to their innate ability. Schooling is one of the most frequently used variables to explain human capital formation in terms of easy observability. Further, another determinant of human capital is schooling differences which not making significant differences in terms of evaluation of human capital. Schooling quality and non-schooling investment, this is another component of human capital that is not easily evaluated. Because of a variety of different decisions and circumstances, workers can have different human capital. Training is another component of human capital that is gained after schooling. In addition, to be open to the effect of the labor market also

leads to the shaping of an individual's human capital. This factor, termed the pre-labor market influences individuals is another component of human capital (Acemoglu, 1999).

However, this study will concentrate on the impact of education on human capital, in consideration of income distribution. According to the theory of human capital, human capital seems as the one of the most important determinants of economic development and per capita income differences. In addition, education is the most important element of human capital formation. Because an increase of individual education raises productivity, and productivity contributes to economic development (Ucdogruk and Metin, 1997). In order to increase human capital individual make the investment in education to be able to produce effectively and achieve higher wages (Unal, 1992). In other words, education gives workers the opportunity to move up economically by making them more skillful, and therefore able to compete for higher wages (Carnoy et al., 2012).

Education is widely accepted as one of the most efficient ways to improve income distribution in terms of its contribution to human capital (Toh, 1984). The effect of education on human capital can be observed in many ways. For instance, by the level of education, educational expenditure, the rate of social and private return from investments, and state intervention. In this respect scholars have attempted to investigate the association between education and income in various ways by examining these indicators.

For instance, Barro (1999) explained the association of education and income by investigating levels of education. He concluded that primary and secondary attainments were negative and significantly connected to income inequality. However, a high level of education is positively and significantly related to income inequality.

Mincer (1958) examined the relationship between earning profiles and levels of education, age and training by using U.S data. According to his findings, the level of experience and education creates earning differences. These differences increase with a rise in education, training and age gaps. For these reasons individuals invest in education in order to be able to receive more income.

Knight and Sabot (1990) stressed the importance of education by examining a case study from East Africa. They stated that laborers with a higher level of education receive a higher income due to a higher ability and productivity.

According to Becker there is a positive correlation between education and productivity. Becker (1964) pointed out that education and training are the main determinants of revenue. Due to this, an increase in an individual's education or training creates income

differences. As a result of this individual with high level of education earn more than individuals who have low levels of education.

According to Ahluwalia (1976), the marginal productivity of an educated workforce will be higher than the unskilled labor. Therefore, in a competitive labor market wages will increase in favor of skilled labor. He argues that if the level of skilled labor in society increases more than the unskilled, the labor income distribution will be more equal.

On the other hand Stiglitz (1973) claimed that there is not a clear correlation between education and productivity. Education is an instrument which provides distribution of different individuals in different jobs, that is, well educated individuals into better jobs. He also stated that in the competitive labor market companies use the positive correlation between success in school, and advancement in the workplace, to their advantage.

One of the most important examinations made by Denison and Becker for the United States According to their examination, income differences between individuals with different levels of education, 66 percent results from education and 33 percent results from non-educational reasons such as family, other personal skills and abilities (Akalin, 1986).

A comprehensive study was made by Gregorio and Lee in 2002 for Asia, Africa, Latin America and the OECD countries in 1960-1990 periods. They emphasized the impact of expenditure on education. According to the findings of study, income and education affect each other mutually. That is to say, inadequate educational facilities create an unequal income distribution. High income inequality can be explained by insufficient educational investment.

Psacharopoulos and Patrinos (2004) have examined the association between education expenditure and rates of return for 42 different countries. According to their findings one more year of educational attainment increases the average rates of return by 10 percent. The study also concluded that the rates of return are higher in low- and middle-income countries than in high-income countries.

Despite the limited studies on the effects of education of income inequality in Turkey, there are some important studies available which support the positive effects of education on income distribution.

For instance, Oksuzler (2008) investigated the effect of education on individual earnings by benefitting from the Mincerian equation. According to his findings there is a strong positive relationship between education and income distribution.

Dayioglu and Kasnakoglu (1997) analyzed the role of education on income distribution by using data from TURKSTAT's household income and consumption survey in 1987, using the Heckman Correction and the Mincerian wage equation. According to their findings, the

return for one year's education for women is 12.4 percent, for men 9.98 percent. They also concluded that the rate of return for women was higher than for men, among those with a low level of education. Dayioglu and Kasnakoglu have stated that there is a significant correlation between education and income distribution.

A similar result was found by Sari (2002) in order to examine the association of earning and education. He has used the household income distribution survey data of 1994 for Bolu, and benefited from the Mincerian wage equation. Sari stated that the returns of education and experience for one year are 12.1 and 9.3 percent for men and women, respectively. Moreover, he found that the return of a year in high school was lower than that of elementary school. Sari also stated that education is the most significant determinant of income.

In the same vein, Tansel (1994) has analyzed the correlation between levels of education and rates of return in 1987 by using data from the TURKSTAT. The author stated that with an increase in the level of education will increase the rates of return for both men and women.

Furthermore, Duman (2008), has studied the relationship between income inequality and education between different groups, and he came to the following conclusion: declining income inequality in Turkey is partly due to higher education levels. Nevertheless, the differences in the distribution of education among the different income groups is quite high, and there has been a growing gap between the educational expenditures of rich and poor household in recent years.

CHAPTER 4

INCOME INEQUALITY IN TURKEY

4.1 Source of Income Inequality in Turkey

In this part the main sources of income inequality in Turkey will be outlined. This is significant in terms of being able to evaluate the subject as a whole and understand the influence of education.

Highly unequal income distribution in Turkey has always been a concern of policymakers, scholars and the community, thus the determinants of income inequality.

The patterns of income distribution differ from country to country. Generally accepted causes of income inequality are skill-biased technological changes, institutional and regulatory reforms, changes in employment patterns and working conditions, and changes in tax and transfer systems (Stand, 2011).

In Turkey, generally accepted elements of income distribution are unstable economic and social policies, the higher inflation, rapid population growth and unemployment, ineffective tax and transfer systems, high informal economy, restricted trade union rights, considerably higher interest income, budget deficits, insufficient investment in human capital (Akca and Ela, 2012).

In the same vein, Elveren and Galbraith (2008) indicate that the main sources of income inequality in Turkey for the Neoliberal Era (1980-2001) are the policies in favor of the rich, ineffective tax and transfer policies, high rates of interest, regional, and gender differences, migration, and the disparities in education.

In addition, Gursel et al (2000), Bas (2000), Caliskan (2011), Candas (2010), Senergin (2010) have stressed that these factors are the main causes of unequal income distribution in Turkey.

According to the first serious analyses which, conducted by the State Planning Organization (SPO) in 1963 Gini coefficient was relatively high, at 0.55. A general trend of income inequality has shown a decline since 1980, however, it is still a very high ratio compared to other countries. This indicates that implemented policies in the post 1980 failed to achieve the optimal income inequality rate (Gursel et al, 2000).

Particularly the 1990s can be defined as inconsistent years for the Turkish economy. This period is characterized by fluctuations in growth rates, a high inflation rate and several economic crises, particularly as a result of unstable policies (SPO, 2007).

Inflation, which is the result of an unstable economy, is the key element that causes a high income inequality in Turkey. Turkey has suffered from a high inflation for many years and increases in wages remained below the level of inflation. Particularly, in the late 1970s and 1980s, the inflation rate reached triple digits. Consequently, high inflation has led to a reduction in real wages; however, it increased in favor of capital earners, hence, the income gap between poor and rich increased (Akca and Ela, 2012). Further, a combination of a high inflation rate with a budget deficit and domestic borrowing has contributed income inequality significantly (Gursel et al, 2000).

Unemployment is also a remarkable source of high income inequality. In Turkey, the population growth rate is about 2 percent, leading to an increasing work force each year. Despite this rise, the rate of increase in employment opportunities is very limited (Guclu and Bilen, 1995). According to the World Bank (2006), in Turkey the total working population ratio was below 50 percent, which is the lowest ratio among the countries under scrutiny. Despite the growing population after the 1980s, adequate employment opportunities could not be created and the unemployment rate remained at a high level. Between 1980 and 2004 the working population increased by 23 million, however, only 6 million out of the 23 million population was employed (World Bank, 2006).

Tax and transfer policy is a useful tool for reducing income inequality. In other words, the efficient use of the tax and transfer systems is an important fiscal policy in order to improve income distribution (Caliskan, 2011). However, the main character of the Turkish tax system can be defined as follows: very complex and frequently changing tax legislation, continuous increases in indirect taxes, and higher tax rate in consumption. These applications have increased the rate of informal economy in Turkey. As a result of this, taxes on production have decreased and tax pressure on wages increased. And also, the negative impact of these implications led to an increase in indirect taxes (Ay et. al, 2010). Between 1980 and 1988 the share of indirect taxes increased from 37 percent to 50 percent, while the share of direct taxes decreased from 63 percent to 50 percent among total tax revenue. In 2005 the rate of indirect taxes became 69 percent, while direct taxes decreased to 31 percent (Yilmaz, 2006).

This indicates tax policies implemented in favor of the rich with a decline trend on wealth taxes and a negative effect on the poor by increasing the taxes on wages.

Ineffective transfer payments are another cause of income inequality in Turkey. According to the empirical study of Bulgaria and Adar, Turkey's transfer payments in gross domestic product (GDP) was 12,5 percent in 2004, while this rate was 26 percent in Gross and

24,9 percent in Portugal. A similar result, stressed by Seker that transfer payments of Turkey were 12 percent, while it was 26 percent in 25 EU countries (Candas et al, 2010). Furthermore, a large part of transfer payments have allocated for interest payments. Particularly after 1980, increasing debt interest payments reached the largest share of total transfers. For instance the interest rate was 57 percent of total transfer payments (Kaya, 2007).

Another factor that creates a negative impact on income distribution is increasing interest rates. With the transition to a free market economy, Turkey has adopted a free interest rate policy. As a result of the releasing interest rate, an excessive increase in interest rates has been observed and concluded with a budget deficit of the public sector. Because of these developments, the post-1980 interest, rent and profit share of national income revenues has increased, whereas the rate of wages and farm incomes have declined (Erdogan, 2004).

The structure of the labor market is one of the most important factors that determine the distribution of income. Since the 1980s, with the globalization period, the Turkish labor market has witnessed many important changes. More specifically, from 1980 onwards Turkey has adopted neo-liberal policies to achieve a competitive advantage in export, and more global integration. In order to achieve these goals Turkey has followed the low-wage policies regarding the labor market. For this purpose, the effect of labor organizations and unions was reduced by the government (Akkaya, 2003: 104). The neo-liberal period has contributed negatively to wages by lowering labor bargaining power and increasing labor flexibility. In this way, from the 1980s onwards wages began to follow a decreasing trend in Turkey (Oynat, 2011). In addition, low wages, lack of health measures, long working hour and lack of safe working conditions have led to a high level of informal employment and reduced the formal labor participation (Candas et al, 2010). The participation rate of labor force both for male and female is quite low. In addition, participation rates are higher in rural compared to urban areas. In rural area men are self-employed and women unpaid family employees generally. Furthermore, due to the cultural values, lack of education and unfavorable labor market conditions participation of women quite low compared to men (Tansel, 2004). Moreover, the exclusion of different ethnic groups and disabled people from the labor market has also caused the low participation rates. In other words, barriers to participation of education in these disadvantaged groups have created with the participation of the labor market. For instance, in Turkey education is only given in Turkish, however, the mother tongue of a significant portion of the population is Kurdish. For example, the rate of university graduates for Kurdish was 2 percent, while this figure was 10 percent of the Turkish in 2003 (Candas et al., 2010). The

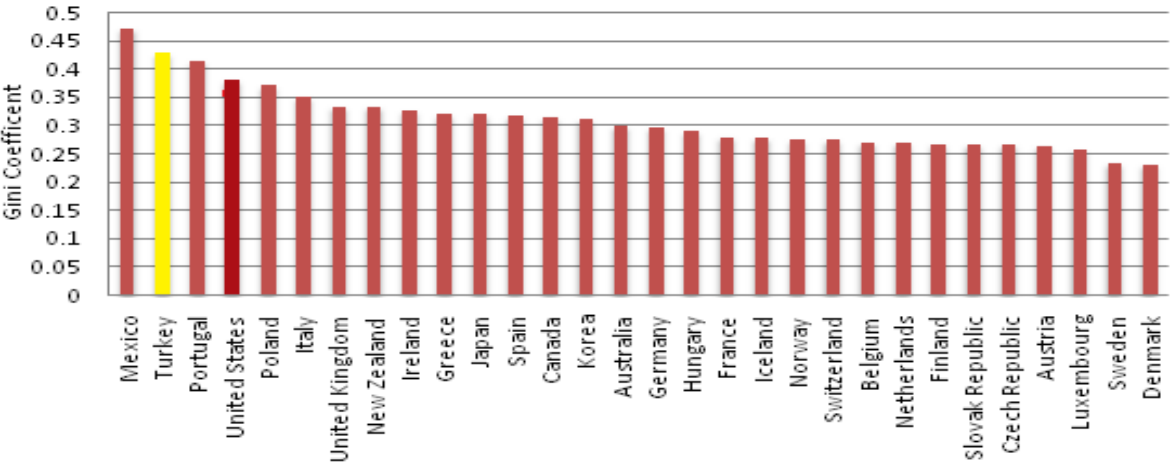
education facilities for disable people also limited. Due to these reasons these disadvantaged groups are lagging behind other group.

As mentioned before education is widely seen as the main vehicle for the enhancement of the equitable income distribution. Unequal access to educational opportunities can be considered a significant source of income inequality in Turkey. However, despite the developments to access education, the general education level of the population in Turkey is still lower than in most OECD countries. According to the OECD (2009), for 90 percent of the educated population, in 2007, the average time spent education was 6 years in Turkey, while this ratio was respectively 10 and 15 years in Greece and Belgium in the same year. Gender, ethnicity, disability, religion differences can be seen as the main obstacles for accessing the educational opportunities (Candas et al, 2010). In addition, public education expenditure was also limited. The ratio of public expenditure to GDP was around 2.2 percent, while this ratio was over 5 percent in developed countries and it was around 10 percent in European countries (Guclu and Bilen, 2000).

4.2 Overview of Turkish Income Inequality from 1980 to 2005

Research shows that both in developed and developing countries, a reduction in income inequality has not been observed in recent decades; contrary to this deterioration has been observed in the last decades. For instance, according to OECD (2008), income inequality has been increasing since the mid 1970 in many developed and developing economies in the world. In contrast to many developed and developing countries, in Turkey, a declining trend has been observed since 1980.

Figure 3: Income Inequality of Turkey among OECD Countries in 2005



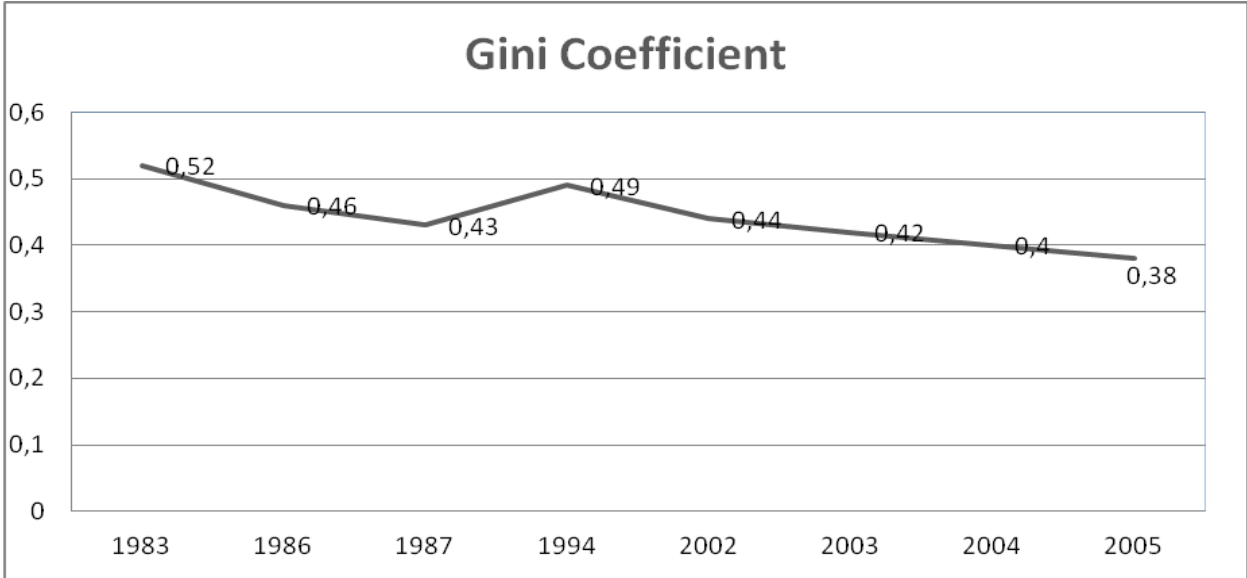
Source: OECD Factbook, 2010

Figure 3 show that Turkey has the second worst level of income inequality among OECD countries. A report issued by the OECD in 2008 indicated that Turkey ranked quite a higher income inequality among 30 members of the OECD with Mexico and Portugal.

Since 1963 thirteen different income distribution studies have been carried out in Turkey. These studies have demonstrated that since 1963 there has not been a significant improvement in income distribution (D. Kazar, 2008).

The first significant study on income inequality was made by the State Planning Organization (SPO) in 1963, and the Gini coefficient then was 0.55. The second serious study was made by the Hacettepe University Institute of Population Studies, and the Gini coefficient was 0.56. The third was made by SPO again in 1973 and the ratio was 0.51, and the fourth one was studied by Turkish Industry and Business Association (TUSIAD) in 1986, and resulted in a considerable diminution of the Gini coefficient, in 0.46 (Calışkan, 2011). After 1986 all studies were made by TURKSTAT. However, this study covers the period between 1980 and 2005. For this reason the study concentrates on data collected since 1980 and the majority of data will be taken from these studies, particularly from TURKSTAT since 1980. Figure 4 demonstrates the Gini coefficient trend for the indicated period.

Figure 4: Gini Coefficient of Turkey (1983-2005)



Source: own elaboration based on Table 1

As Figure 4 illustrates, income inequality has a declining trend. The Gini coefficient has steadily decreased from 0.52 to 0.38 between 1983 and 2005 with the exception of 1994.

This movement will be studied in more detail in Table 1 by using the income quintile share ratio method and also the Gini coefficient

This part presents the changes of disposable household income distribution by using the income quintile share ratio method and the Gini coefficient from 1983 to 2005. As mentioned above, the data were collected from surveys, which were conducted by different institutions and individuals (see Table 1 source).

Table 1: Income Inequality in Turkey per Quintile (1983-2005)

Source	Years	Quintiles					Gini Coefficient
		1 st	2 nd	3 rd	4 th	5 th	
CELASUN	1983	2,7	7,0	12,6	21,9	55,8	0,52
TUSIAD	1986	3,9	8,4	12,6	19,2	55,9	0,50
TURKSTAT	1987	5,2	9,6	14,1	21,2	49,9	0,43
TURKSTAT	1994	4,9	8,6	12,6	19,0	54,9	0,49
TURKSTAT	2002	5,3	9,8	14,0	20,8	50,1	0,44
TURKSTAT	2003	6,0	10,3	14,5	20,9	48,3	0,42
TURKSTAT	2004	6,0	10,7	15,2	21,9	46,2	0,40
TURKSTAT	2005	6,1	11,1	15,8	22,6	44,4	0,38

Source: own elaboration based on Celasun (1986), TUSIAD (2000), TURKSTAT¹

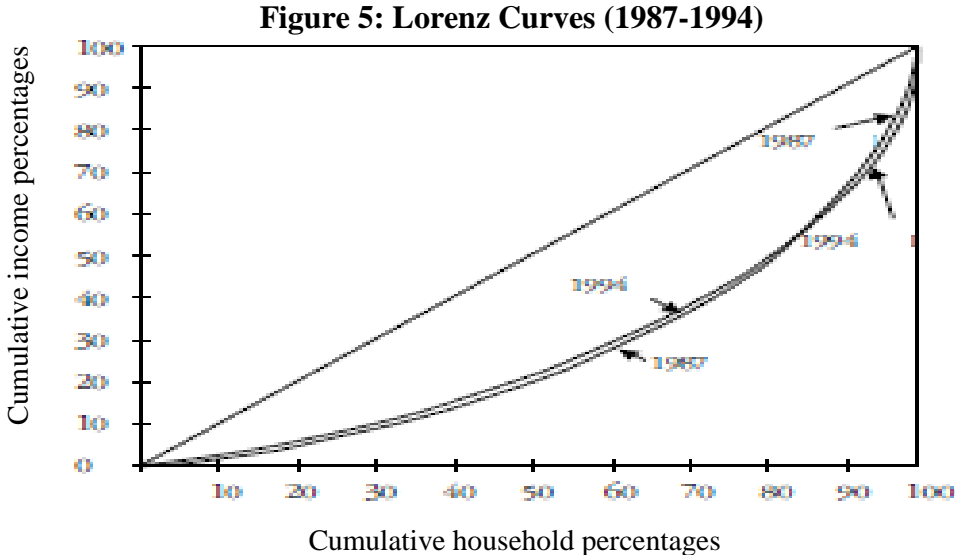
The share of income for the first quintile in 1983 was 2.7 percent, while in the same year for the fifth quintile it was 55.8 percent. In other words, the highest income group has received 20 times more income than the poorest group in 1983. This is the highest gap between poorest and richest groups of the time period. Between the years 1983 and 1987, the share of the households in the first 20 percent of the population increased from 2.7 percent to 5.2 percent, while the share of the households in the fifth 20 percent of the population decreased from 55.8 percent to 49.9 percent. It can be noted that income distribution has improved in favor of low income groups slightly.

In 1994, income inequality gradually increased and the richest income share ratios become 54.9 percent, while the poorest share dropped to 4.9 percent. In the same direction Gini coefficient increased from 0.43 to 0.49. This increase can be explained by the economic crisis which occurred in 1994. However, there is a continuous reduction in the Gini coefficient and improvement between poorest and richest after 1994 again.

¹ Mentioned years are taken from the TURKSTAT official web page. Accessed May 10,2014
http://www.turkstat.gov.tr/PreTablo.do?alt_id=1011

As a whole it can be said that the share of the poorest income quintile increased from 2.7 percent to 6.1 percent. The share of the richest income quintile decreased from 55.8 percent to 44.4 percent between 1983 and 2005. In other words, there are improvements in income distribution for the signified period. At the same time the Gini coefficient also improved. An increase in the share of the first quintile can be explained by the reduction of the fifth quintile.

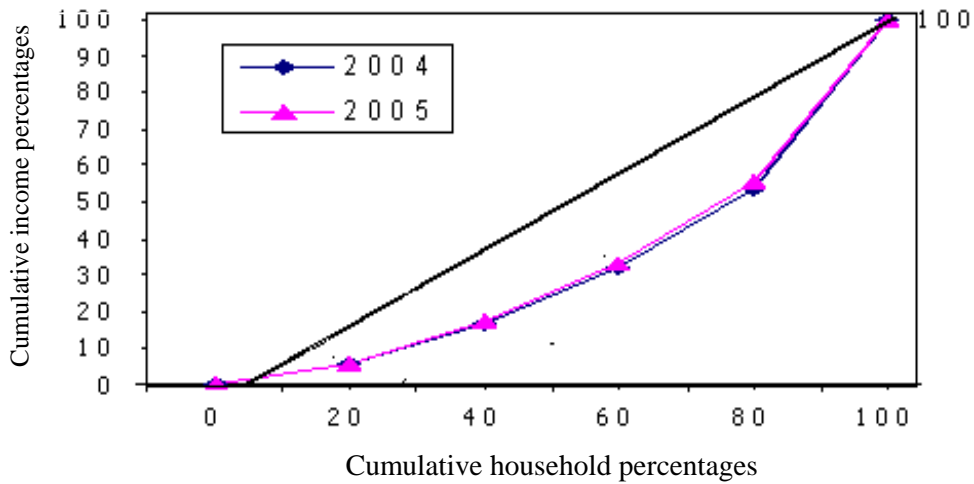
The Lorenz Curve is another important method in order to evaluate the income distribution. Figure 5 and 6 tabulates income distribution developments for the period of 1987-1994 and 2004-2005 respectively. Figure 5 shows changes in income distribution between 1987 and 1994. It can be said that there is deterioration for the highest quintile in 1994 while there is not a significant change for the lower and middle quintiles. However, it can be observed that in 1994 the bottom and middle income shares are closer to the equality line compared to 1987. For this period there are no remarkable improvements.



Source: Gursel et al. (2000)

Figure 6 shows that there was an improvement in the proportion of income earned by the middle quintiles in 2005; this group was closer to the equality line compared to 2004. Further, there is a slight development for the lowest quintile. On the other hand, there is a small amount of deterioration for the highest quintile.

Figure 6 Lorenz Curves (2004-2005)

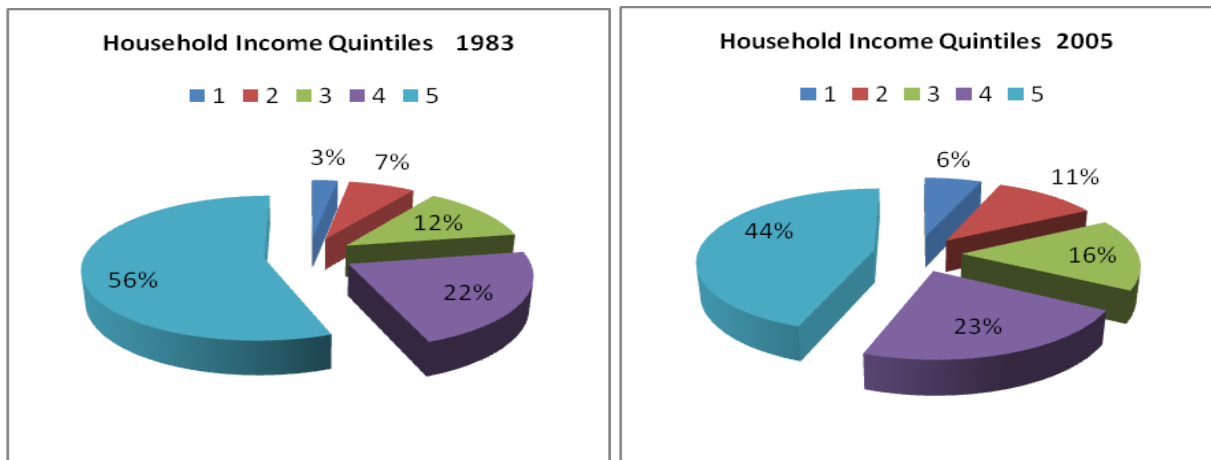


Source: TURKSTAT (2008)

In the comparison of Figure 5 and Figure 6 it can be stated that the Lorenz curve was closer to the perfect equality line in 2004-2005 compared to 1987 and 1994. The Lorenz curve indicates a tendency to approach the perfect equality line. There is a remarkable improvement in income distribution. As a result, it can be stated that the gap between poor and rich has decreased during this time period.

In order to highlight the developments of household income distribution among five quintiles over the period, the distribution of household annual income by quintiles for the year of 1983 and 2005 are compared in Figure 7.

Figure 7: Distribution of Household Annual Disposable Income by Quintiles, 1983 and 2005



Source: own elaboration based on Celasun (1983) and Table 1.

As shown by the Lorenz curve and the share of income quintiles above, the income distribution in 2005 presents an improvement when compared to the income distribution in 1983. The share of the highest income group has declined and the share of the poor and middle quintiles has increased. In 2005 the first quintile received 6 percent of the total income, when compared to the households of the fifth quintile that received 44 percent of the total income. In 1983, the share of the households in the first 20 percent of the population received 3 percent, while those households which make up the fifth 20 percent for the same year earned 56 percent of the total income of Turkey. All quintiles show improvements in income distribution between 1983 and 2005.

4.3 Developments in the Turkish Educational System

Extensiveness and quality of education in a country enable individuals to use developing science and technology. In addition, education is a fundamental human right and for participating contemporary societies every individual should benefit from educational opportunities. Also, due to the increasing importance of education in terms of human capital the education system of a country is very important.

In this respect it is important to understand the mechanisms of a country's education system. Therefore, the Turkish educational system and its recent developments will be briefly presented in this part.

After the foundation of the Republic of Turkey in 1923, the education system was centralized under the Ministry of Education (Eginli, 2010). Before 1997 the Turkish education system consisted of four phases as follows: five years of primary school, three years of secondary school, three years of high school and four years of university. However, only the five year primary school was compulsory. In 1997 several educational reforms were implemented. The five year compulsory primary education was extended to eight years by combining it with middle school (Tansel, 2004). The age of starting primary school is six years, and it is free for every child (Duman, 2010). In addition, in 2005 secondary school was extended to four years. With the expansion of primary and secondary school, illiteracy rates have fallen over time. The illiteracy rate was 32.5 percent in 1980; it has declined to 8.2 percent in 2008 for population age 6 and over (Ministry of Deveoplmet, 2014a). In tertiary still four years and in order to entrance university students need to pass the entrance test. On the other hand, many new universities were established, both private and state. Particularly during the 1980s and 1990s, universities received financial support from the government. By the contribution of this financial support many new private and state universities were

established. For instance, the first private university, Bilkent University, was set up during this period and this was followed by others. Furthermore, between the 1984-1985 and 2004-2005 academic years the number of academic workers had increased from 21.940 people to 82.096. 38.1 percent of these academic staff members were composed of professors, and 34.4 percent of research assistants (Tural, 2007).

The education system is mainly based on state schools. Especially for the primary and secondary school level, the share of the private sector is approximately 1 percent (Senergin, 2010).

Moreover, in order to transmit educational opportunities all over the country, the government started to accept funds from the World Bank in 1980 (Aksit, 2007). These developments increased educational attainments and decreased disparities between individuals over time (Tansel, 2004).

4.4 Income Distribution by Level of Education

Certainly, there is a large number of factors affecting the distribution of income. Thus, it is difficult to evaluate the income distribution by one factor. However, as it indicated by many empirical and theoretical studies in the previous part of the study, education is the one of the most significant factors to improve income distribution. By income equalizing effect of education more people benefits of national income, hence the gap between individuals narrows (Tas and Yenilmez, 2007). As Kuznets (1955) stated that wages might decrease as the number of higher education graduates expands, however income distribution will be more equal with education (Carnoy et al, 2012). Therefore, the effects of education on income distribution will be analyzed in details in the Table 2, which shows individual income distribution by level of education between 1987 and 2005.

Table 2 demonstrates that primary school graduates have the highest income share among groups. This can be explained by the large number of primary school graduates. However, it has gradually declined from 47.16 percent to 38,92 percent from 1987 to 2003. After 2003 it increased slightly and in 2005 it became 42.42 percent. On the other hand, the share of total income for secondary and higher education has increased over the period with some small reductions. In 1987 the income share of secondary school graduates in total income was 7.69 percent. It has gradually increased over the period and become 10.59 percent. There was a slight decline from 2003 to 2005, however, it started rising again.

Table 2: Distribution of Disposable Household Income by Educational Level in Total Income Earned (%)

Source	Survey Years	Illiterate	Literate Without Diploma	Primary school	Secondary School	High school	University
SPO	1987	9,06	6,87	47,16	7,09	10,24	15,22
SPO	1994	5,99	4,81	45,82	8,8	14,81	17,02
TURKSTAT	2002	2,91	3,59	42,89	9,59	13,15	18,25
TURKSTAT	2003	2,58	3,09	38,92	10,59	16,57	19,56
TURKSTAT	2004	2,75	2,75	39,66	9,89	16,00	20,77
TURKSTAT	2005	2,82	2,87	42,42	10,13	15,46	17,76

Source: own elaboration based on TURKSAT² and SPO (2001)

On the other hand, the share of low level education has decreased during the period. For instance the share of illiterates has decreased from 9,06 percent in 1987 to 2,82 percent in 2005. This decline is the most significant one among the specified groups. Another significant reduction can be seen among literates without a diploma. The total income acquired by literates without a diploma has been reduced from 6.87 percent to 2,87 in the same period. Moreover the share of total income acquired by university graduates has risen gradually, although here was a slight dip in 2005. From 1987 to 2004 it increased by almost 6 percent.

On analyzing the return on the educational level of income, one can conclude that there is a strong relationship between education and income distribution. Even though the table cannot present more detailed information about causality, it can be clearly seen that the groups with low education levels receive less income than better educated groups.

The argument is supported by a report from the SPO. According to this report, in 1987, the average income of primary school graduates was 1.68 times the average income of the illiterate, while this ratio was 2.3 times that in 1994. Similarly, in 1987 the average income of university graduates was 3.29 times that of average elementary school graduates and in 1994 this ratio was about 4 times (SPO, 2001). Similarly Guclu and Bilen (2000) specified that hourly wages of workers present significant differences depending on the graduates' education level. According to their investigation, in Turkey the hourly wage of illiterates or school leavers was 47.400 TL, primary or secondary school graduates was about 56,700 TL, high school graduates was 64 100 TL, and that of university graduates was 112,000 TL in 1994. These figures clearly show the effect of education on income. Furthermore, the positive effect

² Mentioned years taken from the TURKSTAT official web page. Accessed May 10,2014
http://www.turkstat.gov.tr/PreTablo.do?alt_id=1011

of education can be observed by the unemployment rates in Turkey. For instance, in 1995 the unemployment rate of primary school graduates was 49.2 percent, while that of secondary school graduates was 14.5 percent, that of high school graduates was 25 percent, and that of the tertiary was 4.5 percent (Guclu and Bilen, 2000).

4.5 Average Years of Schooling Among Total Population Aged 15 and Over

As is stated in the literature part of this study, the average time spent in school is significant in terms of improving income distribution. For instance Schultz (1963, 1962), Mincer (1958), and Barro (1999) have shown that the more education contributes to more equal income distribution, and they have substantiated this by examining specifically the length of time spent in school. This argument is confirmed by Turkish national literature as has been mentioned before. For example Sari (2002), and Dayioglu and Kasnakoglu (1997), have demonstrated the positive effect of education on income inequality with reference to the length of education. In order to assess the status of schooling in Turkey the average years of schooling trends will be analyzed with a comparison with developing, developed countries, and the world in general in the 1980s-2010s periods.

Table 3: Average Year of Schooling Total Population Aged 15 and Over (%)

Year	Turkey	Developing Countries	Developed Countries	World
1980	2.64	4.37	8.74	5.34
1990	3.37	5.28	9.55	6.14
2000	4.02	6.33	10.52	7.10
2010	4.42	7.20	11.30	7.89

Source: own elaboration based on Barro-Lee Data Set (2010)

Table 3 illustrates that the average years of schooling of the total population is not at a reasonable level comparatively in Turkey. In other words, the average years of schooling rate are below the rate of developing and developed countries and the world. When the comparison is made between developing countries and Turkey the gap between them is lower than the world ratio and much lower than developed countries. However, the average years of schooling in Turkey have increased over time. The average years of schooling was 2.64 years in 1980. It increased by slightly more than a year to 4.02 years in 2000. Improvements in

average educational attainment levels continued in the following decade, reaching 4.42 years in 2010.

Consequently, one could claim that, due to increase in schooling the number of less educated labor force has been reduced in the Turkish labor market. This can be explained by Table 2. As it demonstrated above in Table 2, during the specified period, the share of total income for illiterates and literates without a diploma and primary school graduates was significantly reduced, while the share of total income increased for secondary school, high school and university graduates. In other words, the income of the uneducated or less educated labor force has decreased, but the income of the higher education labor force increased over the period. For instance, in the Turkish labor market the share of primary school graduates was 52 percent in 1987, while the share of university graduates was 5 percent. However, this ratio turned to 44 and 11.5 percent respectively in 2005 (Duman, 2008).

4.6 Educational Attainment of the Richest and the Poorest Quintile

It is a well known fact that the educational attainment of individuals is determined by income level. Education, in turn, shapes individuals' future life income and opportunities. Children coming from poor families have graduated from school with lower levels of education compared children from rich families. The income gap between poor and rich families leads to educational inequalities (Goodman et al., 2010). By removing inequalities and providing equal access to education, the social and economic status of each individual is improved, leading to more equal income distribution (Candas et al. 2010). In 1997, the extension of basic compulsory education and other reforms led to an important improvement in school enrollment in Turkey. In other words, a large segment of society has benefited from educational opportunities, hence the income gaps have narrowed. A detailed evaluation of educational distribution among the poorest and richest quintiles will be presented in Table 4.

Table 4 illustrates the distribution of education levels among the poorest and the richest quintiles of the labor force during the period 1987-2005 in Turkey. As can be observe from the table, the largest part of the labor force consists of primary school graduates in both the poorest and richest quintiles. This ratio has increased over the period for the poorest quintile; 53.01, 54.93, and 56.24 percent, respectively, while it decreased for the richer

quintile, from 39.03 to 34.76 percent for the indicated period. This ratio has remained the highest for both the poorest and richest.

Table 4: Educational Attainment of the Richest and the Poorest Quintile (%)

Education Level	1987		1994		2005	
	Poorest 20%	Richest 20%	Poorest 20%	Richest 20%	Poorest 20%	Richest 20%
Below Primary	34.50	6.01	32.50	6.12	31.22	4.89
Primary	53.01	39.03	54.93	37.88	56.24	34.76
Secondary	8.24	9.89	7.99	9.21	8.11	8.52
High	3.50	26.71	3.87	25.63	3.93	24.10
University	0.75	18.36	0.71	21.16	0.50	27.73
Total Population in Quintile	100	100	100	100	100	100

Source: Duman (2008)

The ratio of the labor force with only primary school education, or less, is also quite high for the poorest quintile, although it has a declining trend. In contrast, this ratio is the lowest for the richest quintile for the whole period. It is to be noted that the largest gap between the poorest and the richest quintile is in the amount of workers with only primary school education or less, and this ratio remained the largest over the period.

A similar wide gap can be seen between poorest and richest for high school and university attainments. For instance, in 1987 the amount of workers with a high school education among the poorest section was 3.50 percent, in the same year the share of the richest was 26.72 percent. That is to say, the percentage, among the richest quintile, of people with a high school education, was almost 7 times higher than the percentage among the poorest quintile. There has not been a significant change over the period. In the labor market the level of university graduates was notably low for the poorest quintile for the whole period; it was under 1 percent. The average of this ratio of the richest quintile was approximately 23 percent.

The smallest gap between the educational levels of the poorest and richest was to be found among those with a secondary school education. The gap was less than 3 percent.

In conclusion, Table 4 demonstrates that a higher income leads to higher educational attainments. It can be stated that educational attainment is clearly related to income. A low income limits opportunities for educational attainments. As Gregorio and Lee (2002) have

indicated, income distribution and education influence each other. Income inequality creates educational inequality; educational inequality leads to income inequality. In other words, the spread of education facilities in all of society leads to, a fairer distribution of income, and a fairer distribution of income provides education for each individual.

4.7 Private and Social Returns on Education

Since the 1950s, the returns of investment in education have been presumed regarding human capital. Especially, in the 1980s and 1990s, income inequality has increased in many countries. This was associated with the change of the production process, hence with the quality of the labor force. The importance of education has increased as a substantial determinant of human. In this way, returns to investment in education have attracted considerable attention among scholars (Psacharopoulos and Patrinos, 2004).

Education provides various monetary and non-monetary returns to individuals as well as society at large. Blundell et al (2001) claimed that there are three specific ways of explaining returns from education. They are labor productivity, the social return, and the private return (Owens, 2004). Two types of returns most commonly discussed they are social and private rates of returns. Firstly, private rates of return, that evaluate the cost and benefits of education covered by individuals who take in charge investment, and, secondly, social rates of return these formulate cost and benefits in terms of society (Geraint, 2004).

It is important to evaluate social and private rates of return both for individuals and for society at large. Since human capital investments increase the income of individuals at the micro level, leading to economic growth at the macro level, that will lead to an increase in total revenue. Therefore, investments in human capital through education are as important as those investments made in physical capital (Olaniyan and Okemakinde, 2008).

In addition, benefit from educational opportunities determines the distribution of future income, that is, the decisions of individuals regarding the type and level of education will determine the future course of income distribution. Analyses suggest, as previously mentioned, that the returns of education present a positive effect of education on income distribution.

In this part, social and private return on education during the period of 1987-2005 will be analyzed, using data from Table 5. This data was presented by Duman in 2008, based on the Chiswick (1997) earning model and the Mincerian equation.

Table 5: Social and Private Returns on Education (%)

Education Level	1987		1994		2005	
	Private	Social	Private	Social	Private	Social
Primary	22.50	13.50	25.90	12.20	19.21	11.44
Secondary	16.70	12.70	27.10	19.90	22.65	17.65
University	27.60	11.60	26.50	19.00	28.43	18.32

Source: Duman (2008)

Table 5 shows the social and private rates of return on education in Turkey in 1987, 1994 and 2005. Table 5 indicates that the social and private return on education for university graduates are higher than those of primary graduates for the whole period with the one exception of social return in 1987.

More specifically, private rates of return on education for primary school graduates has increased from 22,5 percent to 25,9 percent during the 1987-1994 period, however, it had declined to 19.21 percent by 2005. By contrast, social rates of return on education for primary school education increased over the period, with only a slight decline in 1994.

There was a slight increase in private rates of return for secondary school education from 1987 to 1994, however, that had also decreased by 2005. Also, there was a remarkable increase in the rates of social returns for secondary school education, of about 7.5 percent. This declined again, however, in 2005.

Similar findings for Turkey were observed in the studies of Ozgur (2005), Turkmen (2002) and Tek (1987). According to their findings, in general private returns are higher than social returns and also, the rates of return for high levels of education are higher than those of low levels of education both for social and private returns in 1987, 1994 and 2002.

For example, in 2002 the private rates of return regarding education levels were as follows: 18 percent for primary school, 18.4 percent for secondary school, and 20.5 percent for university. On the other hand, the social returns for primary school, secondary school and university, respectively, were 14.1, 13.5 and 16.3. In 1987, the private rates of return for primary school graduates was 22.5 percent, while this figure was 27 percent for university. Further, social rates of return for primary school graduates was 13.5 percent, while this figure was 11.6 percent for university graduates.

As a result, considering private and social return to education it is observed by Table 5 that in general, the rates of return on education for secondary school graduates both in private and social education is higher than the rates of return for primary school graduates.

Furthermore, the rates of return for university graduates in terms of private and social returns are much higher than the rates of return of primary school graduates. In other words, the rates of return on a high level of education are higher than those of a low level of education. This result is confirmed by SPO (2001). According to their examination, low level graduates receive the lowest average income per capita, while high school and university graduates have the highest average income per capita in Turkey.

In developing countries the rate of return to education is high for all levels of education and there is big differences between social and private returns to higher education. In spite of comparatively its higher returns, Turkey also follows a similar trend. The main reason for this trend in developing countries is that labor markets are not consist of highly educated labor force and there is a large gap between education earnings (Duman, 2008).

4.8 Education Expenditure

Today, in the global economy, the significance of spending on education is increasing. Since in the competitive global economy, it is important to have a skilled labor force in order to be capable of generating technology and innovative knowledge. In this context, educational financing has become an important issue for governments. The amount of the budget and its allocation between levels of education are important in terms of expected rates of social and economic returns from education. In this way, governments are preferred invest different education categories and different amount to financing of education (Baykal, 2006).

For example, an OECD report (Education at a Glance, 2005) has indicated that the total government expenditure allocated to education in the average share of GDP in developed countries is 5.5 percent, while in developing countries it is 4 percent. Education Expenditure as percentage of GDP was 3.08 percent in 2005, this ratio is comparatively low (Ministry of Development, 2014b)

In this part the general trend of education expenditure in Turkey will be analyzed. First of all, the public expenditure on education as a percentage of GDP and as a percentage of the total budget will be presented. Afterwards, government spending trends in education, according to the educational levels; primary, secondary and tertiary, for relevant years will be examined.

4.8.1 Public Education Expenditure Trend between 1980 and 2000

Public spending on education as a percentage of GDP in Turkey is the lowest one among the OECD countries. The ratio of spending among OECD countries was 4.6 according to OECD (2004), (Education At a Glance) and the same ratio for Turkey was 3.08 percent according to the Ministry of Turkish Education.

As it can be seen from Figure 8, trends in public spending as a percentage of GDP has fluctuated around 3 percent over the period. The average ratio of the total education budget in GDP was approximately 2.77 percent within a 24-year period. The lowest rate was in 1987 with 1.58 percent and the highest rate was in 2005 with 3.93 percent.

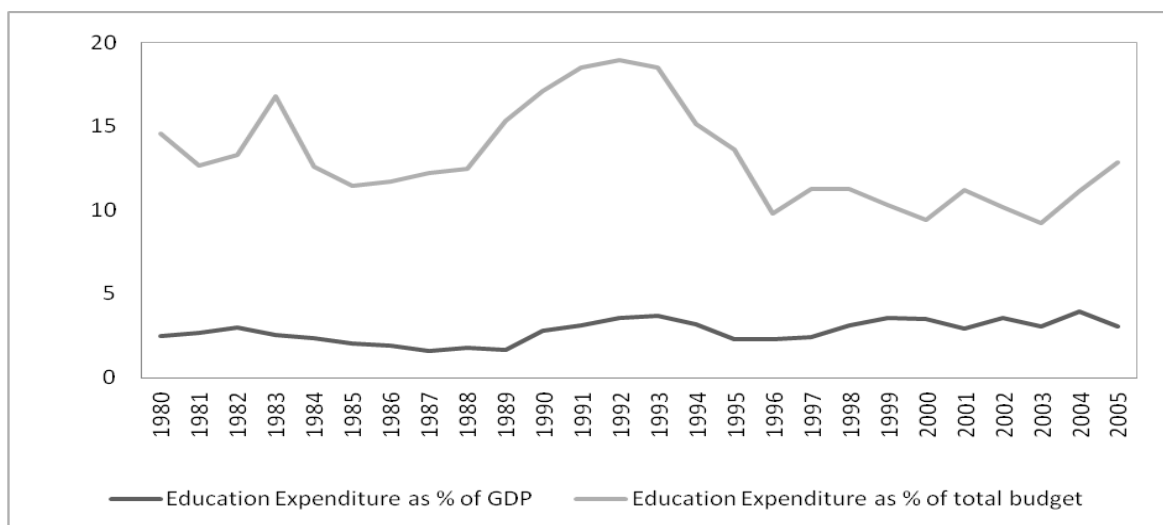
The trend of expenditure as a percentage of GDP from the 1980s until the 1990s has a falling tendency. From the 1990s onwards, it has been increasing, and becomes one of the highest rates of this period with 3.71 percent in 1993. In 1993 this figure again started to decline. However, there was not a significant decline, and the expenditure on education as a percentage of GDP reached the highest rate in 2004 with 3.93 percent.

Figure 8 also illustrates the average of public expenditure. The percentage of the total budget was around 13.13 percent for the specified period.

The share of expenditure was 14.58 percent in 1980, falling to 12.47 percent in 1988. However, the ratio increased from 1988 to 1992. In 1992 it reached its peak level over the period, with 18.93 percent. After 1992 it again started to fall, and was 12.87 percent in 2005.

Overall, public expenditure as a percentage of the total tended to fall in general. There were some developments in the 1990s and 2000s, however, there were no significant improvements for the whole period.

Figure 8: Education Expenditure as % of GDP and as % of Total Budget



Source: own elaboration based on Ozgur, (2006) and Ministry of Development, (2014b)

4.8.2 Public Expenditure Per Student by Level of Education

Table 6: Public Expenditure on Primary, Secondary and Tertiary Education per student (% of GDP)

Education	1985	1994	2003
Primary	9	13	12
Secondary	6	9	15
Tertiary	38	51	45

Source: Duman (2008)

Table 6 illustrates the share of public expenditure on primary, secondary and tertiary education levels per student as a percentage of GDP. The share of public expenditure on tertiary education clearly seen as the highest rates of spending over the period. In 1985 the share of tertiary education was 38 percent per student and it reached its peak level in 1994 with 51 percent, however, it declined to 45 percent in 2003. The second remarkable point is the increase in the share of secondary education spendings during the whole period. The rate of spending on secondary education per student rose from 6 percent in 1985 to 15 percent in 2003. The public expenditure on primary education as a percentage of GDP per student in 1985 increased from 9 percent to 13 percent in 1994 and then there was a slight decline in 2003.

To sum up, it can be understood that Turkey has allocated a large part of the resources to tertiary education and restrict the share of expenditure on primary and secondary education.

SUMMARY and CONCLUSION

This study examines the association between income inequality and education in Turkey between 1980 and 2005. More specifically, this study makes an assessment on the link between the declining trend of income inequality and expansion of education opportunities. Considering this link, distribution of income by education level, average schooling year of total population over 15 age and over, educational attainment of the different income groups, social and private return on education and public expenditure on education are examined.

Regarding to the income distribution across different level of education, it is observed that the proportion of income for low level of education decrease, while the share of high level of education increase over the period. In that case, one can conclude that there is a strong relationship between education and income distribution in Turkey. Although, there is no more detailed information about causality in the Table 2, where the distribution of disposable household income by educational level in total income earned is analyzed, finding support this positive correlation for all education levels over the period, it can be clearly observe that the groups with low education levels receive less income than groups with high education levels.

Considering the average years of schooling in Turkey, it is rather low when it is compared with developed and developing countries. However, a substantial development is observed between 1980 and 2010. For instance, the average year of schooling increased from 2.64 to 4.42 between 1980 and 2010. This finding shows that, by course of time more people have access to education than the beginning of the 1980s. As indicated in the literature, more education leads more equality in Turkey too. In the same vein, these findings demonstrate that an increase in the level of education, raise the labor force participation and also enhance the proportion of high level educated labor force. In other words, widely access to education has a key role to create equality of opportunities.

The main findings regarding the educational attainment of the highest and the lowest income quintiles showed there is a large education gap between the lowest and the highest quintiles in terms of access to education in Turkey. In other words, family income status influence inter-generational transmission of education. As mentioned in previous part, income and education mutually influence each other. This clearly observes for Turkey, especially for access to higher education. For instance, in 2005 the proportion of university graduates for highest quintiles was 27.73 percent, while this ratio was 0.5 percent for lower quintiles. In other words, a higher income can facilitate access education easily and good education gives opportunities to achieve high income.

The key findings related to the rate of return to education displays that generally returns increase with the level of schooling. Furthermore, it has been observed that the private rate of return to education is higher than social returns for the whole period. Moreover, the highest returns to schooling are observed for tertiary school graduates. These results for Turkey are supported by Psacharopoulos and Patrinos (2004) research for many countries. As they have claimed, more year of educational attainment increases rate of returns. This returns are higher in developing countries compared to developed ones. This similar patterns are also observed in the studies of Ozgur (2005), Turkmen (2002) and Tek (1987) for the same period in Turkey.

Considering public expenditure on education as a percentage of GDP and as a percentage of total budget, it is possible to conclude that public spendings on education are comparatively low in Turkey. Some developments were observed during the 1990_s and 2000_s. However, there were no significant improvements for the whole period of 1980-2005. Whereas, public expenditure on education is a substantial instrument for improving unequal income distribution. Especially, it is significant in terms of providing education for children from poor families. In addition, it is clearly observed that a large part of education expenditure was allocated to tertiary education, which was limited in primary and secondary education. However, as it stated in the literature, primary and secondary education attainments are more effective than tertiary education in developing countries in terms of improving income distribution. The allocation of government expenditure does not appear effective during the period. Because, in general, the public education expenditures contribute not only to narrow the education gap, but also reduce the income inequality between poor and rich.

To sum up, the study concludes that education has a substantial effect on the income distribution of Turkey between 1980 to 2005. The income increased with the level of education, which accordingly increased the level of return to education and enhance the level of schooling. Similarly, the increase in education access, reduced the income proportion of the rich and rose the income proportion of poor quintiles. Therefore, the income gaps narrowed by the transition of income from the poorest to the richest quintiles. This result clearly presented for the poorest and richest quintiles between 1983 and 2005.

In Turkey income inequality one of the most important social economic problems needs to be solved. The results of the study highlight that education has a key role to reduce earning disparities. Despite the developments in access to education, it is still not at a reasonable level compared with other many developing and developed countries. More resources should be allocated to education. There are many international financial institutions

fostering education opportunities. Turkey should benefit from these institutions to facilitate access to education for each individual. Turkish government should determine the targets for a rapid and sustained expansion of education for every individual, especially for disadvantaged groups such as lower income groups, disable people, ethnic groups and females. More educated population will enhance the participation of more educated labor force, increase earning of poor people and enhance more equal income distribution. In addition, policy makers should primarily pay more attention to investments on primary and secondary education and facilitate transition to tertiary education for more individuality. Comparatively, these investments remained rather low during the examined period.

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