AN ASSESSMENT OF THE RELATIONSHIP BETWEEN SOCIAL TRANSFERS AND INCOME INEQUALITY IN TURKEY

A Thesis
submitted to the Faculty of the
Graduate School of Arts and Sciences
of Georgetown University
in partial fulfillment of the requirements for the
degree of
Master of Public Policy

By

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Washington, DC
April 15, 2016

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ABSTRACT

Despite significant decrease in income inequality in the last years, Turkey still has the third highest inequality rate among the OECD countries. The distributed amount of social transfers increased in the last years significantly. In my thesis, I examine the relationship between income inequality and social transfers in Turkey in the time span between 2006 and 2013. Using the Gini coefficient as inequality measure from several rounds of the Income and Living Conditions Survey (SILC), I test the impact of social transfers on income inequality. My results indicate that an enhanced level of social transfers had a positive redistributive impact and lead to a decrease in income inequality during this period. After that, I look for the distributive impacts of the different kinds of the transfers and the eventual results are compatible with the literature: retirement and disability pensions do not decrease inequality, whereas; widow's and orphan's pensions decrease income inequality; analyzing sickness allowance, student grants and unemployment compensation does not return any significant results. From a policy perspective, my results indicate that allowing for a differentiated analysis is important when assessing the socio-economic viability/effectiveness of social transfer programs.

Keywords: social transfers, income inequality, Turkey

The research and writing of this thesis is dedicated to
my beloved wife.

I owe my deepest gratitude to my advisor Dr. Andreas Kern
for his great advice and support.

I am also grateful to my parents and sister
for their endless love and support.

I would also like to thank to my friends
who helped me along the way.

Many thanks

Muhammet Sakir Senturk

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INTRODUCTION

Increasing income inequality is one of the hot topics among economists, politicians and public policy makers across the world. Inequality is the result of an unequal distribution of economic gains and rents; i.e. economic gains are distributed in favor of certain segments of the society. Alvaredo et al (2013) conceptualized this phenomenon with "1% problem" whereas, other economists/organizations prefer comparing top versus bottom quintile income or top 10% versus bottom 10% income. No matter which approach is used the intention is the same: understanding the distributional effects of the social and economic policies.

Income inequality is related to the question of how evenly and unevenly income is distributed in a society/country (Deaton, 2013). Piketty (2014) claims that it is impossible for economies and societies to live indefinitely with high rates of inequality. According to the United Nations, inequality may have powerful effects in many areas, such as; it reduces the economic growth, slows down the poverty reduction, restricts the social mobility, and threatens social and economic stability and socially sustainable development. (UN, 2013).

There are two groups of determinants of inequality:[1] socio-economic and political framework of the country and the socio-economic conditions of the people. The socio-economic framework of the country includes macroeconomic, social and political policies of the governments; cultural values; relationship between the institutions and relationship between people and the institutions. However, socio-economic conditions include people's health, education, income and inheritance. Since inequality is a cross cutting issue, there is not a simple recipe or 'magic bullet' to eliminate or reduce it. Fighting efforts against inequality should cover all of the determinants of the inequality. Redistribution policies are one way of supporting the disadvantaged groups by transferring income from some individuals to the others. There are

[1] Conceptual Framework of Inequality can be found in Appendix A.

several redistributive policies such as taxation, social transfers, monetary policies, inheritance law. Among them, social transfer distribution is the most prevalently used way of fighting against inequality across the world. (Loontjer et al (2015), Caminata et al (2012), Doerrenberg and Peichl (2012), Joumard et al (2012), Niehues (2010))

Turkey is one of the exceptional countries with decreasing income inequality between 2006 and 2013. The statistics show that Germany, France, Bulgaria, Romania and Hungary are some of the countries with increasing inequality, while United Kingdom's inequality rate stays steady.[2] According to Azevedo and Atamanov (2014) the portion of the middle class in Turkey increased from 18 % in 1993 to 41.1 % in 2010 and the income of the bottom 40 percent of the population has increased almost equally with the total population growth in Turkey between 2006 and 2011 which points out that wealth has been almost equally shared across income groups of the population. This raises the question of whether and how social transfer policies have contributed to the decline in income inequality in Turkey during this time period. In order to answer this question, I use the Income and Living Conditions Survey datasets of Turkish Statistical Institution (TURKSTAT) for the selected years 2006, 2007, 2008, 2010 and 2013. Descriptive statistics suggest that the share of public social protection expenditure increased from 14.3% in 2006 to 17.8% in 2013. The share of social assistance expenditures increased from 0.5% in 2002 to 1.4% in 2014. There are several kinds of social transfers distributed by the central government of Turkey such as retirement pension, student grants, widow's and orphan's pension, disability pension, unemployment compensation and in-kind aids. The results indicate that transfers decreased the income inequality between 2006 and 2013 in Turkey. Widow's and orphan's pension was the most effective kind of transfers while disability and retirement pensions did not decrease inequality. Unemployment compensation, students grant

[2] World Income Inequality Database-United Nations
https://www4.wider.unu.edu/ (Accessed on February 05, 2016)

and sickness allowance were insignificant (which is normal given their amount within the dataset).

My results point out that allowing for a differentiated analysis is important when assessing the socio-economic viability/effectiveness of social transfer programs. In order to prevent the underestimation of the redistributive impacts of social transfers, questions/information regarding the other social assistance received by the surveyed individuals should be included to the SILC.

The organization of the thesis is as follows: in section 2 the literature review regarding the relationship between social transfers and income inequality is presented. Section 3 is dedicated to the data. Section 4 exhibits the empirical model and analysis plan. Section 5 presents the descriptive statistics. Section 6 exhibits the results and interpretations. The last section gives the conclusion.

LITERATURE REVIEW

Social Transfers and Income Inequality

There is a growing number of empirical work on the effectiveness of the redistributive policies. According to Joumard et al (2012), in most OECD countries the transfers have three main objectives: retirement funds and pensions help people to redistribute their income over their lifetime –from working period to retirement period (Maitre (2013)); unemployment compensation, disability pension and sickness allowance ensure people an insurance to cope with adverse risks Atkinson (1995)); family cash benefits and child support help people to go out of poverty and reduce inequality. (Atkinson (1995); Esping-Andersen and Myles (2009))

Focusing on governmental redistributive policies and income inequality in 120 countries, Loontjer et al (2015) find that social transfers reduce inequality while the degree of reduction depends on the income level of the country. According to Atkinson (2015), thanks to taxes and social transfers in post war decades, income inequality and poverty was decreased in the UK and West Germany.

As a matter of fact there are numbers of papers claiming that social transfers have more redistributive impact than taxes.

Studying 28 OECD member states, Caminata et al (2012) find that social benefits and taxes decrease the Gini coefficient and social transfers are responsible for 85% of the total decrease. Doerrenberg and Peichl (2012) find that the redistributive effect of transfers is higher than the progressivity of the taxes. Studying on the OECD member countries they find that 1 per cent increase in transfer spending leads to a 0.3 percent drop in inequality. Joumard et al (2012) also state that cash transfers decreases income inequality more than taxes do. They state that cash transfers are responsible of three quarters of the reduction in income inequality in OECD countries.

Caminada et al (2012) investigate the redistributive effect of social transfers and taxes across 20 LIS[3] countries between 1985 and mid 2000's and find that social benefits have a much stronger redistributive effect than taxes. Also they find that public pensions have the highest effect and even if their impact is smaller than the social assistance; disability and family benefits also reduce the inequality.

In fact, a substantial literature argues for a differentiated approach when analyzing redistributive impacts of different kinds of social transfers.

Niehues (2010) studies the relationship between generosity of the social spending system and income inequality. She investigates the redistributive effects of social spending and whether the behavioral changes of the recipients offset this effect or not. She finds that an increase in social spending budget decreases inequality in post governmental incomes which means that the behavioral changes of the recipients do not offset the redistributive effect of the social spending. According to the paper, public pensions and unemployment compensations have the highest redistributive impact. She also investigates the targeting structure of the social spending and finds that the programs targeting low income groups do not have redistributive impacts, actually they increase the inequality which means that the behavioral changes of the recipients offset the redistributive effect.

According to Keeley (2015), tax and transfer systems in OECD countries have become less redistributive since mid-1990's. The reason for this change includes less generous benefits, tighter eligibility rules and less than enough transfers to the lowest income groups. He states that the redistributive effect of different kinds of transfers is not the same. Some of the transfers

[3] Luxemburg Income Study countries are Australia, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Israel, Italy, Luxemburg, Mexico, the Netherlands, Norway, Poland, Spain, Sweden, Switzerland, the UK and the US.

like pensions may have small redistributive impact, whereas other type of transfers like family cash benefits (depending on their design) may have larger redistributive impacts.

Joumard and Vélez (2012) find that some of the cash transfers in Colombia has redistributive effect but pensions are regressive because of the low coverage. They state that although the government spends more than 18% of total social transfers to the pensions system in 2011, the coverage is really low. In 2012, the coverage of the system was 30%. In addition to this, the present value of the benefits exceeds the contributions; given the low coverage, one can say that the system is so generous to the happy minority. Citing from Moller (2012), he states that pension system to be estimated to increase Gini coefficient by 1.6 percentage points. Furthermore, conditional cash transfers decrease the extreme poverty and promote social sectors like health and education. The redistributive effect of cross subsidies for utilities (for example electric and gas) is low.

Regional inequalities have also been studied extensively in a couple of decades. A great number of researchers investigated regional inequalities in different countries across the world. For example Milanovic (2012) after stating the fact that Gini coefficient is nearly same (above 0.4) in EU and US, compares inequality in the US and EU and finds that total inequality in EU arises from the inequality between countries whereas within inequality in states is the main driver of the total inequality in the US.

Bayar (2016) gives a list of studies related with regional inequalities in her paper with stating that these studies do not have common understanding regarding the most effective subgroups to overall inequality. These studies expose the responsibilities of between-region inequality and the within-region inequality for the overall inequality.

Literature Regarding Turkey

Despite the growing interest in the relationship between social transfers and income inequality across the world, we cannot say that Turkish case drew attention it deserves. Until recent years most of the literature was descriptive. We can say that after the implementation of HBS[4] and SILC[5] researchers became able to do empirical studies.

For example, Seker (2008) studies the effect of the social transfers on income inequality using the HBS data and finds that the elasticity of the total inequality for the social transfers in 2005 is negative; social transfers decrease the total inequality by 12.6%. Also the elasticity is negative for each of the kinds of the transfers. The study reveals that the elasticity of the conditional transfers is higher than the unconditional transfers.

Başlevent (2014) studies the impact of social transfers and income inequality in Turkey and tries to understand whether the SILC is informative or not. He argues that although SILC has some problems to work on, the data still allows the researchers to examine the redistributive impacts of social transfers.

Kaya and Senesen (2009) study the gender effects on the inequality. Their study reveals that income inequality between male and female is the main cause of the disposable income inequality and wage income distributions. Başlevent (2010) also finds that female earnings contribute positively to income inequality.

Öcal et al (2009) study the income inequality and economic convergence in Turkey between 1987 and 2001 and they find that regional convergence was accomplished throughout this period. They think that prioritization of the less developed parts of Turkey by the government in terms of investment might be the main cause of this result.

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[4] Household Budget Survey has been implemented every year by TURKSTAT since 2002. Household Income and Consumption Expenditures Survey was the first of a kind which was implemented in 1987 and 1994.
[5] Detailed information is available under Data section.

Bayar (2016) studies the decomposition of regional income inequalities in Turkey. After realizing that southern parts of Turkey has the most unequal distribution, she studies whether between inequality across regions or within inequality of regions is mostly responsible for the overall inequality and finds that within inequality of regions is the main cause of the overall inequality between 2006 and 2013. Karahasan (2015) argues that after 2001, regions in Turkey gained unequally from national development. Ozmucur and Silber (2000) find that between 1987 and 1994, inequality in urban areas was higher than the rural areas and, as a consequence of this, migration from rural areas to urban areas further increased the income inequality.

DATA

In my empirical analysis I use Income and Living Conditions Survey (SILC) which is carried out by TURKSTAT since 2006. My research is based on data from 2006, 2007, 2008, 2010 and 2013 years' SILC.

Şeker (2011) states that SILC in Turkey was put into effect in 2006 within the framework of the European Union Compliance Program. European Union implements European Union Income and Living Conditions Survey (EU SILC) since 2003. Producing income distribution data comparable to EU countries and data on living conditions and social exclusion is the goal of this survey. Some of the areas included in the survey are income status, economic situation, employment status, education status, social transfers and health status. SILC data covers the NUTS I[6] statistical regions in accordance with the EU SILC. TURKSTAT calculates the regional Gini coefficient based on SILC.

SILC includes the information regarding individuals and households within the Republic of Turkey but it does not include the institutional population such as the population in the retirement homes, nursery homes, prisons, military barracks, private hospitals, hotels and child care centers and the immigrant population (TURKSTAT-SILC, 2011). Out of the two versions of the survey that TURKSTAT carries out - individual and household - I use the individual version in my analysis. The individual version does not include the information regarding which individual belongs to which NUTS I region. I merged the information regarding the region from household version to the individual version before carrying out the analysis.

SILC covers 30,186 individuals in the year 2006, 30,263 individuals in 2007, 31,141 individuals in 2008, 32,875 individuals in 2010 and 53,496 individuals in 2013. For my

[6] NUTS I is composed of 12 regions: Istanbul, West Marmara, Aegean, East Marmara, West Anatolia, Mediterranean, Central Anatolia, West Black Sea, East Black Sea, Northeast Anatolia, Middle east Anatolia, Southeast Anatolia.

analysis, I collapse the dataset into regions and I get a panel dataset with NUTS I regions and aforementioned years.

EMPIRICAL MODEL AND ANALYSIS PLAN

I implement cross regional regression analysis covering the years 2006, 2007, 2008, 2010 and 2013 for understanding the relationship between social transfers and income inequality in Turkey. As I mentioned above I establish a panel dataset using the SILC and other related data produced by TURKSTAT.

I start with random effects GLS regression; this technique produces reasonable results for Model 1. Because my dataset is an unequally spaced and a short panel dataset, it does not produce expected results for Model 2. In order to overcome the problem, Baltagi and Wu (1999) recommends to use the weighted GLS technique. According to the Stata Manual[7], Weighted GLS "fits panel-data linear models by using feasible generalized least squares. This command allows estimation in the presence of AR(1) autocorrelation within panel and heteroskedasticity across panels." which is likely the case. Autocorrelation is the correlation of a variable with itself[8], which is likely for slowly moving variables such as income inequality. For example one year's Gini coefficient can be used as a predictor of the next year's coefficient. My general model can be written such that:

My general model is: Gini = Social Transfers + Control Variables +u

Model 1: Gini = log (Transfers) + u

Model 2: Gini = log of each social transfer types + Unemployment Rate +

+ Gross Value Added + Year Dummy + u

There are several inequality measures in the literature. All of them have pros and cons. Depending on the study, researchers favor one over the other. In my empirical study, I use the Gini coefficient as my dependent variable. Gini coefficient is the most popular measure of

[7] STATA manual
http://www.stata.com/manuals13/xtxtgls.pdf (Accessed on March 22, 2016)

[8] http://www.ltrr.arizona.edu/~dmeko/notes_3.pdf (Accessed on March 22, 2016)

inequality. According to the World Bank, “Gini coefficient measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution.”[9] The Gini coefficient varies between “0” and “1”, whereby higher values indicate a higher level of income inequality. I use the Gini coefficient values of NUTS I regions calculated and published by TURKSTAT.

I use the social transfer incomes of the individuals as my independent variable. As mentioned in the literature review, social transfers generally decrease the level of inequality.

As mentioned above, there are several kinds of social transfers distributed by the Turkish Government. Since regional differences show a high degree variation in payments I take the natural logarithm of these variables.

TURKSTAT defines transfer income in the SILC as “unrequited transfers (payments such as for pension, unemployment compensation, unpaid grants, regular benefits in kind or cash, etc.) which are taken from the government, private sectors or person/households in the reference period of income.”[10] It can be divided in two groups, social transfers and inter household transfers. According to TURKSTAT social transfers are unrequited benefits which government or other institutions supply households in order to satisfy their needs. Whereas inter households transfers are the unrequited benefits that households are given by the other persons or households.

I use unemployment rate and gross value added of the region as control variables. High unemployment rate is a possible explanation of higher income inequality in a region.

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[9] The World Bank. *Gini Index* http://data.worldbank.org/indicator/SI.POV.GINI (Accessed on November 09, 2015)

[10] http://www.turkstat.gov.tr/MicroVeri/GYKA_2014/english/meta-data/concept/definitions-income/index.html (Accessed on April 06, 2016)

(For example Krugman claims that unemployment is the main reason of rising inequality)[11] Similarly gross value added of a region which is a pointer of income generation and economic output in that region can introduce an explanation for increase/decrease in income inequality.

According to the OECD, unemployment rate gives the number of unemployed persons as a percentage of the labor force (the total number of people employed plus unemployed). As defined by the International Labor Organization, unemployed workers are “those who are currently not working but are willing and able to work for pay, currently available to work, and have actively searched for work.”[12] I use the unemployment rates published by TURKSTAT. (See in Appendix D).

According to TURKSTAT, regional gross value added is “the value which is equal to the sum of the values of all goods and services produced by resident local units engaged in domestic production activities in a region in a given period of time less the total inputs which are used in the production of these goods and services.”[13] TURKSTAT calculates these values for NUTS II regions. Before doing my analysis I transformed these figures into the values which cover NUTS I region. Since TURKSTAT has not published the 2013 data as of I wrote this thesis, gross value added of year 2013 is a missing value in my dataset.

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[11] http://www.nytimes.com/2014/01/24/opinion/krugman-the-populist-imperative.html?hp&rref=opinion&_r=3 (Accessed on April 5, 2016)
[12] http://www.indexmundi.com/turkey/unemployment_rate.html (Accessed on March 23, 2016)
[13] http://www.turkstat.gov.tr/PreIstatistikMeta.do?istab_id=1316 (Accessed on March 23, 2016)

DESCRIPTIVE STATISTICS

There are two classification methods for social spending in Europe. OECD uses the Social Spending Database (SOCX) and European Union uses the European System of Integrated Social Protection Statistics (ESSPROS). Exclusion of education spending from SOCX is the main difference between the two methods. Turkey uses ESSPROS method for generating social protection expenditures data. According to the official data, public social spending increased from 14.3% of GDP in 2006 to 17.8% in 2013 (from 9.8% to 12.49% according to SOCX). Despite the increase in recent years, social spending in Turkey is lower than its European counterparts; OECD average is 21.7%.

Table 1: Public Social Spending Statistics (% of GDP)

	Years				
	2006	2007	2008	2010	2013
Education	3.1	3.2	3.4	4.0	4.3
Health	4.1	4.0	4.3	4.6	4.4
Social Protection	7.1	7.4	7.2	8.3	9.2
Retirement Pensions and Other Spendings	6.4	6.7	6.6	7.6	8.2
Social Assistance and non-contributory benefits	0.4	0.4	0.4	0.5	0.9
Direct Income Support Payments	0.4	0.3	0.2	0.2	0.1
Total	14.3	14.6	14.8	16.9	17.8

Source: TURKSTAT

According to the Table 2, income was distributed more evenly in 2013 than in 2006. The Gini coefficient decreased on average from 0.428 in 2006 to 0.4 in 2013. However, there are some persistent differences between the regions. West Marmara region has the most equal distribution whereas Mediterranean and the North East Anatolia regions have the most unequal distribution in this period. East Marmara and West Black Sea Regions made the most progress in this period. However, North East Anatolia and Istanbul regions became more unequal. Despite these persistent differences between the regions, after decomposing the overall inequality into between and within inequality in terms of regions, Bayar (2016) finds that `within inequality of the regions' is the main driver of the overall inequality between 2006 and 2013.

Table 2: Gini Coefficients of NUTS I Regions- Turkey (2006-2013)

	Years				
	2006	**2007**	**2008**	**2010**	**2013**
Türkiye - Turkey	0,428	0,406	0,405	0,402	0,400
TR1 Istanbul	0,375	0,346	0,362	0,373	0,392
TR2 West Marmara	0,350	0,321	0,331	0,360	0,337
TR3 Aegean	0,426	0,376	0,387	0,387	0,370
TR4 East Marmara	0,392	0,393	0,335	0,341	0,322
TR5 West Anatolia	0,413	0,379	0,402	0,367	0,396
TR6 Mediterranean	0,421	0,418	0,387	0,397	0,399
TR7 Central Anatolia	0,342	0,328	0,339	0,362	0,342
TR8 West Black Sea	0,372	0,360	0,366	0,348	0,331
TR9 East Black Sea	0,378	0,346	0,365	0,327	0,315
TRA North East Anatolia	0,381	0,405	0,436	0,404	0,398
TRB Central East Anatolia	0,404	0,397	0,405	0,417	0,373
TRC South East Anatolia	0,396	0,366	0,395	0,404	0,380

Source: TURKSTAT

Appendix C presents the descriptive statistics of the independent variables. According to the Table 5, total transfer payments increased significantly between 2006 and 2013. In fact, all kinds of transfers substantially increased. Retirement pensions comprised the biggest share of the social transfers, widow's and orphan's pensions got the second share, disability pensions third, student grants constitute the forth, unemployment compensation fifth and the sickness allowance got the smallest share of the social transfers. Unemployment rate lurched between 9 and 11 percent in this period. During the global financial crisis, unemployment rate increased but then decreased to the pre-crisis values. Gross national added increased significantly. Because of the lack of data, descriptive statistic of the year 2013 is missing.

RESULTS

According to the results presented in Table 3, transfers -in total- decreases the inequality: widow's and orphan's pension decreases inequality, whereas retirement pension and disability pension do not decrease inequality.

These results are compatible with the literature. Prasad (2008) studies on 64 countries and finds that there is a strong negative relationship between social spending and income inequality. According to Keeley (2015), the reason for a positive coefficient for retirement pension is that in many countries, pensions are conditional transfers which means that some part of the pension payments is funded by the money they contributed when they were working; these kind of pension systems can be thought as "delivering deferred earnings rather than redistributing income across society". Some other factors may also have a role; since the lifespan of lower-paid workers are generally shorter than the higher-paid workers, they may not get pension payments for the same period of time as the workers with higher pensions and longer lifespan, which may mean that the lower paid workers subsidize the pensions of better paid workers. Also as TUSIAD (2014) states, since retirement pensions are determined within a legal framework and its implementation is fulfilled homogeneously across the state, retirement pensions don't have a decreasing effect on income inequality. Joumard et al (2012) claim that disability pensions may reduce income mobility and create poverty traps which may lead to an increase in income inequality. However, Başlevent (2014) argues that positive coefficient does not imply that the inequality would be lower in the absence of these payments; in the absence of retirement and disability pensions inequality would be even higher.

Widow's and orphan's pension has highly significant negative effect on inequality as expected. Widows and orphans constitute one of the most vulnerable segment of the population. This payment is generally their only income, without which they may end up in poverty. This is also compatible with Keeley (2015) stating that family cash benefits are generally more redistributive than the other kinds of benefits. Joumard et al (2012) also state that family cash transfers have strong redistributive effect which depends on the size and progressivity of such benefits.

Sickness allowance, student grant and unemployment compensation are insignificant. This is also an expected result because their total amount is really low comparing with the other kinds of transfers. These results verify the Jesuit and Mahler's (2004) claim that the redistributive power of a program is strongly correlated with the size of the program.

Table 3: Regression Results

Variables\Models	**Model 1**	**Model 2**
Transfers in Total	-0.012** (0.005)	
Retirement Pension		0.04** (0.017)
Disability Pension		0.024*** (0.009)
Sick Allowance		0.004 (0.003)
Widow's and orphan's Pension		-0.064*** (0.017)
Student Grant		0.0007 (0.004)
Unemployment Compensation		-0.003 (0.004)
Unemployment Rate		0.003* (0.002)
Gross Value Added		0.014 (0.01)
2007		-0.02*** (0.008)
2008		-0.02** (0.009)

Variables\Models	Model 1	Model 2
2010		-0.02 (0.014)
Constant	0.55	0.07 (0.155)
R^2	0.11	
Wald chi2 (1/11)	5.96	48.70
Observations	60	43

Source: Author's calculations based on the SILC data
***** significant at 10% level; ** significant at 5% level; *** significant at 1% level   Standard errors in parenthesis.

I also test the variation in the independent variables with and without the time fixed effects (see the results in Appendix F). Testing the variation, I implement 7 independent regressions, none of which produce significant results except for the widow's and orphan's pensions. The reason of this situation may be the decrease in the number of observations. Controlling for the unemployment compensations and gross value added, widow's and orphan's pensions decrease the income inequality in Turkey.

Limitations

Based on the survey of the year 2013 Başlevent (2014) claims that SILC has important imperfections to test the relationship between types of social transfers and income inequality:

Some types of social assistance payments are combined with the income types in the survey. First, old age income and retirement pensions are combined under one category. This category mostly consists of retirees and their survivals. Old age pensions are paid to the elderly (above 65 year old) who need to be financially supported. Given that more than five thousand people benefited from old age pensions in 2014, disaggregating these two categories would be useful.

Second, payments to people who look after a disabled person are combined with wage and salaried workers. Given that there are more than four hundred thousand such people, disaggregating these two categories would be useful as well.

Third, invalidity allowances and payments to war veterans are combined with disability pensions.

Fourth, there is no information about General Health Insurance premiums’ of poor and elderly. The premiums of these people are paid by the central government. Nine million people benefited from this program in 2014 and the Ministry of Family and Social Policies spent almost one third of its budget on it.

Because of these imperfections, the dataset does not reflects the correct amount of social assistance payments which may bias our empirical results downward.

CONCLUSION

Between 2006 and 2013, income inequality in Turkey decreased by 0.028 points. Social protection expenditures increased significantly in the same period. In my thesis I analyze the social transfers' contribution to the decrease in Gini coefficient. In my empirical work I use SILC dataset for the years 2006, 2007, 2008, 2010 and 2013. Despite some imperfections, SILC presents important information regarding the individual social transfer incomes.

Results are compatible with the literature which reveals that transfers -in total- have redistributive impacts and decrease the income inequality significantly.

Widow's and orphan's pensions are the most effective kind of social transfers, whereas the retirement and disability pensions do not have a reducing effect. Sickness allowance, student grant and unemployment compensation are insignificant. My results point out that allowing for a differentiated analysis is important when assessing the socio-economic viability/effectiveness of social transfer programs. Since each of the program has different characteristics and different methods of delivery, the redistributive impact of different types of transfers are not the same. Given that complementary structural policies of each program are different, it is normal for each type of social transfers to have different redistributive effects.

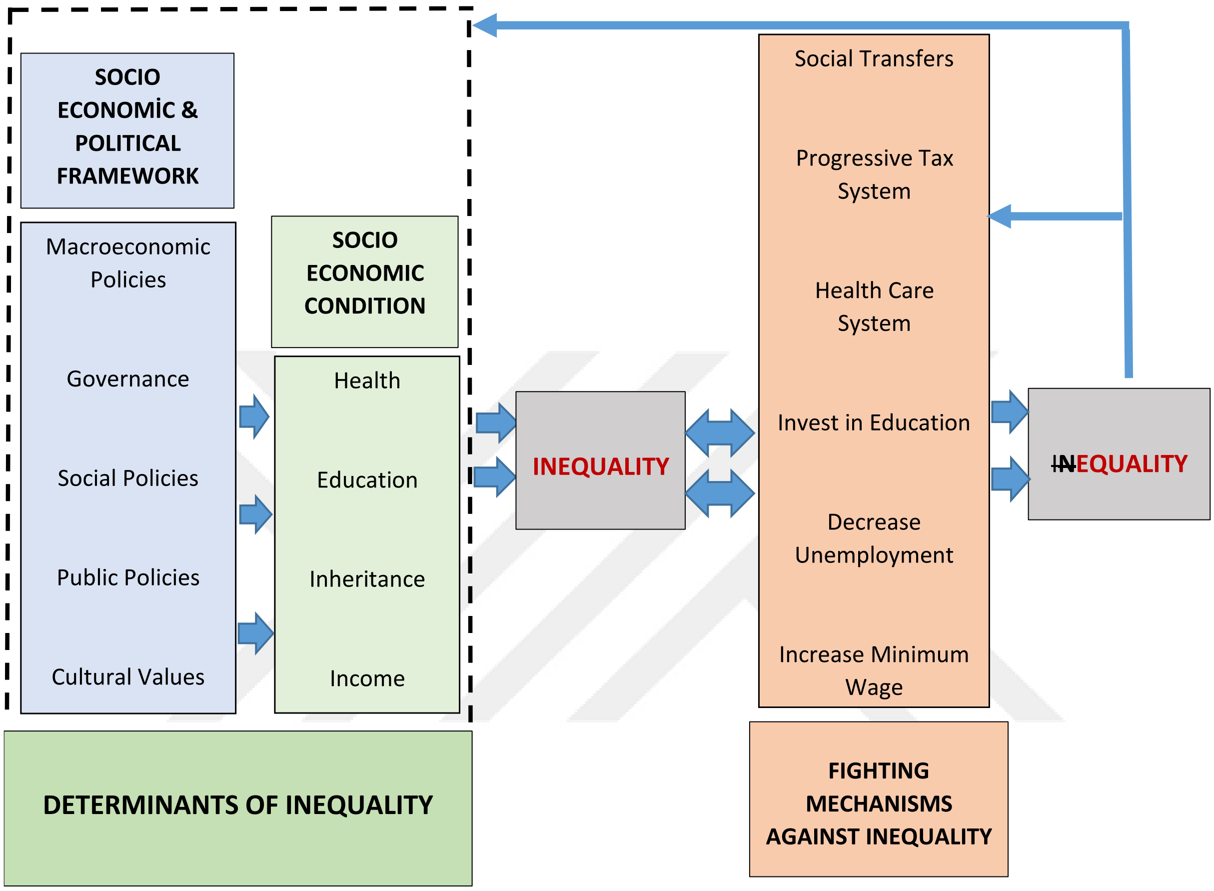
Due to the imperfections of the SILC dataset, results may be biased downward. For estimating the redistributive impacts of social transfers precisely, questions regarding other types of social assistance (like health and education) received by individuals should be included into the SILC, and information regarding some of the transfers should be disaggregated. This downward bias might be amplified by leaving out subsidized items for households (from other households and humanitarian organizations) and other public expenditures (from municipalities) not accounted for when looking into direct social transfers.

Overall, my results undermine the importance of social transfer programs as a means to dampen inequality. Particularly, for the case of Turkey that has seen rapid economic growth over the course of the last of couple years and facing substantial macroeconomic challenges due to conflicts in neighboring countries, social welfare programs constitute an important pillar to foster balanced and inclusive economic development, especially in turbulent times.

APPENDICES

Appendix A: Conceptual Framework Of Inequality

Figure 1: Conceptual Framework of Inequality



Source: Author's adaption from Solar and Irwin (2010)

Appendix B: List Of İndependent Variables And Their Explanations

Table 4: List of Independent Variables and Their Explanations

#	Abbr	Explanation
1	gini	Gini value of the related NUTS I region
2	ltransfers	Log of total transfer payments distributed to the individuals in the region
3	lretirement	Log of total retirement pensions distributed to the individuals in the region
4	lunempcomp	Log of total unemployment compensations payments distributed to the individuals in the region
5	lwidow	Log of total widow's and orphan's pensions distributed to the individuals in the region
6	lsickallowance	Log of total sickness allowances distributed to the individuals in the region
7	ldisability	Log of total disability pensions distributed to the individuals in the region
8	lgrant	Log of total student grants distributed to the individuals in the region
9	unemp	Unemployment rate of the region
10	lgrsvalueadd	Log of gross value added of the region

Source: Author

Appendix C: Descriptive Statistics of the Independent Variables

Table 5: Descriptive Statistics of the Independent Variables

Variable	Year	Mean	Std. Dev	Min	Max
Retirement Payments	2006	1800820	922623.4	584234	3622178
	2007	2079132	1040305	639542	4215680
	2008	2450336	1221910	1008962	5344256
	2010	3221876	1651661	1188604	6624952
	2013	7102033	3751600	2323960	15100000
Unemployment Compensation	2006	7704.583	6761.182	0	18537
	2007	11976	10442	1328	37472
	2008	30387	37837	3260	136684
	2010	91888	80139	5092	214549
	2013	161274	150257	26777	517961
Widow’s and orphan’s pension	2006	350285	169818	165045	697267
	2007	435986	191227	165776	763074
	2008	429344	188562	172010	756948
	2010	589995	251659	207000	1040631
	2013	1497254	595557	792524	2440053
Sick Allowance	2006	3012	2821	0	9019
	2007	2604	3363	0	11080
	2008	2201	2212	0	6502
	2010	4955	5345	40	17830
	2013	14214	15127	0	53328
Disability Pension	2006	50291	19069	18525	82950
	2007	69656	19133	37851	101645
	2008	64274	23019	26190	108561
	2010	105295	40439	45180	186324
	2013	227058	98970	101487	361458
Student Grants	2006	9776	6520	1085	20370
	2007	9880	11034	240	32556
	2008	15300	15508	1560	50510
	2010	17910	12563	2340	47140
	2013	43437	17638	7570	68740
Unemployment Rate	2006	9.66	2.97	5	14.2
	2007	10.02	3.13	5.8	16.9
	2008	10.56	3.2	5.8	15.8
	2010	11.07	2.7	6.1	14.3
	2013	9.02	2.4	6.7	14.5
Gross Value Added	2006	55700000	49500000	10300000	184000000
	2007	62900000	56500000	11300000	210000000
	2008	71200000	63500000	12800000	236000000
	2010	81700000	70400000	16200000	264000000
	2013				
Transfers	2006	2221897	1091981	814890	4394805
	2007	2609235	1231646	871694	5090937
	2008	2991845	1420239	1269941	6233256
	2010	4031921	1956526	1534490	7922738
	2013	9045272	4446506	3561308	18300000

Source: Author’s calculations based on TURSTAT data

Appendix D: Unemployment Rates

Table 6: Unemployment Rates of NUTS I Regions- Turkey (2006-2013)

	Years				
	2006	**2007**	**2008**	**2010**	**2013**
Türkiye - Turkey	10.2	10.3	11.0	11.9	9.7
TR1 Istanbul	11.4	10.4	11.2	14.3	11.2
TR2 West Marmara	7.2	6.6	9.4	8.8	6.8
TR3 Aegean	9.3	9.4	10.5	12.0	10.1
TR4 East Marmara	9.7	9.7	10.5	11.5	8.4
TR5 West Anatolia	12.3	11.2	11.2	10.8	8.6
TR6 Mediterranean	12.5	12.0	13.9	13.9	11.0
TR7 Central Anatolia	11.0	10.8	10.9	12.2	8.4
TR8 West Black Sea	6.5	7.9	7.2	8.3	6.7
TR9 East Black Sea	5.6	6.6	5.8	6.1	6.8
TRA North East Anatolia	5.0	5.8	5.9	8.2	6.7
TRB Central East Anatolia	11.2	12.9	14.4	14.3	9.0
TRC South East Anatolia	14.2	16.9	15.8	12.4	14.5

Source: TURKSTAT

Appendix E: Correlations Among The Variables

According to the Table 7, all of the correlations are positive which means that all of the types of the transfers are positively correlated: while one of them increases, the other also increases.

Table 7: Correlations among the Independent Variables

	Transfers	**Unemployment Compensation**	**Disability Pension**	**Widow and Orph P.**	**Student Grant**	**Retirement Pension**
Transfers	1					
Unemployment Compensation	0.7888	1				
Disability Pension	0.6364	0.3977*	1			
Widow's and Orphan's P.	0.9686	0.7412	0.6935	1		
Student Grant	0.7258	0.6334	0.4912	0.7649	1	
Retirement P.	0.9981	0.7812	0.6062	0.9532	0.7069	1

Source: Author's calculations based on SILC data
All of them are significant at 0.01 level except * : 0.05 level

Table 8: Correlations Between the Control Variables and Transfers

	Transfers	**Gross Value Added**	**Unemployment Rate**
Transfers	1		
Gross Value Added	0.6541	1	
Unemployment Rate	-0.0718 (NS)	0.2357**	1

Source: Author's calculations based on SILC data
All of them are significant at 0.01 level except ** : 0.1 level NS: Not Significant

According to the Table 8, there is not a significant relationship between unemployment rate and transfers but the other two correlations are positive which means that all of the types of the transfers are positively correlated: while one of them is increasing, the other is also increasing.

Appendix F: Variation in The Independent Variables

Model 1: Gini = Independent Variable + Unemployment Rate + Gross Value Added + u

Model 2: Gini = Independent Variable + Unemployment Rate + Gross Value Added + Year Dummy + u

Table 9: Results of Seven Independent Regressions

	Variables\Models	Model 1	Model 2
1	Transfers in Total	-0.015 (0.012)	0.005 (0.015)
	Unemployment Rate	0.003 (0.001)	0.004*** (0.001)
	Gross Value Added	-0.0009 (0.009)	-0.01 (0.008)
	Constant	0.582 (0.107)	0.447 (0.118)
	Wald chi2 (3\6)	10.38	28.81
	N	48	48
2	Retirement Pensions	-0.008 (0.012)	0.009 (0.013)
	Unemployment Rate	0.004** (0.001)	0.005*** (0.001)
	Gross Value Added	-0.005 (0.008)	-0.013 (0.008)
	Constant	0.548 (0.099)	0.440 (0.105)
	Wald chi2 (3\6)	10.37	31.20
	N	48	48
3	Unemployment Compensation	-0.005 (0.003)	0.0002 (0.004)
	Unemployment Rate	0.005*** (0.001)	0.003** (0.002)
	Gross Value Added	-0.003 (0.006)	-0.006 (0.007)
	Constant	0.440	0.449

	Variables\Models	Model 1	Model 2
		(0.093)	(0.104)
	Wald chi2 (3\6)	10.72	26.42
	N	47	47
4	Disability Pensions	-0.004 (0.006)	0.012 (0.007)
	Unemployment Rate	0.004*** (0.001)	0.004*** (0.001)
	Gross Value Added	-0.011*** (0.004)	-0.006 (0.004)
	Constant	0.577 (0.103)	0.317 (0.122)
	Wald chi2 (3\6)	15.45	35.66
	N	48	48
5	Sickness Allowance	0.003 (0.003)	0.001 (0.003)
	Unemployment Rate	0.004*** (0.001)	0.004*** (0.001)
	Gross Value Added	-0.011** (0.005)	-0.008 (0.005)
	Constant	0.504 (0.085)	0.478 (0.079)
	Wald chi2 (3\6)	9.93	31.20
	N	44	44
6	Widow's and orphan's pensions	-0.04*** (0.009)	-0.023* (0.013)
	Unemployment Rate	0.002 (0.001)	0.003** (0.001)
	Gross Value Added	0.012* (0.007)	0.004 (0.008)
	Constant	0.672 (0.093)	0.573 (0.103)
	Wald chi2 (3\6)	29.79	29.80
	N	48	48

	Variables\Models	Model 1	Model 2
7	Student Grants	-0.003 (0.004)	-0.003 (0.003)
	Unemployment Rate	0.004*** (0.001)	0.004** (0.001)
	Gross Value Added	-0.009** (0.005)	-0.007 (0.005)
	Constant	0.521 (0.072)	-0.485 (0.072)
	Wald chi2 (3\6)	14.55	35.80
	N	48	48

Source: Author's calculations based on SILC data.
* significant at 10% level; ** significant at 5% level; *** significant at 1% level   Standard errors in parenthesis.

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