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THE DISTRIBUTION OF INCOME: EVIDENCE FROM THE TURKISH CASE (2006-2015)[†]

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Abstract

This study analyzes income distribution types, both individual and functional, in terms of the first and the last quintiles in Turkey from 2006 to 2015. In this respect, the study first reveals how income types represented by functional income distribution are distributed for the first and last quintiles. Secondly, the inequalities arising within different income types obtained by the respective income quintiles are involved to the analysis. TURKSTAT Income and Living Conditions Survey dataset has been used in the study. With regards to methodology, first the variations that occurred in the shares obtained by households in different income categories for the first and last income quintiles have been used from 2006 to 2015. The improving or deteriorating effects of the relevant income quintiles on income inequality have been put forth for these variations. Then, the Lorenz curves and the Gini coefficients have been used to assess the distribution within each income category. According to the findings of the study, items that increase income equality for the first quintile are salaries and wages, pensions and survivors' benefits, property income and other social transfers. On the other hand, casual incomes, entrepreneurial incomes, household transfers and rental incomes are the income categories that deteriorate income equality against the first income quintile. While wages and salaries have a positive effect on establishing income equality within this category, rental and property income are the types of income that reveal the most unequal distribution within themselves.

Keywords: Income Distribution, Personal Income Distribution, Factor Income Distribution, Turkey.

1. Introduction

This paper investigates the determinants of personal income distribution in relation with functional income distribution in Turkey between the years 2006-2015. It is well known that functional income distribution is a direct determiner of personal income distribution. The wealth providing high return is distributed unequally and researchers indicate that the distribution of wealth has an important role in income distribution (Glyn, 2009). Evidence from the database comprising 18 OECD countries highlights that wealth inequality is much more important than income inequality due to financial assets that are very unequally distributed to high income groups (OECD, 2015).

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This study investigates the relations between personal income distribution and functional income distribution in Turkey, based on the thesis that a close link exists between those two concepts. A few studies have been in the Turkish literature regarding to the link between personal income distribution and functional income distribution. The contribution of this study is to realize a two-dimensional analysis between the years 2006-2015 with the variations arising in the shares obtained from the related income types by the first quintile and the last quintile in the framework of inequalities within incomes types.

The main purpose of the paper is to analyze the developments of personal income distribution and income inequality in Turkey via the Gini-coefficients measured through the Turkish Statistical Institute (TURKSTAT) database. The paper uses the TURKSTAT dataset derived from Income and Living Conditions Surveys during the period 2006-2015. Section 2 explains the empirical literature of income distributions on Turkey. Section 3 describes the methodology of the paper. The later section explores personal and functional income inequality in Turkey, based on the estimations mentioned in the methodological section.

2. Empirical Literature

There are quite scarce researches on income distribution, due to the limited data available in Turkey. The first research on income distribution was made in the year 1963 by Cavusoglu and Hamurdan (1966), based on income tax declarations. The first study based on income distribution surveys was made by the Institute of Population Studies in the year 1968. The field research conducted on the population structure by the State Planning Organization in the year 1973, produced some information on functional income distribution. Apart from these studies, Celasun (1986) calculated Gini coefficients on the basis of an income distribution modelling that was not based upon surveys. In the years 1987 and 1994, TURKSTAT published income distribution data based on surveys. After that date, TURKSTAT published households budget surveys data regularly between the years 2002-2005. Since the year 2006, it continues to publish income distribution statistics based on the Income and Living Conditions Surveys.

Also, Aran *et al.* (2010) builds the poverty profiles and determinants on the officially calculated consumption and poverty line levels in Turkey between 2003 and 2006. They found that inequality in urban areas has decreased as a result of higher growth in consumption levels of urban poor compared to richer deciles, while no significant changes to inequality measures have been noted in rural areas. In fact, the consumption levels of the poorest groups in rural Turkey have declined between 2003 and 2006. In another study, Seker and Jenkins (2013) investigates poverty trends in Turkey between 2003 and 2011. According to their study, the absolute poverty declined rapidly between 2003 and 2008 but fell only slightly between 2008 and 2011. They argue that the rate of the decline in the absolute poverty rate is largely accounted for by changes in the rate of national economic growth rather than by changes in the income distribution.

In this article, two studies conducted recently on income distribution based on the TURSTAT surveys will be analyzed in detail, owing to the similarities of their content with the current study.

Table 1. Household income shares and household numbers with respect to income types (%)

Income types	Household income shares (%)			Household numbers (%)	
	1994	2002	2005	2002	2005
Wage and salary	30.3 ¹	38.7 ¹	42.5 ¹	44.5	46.7
Unrequited transfers	10.0	17.5	23	23.4	26.4
1. Pensions	-	-	-	15.9	18.3
2. Other unrequited transfers	-	-	-	7.5	8.4
Entrepreneurial	45.4	34.5	28.8	29.2	25.0
Rental + Property income	13.6	9.2	5.6	-	-
1. Rental income	-	4.1	2.9	1.3	0.8
2. Property income	-	5.1	2.7	1.5	0.5

Source: Estimated from data in Yukseler and Turkan (2008).

Note: ¹ casual income is included in the wage and salary.

The first study, conducted by Yukseler and Turkan (2008), provides data on income distribution between the years 1994-2005 by analyzing the number of households and the share they receive among six different sources of income. As we take a look at the data in Table 1, which were prepared from the findings of the related study, we observe that there has been a significant decrease in the share of entrepreneurial income and property income - which are accepted as capital income - from 1994 until the year 2005, while there has been an increase in the share of salaries, wages and unrequited transfers. The increase in the number of households receiving salaries, wages and unrequited transfers as well as the increases in the shares of those incomes have been the main factors leading to the improvement of income distribution in Turkey. During this period, the decrease in the number of households receiving property income and entrepreneurial income as well as the decreases in the shares of those incomes lead to the prominence of income items such as wages, salaries and pensions in total household incomes and thus generated an improvement in income inequality (Yukseler and Turkan, 2008).

According to Yukseler and Turkan (2008), although the ratio of financial assets to Gross National Product (GNP), the returns on financial assets as well as the annual average growth rate have risen between the years 1994-2002, the decrease in the share of property income within the total household disposable income might not reflect the real case. Thus, this matter points out that the income inequality problem should be considered as a prolonged issue.

Selim *et al.* (2014) analyze the income distribution developments in Turkey following the year 2002 by comparing the periods between 2002-2007 and 2007-2011. The study determines the contribution of each income type to income inequality with the Shorrocks decomposition method and by using the annual micro data set of Household budget surveys comprising the period 2002-2011. According to the study, the decrease in the income share of the last quintile caused a substantial improvement in income distribution during the first period. On the other hand, the leastwise increase in the income share of the same group during the second period caused a deterioration in income distribution (Selim *et al.* 2014). This study classifies households in six groups (labor income holders, agriculture income holders, entrepreneurial income holders, interest income holders, pension income holders and transfer income holders) and analyzes which type of income causes personal income inequality. According to the findings of the study, the incomes of households having interest as their main source of income diminished between the years 2002-2007 while those incomes rapidly increased after the year 2007. Thus, the gap increased between the incomes of this group and the incomes of households having for main income source salaries, pensions, transfer incomes or entrepreneurial incomes (Selim *et al.* 2014).

As we take a look at the findings of the study, we observe that the share interest income holders in total income decreased from 3.0% in 2002 to 0.7% in 2011. The contribution of interest income to income inequality decreased from 10.9 in 2002 to 7.4 in 2011. However, interest income is still the most important income type that contributes to income inequality. The share of entrepreneurial income holders in total income decreased from 25.2% in 2002 to 18.2%

in 2011. The contribution of this income type to income inequality increased from 1.9 in 2002 to 2.4 in 2011. The share of labor income holders in total income increased from 45.2% in 2002 to 58.4% in 2011. The contribution of this income type to income inequality increased from 0.3 in 2002 to 0.8 in 2011. The share of agriculture income holders in total income decreased from 13.5% in 2002 to 7.2% in 2011. The contribution of this income type to income inequality increased from 0.3 in 2002 to 0.5 in 2011. Even though the shares obtained by households receiving pensions and transfer incomes in total income increased from 9.2% and 3.8% in 2002 to respectively 10.6% and 4.9% in 2011, those income types have accelerating effects on income inequality, contrary to expectations. The study especially points out that transfer incomes contribute to income inequality at least as much as pensions, although transfer incomes correspond to almost the half of the share of pensions in total income (Selim *et al.* 2014).

3. The Methodology

This study analyzes income distribution types, both individual and functional, in terms of the first and the last quintiles in Turkey from 2006 to 2015. In this respect, the study first reveals how income types represented by functional income distribution are distributed for the first and last quintiles. Secondly, the inequalities arising within different income types obtained by the respective income quintiles are involved to the analysis. TURKSTAT Income and Living Conditions Survey dataset has been used in the study. This study targets to realize a two-dimensional analysis between the years 2006-2015 with the variations arising in the shares obtained from the related income types by the first quintile and the last quintile in the framework of inequalities within incomes types. With regards to methodology, first the variations that occurred in the shares obtained by households in different income categories for the first and last income quintiles have been used from 2006 to 2015. The improving or deteriorating effects of the relevant income quintiles on income inequality have been put forth for these variations. Then, the Lorenz curves and the Gini coefficients have been used to assess the distribution within each income category. It considers 7 income categories consisting of wages and salaries; casual incomes; entrepreneurial incomes; agricultural incomes; rental incomes; property incomes; pensions and survivors' benefits. The spreadsheets generated from the Annual Income and Living Conditions Surveys prepared by TURKSTAT have been used as data set in the study. Lorenz curves and Gini coefficients have been used to analyze the income distribution of income types among themselves.

4. Analysis of Personal and Functional Income Distribution in Turkey: 2006-2015

While before 1980 Turkey was taking place among the OECD countries where income distribution was highly deteriorated with a Gini coefficient that was generally above 0.50, this coefficient decreased especially after 1994. As seen from Table 1, the Gini coefficient decreased in Turkey from 0.49 in 1994 to 0.38 in 2007. However, this coefficient increased to 0.39 once again in the year 2009 and following the 2013 and Turkey still takes place among the three OECD countries where income distribution deterioration is at the highest levels.

As we look at income quintiles generating an improvement in income distribution, we observe that the decrease in the share of last quintile in total income and the increase in the share of other income quintiles have been effective in this result. According to Table 2, the first quintile, second quintile, third quintile and fourth quintile increased their shares in total income respectively by 0.9, 1.1, 1.2 and 0.3 points while the last quintile decreased its share in total income by 3.5 points from 1987 until 2015.

Table 2. Personal Income Distribution and Gini Coefficients in Turkey

Years	First 20%	Second 20%	Third 20%	Fourth 20%	Last 20%	Gini coefficients
1973	3.5	8.0	12.5	19.5	56.0	0.51
1987	5.2	9.6	14.0	21.2	50.0	0.43
1994	4.9	8.6	12.6	19.0	54.0	0.49
2003	6.0	10.3	14.5	20.9	48.3	0.42
2004	6.0	10.7	15.2	21.9	46.2	0.40
2005	6.1	11.1	15.8	22.6	44.4	0.38
2006	5.8	10.5	15.2	22.1	46.5	0.40
2007	6.4	10.9	15.4	21.8	45.5	0.38
2008	6.4	10.9	15.4	22.0	45.3	0.38
2009	6.2	10.7	15.3	21.9	46.0	0.39
2010	6.5	11.1	15.6	21.9	44.9	0.38
2011	6.5	11.0	15.5	21.9	45.2	0.38
2012	6.5	11.0	15.6	22.0	45.0	0.38
2013	6.6	10.9	15.4	21.8	45.2	0.38
2014	6.2	10.9	15.3	21.7	45.9	0.391
2015	6.1	10.7	15.2	21.5	46.5	0.397

Source: TUIK (2017)

Table 3. The shares of income types in total income (%)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Variations between 2006-2015
Wage and salary	40.8	39.7	41.9	42.9	43.7	44.8	46.5	48.3	49.1	49.7	8.9 (+)
Casual	3.7	4.0	4.1	3.5	3.6	3.6	3.4	3.2	3.3	2.8	0.9 (-)
Entrepreneurial	24.2	23.2	22.4	20.4	20.2	21.4	20.4	19.6	18.5	18.8	5.4 (-)
-Agriculture	7.1	6.4	6.2	5.4	6.3	6.8	6.8	6.4	5.3	5.0	2.9 (-)
-Non-agriculture	17.1	16.8	16.1	15.0	13.0	14.6	13.6	13.2	13.2	13.8	3.3 (-)
Rental income	3.1	4.1	4.4	5.0	4.2	3.9	3.5	3.3	3.3	3.3	0.2 (+)
Property income	6.1	7.0	4.2	5.3	4.5	3.8	3.3	3.1	2.9	2.6	3.5 (-)
Social Transfers	17.8	18.2	19.1	19.6	20.5	19.4	20.0	19.7	20.1	20.0	2.2 (+)
-Pensions and survivors' benefits	16.9	17.0	18.1	18.3	18.6	17.8	18.4	18.2	18.7	18.4	1.5 (+)
-Other social transfers	0.9	1.1	1.1	1.3	1.8	1.5	1.6	1.5	1.4	1.6	0.7 (+)
Inter-Household Transfers	2.9	2.6	3.1	3.1	3.1	3.0	2.7	2.5	2.6	2.6	0.3 (-)
Other incomes	1.5	1.1	0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.3 (-)

Source: TUIK (2017)

It is possible to analyze with the data in Table 3, which factor incomes are generally related with the decrease in Gini coefficients. When we take a look at the income items that have undergone the most important change between the years 2006-2015 as of income types, we observe that the share of wages, salaries and social transfers in total income increased, whereas the share of property incomes, casual incomes and entrepreneurial incomes decreased.

An important consideration for income distribution is the effect caused on income shares obtained by the first quintile and the last quintile due to the decrease and increase of income type shares in total income. It is required to connect with the functional income distribution with personal income distribution. Table 4 shows income types where the income shares of the first quintile and last quintile decreased and increased from 2006 until 2015.

According to the data in Table 4, income types that realized an increase in the incomes of the first and last income quintiles are wages, salaries and social transfers. The fact that the increase in the shares of wages and salaries in total income with regards to the first income quintile (14.3) was higher than the increase in the shares of last income quintile (11.4) created a positive effect on income distribution from 2006 until 2015.

The increase in social transfers observed from the year 2006 until the year 2015, arose from the 7.2 points increase in the share of social transfers in total income with regards to the first income quintile. The share of pensions and survivors' benefits in total income increased by 5.2 points for first income quintile and decreased by 0.3 points for last quintile. As to other social transfers, the share of the first income quintile increased by 2 points while the increase rate for the last income quintile has been 0.3 points.

As to rental income, there has been a decrease in the share of the first income quintile in total income and an increase in the shares of other income quintiles. The share of rental income in the total income obtained by the first quintile decreased by 0.2 points. However, together with the increase of the share of rental income in other income quintiles (by 0.2, 0.2, 0.1 and 0.2 points), the share of rental income increased. Although this change has been to the detriment of the first income quintile, it points out a situation in favor of the other income quintiles.

According to Table 4, income types that showed a decrease in the incomes of the first and last quintiles during this period are as follows: Casual income, entrepreneurial income, property income, household transfers and other incomes. Whereas the decrease rate of casual income in total income is 8.6 points for the first income quintile, it is just 0.2 points for the last income quintile. While the decrease rate of entrepreneurial income in total income is 8.8 points for the first income quintile, it is 5.9 points for the last income quintile. While the decrease rate of agriculture income in total income is 9 points for the first income quintile, it is 1.2 points for the last income quintile. Whereas the decrease rate of the share of property income in total income is 1.1 points for the first income quintile, this decrease is 4.4 points for the last income quintile. Lastly, the decrease of household transfers in total income exists only for the first income quintile and it is 2.6 points.

In brief, income types that increased income equality in favor of the first income quintile between 2006 and 2015 have been wages and salaries, pensions and survivors' benefits, property incomes and other social transfers, when put in order according to their significance level. On the other hand, income types that decreased income equality in the detriment of the first income quintile are casual incomes, entrepreneurial incomes, household transfers and rental income, when put in order according to their significance level.

Table 4. The variations in income shares of the first quintile and the last quintile between 2006-2015

	2006		2015		Variations	
	First 20%	Last 20%	First 20%	Last 20%	First 20%	Last 20%
Wage and salary	23.0	41.0	37.3	52.4	14.3 (+)	11.4 (+)
Casual	24.8	0.7	16.1	0.5	8.6 (-)	0.2 (-)
Entrepreneurial	25.6	27.7	16.8	21.8	8.8 (-)	5.9 (-)
-Agriculture	17.0	5.2	8.0	4.0	9 (-)	1.2 (-)
-Non-agriculture	8.6	22.2	8.8	17.8	0.2 (+)	4.4 (-)
Rental income	1.2	4.4	1.0	4.6	0.2 (-)	0.2 (+)
Property income	2.9	7.5	1.8	3.1	1.1 (-)	4.4 (-)
Social Transfers	13.3	15.4	20.5	15.4	7.2 (+)	0
-Pensions and survivors' benefits	7.5	15.1	12.7	14.8	5.2 (+)	0.3 (-)
-Other social transfers	5.8	0.4	7.8	0.7	2(+)	0.3 (+)
Inter-Household Transfers	7.7	2.1	5.1	2.1	2.6 (-)	0
Other incomes	1.5	1.2	1.5	0.0	0	1.2 (-)
Total	100	100	100	100	-	-

Source: TUIK (2017)

According to the analyses conducted so far, it is considered that the increases and decreases in the shares of different types of income obtained by the first and last income quintiles in total income are effective on income distribution. The distribution of percentage shares of different income types according to the income quintiles that obtain this income is a

significant structural indicator determining the extent of income inequality in society. As we consider together the increases and decreases that occurred over the years in the shares of income types obtained by income quintiles, those shares enable to make a two-dimensional analysis of the effects on income distribution. Table 5 has been prepared in the light of the information obtained from the mean Lorenz Curves, calculated according to the income types between 2006 and 2015 as well as the data taking place in Table 4 so as to enable this analysis.

Table 5. The Dispersion of inter and intra income types

	Contribution of income types to income distribution	Inequality of the income types in itself
Contribution to equality	-Wage and salary -Pensions and survivors' benefits -Property income -Other social transfers	-Casual income -Agriculture income
Contribution to inequality	-Casual income -Entrepreneurial income -Agriculture income -Inter-Household Transfers -Rental income	-Rental income -Property income -Wage and salary -Entrepreneurial income -Pensions and survivors' benefits

Source: Adapted from table 4 and appendix 2.

The Lorenz curves are generated based on the means of cumulative income sums corresponded to the cumulative quintiles for each income types between 2006 and 2015. The Gini coefficients are the means of Gini coefficients calculated for each income types between 2006 and 2015. Generally, the Gini coefficient below 0.30 implies that the inequality in income distribution remains within the acceptable limits. According to the average Gini coefficient calculations between 2006 and 2015 within the income types, income type with the highest income inequality is the rental income with Gini coefficient equal to 0.607. The others are as follows: property incomes (0.519), wages and salaries (0.448), entrepreneurial incomes (0.442), pensions and survivors' benefits (0.406). On the other hand, casual income represents the most equally distributed income type with a Gini coefficient equal to -0.198 while agricultural incomes are ranked at the second place with a Gini coefficient equal to 0.224. These coefficients are given in the appendix 1 and the means of cumulative income sums for the Lorenz curves for the period of 2006-2015 can be seen in the appendix 2.

Figure 1 has been generated from the Gini coefficients calculated on the basis of income quintiles for each income type for the period 2006-2015. The rental incomes significantly increase the inequality of income distribution due to two reasons. First of all, the inequality within itself is the largest compared to the other income types (Gini coefficient equal to 0.607). Secondly, this type has been contributing to income distribution inequality between 2006-2015 in Turkey. On the other hand, the property income, which is placed at the second rank in income inequality within itself, has been contributing positively to the income distribution equality between 2006-2015. Although the wages and salaries are income types that have made the most positive contribution to income equality between 2006 and 2015 in Turkey, it might be argued that their contribution to income distribution equality has been limited due to the high level of inequality within themselves (Gini coefficient equal to 0.448). While the entrepreneurial income is placed at the fourth rank in income inequality within itself, it has been contributing to inequality at the second rank in Turkey between 2006-2015 and thus increased income distribution inequality. On the other hand, while pensions and survivors' benefits are placed at the fifth rank in income inequality within themselves (Gini coefficient equal to 0.406), they have been making positive contributions to income distribution equality in Turkey between 2006-2015. Besides, although casual income is the income types contributing to income distribution equality at the highest level within itself (Gini coefficient equal to -0.198), it is observed that it contributes to income distribution inequality in Turkey between 2006-2015. Finally, although

agricultural income contributes to the income distribution equality within itself at the second highest rank after casual income (Gini coefficient equal to 0.224), it seems to have been contributed to income distribution inequality between 2006-2015 in Turkey.

Figure 1. The dispersions of Gini coefficients in the income types in itself between 2006-2015 (%)

In the framework of Lorenz curves taking place in Figure 2, the most unevenly distributed income types within themselves are the rental and property income, entrepreneurial income, wages and salaries and finally pensions and survivors' benefits respectively. While 80% of the rental income holders obtain 30% of the total rental income, 20% of the rental income holders take 70% of the total rental income. Similarly, while 38% of property incomes are obtained by 80% of property income owners; 20% of the property income owners obtain 62% of the total property income. On the other hand, while 80% of entrepreneurial income owners obtain 44% of the total entrepreneurial income, 20% of entrepreneurial income owners obtain 56% of the total entrepreneurial income. While 80% of wage and salary owners take 48% of the total wage and salary income, 20% of the wage and salary owners take 52% of the total wage and salary income. Finally, as 80% of pension and survivors' benefits owners receive 54% of the total pension and survivors' benefits income, 20% of pension and survivors' benefits owners receive 46% of the total pension and survivors' benefits income. 80% of casual income owners obtained an income share of 91%; which is 11 points higher than the level of an egalitarian distribution (80%). On the other hand, the richest 20% of them obtained an income share of 9%; which is 11 points lower than the level of an egalitarian distribution (20%). This can be interpreted as a reason for the Gini coefficients having negative ratios for casual income. With those ratios, casual incomes hold a more egalitarian structure than agricultural incomes. While 80% of agricultural income owners obtain 65% of the income, the remaining 20% of them obtain 35% of the agricultural income. Agricultural income takes the income shares that are the most proximate ones to population shares. Thus, they are one of the income categories revealing the most egalitarian income distribution compared to other income categories.

Figure 2. Average Lorenz curve with respect to rental income between 2006-2015

Figure 3. Average Lorenz curve with respect to property income between 2006-2015

Figure 4. Average Lorenz curve with respect to wage and salary between 2006-2015

Figure 5. Average Lorenz curve with respect to entrepreneurial between 2006-2015

Figure 6. Average Lorenz curve with respect to pensions and survivors' benefits between 2006-2015

Figure 7. Average Lorenz curve with respect to agriculture between 2006-2015

Figure 8. Average Lorenz curve with respect to casual between 2006-2015

5. Conclusions and Policy Recommendations

When analyzing the conclusions of the current study with the outcomes of Yukseler and Turkan (2008) and Selim *et al.* (2014), the share of wages, salaries and social transfers in total income continued to increase between 2006-2015 as being these studies. The share of entrepreneurial income in total income continued to fall after 2006, also in parallel with these studies. The share of property incomes in total incomes decreased after 2006. According to the current study, although the share of rental incomes in total incomes increased by 0.2 points between 2006 and 2015, Yukseler and Turkan (2008) stated that it decreased between 2002 and 2005. Before 2006, the share of casual incomes in total income rose to 2.9 in 2002, 3.1 in 2003 and to 3.5 in 2004; while it dropped to 3.3 in 2005. After 2006, this share rose until 2008 and started decreasing after that date. While 8.6 points of this decrease originated from the first quintile, only 0.2 points originated from the last quintile; which created a negative impact on income distribution.

The contribution level of salaries and wages to inequality increased between 2002 and 2011, and in 2011 this income category appears at the third rank in this respect (Selim *et al.* 2014). The fact that the increase in the share of salaries and wages was higher in the first quintile between 2006 and 2015 affected income distribution in favor of this quintile. According to Selim *et al.* (2014), the contribution to inequality increased with regards to social transfers in terms of pensions and transfer incomes between 2002 and 2011, although their share in total income increased. However, in current study this is the type of income that contributes the least to inequality, compared to other types of income. Between 2006 and 2015, social transfers affected favorably income distribution in favor of the first quintile.

The share of rental income in total income was 4.5% in 2002 and declined to 2.9% in 2005 (Yukseler and Turkan, 2008). In the table 4, the decline of 0.2 points in the first quintile deteriorates income distribution against this quintile, even though its share rose from 3.1% to 3.3% from 2006 to 2015 as seen in table 3. With regards to entrepreneurial income; a decrease of 8.8 points in first quintile compared to a fall of 5.9 points in the last quintile reveals a situation to the detrimental effect against the first quintile from 2006 to 2015. As a matter of fact, Selim *et al.* (2014) also pointed out that entrepreneurial income was the type of income contributing to income inequality at the second rank in 2011.

The fact that the decrease in the share of property income arose from the last quintile, also seems to affect income distribution in the positive way. However, according to Selim *et al.* (2014), the positive impact of the high drop in the income share of the last quintile on income distribution should be cautiously approached, given that property income is placed at the first rank in contributing to inequality in 2011.

In current study, it has been put forth that wages and salaries, pensions and survivors' benefits, property incomes and other social transfers increased income equality in favor of the

first income quintile between the years 2006 and 2015 in Turkey. On the other hand, casual incomes, entrepreneurial incomes, household transfers and rental incomes have been income types that decreased income equality in the detriment of the first income quintile.

Although there has been an important contribution of casual incomes in providing income equality within themselves, the decrease of the share of casual incomes in total incomes from 24.8% to 16.3% from 2006 to 2015, as seen in table 4, refers also to the decrease of this improving effect. Thus, as casual incomes are the income types displaying the most egalitarian distribution within themselves; it is considered that increasing the share of casual incomes in total income in favor of the first income quintile would make an important contribution to decrease income inequality. The proposals such as cash income system for the first quintile as suggested by Bugra and Sinmazdenir (2007) make a significant improvement in income equality.

On the other hand, considering that rental income and property income are the categories displaying the most inegalitarian distribution within themselves between the above-mentioned dates in Turkey; policy measures aimed at decreasing income inequality would affect income distribution positively. At this point, it is evaluated that measures devoted to increase equality in the distribution of property would be effective in the amelioration of income distribution.

Due to the high share of wages and salaries in total income and their heterogeneous quality, their inegalitarian distribution within themselves is quite significant, although their share in total income increases from 2006 to 2015 in Turkey. According to Filiztekin (2015), wage inequality explains the increase in total inequality by more than 50% between 2007-2011 in Turkey. Since the importance of employment incomes increased during this period, inequality between wage incomes started to contribute even further to total inequality. Similarly, in the United Kingdom, there is clear evidence putting forth the increase in the divergences regarding the distribution of wage incomes. While real earnings increased by 11% in the lowest income groups, they increased by 50% for the upper income groups (Atkinson, 1997). At this point, structuring the welfare state function might be useful when compensatory mechanisms are required to balance market wage inequality. Thus, improving the salability of labor on the market, establishing exchange and employment conditions shall be the main priorities.

Lastly, we might argue that although the Gini coefficients of pensions and survivors' benefits are above 0.30, which is a level accepted as egalitarian, this income type contributed to income equality in Turkey, as they increased their shares significantly between 2006-2015. Thus, supporting of this income types by social policies provides improving both Gini coefficient and income distribution within itself.

References

- Aran, A. M., Demir, S., Sarica, O., Yazici, H., 2010. Poverty and inequality changes in Turkey (2003-2006), *State planning organization of the republic of Turkey and World Bank welfare and social policy analytical work program working paper No.1*, pp.1-27, Ankara.
- Atkinson, A. B., 1997. Bringing income distribution in from the cold. *The Economic Journal*, 107(441), pp. 297-321. <https://doi.org/10.1111/j.0013-0133.1997.159.x>
- Bugra, A. and Sinmazdenir, N. T., 2007. Yoksullukla mucadelede insani ve etkin bir yontem: Nakit gelir destegi [A humanistic and efficient way of struggling against poverty: cash income system]. In: A. Bugra ve C. Keyder, eds. 2007. *Vatandaslik gelirine dogru, [Towards citizenship income]*. Istanbul: Iletisim yayinlari. pp. 85-114.
- Celasun, M., 1986. Income distribution and domestic terms of trade in Turkey 1978-1983. *METU Studies in Development*, 13(1/2), pp.193-216.
- Cavusoglu, T. and Hamurdan, Y., 1966. 1963 yili gelir dagilimi arastirmasi [Income distribution survey of 1963]. Ankara: DPT.
- Filiztekin, A., 2015. Turkiye'de gelir esitsizliginin gelismisi [The Development of Income Inequality in Turkey]. *İktisat, İşletme ve Finans [Economics, Business and Finance]*, 30(350), pp. 63-92.

- Glyn, A., 2009. Functional distribution and inequality. In: W. Salverda, B. Nolan, T. Smeeding, eds. 2009. *The Oxford Handbook of Economic Inequality*. Oxford: Oxford University Press, pp. 101-126.
- Gul, Z. B., 2008. Gelir dagilimi [Income distribution]. F. Baskaya and A. Ordek, eds. 2008. *Ekonomik kurumlar ve kavramlar sozlugu* [Dictionary of economic institution and concepts]. Ankara: Ozgur Universite Yayinlari, pp. 422-449.
- OECD, 2015. *Household wealth inequality across OECD countries: New OECD evidence*. Paris: OECD.
- Selim, R., Guncavdi, O., Bayar, A. A., 2014. *Turkiye’de bireysel gelir dagilimi esitsizlikleri: Fonksiyonel gelir kaynaklari ve bolgesel esitsizlikler* [Personal income inequalities in Turkey: Funtional income resources and regional inequalities]. Istanbul: TUSIAD Yayin.
- Seker, S. D. and Jenkins, S. P., 2013. Poverty trends in Turkey, *IZA Discussion Paper No.7823*, pp.1-40.
- TUIK, 2017. Gelir ve yasam kosullari arastirmasi, esdeger hanehalki kullanilabilir fert gelirine gore sirali yuzde 20’lik gruplar ve gelir turlerine gore yillik fert gelirinin dagilimi 2006-2015: (Dikey) [Income and living conditions survey quintiles ordered by equivalised household disposable income and distribution of annual incomes by types. Vertical %], [online]. Available at: <www.tuik.gov.tr/PrelstatistikTablo.do?istab_id=1379> [Accessed on 19 February 2017].
- Yukseler, Z. E and Turkan, 2008. *Turkiye’de hanehalki: Isgucu, gelir, harcama ve yoksulluk acisindan analizi* [Household in Turkey: Analyzing from the perspectives of labor force, income, expenses and poverty]. Istanbul: TUSIAD.

Appendix 1. Gini Coefficients

	Rental Income	Property Income	Wage and Salary	Entrepreneurial	Pensions and Survivors' Benefits	Agriculture	Casual
2006	0.615	0.542	0.454	0.471	0.430	0.251	-0.200
2007	0.602	0.481	0.442	0.446	0.417	0.144	-0.167
2008	0.596	0.531	0.444	0.430	0.425	0.151	-0.174
2009	0.617	0.543	0.449	0.434	0.428	0.158	-0.167
2010	0.608	0.519	0.456	0.413	0.419	0.204	-0.186
2011	0.604	0.539	0.451	0.436	0.410	0.258	-0.201
2012	0.618	0.542	0.446	0.435	0.406	0.259	-0.222
2013	0.610	0.499	0.448	0.437	0.381	0.278	-0.248
2014	0.605	0.497	0.445	0.440	0.366	0.241	-0.213
2015	0.602	0.502	0.440	0.466	0.355	0.295	-0.201
Mean	0.608	0.519	0.448	0.441	0.404	0.224	-0.198

Appendix 2. The Means of Cumulative Income Sums for the Lorenz Curves: 2006-2015

Cumulative Sums of Population	Cumulative Sums of Rental Income	Cumulative Sums of Property Income	Cumulative Sums of Wage and Salary	Cumulative Sums of Entrepreneurial	Cumulative Sums of Pensions and Survivors' Benefits	Cumulative Sums of Agriculture	Cumulative Sums of Casual
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.20	0.02	0.03	0.03	0.05	0.02	0.10	0.29
0.40	0.05	0.09	0.12	0.14	0.11	0.26	0.55
0.60	0.12	0.20	0.26	0.26	0.29	0.43	0.75
0.80	0.29	0.38	0.48	0.44	0.54	0.65	0.91
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00