The effect of the global financial crisis on household income, inequality and poverty in Turkey

Sırma Demir Şeker[*]
Republic of Turkey Ministry of Development
e-mail: sirma.seker@kalkinma.gov.tr

Meltem Dayıoğlu
Middle East Technical University, Department of Economics, Ankara Turkey
e-mail: dmeltem@metu.edu.tr

Abstract

Using a nationally representative large scale micro data, we investigate the effect of the Global Financial Crisis (GFC) on household income, inequality and poverty in Turkey. In assessing the impact of the GFC, we take 2007 (pre-crisis year) as the benchmark and compare 2009 to 2007 and to 2011 (post-crisis period). We find that (real) household disposable income drops by 3.6 percent from 2007 to 2009, but that the decline in equivalized income is lower at 1.2 percent. Income inequality decreases over the crisis period, so does the absolute poverty rate, though quite marginally. Changes in household size and composition, household labor supply and non-contributory transfers help mitigate the negative effects of the GFC. The period following the crisis is marked by increases in both disposable income and equivalized income, and a sizeable drop in the poverty rate though we also observe an increase in income inequality.

Key words: Global financial crisis, household income, income inequality, poverty, Turkey.

JEL codes: D10, D31, I30, I32.

1. Introduction

The Global Financial Crisis (GFC) hit Turkey in the last quarter of 2008, causing the GDP in that quarter to shrink by 7 percent and the annual growth rate

---

to reduce to 0.7 percent (Figure 1). The GFC put a temporary stop to years of continuous growth that averaged around 6.8 percent per year in the preceding six years leading up to the crisis. The effect of the crisis intensified in the first quarter of 2009 during which industrial production plummeted by more than 20 percent (Uygur, 2010) and the GDP fell by 14.7 percent. Although economic activity started to pick up in the second quarter of 2009, the GDP growth turned positive only in the last quarter of 2009, with the result that the GDP shrank in that year by 4.8 percent. By 2010, the Turkish economy was back on track registering a growth rate of 9.2 percent. The effect of the crisis was also felt on the unemployment rate. Prior to the crisis, the yearly unemployment rate averaged around 10-11 percent. At the height of the crisis, this rate jumped to 16.1 percent – which meant that some 3.8 million people were out of work - and remained high at around 14 percent throughout 2009 and the first quarter of 2010. The unemployment rate started to subside in the second quarter of 2010 going back to near pre-crisis levels. Interestingly, however, the employment rate (as percent of working age population) did not show a substantial change over the 2007-2009 period: in 2009, the employment rate at 41.2 percent was only 0.3 percentage point lower than its mean value in 2007. The employment rate increased following the crisis reaching 43 percent in 2010 and 45 percent in 2011. The severe decline in economic activity and the substantial increase in unemployment - though not accompanied by a lower employment rate - raise concerns about household welfare. We are particularly interested in understanding the changes in household income, inequality and poverty around the time of the crisis. We decompose household income into its components and analyze what has happened to each component over time. The principal source of income for a typical household in Turkey consists of labor market earnings. Conjecturing that this is likely to be the main channel through which households are affected from the crisis, we pay special attention to the developments taking place in the labor market. Our main data source is the Statistics on Income and Living Conditions (SILC) for Turkey, which provide detailed information on individual and household incomes. We also employ Household Labor Force Surveys to understand the changes taking place in the labor market before, during and after the crisis.

Figure 1
GDP growth, employment and unemployment rates over time (2007-2011)
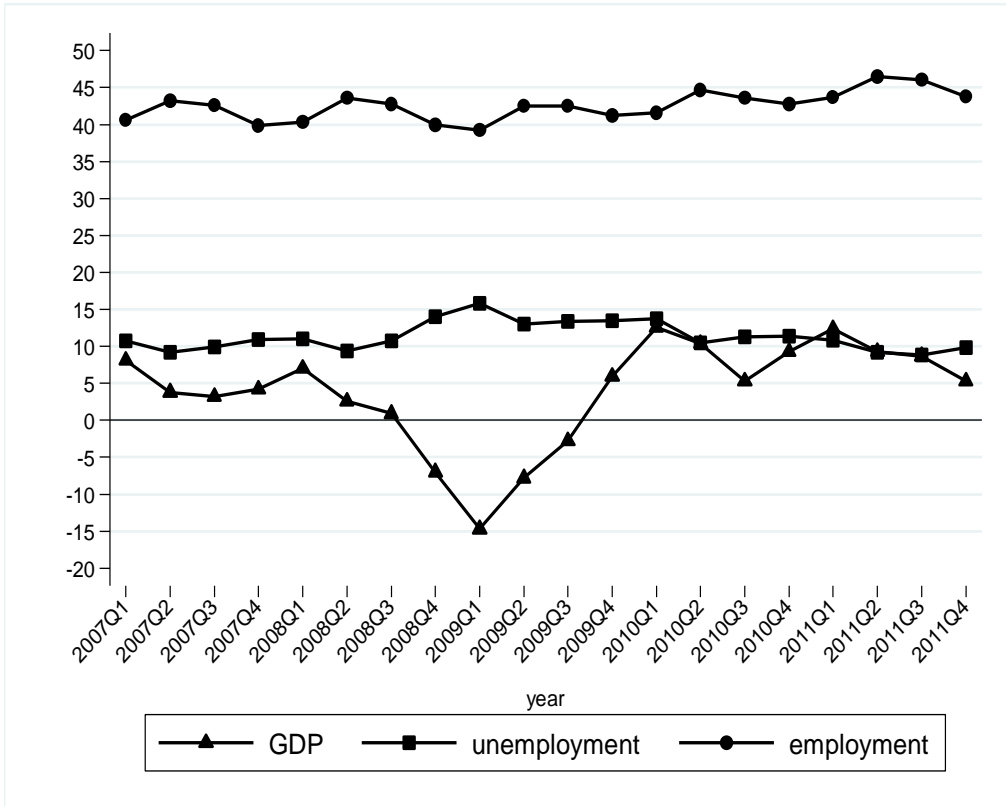
Note: Series are not seasonally adjusted.
Source: National Accounts and Household Labor Force data bases, TurkStat.

A large literature exists on the welfare effects of economic shocks. Fallon and Lucas (2002) reviewing the evidence on the impact of earlier financial crises (including that of Turkey in 1994, Asian crisis of 1997-1998 and the Mexican and Argentinian crises of 1995) on households, find substantial drops in household incomes and increases in poverty incidence. The crises examined in Fallon and Lucas originate from currency crises with large devaluations of local currencies and increases in local prices. Indeed, available evidence from Turkey regarding the 1994 and 2001 crisis generally points to higher poverty rates and worsening income distribution (Şenses, 2003; Koyuncu and Şenses, 2004; World Bank, 2000, 2003). Sharp reductions in real wages (on the order of 20 percent) and dramatic rises in

prices particularly of food in 2001[1], have been important channels through which household welfare was affected. Different from the earlier crises, the GFC did not cause sudden stops, currency devaluations, or price jumps. The Turkish economy was negatively affected primarily because of the decrease in export demand and bank lending (World Bank, 2013). Indeed, a recent World Bank report (2011), which looks at the effect of the GFC in Eastern Europe and Central Asia, concludes that the main channel through which households are affected was the deteriorating conditions in the labor market. The crisis reduced household welfare as individuals lost their jobs, had to settle down for lower real wages and faced longer unemployment duration. Notwithstanding these general observations, the Report highlights the different labor market responses to GDP contraction. While in some countries employment contracted substantially, in others the drop in real wages helped to keep employment near pre-crisis levels.

In an edited volume, Jenkins et al. (2013a) analyze the effect of the GFC on 21 OECD countries (not including Turkey) with particular attention paid to six countries (UK, Ireland, US, Italy, Germany, Sweden) for which a more thorough investigation is carried out. They conclude that there have only been modest changes in household income, inequality and poverty. The average household income is found to actually increase in 18 out of 21 countries examined (Jenkins et al. 2013b). In the six countries for which detailed analyses are carried out, median equalized net household income decreased by 1.2 percent in Ireland, 2.5 percent in Italy and 2.9 percent in the US but increased by 1.8 percent in Germany, 2 percent in Sweden and 1.2 percent in the UK from 2007 to 2009 (Jenkins et al., 2013c, Table 9.1). Among these countries GDP decreased the most in Ireland at 9.8 percent and the least in the US at 3.9 percent.[2] Inequality in equivalized income as measured by the Gini coefficient increased in three of the six countries, the highest increase estimated at a single percentage point for Italy. As compared to 2007, the poverty rate in 2009 increased in four out of six countries, the highest increase occurred in Italy at 1.5 percentage points.[3]

Modest changes in poverty rates across the EU following the GFC are also noted by Gasior and Lelkes (2013). In most EU countries - the exceptions are France, Sweden, Germany and Hungary - the poverty rate fell from 2004 to 2009. However, when 2009 is compared to 2008, the poverty incidence is observed to increase in Estonia, Poland, Slovenia, Latvia, Lithuania, Ireland, Hungary, Sweden

---

[1]   Food prices went up by 80.2 percent in 2001. The inflation rate (end year) was 68.5 percent (Koyuncu and Şenses, 2004).

[2]   Worldwide the GDP declined by 2.2 percent in 2009. In Eastern Europe and Central Asia, the drop is estimated at 6.5 percent, in OECD 3.9 percent and Latin America, 1.9 percent. In South Asia and East Asia and the Pacific, the GDP grew (Grosh et al., 2014).

[3]   The poverty line is set ('anchored') at 60 percent of the median income in 2007. In the remaining two countries, namely the UK and Germany, the poverty rate fell in 2009.

and Spain. Most of these countries had experienced falling poverty rates before the crisis.

The Latin American experience with the GFC (based on 12 countries: Costa Rica, Ecuador, El Salvador, Mexico, Argentina, Brazil, Chile, Colombia, Dominican Republic, Paraguay, Peru and Uruguay), although varied across countries, has not resulted in a higher poverty rate (Grosh et al., 2014). Based on US$4 per day poverty line, the average poverty rate for the 12 countries fell from 29.9 percent to 28.8 percent between 2008 and 2009.[4] When the poverty line is set at US$2.5 per day, the reduction is from 15.1 percent to 14.9 percent. In countries where poverty (based on US$4 per day poverty line) went up, such as in Costa Rica, Ecuador, El Salvador and Mexico, the change is generally less than one percentage point. A notable exception is Mexico where the poverty rate increased by 2.6 percentage points. Changes in poverty rates are mainly linked to labor market changes. For instance, in Mexico and Ecuador, two-thirds of the increase in poverty is estimated to result from falling earnings.

Aran (2013), using a small scale rapid assessment survey that was conducted right around the crisis period – the Welfare Monitoring Survey (financed by the World Bank and UNICEF) - finds substantial negative welfare effects stemming from the GFC in Turkey. In the eight months covering the survey (October 2008-May 2009), she finds the labor market earnings of the surveyed households and food consumption expenditures to drop substantially. The author notes that informally employed workers and those with lower levels of education are the groups most hurt from the crisis. Unlike SILC, the Welfare Monitoring Survey (WMS) uses retrospective and qualitative questions to assess the impact of the crisis.[5] The World Bank (2011) report mentioned earlier on Eastern Europe and Central Asia also relies on similar rapid assessment surveys as WMS.

As exemplified by country studies, the impact of the GFC has not been uniform. Notwithstanding this observation, it also appears that the impact of the crisis has not been severe in several countries that have experienced substantial drops in GDP. The differing abilities of governments in counteracting the negative effects of the crisis have in no doubt played a role in producing these results.[6] Jenkins et al. (2013a) highlight the importance of automatic stabilizers (including unemployment insurance), public transfers and changes in tax policy in keeping

---

[4] For a criticism of the use of international poverty lines such as 4 or 2.5 USD per day in measuring poverty see OECD (2013), Chen and Ravallion (2010) and Deaton (2010).

[5] For instance, in regards to the change in labor income from 2008 to 2009, the questionnaire asks "Are your earnings in your current job higher, lower or the same as you were earning in May 2009" (Aran, 2013: 28).

[6] The use of different survey instruments may also explain why measured effects vary from one country to another.

household incomes near pre-crisis levels in the OECD. In a similar fashion, the scaling up of the social transfers in Latin America has helped mitigate the negative effects of the crisis (Grosh et al., 2014). However, Jenkins et al. (2013a) also warn that fiscal consolidation that is likely to follow in the coming years may result in falling incomes and rising inequality.

Our aim is to contribute to this literature by providing evidence from Turkey using a nationally representative large scale micro data. We do this by not only analyzing what has happened to household incomes, inequality and poverty during the crisis, but in the recovery period as well. By doing so, we hope to paint a more complete picture of the impact of the GFC. The paper is organized as follows. In Section 2, we briefly present our data sources. In Section 3, we discuss the changes occurring in the labor market over the 2007-2011 period. In Section 4, we study the level and composition of household income covering again the period before (2007), during (2009) and after (2011) the crisis. In Section 5, we consider how inequality in household income and its components have changed over the studied period. In Section 6, we study the impact of the crisis on poverty. Section 7 concludes.

2. Data

The data for this study mainly come from the Statistics on Income and Living Conditions (SILC) for Turkey, which are nationally representative large scale household based surveys conducted annually by the Turkish Statistical Institute (TurkStat). We pool three cross-sections (2008, 2010, and 2012 SILC) and work with a data set that has nearly 155,000 observations from 41,000 households. As compared to other data sources, SILC provides the most comprehensive coverage of household incomes. Income information is collected in the month of the interview and refers to the previous calendar year. We aggregate all incomes (cash and in-kind) accruing to household members and generate total household income. All incomes are net of taxes but inclusive of transfers from public and private sources. Transfers to other households as well as regular compulsory non-consumption expenditures such as property and road taxes are deducted from household income to arrive at disposable household income. We then adjust the disposable income for household size and composition using the Eurostat adult equivalent scale[7] and arrive at *equivalized* net household income. We assign this income to all household members. In poverty analysis, the poverty status of the household, which is determined by judging whether or not equivalized net

---

[7]   The Eurostat adult equivalent scale counts the first adult as 1, additional adults as 0.5 adult, and children (ages less than 14) as 0.3 adult. Hence, a household consisting of two adults and two children is treated as consisting of 2.1 adult equivalents. Although household income refers to the previous calendar year, household size and composition refers to the date on which the survey was carried out.

household income is less than 60 percent of the median is assigned to all household members. We take the individual as the unit of analysis.

We measure the distributional impact of the financial crisis by comparing how the households' have fared in 2009 as compared to a baseline year, which we take as 2007. We also examine the changes in household income in the aftermath of the crisis by comparing the household's situation in 2009 to 2011. We correct for yearly changes in cost of living by deflating household incomes by CPI.

In describing the developments in the labor market before, during and in the aftermath of the crisis, we use the annual Household Labor Force Surveys (HLFS) of TurkStat. HFLS are the primary source of official labor market statistics and are richer in detail as it concerns labor market outcomes of individuals as compared to SILC.

3. Changes in the labor market

We have already described the developments in employment and unemployment from 2007 to 2011. As mentioned earlier, unemployment increased substantially in 2009 but employment remained rather stable. In Table 1, we show that although the overall employment rate did not change appreciably (the decline was limited to 0.3 percentage points from 2007 to 2009), the composition of the employed has. The employment rate of men declined by 2.2 percentage points from 2007 to 2009, while that of women increased by 1.4 percentage points.

Women's employment is traditionally quite low in Turkey – less than one in three women participate in the labor market-, furthermore, a substantial proportion of those who do participate are employed as unpaid family workers. Going from 2007 to 2009, the number of employed women increased by 9.7 percent at the time that the working age population of women grew by 3.1 percent. The increase mostly took the form of own account work; the number of women in this category increased by nearly 20 percent, followed by unpaid family work at 10.6 percent and wage employment at 6.8 percent. That the most substantial change took place in own account work suggests that the increase is to some extent an added worker effect. The number of employed men, on the other hand, slightly fell at the time that the working age population of men rose by 3.4 percent. While the number of wage earners grew slightly (by 0.5 percent), the number of own account workers dropped by 2.3 percent but the number of unpaid family workers rose by 6 percent. Hence, the shift to unpaid work, which primarily took the form of agricultural work, helped keep men's employment from falling further. The rise in unpaid work, particularly among men, is possibly made easier by the increase in agricultural work since 2007. Gürsel and İmamoğlu (2011) argue that the rising world food prices have been an important factor behind the rising agricultural employment in Turkey in recent years.

Table 1
Labor Market Indicators

All (Ages 15-64)	2007	2009	2011
Employment rate (as % of WAP)	44.6	44.3	48.4
Unemployment rate (as % of LF)	10.5	14.3	10.0
Labor force participation rate	49.8	51.7	53.8
Wage employment (as % of employed)	61.8	61.5	63.2
Own-account work (as % of employed)	25.7	25.2	23.3
Unpaid work (as % of employed)	12.4	13.3	13.5
Informal employment (as % of WAP)	44.3	42.6	40.8
Informal employment among wage earners	29.2	26.1	25.0
	49.5	48.7	47.3
Hours per week	(17.0)	(17.1)	(17.5)
	50.3	50.7	49.1
Hours per week - wage earners	(14.7)	(13.9)	(15.0)
Men			
Employment rate (as % of WAP)	66.8	64.6	69.3
Unemployment rate (as % of LF)	10.2	14.2	9.4
Labor force participation rate	74.4	75.2	76.4
Wage employment (as % of employed)	64.6	65.0	67.4
Own-account work (as % of employed)	30.3	29.6	27.8
Unpaid work (as % of employed)	5.1	5.4	4.9
Informal employment (as % of WAP)	38.9	37.0	34.4
Informal employment among wage earners	29.0	26.0	24.6
	52.3	51.9	50.3
Hours per week	(16.1)	(16.0)	(16.6)
	51.7	52.2	50.5
Hours per week - wage earner	(14.4)	(13.7)	(14.8)
Women			
Employment rate (as % of WAP)	22.8	24.2	27.8
Unemployment rate (as % of LF)	11.3	14.6	11.5
Labor force participation rate	22.8	28.4	31.5
Wage employment (as % of employed)	53.9	52.4	52.9
Own-account work (as % of employed)	12.4	13.6	12.5
Unpaid work (as % of employed)	33.7	34.0	34.6
Informal employment (as % of WAP)	59.6	57.2	56.7
Informal employment among wage earners	29.8	26.5	26.1
	41.7	40.5	39.7
Hours per week	(17.1)	(17.1)	(17.5)
	45.3	46.0	44.7
Hours per week – wage earner	(14.4)	(13.4)	(14.7)

Notes: Standard deviation for continuous variables in brackets.
Source: Household Labor Force Surveys, micro data. Authors' calculations.

Following the end of the crisis, men's employment rate increased by 4.7 percentage points and reached 69.3 percent, surpassing the rate attained before the onset of the crisis. Women's employment rate also increased quite strongly – by 3.6 percentage points - reaching 27.8 percent in 2011. The increase in men's employment mainly took the form of wage employment: the number of wage earners rose by 15.4 percent from 2009 to 2011, but by only 4.1 and 0.2 percent in own-account and unpaid work. Among women, employment in all categories increased but the most notable changes took place in unpaid family work and wage employment; the number of employed women increased by 21.1 percent in the former and 19.9 percent in the latter. The number of own account workers, on the other hand, grew by 8.8 percent. That wage employment grew both during and after the crisis for women indicate that part of this increase is to do with employment policies. Analyzing the 2008 employment subsidy program (a pre-crisis program)[8] targeted at women and young men, Balkan et al. (2014) find that the program has been successful in increasing the employment probability of older and less educated women, but it has not been effective in increasing the employment chances of younger men. Active labor market programs already in place were generally scaled up during the crisis. In 2007, 22,834 persons benefited from active labor market programs implemented by the Turkish Employment Agency as compared to 213,852 beneficiaries in 2009 (Ministry of Development, 2014). Expenditures on active labor market policies from 2007 to 2009 increased from about 30 million TL to 306 million TL. Ercan et al. (2010) report that the total stimulus package in 2009 amounted to 3.4 percent of the GDP of which 0.5 percent were employment related. In 2008, the former was about 1 percent while the latter was 0.01 percent of GDP. Hence, there was a substantial effort on the part of the government to preserve employment. This is in contrast to how the governments of the time reacted to the 1994 and 2001 crises with the implementation of the austerity measures that amplified the negative effects of the crises (Koyuncu and Şenses, 2004).

A prominent feature of the labor market in Turkey is the size of the informal sector. Substantially lower productivity of this sector as compared to the formal sector (Taymaz, 2009) contributes towards increasing wage inequality. In 2007, 44.3 percent of individuals – 38.9 percent of men and 59.6 percent of women - were employed without any social security coverage. Notwithstanding these high rates, informality has been on the decline: from 2000 to 2007, the proportion employed informally dropped by 10 percentage points for men and 20 percentage points for women (TurkStat, 2015). This decline is mainly brought about by a compositional shift out of agriculture where social security coverage is low. In line with the past trends, informality continued to fall over the crisis period, though it slowed down

---

[8] Although the program was put in place before the crisis and had a fixed duration, multiple extensions were made such that the latest change extended the program until December 2015.

somewhat, particularly for women, but picked up following the end of the crisis (see Appendix Figure 1A and 1B). In contrast to the general trend, there has not been an appreciable decline in informality among wage earner men from 2000 to 2007 and among wage earner women, we actually observe an increase. Interestingly, informality among wage earners fell around the time of the crisis (by 3 percentage points for men and 3.3 percentage points for women from 2007 to 2009) and continued to do so following the end of the crisis. Among both men and women, this is brought about by a decline in the number of wage earners employed informally (a drop of 10 percent for men and 5.3 percent for women) and an increase in the number employed formally (by 4.8 percent for men and 11.9 percent for women). Increasing registered wage employment particularly among women at the time of the crisis is consistent with the explanation that part of the increase in overall employment is brought about by employment policies.

Among the employed, the weekly hours of work slightly fell from 2007 to 2009 and continued falling after the crisis. Among wage earner men and women, the weekly hours of work increased slightly from 2007 to 2009 but fell in the period following the crisis (see Table 1).

The HLFS data provide information on monthly wages from main job for wage earners. Using this information and weekly hours of work, we compute hourly wages for this group of individuals. Table 2 shows a rise in average monthly and hourly wages both for men and women from 2007 to 2009. The increase in wages may come as a surprising result given the macroeconomic changes, though it is not an unusual finding in the literature. In the case of wage earner men, the average increase in wages is possibly the result of selection: more productive men are able to keep their jobs or obtain wage employment with the result that average wages increase.[9] In the case of women, there are concurrent increases in wages, employment and formal sector work, which may have to do with jobs that have become available through crisis management policies.[10] Another factor behind the increasing wages can be the increase in the minimum wage in 2009: despite the crisis, from 2007 to 2009, the minimum wage went up in real terms by 11 percent.[11]

---

[9]   Results of a multinomial logit analysis that looks at the role of individual factors in determining assignment to wage employment, own account work and unpaid work as opposed to non-employment show that men with more schooling were more likely to be wage earners in 2009 as compared to 2007 (results not shown), which lend support to the selection argument.

[10] A similar multinomial logit analysis run for women (see footnote 9) show that older women are more likely to be wage earners in 2009 as compared to 2007 but there is no evidence that more educated women are more likely to be wage earners in 2009 as compared to 2007.

[11] Along with the minimum wage, public sector wages generally rose in real terms. For instance, the lowest civil servant salary grew by 15.6 percent from 2007 to 2009. The average increase among civil servants was 9.8 percent, while among the public workers it was 2 percent.

Table 2
Level and Distribution of Wages - Wage earners only

	2007	2009	2011
Real monthly wages	1,033	1,141	1,104
	(766)	(2,707)	(827)
Real hourly wages	5.4	5.7	6.0
	(5.4)	(13.9)	(6.5)
Gini coefficient – real hourly wages	0.404	0.410	0.419
Men			
Real monthly wages	1,046	1,139	1,122
	(770)	(2,258)	(831)
Real hourly wages	5.3	5.5	5.9
	(5.2)	(11.6)	(6.2)
Gini coefficient – real hourly wages	0.394	0.398	0.410
Women			
Real monthly wages	987	1,147	1,047
	(749)	(3,828)	(810)
Real hourly wages	5.8	6.3	6.4
	(6.1)	(19.7)	(7.3)
Gini coefficient – real hourly wages	0.432	0.445	0.445
Formal sector			
Real monthly wages	1,178	1,291	1,232
	(797)	(3,055)	(869)
Real hourly wages	6.3	6.5	6.8
	(5.8)	(15.6)	(9.0)
Gini coefficient – real hourly wages	0.380	0.390	0.404
Informal sector			
Real monthly wages	643	633	647
	(496)	(432)	(398)
Real hourly wages	3.1	3.0	3.2
	(3.4)	(2.8)	(3.3)
Gini coefficient – real hourly wages	0.349	0.331	0.337

Note: Wages are in 2011 TLs.
Source: Household Labor Force Surveys, micro data. Authors' calculations.

When wage changes in formal and informal sectors are compared, from 2007 to 2009, we observe an increase in average real monthly and hourly wages in the formal sector, but a decline in the informal sector. (The change in the minimum wage, which is binding in the formal sector, can again be a factor here.) The decline in monthly wages in the informal sector is exacerbated by the increase in weekly hours of work. As a result, the formal-informal wage gap increased: in 2007, the

average formal sector wage was 1.8 times that of average wage in the informal sector. This ratio increased to 2 in 2009. The crisis seems to have particularly affected wage earners in the informal sector.

Following the end of the crisis, in 2011, we observe a decline in monthly real wages for both men and women, but hourly wages keep on increasing due to the decline in hours of work. Real monthly wages in the formal sector also reduced but those of the informal sector increased from 2009 to 2011 to reach the pre-crisis level. Due to the decline in hours of work both in the formal and informal sector following the end of the crisis, hourly wages improved in both the formal and the informal sector. Appendix Figures 2A and 2B depict the entire distribution of hourly wages over time in both the formal and informal sector, which clearly show the negative impact of the crisis on the informal sector wage earners in 2009.

The HLFS do not provide information on incomes from own-account work. To see how incomes of this group have changed over time, we turn to SILC and compute average annual and monthly incomes for this group of workers. Monthly incomes are computed by dividing annual incomes by months worked over the year. Table 3 shows that, own-account workers (employers and self-employed) had a drop in their real annual and monthly income from 2007 to 2009. All sub-groups except for own-account workers in the informal sector suffered a drop in their incomes. In the post-crisis period, from 2009 to 2011, the incomes of all groups increased.

In Tables 2 and 3, we also report the Gini coefficients as summary measures of the degree of inequality in labor incomes. On the basis of the Gini index, inequality is observed to increase over the crisis period both for men and women wage earners and for those in the formal sector. These were the groups that have experienced increases in their wages. For informal wage workers, inequality decreased from 2007 to 2009 but went up in the post-crisis period. In the case of own-account workers, inequality in monthly income generally reduced from 2007 to 2009, and with the exception of women, it did not increase in the post-crisis period.

Table 3
Level and Distribution of Earnings – Own-account workers only

	2007	2009	2011
Real monthly earnings	1,399	1,297	1,382
	(2,017)	(2,082)	(1,671)
Real annual earnings	15,515	14,291	15,276
	(22,972)	(20,253)	(16,748)
Gini coefficient- Real monthly earnings	0.554	0.539	0.510
Men			
Real monthly earnings	1,513	1,395	1,487
	(2,073)	(2,183)	(1,729)
Real annual earnings	16,771	15,379	16,471
	(23,560)	(21,047)	(17,149)
Gini coefficient- Real monthly earnings	0.534	0.523	0.489
Women			
Real monthly earnings	662	633	753
	(1,402)	(967)	(1,078)
Real annual earnings	7,443	6,985	8,134
	(16,635)	(11,354)	(11,819)
Gini coefficient- Real monthly earnings	0.625	0.582	0.59
Formal sector			
Real monthly earnings	2,066	1,836	1,878
	(2,595)	(2,731)	(1,998)
Real annual earnings	23,371	20,268	20,619
	(30,227)	(24,561)	(18,933)
Gini coefficient- Real monthly earnings	0.510	0.499	0.459
Informal sector			
Real monthly earnings	879	916	961
	(1,171)	(1,333)	(1,177)
Real annual earnings	9,392	10,071	10,736
	(11,886)	(15,193)	(13,013)
Gini coefficient- Real monthly earnings	0.523	0.524	0.507

Note: Earnings are in 2011 TLs.
Source: 2008-2012 SILC, micro data. Authors' calculations.

4. Household income and its components

In this section, we provide summary statistics for household income and of its components for 2007, 2009 and 2011. Total household (disposable) income is divided into labor income, asset income and transfers. Labor income (inclusive of self-employment income) includes both cash and in-kind remunerations from work. Asset income includes income from rental property, interests, and dividends as well as imputed rent for owner-occupied housing. Transfer income may originate from contributory or non-contributory sources: unemployment benefits, pensions,

survivor benefits, and disability/sickness benefits fall under the former, while social assistance and private transfers are under the latter. We also report household income per adult equivalent – *equivalized household income* – which is a better measure of household well-being than household income per se. Furthermore, conjecturing that the impact of the GFC may have differed across income groups, we divide individuals into four main income groups according to contemporary income adjusted for cost-of-living: bottom 20 percent, lower-middle (third, fourth and fifth income deciles), upper-middle (sixth, seventh and eight income deciles) and top 20 percent.

4.1. Changes in household composition

Before discussing the changes in household income over the crisis period, we look briefly at how household size and composition have changed over the same time period.[12] Cilasun and Kırdar (2013) find for Turkey that household structure evolves to smooth household income over the life-cycle (defined using the age of the household). In parallel to their findings, we observe that a significant proportion of households – over a fifth - are made up of multiple nuclear families. In other words, aside from the nuclear family of the household head, we find other nuclear families (almost exclusively relatives of the household head) such as household head's son/daughter, daughters/sons-in-law and grandchildren residing in the household for economic and/or cultural reasons.[13] An economic crisis such as the GFC may change household size and composition by changing the timing of demographic events, such as marriage, divorce, child bearing, moving out of family home to establish a separate household and the like.

Indeed, from 2007 to 2009, household size, the number of adult equivalents, the proportion of children among household members and the number of nuclear families within households dropped (Table 4). (The drop in adult equivalents is 2.3 percent.) These changes are consistent with the observed changes in demographic events from other data sources as well. More specifically, as compared to 2007, in 2009 the crude marriage rate dropped from 9.09 per thousand to 8.23 per thousand, while the crude divorce rate increased from 1.34 per thousand to 1.59 per thousand – though still remained low (TurkStat, 2008-2012a). The average fertility rate, on the other hand, dropped from 2.12 children per woman in 2007 to 2.06 children in

---

[12]   Admittedly, SILC is not the best data source to understand the changing household structure, especially over brief periods of time, since there are no event calendars and data are collected at a single point in time on a yearly basis. In our case, we observe what the household structure looks like at the survey date, which is April-June of each year. We take the household structure at the survey date as a reflection of the changes that took place in the previous calendar year.

[13]   Nuclear families are determined based on their relationship to the household head.

2009 (TurkStat, 2008-2012b).[14] Following the crisis, the number of adult equivalents increase.[15] It appears that GFC has changed the family formation decisions.

Table 4

Household Structure

	2007	2009	2011
Household size	4.77 (2.38)	4.64 (2.32)	4.61 (2.33)
% children (<14 years)	26.8	26.4	25.7
Adult equivalent	2.59 (0.97)	2.53 (0.95)	2.56 (0.98)
Number of nuclear families	1.24 (0.45)	1.23 (0.44)	1.22 (0.43)
Proportion extended	0.232	0.216	0.210

Notes: Standard deviation for continuous variables in brackets.
Source: 2008-2012 SILC, micro data. Authors' calculations.

4.2. Changes in household income

The mean equivalized household income decreased only slightly (1.2 percent) from 2007 to 2009, suggesting a limited crisis impact. The drop in disposable household income was larger though, estimated at 3.6 percent. The difference in the two estimates is to do with the change in average household size and composition (i.e. the drop in adult equivalents), which has worked to moderate the drop in income available to household members.

Except for the poorest 20 percent, for all other income groups the real disposable income dropped from 2007 to 2009. As depicted in Figure 2, this decline was largest for the richest 20 percent that have experienced a drop of 4.9 percent, followed by the upper-middle income group at 3.9 percent and the lower-middle income group at 2 percent. For the poorest 20 percent, there was actually an increase (0.7 percent), which, as we show shortly, was to do with transfers. In terms of equivalized income, all income groups, but the lower middle-income group, experienced a fall. The decline for the poorest 20 percent was small but it was slightly higher at around 1 percent for the upper-middle income group and at 2.2 percent for the top 20 percent (see Table 5, Figure 2). These changes imply that household income inequality must have dropped from 2007 to 2009, a topic we discuss in the next section.

---

[14] In the two years preceding the crisis, the crude marriage, divorce rate and the fertility rate all increased. The crude marriage rate increased from 8.9 per thousand in 2005 to 9.09 per thousand in 2007. The divorce rate increased from 1.33 per thousand to 1.34 per thousand over the same period, while the fertility rate increased from 2.10 to 2.12 children per woman (TurkStat, 2008-2012b).

[15] The crude marriage rate continued to fall, albeit less slowly, becoming 8.02 per thousand, while the crude divorce rate continued to increase becoming 1.62 per thousand in 2011 (TurkStat, 2008-2012a). The fertility rate also fell, though not as sharply as it did in 2009 becoming 2.02 per woman in 2011.

Figure 2
Change in Adult Equivalent Income and Disposable Income
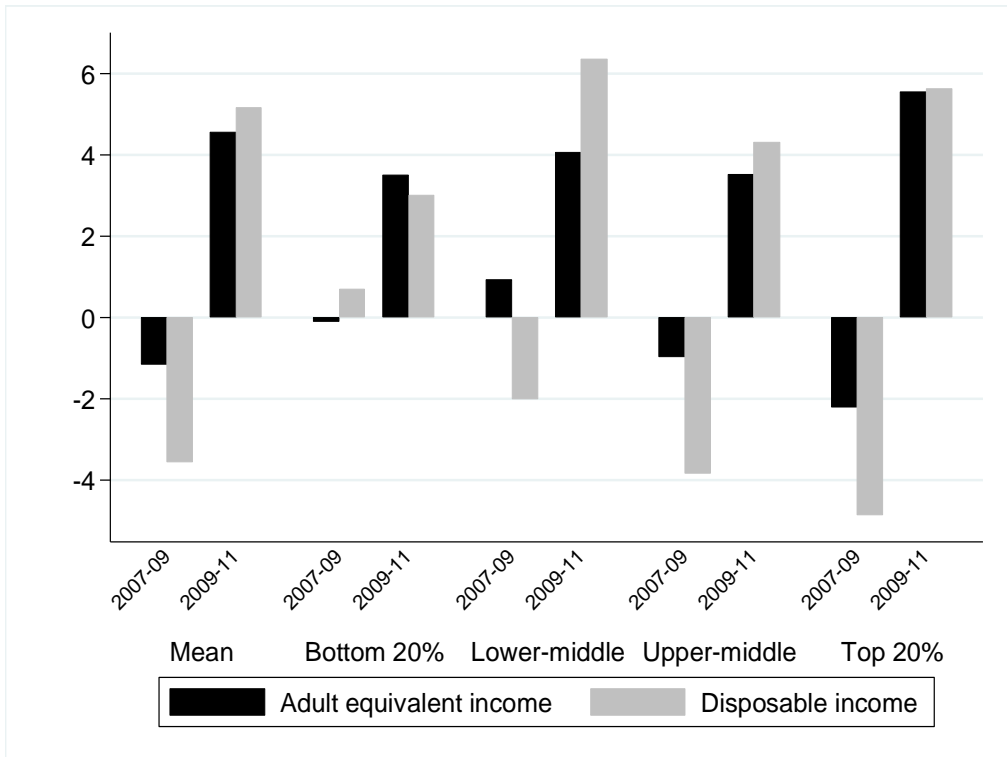
In the recovery period, i.e. from 2009 to 2011, disposable income as well as equivalized household income increased for all income groups (see Table 5, Figure 2). The average improvement in the former was 5.2 percent and in the latter it was 4.6 percent. The biggest change in household disposable income was observed for the lower-middle income group at 6.4 percent, while the least improvement occurred among the poorest 20 percent at 3 percent. The observed improvement in equivalized household income was generally more modest. For the lower-middle income group, for instance, the improvement in equivalized income was 4.1 percent. Unlike other income groups, the improvement in equivalized income for the bottom 20 percent was slightly higher at 3.5 percent than the improvement in household disposable income (3 percent).

Table 5
Annual Household Income by Income Source

		2007			2009			2011	
	Average	Share (%)	% receiving	Average	Share (%)	% receiving	Average	Share (%)	% receiving
Mean									
Labor Income	19,257	65.4	90.6	18,554	64.0	90.3	20,048	66.5	90.5
Non-contributory transfers	2,361	2.7	30.6	2,311	3.1	35.6	2,145	2.5	32.3
Contributory transfers	9,900	14.4	38.9	9,726	14.9	40.2	10,072	15.3	41.6
Total transfers	7,592	17.1	60.3	7,413	18.0	63.8	7,745	17.8	63.0
Asset income	5,485	17.5	85.3	5,449	18.0	86.3	4,992	15.6	85.1
Disposable income	26,596	100.0		25,648	100.0		26,971	100.0	
Adult equivalent income	11,357			11,224			11,736		
% employed	0.543			0.550			0.544		
% employed – excl. unpaid	0.463			0.468			0.470		
Bottom 20%									
Labor Income	7,442	66.4	92.4	7,142	61.9	91.3	8,104	67.0	90.7
Non-contributory transfers	1,370	8.0	60.4	1,681	10.6	66.3	1,343	7.9	64.2
Contributory transfers	3,794	8.0	22.0	4,032	9.3	24.2	3,793	8.7	25.1
Total transfers	2,398	16.0	69.3	2,853	19.9	73.2	2,494	16.6	72.7
Asset income	2,199	17.5	82.5	2,324	18.2	82.6	2,208	16.5	81.8
Disposable income	10,375	100.0		10,447	100.0		10,761	100.0	
Adult equivalent income	3,324			3,320			3,437		
% employed	0.527			0.544			0.494		
% employed – excl. unpaid	0.399			0.389			0.375		
Lower-middle									
Labor Income	12,869	66.6	90.5	12,149	63.6	90.8	13,594	67.1	91.0
Non-contributory transfers	1,859	3.4	32.3	1,888	4.5	40.9	1,655	3.2	35.8
Contributory transfers	7,175	14.3	35.0	7,038	15.2	37.4	7,206	14.9	38.0
Total transfers	5,393	17.7	57.7	5,286	19.7	64.5	5,485	18.1	60.7
Asset income	3,417	15.7	80.4	3,522	16.8	82.7	3,349	14.8	81.6
Disposable income	17,411	100.0		17,063	100.0		18,148	100.0	
Adult equivalent income	6,589			6,650			6,920		
% employed	0.526			0.530			0.520		
% employed – excl. unpaid	0.428			0.437			0.440		
Upper-middle									
Labor Income	19,722	63.5	89.1	18,798	62.2	89.0	20,177	64.1	89.3
Non-contributory transfers	3,413	2.5	20.2	2,953	2.7	24.3	2,970	2.1	20.3
Contributory transfers	9,849	16.5	46.5	9,803	17.4	47.8	10,205	18.6	51.3
Total transfers	9,027	19.0	58.3	8,751	20.1	61.8	9,292	20.7	62.8
Asset income	5,562	17.5	86.9	5,439	17.7	87.8	4,886	15.2	87.4
Disposable income	27,439	100.0		26,383	100.0		27,517	100.0	
Adult equivalent income	11,485			11,374			11,774		
% employed	0.532			0.531			0.535		
% employed – excl. unpaid	0.471			0.472			0.475		
Top 20%									
Labor Income	40,054	66.0	91.2	39,359	65.9	90.5	41,308	68.1	91.6
Non-contributory transfers	6,201	1.5	13.7	5,446	1.4	14.2	6,152	1.5	13.1
Contributory transfers	15,459	14.1	50.5	15,520	14.0	48.9	16,453	14.4	48.7
Total transfers	14,907	15.6	58.0	14,756	15.4	56.6	15,531	15.9	56.8
Asset income	10,986	18.4	92.8	10,813	18.6	93.0	9,913	16.1	90.0
Disposable income	55,338	100.0		52,642	100.0		55,602	100.0	
Adult equivalent income	26,354			25,774			27,204		
% employed	0.599			0.614			0.642		
% employed – excl. unpaid	0.559			0.581			0.597		

Note: Incomes are in 2011 TLs. Averages exclude zeros.
Source: 2008-2012 SILC, micro data. Authors' calculations.

4.3. Changes in household income components

In 2007, labor income constituted 65.4 percent, asset income 17.5 percent and transfers 17.1 percent of total household income.[16] In the data, we are able to distinguish between contributory and non-contributory transfers.[17] The former constituted about 85 percent of all transfers. The shares of labor income, asset income and transfers do not show big variations among income groups, though, as would be expected, non-contributory transfers constitute a larger share of the incomes of poorer households.

The share of labor income in total household income fell during the crisis. This fall, which was estimated at 2.1 percent at the mean, ranged from 0.2 to 6.8 percent among the different income groups. The largest decline was observed for the bottom 20 percent, which was brought about by a relatively larger decline in labor income received as compared to other income sources. A closer examination reveals that households at the lower end of the income distribution have adjusted their labor supply upwards. In 2007, 52.7 percent of adult household members were employed. In 2009, this figure had become 54.4 percent (Table 5). Hence, in spite of a larger numbers of employed household members, a smaller total labor income was generated in 2009. This is consistent with secondary workers replacing the main bread winner as well as with the fall in informal sector wages, where this group of individuals is most commonly employed. The fall in household labor income ranged from 1.7 percent to 5.6 percent among the different income groups, the average reduction being 3.7 percent. As noted for the lowest income group, the number of employed household members as percent of total adults has generally increased over the crisis period, which suggests that households have attempted to preserve their income by adjusting their labor supply upwards.

Unlike other income groups, individuals at the bottom 20 percent realized an increase in their household incomes from 2007 to 2009. This is brought about by an increase in non-contributory transfers, which went up by a remarkable 23 percent. The proportion of individuals receiving non-contributory transfers also increased – from 60.4 to 66.3 percent, an increase of nearly 10 percent. Among the lower-middle income group, the proportion of individuals receiving non-contributory transfers also increased substantially - by 26.6 percent -, while the amount received improved only slightly by 1.6 percent. The increase in non-contributory transfers for this income group was not high enough to prevent their household disposable income from falling. The data from the Ministry of Family

---

[16] We have computed the income shares by cumulating income over all households. If we were to compute the shares for each household and average them out, the share of labor income would have been 63.2 percent, total transfers 19.2 percent and asset income 17.7 percent of disposable income in 2007. The direction of change in income shares are similar irrespective of the method of computation.

[17] However, we cannot distinguish between public and non-public non-contributory transfers.

and Social Policies (2015) indicate that from 2007 to 2009 public social assistance grew in real terms by 31.4 percent, increasing its share in GDP from 1 percent to 1.4 percent. Micro-level data show that the largest recipients have been poorer households.

Contributory transfers (primarily pensions) naturally constitute a bigger income share of higher income groups. For instance, while over a half of the top income group receives contributory transfers, this ratio is about one in five for the lowest income group. From 2007 to 2009, the amount of contributory transfers received dropped, on average, by 1.8 percent. This is consistent with the data from the Social Security Institution (SGK) that show a decline in pensions by 1.5 percent in real terms.[18] However, it should also be noted that the proportion receiving contributory transfers increased over the same time period by 3.3 percent. While a number of explanations might be consistent with this change such as a household compositional change ('coupling-up' with retirees) or an increase in the number of individuals opting for retirement, another plausible explanation is the increase in the number of individuals receiving unemployment insurance, which is categorized under contributory transfers. İŞKUR (2011) reports that from 2007 to 2009, the number of individuals receiving unemployment benefits more than doubled from 221,418 to 472,577 persons. That the amount of benefits received is capped at the top at 80 percent of gross minimum wages[19], possibly work to reduce the average of contributory transfers. Notwithstanding these general observations, the differing patterns of change for individuals belonging to different income groups suggest that different mechanisms are at work. For instance, while the amount received in contributory transfers dropped from 2007 to 2009 for all income groups, both the proportion of individuals receiving income from this source as well as the amount received increased for the bottom 20 percent. Since informal sector work is prevalent among poorer sections of society for whom neither retirement nor unemployment insurance is available, the improvement in contributory transfers is likely to result from a household compositional change.

Income from assets reduced in real terms from 2007 to 2009, on average, by 0.7 percent. We observe that the decline is mainly driven by the drop in asset incomes received by higher income groups. This result may look surprising at first, given that we expect higher income groups to better protect themselves from adverse economic circumstances through asset diversification. (Indeed, the drop in asset income is relatively more modest at the top 20 percent as compared to the upper-middle income group). It should be noted, however, that the asset income

---

[18] All pensions but those from the Retirement Fund reduced by 1.5 percent. Average pensions from the Retirement Fund reduced by 0.3 percent in real terms.

[19] Prior to the crisis, unemployment benefits were calculated based on net wages. The redefinition was part of an attempt to preserve personal incomes during the crisis period.

includes imputed rent from owner occupied dwellings, which is the main source of asset income for the lower income groups. Indeed, when imputed rents are dropped, asset ownership among the bottom 20 percent reduces to 31 percent as compared to 67.2 percent among the top 20 percent (not shown). Dropping all rent income (received from real estate apart from owner-occupied dwellings) from asset income further reduces asset ownership among the poorest 20 percent to 21.5 percent. Given that the crisis had a limited impact on the housing market, there is no reason to expect respondents to report lower imputed rents in 2009 as compared to 2007.

In the period following the crisis, household incomes improved. In 2011, the average real disposable household income was 5.2 percent and equivalized income 4.6 percent higher than it had been in 2009 (Table 5). The main driver of the improvement was labor income, which went up, on average, by 8.1 percent from 2009 to 2011. The most significant improvement in labor incomes occurred for the poorest 20 percent for whom a 13.5 percent increase was observed. As the crisis came to an end, the lowest 20 percent adjusted its household labor supply downwards. Presumably, secondary workers withdrew from the labor market, which would work to pull the average income up. A downward adjustment in household labor supply is also observed for the lower-middle income group but not for the upper-middle or the top 20 percent.

Except for the lowest income group, total transfers increased for all income groups from 2009 to 2011 – the average improvement being on the order of 4.5 percent. The reason for the fall in average transfers for the lowest 20 percent is the substantial drop (20.1 percent) in transfers from non-contributory sources. The average income received from this source also declined for the lower-middle income group, but for them the improvement in contributory transfers worked to increase the income received from all transfers. The data from SGK indicate that except for those from the Retirement Fund, average pensions increased from 2009 to 2011 in real terms with relatively larger increases granted to those receiving lower pensions. In 2011, average pensions from SSK was 10 percent higher than it had been in 2009, but Bağ-Kur agricultural pensioners realized a 20.5 percent increase, on average, while the Retirement Fund pensioners saw their pensions drop by 0.3 percent in real terms.

Income from assets fell in real terms from 2009 to 2011 for all income groups, the average decline being on the order of 8.4 percent. The proportion of individuals receiving an asset income also fell, the most notable change occurring at the top 20 percent at 3.2 percent - for other income groups, the change was limited to about 1 percent - which may have resulted from the liquidation of assets during the crisis period. Indeed, the proportion of individuals receiving asset incomes excluding imputed rents and other rent income changed only marginally from 2007 to 2009 from 36.8 percent to 38.6 percent but dropped to 27.7 percent in 2011. A drop is

observed for all income groups; for instance, the drop for the bottom 20 percent was from 22.4 to 13.4 percent, while for the top 20 percent it was from 61.4 to 47.6 percent. These changes suggest that a significant proportion of individuals sold their financial assets possibly in an attempt to preserve their living standards during the crisis.

5. Distribution of household income and its components

We now turn to analyzing the change in income inequality over the crisis period and quantifying how the different components of income have contributed to income inequality. We use two common measures of inequality: the Gini coefficient and the squared coefficient of variation (SCV).[20] We employ the decomposition routine written by Jenkins (1999), which is based on Shorrocks (1982). The proportionate contribution of a given income source k to income inequality is expressed as (Jenkins, 1999):

$s_k = \rho_k \times [\text{mean}(k) / \text{mean(total income)}] \times [\text{CV}(k) / \text{CV(total income)}]$

where, ρ is the correlation coefficient between factor k and total income.[21]

The decomposition is done based on total income rather than adult equivalent income for the reason that we do not correct income components by adult equivalents. Nonetheless, we report the Gini coefficient and the SCV for equivalized income as well. From 2007 to 2009, we observe a slight improvement in the distribution of equivalized income; the Gini coefficient drops from 0.402 to 0.396 and SCV from 0.964 to 0.910 (Table 6). However, in the period following the crisis from 2009 to 2011, inequality increases again.

The dispersion in disposable income is smaller as compared to equivalized income (see Table 6), which is to do with the unequal distribution of adult equivalents across households. Households with lower incomes have higher adult equivalents, which causes further dispersion in equivalized income. Similar to what is observed for equivalized income, the inequality in disposable income drops from 2007 to 2009 only to increase again in 2011.

---

[20] The Gini is most sensitive to transfers that occur around the mode, while SCV is equally sensitive to transfers that occur at either end of the distribution (Sen, 1997).

[21] The decomposition is based on CV but the shares remain unaffected for alternative decomposable measures of inequality (Jenkins, 1999).

Table 6
Income Inequality and Decomposition

	Labor income	Non-contributory transfers	Contributory transfers	Asset Income	Total Disposable income	Adult equivalent income
			2007			
Gini (for recipients)	0.422	0.646	0.374	0.485	0.376	0.402
SCV (for recipients)	0.952	2.772	0.677	1.695	0.758	0.964
SCV	1.154	11.344	3.309	2.162	0.758	
Contribution of source to inequality	72.79	-0.41	10.07	17.56	100.0	-
			2009			
Gini (for recipients)	0.430	0.604	0.374	0.472	0.366	0.396
SCV (for recipients)	0.998	2.230	0.673	1.530	0.699	0.910
SCV	1.213	8.064	3.163	1.932	0.699	
Contribution of source to inequality	73.42	-0.57	9.74	17.41	100.0	-
			2011			
Gini (for recipients)	0.410	0.633	0.388	0.442	0.368	0.400
SCV (for recipients)	0.782	2.829	0.750	2.049	0.708	0.942
SCV	0.969	10.857	3.212	2.584	0.708	
Contribution of source to inequality	69.96	-0.32	11.52	18.84	100.0	-

Source: 2008-2012 SILC, micro data. Authors' calculations.

When we come to the dispersion in various income components, going from 2007 to 2009, we observe a drop in inequality in all components but labor income. The Gini index for the latter increases from 0.422 to 0.430 from 2007 to 2009, but drops to 0.410 in 2011. Increasing inequality in labor incomes in the crisis period is consistent with the compositional changes observed in the labor market, which were discussed earlier. Due primarily to its high share in total income, labor income contributes the most to income inequality and in fact, by proportionately more than its income share: in 2007, its contribution to total inequality was 72.8 percent, while its share in total income was 65.4 percent (see Tables 5 and 6). In 2009, 73.4 percent of the overall inequality could be attributed to labor incomes though this source's share in aggregate total household income reduced to 64 percent. The increasing contribution of labor income to total inequality could be explained by its worsening distribution. Measured in terms of SCV, for instance, the inequality in labor incomes increased from 1.154 in 2007 to 1.213 in 2009. In the post-crisis period, labor incomes' contribution to total inequality reduces to 70 percent, which can be attributed to the improvement in its distribution – SCV reduces to 0.969.

Nonetheless, labor income's contribution to total inequality continues to surpass its share in total income, which increases to 66.5 percent in 2011.

Non-contributory transfers reduce income inequality. However, due to their small share in total income, they only have a limited re-distributional impact. Nonetheless, the reduction in inequality in this source as well as its increasing share in total income improved its re-distributional role in 2009. In contrast, contributory transfers are a source of inequality: in 2007, they accounted for 10.1 percent of the total inequality. Nonetheless, their contribution to total inequality is less than their share in total income, which was 14.4 percent in 2007. The contribution of contributory transfers to total inequality decreased somewhat in 2009 due to the reduction in inequality in this source but increased again in 2011. Asset incomes' contribution to total inequality was 17.6 percent in 2007, which was in line with their share in total income. Their contribution to total inequality reduced slightly in 2009, only to increase again to 18.8 percent in 2011.

To sum up, the inequality in total household income as well as equivalized income declined somewhat in 2009 but increased again in the post-crisis period. The drop in inequality over the crisis period can be attributed to the improvements in the distribution of all sources of income but labor income, whose share in total income dropped, and the increase in the share of non-contributory transfers in total household income.

6.   Poverty

Prior to the onset of the crisis, the poverty rate had been falling. Measured on the basis of the basic needs basket - constructed based on consumption expenditures - , it fell from 27 percent in 2002 to 17.8 percent in 2007 (TurkStat, 2014). For 2009, TurkStat reports an increase such that the poverty rate becomes 18.1 percent. Relative consumption poverty, measured as the proportion of those having less than half the median consumption expenditures has fluctuated around 15-16 percent over the same time period, its value being 14.7 percent in 2007 and 15.1 percent in 2009. These estimates suggest that the GFC has put a (temporary) stop to the decline in poverty that had already slowed down prior to the crisis.

Our estimates based on SILC micro data show that when poverty is measured as 60 percent of the median income, the poverty rate reduces from 24.2 percent in 2007 to 23.6 percent in 2009 and further to 22.8 percent in 2011 (Table 7). The decline in relative poverty based on contemporary income may not be surprising given that median income often falls during an economic downturn as was the case in Turkey. Instead of relying on contemporary income, we have chosen to construct

a fixed poverty line, which we take it as 60 percent of the median income in 2011.[22]
Since we have already adjusted incomes in different years to reflect 2011 prices,
(equivalized) household incomes in 2007 and 2009 are directly compared to this
poverty line. Using this new measure of poverty, we observe that the poverty rate
slight falls from 2007 to 2009, from 25.8 percent to 25.3 percent. The fall that comes
in 2011 is more substantial; the poverty rate reduces to 22.8 percent. Hence, both
absolute and relative poverty measures indicate a fall in the poverty rate over the
crisis period. That both indicators have moved in the same direction suggests that
persons at the lower end of the distribution have gained more in absolute and
relative terms than those at the upper-end. A likely source that can bring about an
improvement in both measures is non-contributory transfers, which increase total
household incomes of lower income groups vis-à-vis higher income groups.

Table 7
Poverty rates

	2007	2008	2009	2010	2011
Poverty rate (fixed 2011 line)	25.8	25.6	25.3	24.7	22.8
Adult (age 15-64)					
Women	22.8	22.9	22.4	22.3	20.4
Men	21.6	21.6	21.2	21.3	19.2
Elderly (age 65+)	17.5	19.4	19.3	18.3	18.2
Children (age<15)	36.7	36.1	35.7	34.6	33.0
Poverty rate-before non-contributory transfers (fixed 2011 line)	28.4	28.2	28.1	27.4	25.1
Poverty rate (relative line – 60% of contemporary income)	24.2	24.1	23.6	23.0	22.8

Source: 2008-2012 SILC, micro data. Authors' calculations.

As discussed earlier, from 2007 to 2009 there has been a substantial increase
in non-contributory transfers to lower income groups. To see how far these transfers
make a difference in estimated poverty rates, we re-calculate household incomes
excluding non-contributory transfers.[23] The new absolute poverty estimates are
higher than the rates estimated with non-contributory transfers by 2 to 3 percentage
points. However, the pattern of change in poverty rates over time mimics that of the
rates estimated with non-contributory transfers. Hence, the fall in the absolute
poverty rate over the crisis period cannot be totally explained by increasing non-

---

[22]   As a robustness check, we anchor the poverty line to 2007. Results (available upon request) do not
        change.
[23]   We assume no labor supply adjustment.

contributory transfers but is likely to be the result of other public sector and household actions that fend off the negative impact of the crisis.

Table 7 also reports poverty rates separately for different age groups. For adult men and women, the poverty rates are similar – women's rates are about a percentage point higher than men's- but children's rates are substantially higher, the reasons for which are discussed in Dayıoğlu and Demir-Şeker (2014). Notwithstanding the differences in levels, for all three groups we observe similar changes over time that mimic the overall change in the poverty rates. However, for the elderly (ages 65 plus), contrary to the general trend, we observe an increase in the poverty rate from 2007 to 2009, from 17.5 percent to 19.3 percent. In the post-crisis period, the poverty rate among the elderly falls back to 18.3 percent. The increase is likely to be the result of declines in pensions in real terms from 2007 to 2009. As noted earlier, most pensioners realized a 1.5 percent decline in their pensions in real terms from 2007 to 2009. However, changes in living arrangement may have played a role as well.[24] Most pensions increased in real terms in varying degrees in the post crisis period, which helped reduce poverty among the elderly.

7. Conclusion

Turkey was among the hardest hit OECD countries by the Global Financial Crisis as measured by the drop in GDP. However, similar to the findings from several countries, the drop in household income was not severe. We find that household disposable income (in real terms) dropped by 3.6 percent from 2007 to 2009 but the decline in equivalized income (i.e. household income corrected for household size and composition) was limited to 1.2 percent. The dispersion in disposable income as well as the equivalized income decreased from 2007 to 2009. Absolute poverty (i.e. anchored at the 2011 value) also decreased, albeit only very slightly, from 2007 to 2009. The economy bounced back rapidly following the crisis and by 2011, disposable household income and equivalized income were 5.2 percent and 4.6 percent higher than they had been in 2009, respectively. Although income inequality increased somewhat, the poverty rate fell by 2.5 percentage points in 2011. Hence, the impact of the crisis on household welfare appears to have been limited.

How did the households cope with the crisis? One channel has been through the adjustment in household size and composition as evidenced by the smaller drop in equivalized income as compared to disposable income. It appears that individuals postponed family formation and child bearing during the crisis. Another channel has been the adjustment in household labor supply. The proportion of employed

---

[24] Since we are using an absolute poverty line, the changing positions of the elderly should not be a factor in increasing the poverty incidence among the poor.

household members increased from 2007 to 2009 though the amount brought in in terms of labor income dropped. As discussed in the text, substantial effort was expended by the government in preserving employment and maintaining income. Indeed, an important factor that prevented the incomes of the lower income groups from falling has been non-contributory transfers, which were scaled up substantially during the crisis. This in contrast to what was observed in the previous crises. Koyuncu and Şenses (2004) and Şenses (1999) report that social expenditures including transfers to the poor were cut both in 1994 and 2001. There is also evidence that individuals sold off their financial assets possibly to cope with the negative effects of the GFC. Although the effects of the GFC look modest at the household level, it does appear that certain groups of individuals such as the elderly, informal sector workers and own-account workers were hurt by the GFC.

Although our results are in parallel with much of the literature on GFC, it does not tally with that of Aran (2013) on Turkey. A possible reason why our results diverge from that of Aran is the survey instrument used. As noted earlier, Aran's results are drawn from a small-scale rapid assessment survey that relied on qualitative questions. Another potential reason is the time period over which household welfare is measured. By considering annual income and changes in it, we are essentially ignoring income fluctuations of shorter-duration. It is possible, especially for poorer households with limited savings and access to capital markets that, before the household had a chance to adjust its labor supply or qualify for social assistance, a period of hardship is suffered. Hence, our results may understate the short-run effects of the crisis, at least for a group of individuals who are either slow to adjust to the new economic conditions or lack the means to do so. Nonetheless, our findings suggest, on average, a fairly rapid adjustment to the changing economic conditions, which was aided by various policy initiatives.
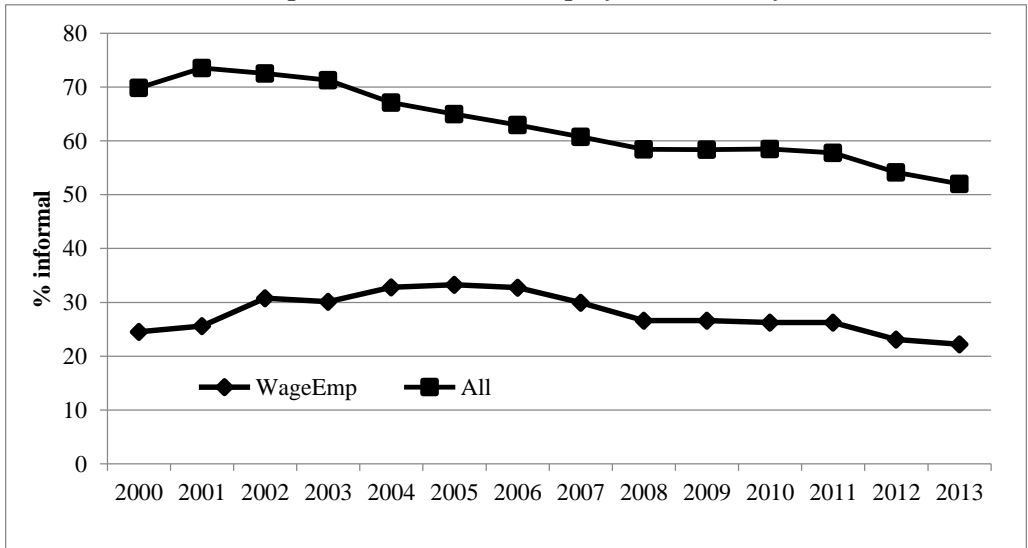
Appendix

Figure 1A
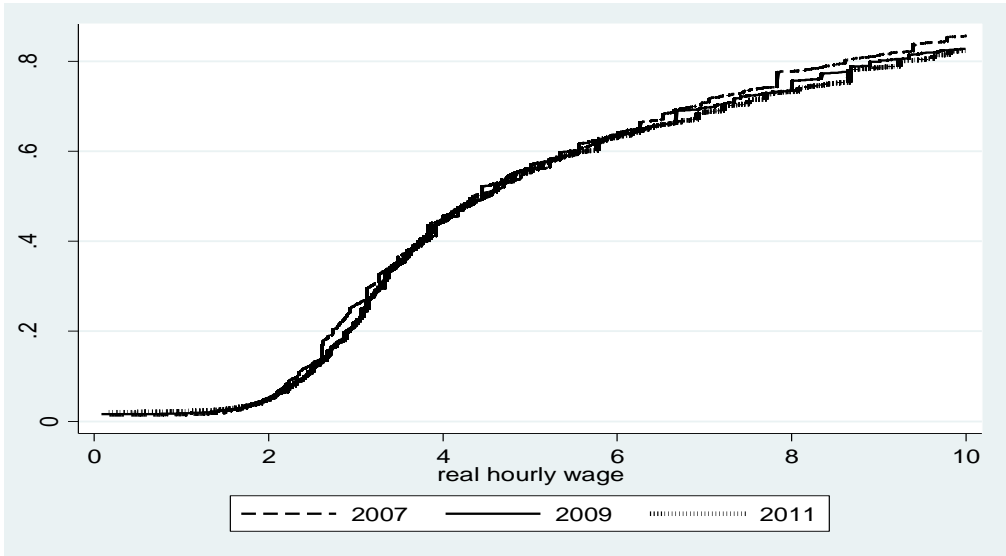Proportion of Men Employed Informally
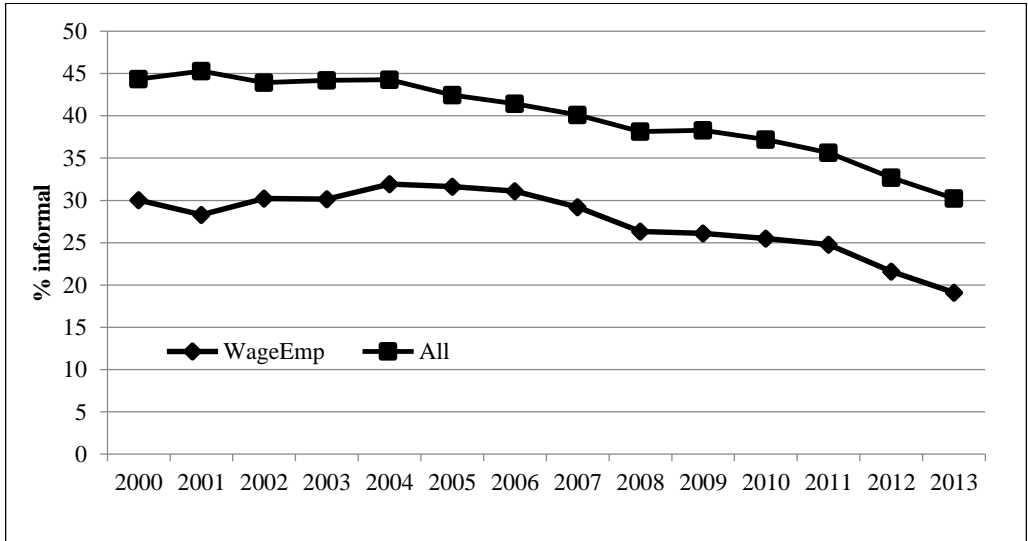
Source: Household Labor Force Surveys, authors' calculations.

Figure 1B
Proportion of Women Employed Informally

Source: Household Labor Force Surveys, authors' calculations.

Figure 2A
Cumulative Distribution of Hourly Wages - Formal Sector

Source: Household Labor Force Surveys, micro data, authors' calculations.

Figure 2B
Cumulative Distribution of Hourly Wages - Informal Sector

Source: Household Labor Force Surveys, micro data, authors' calculations.

References

ARAN, M. (2013), "Welfare Impact of the Global Financial Crisis of 2008-2009 on Turkish Households", *Ekonomi-Tek* 2(1), 13-52.

BALKAN, B., BAŞKAYA, Y.S. and TÜMEN, S. (2014), "Evaluating the Impact of the Post-2008 Employment Subsidy Program in Turkey", Central Bank of the Republic of Turkey, Working Paper 14/14, Ankara.

CHEN, S. and RAVALLION, M. (2010), "The Developing World is Poorer than we Thought, But no Less Successful in the Fight Against Poverty", *Quarterly Journal of Economics*, 125(4), 1577-1625.

CİLASUN, S.M. and KIRDAR, G.M. (2013), "Household Structure and Household Income and its Components over the Life-Cycle in Turkey", *İktisat, İşletme ve Finans*, 28(328), 89-116.

DAYIOĞLU, M. and DEMİR-ŞEKER, S. (2014), "Social Policy and the Dynamics of Child Poverty in Turkey". Middle East Technical University, mimeo.

DEATON, A. (2010), "Price Indexes, Inequality, and the Measurement of World Poverty", *American Economic Review*, 100 (1), 5-34.

ERCAN, H., TAYMAZ, E. and YELDAN, E. (2010), *Crisis and Turkey: Impact Analysis of Crisis Response Measures*, ILO, Ankara.

FALLON, P.R. and LUCAS, E.B. (2002), "The Impact of Financial Crises on Labor Markets, Household Incomes, and Poverty: A Review of Evidence" *The World Bank Research Observer* 17(1), 21-45.

GASIOR, K. and LELKES, O. (with ZOLYOMI, E.) (2013), "Poverty, Inequality, and the Social Impact of the Financial Crisis in Latvia", European Centre for Social Welfare Policy and Research, Vienna.

GÜRSEL, S. and İMAMOĞLU, Z. (2011), "Why is Agricultural Employment Increasing in Turkey?", BETAM Working Paper Series No. 4, Bahçeşehir University, Turkey.

GROSH, M., BUSSOLO, M. and FREIJE, S. (2014) (eds.), *Understanding the Poverty Impact of the Global Financial Crisis in Latin America and the Caribbean*, Directions in Development, World Bank, Washington DC.

İŞKUR (2011) *2011 Faaliyet Raporu*, Ankara.

JENKINS, S.P., BRANDOLINI, A., MICKLEWRIGHT, J. and NOLAN, B. (2013a), *The Great Recession and the Distribution of Household Income*, Oxford University Press, UK.

JENKINS, S.P., BRANDOLINI, A., MICKLEWRIGHT, J. and NOLAN, B. (2013b), "The Great Recession and Its Consequenecs for Household Incomes for 21 Countries" in *The Great Recession and the Distribution of Household Income*, Jenkins, S.P., Brandolini, A., Micklewright, J. and Nolan, B (eds.), Oxford University Press, UK.. Chapter 2: 33-89.

JENKINS, S.P., BRANDOLINI, A., MICKLEWRIGHT, J. and NOLAN, B. (2013c), "Summary and Conclusions" in *The Great Recession and the Distribution of Household Income*, Jenkins, S.P., Brandolini, A., Micklewright, J. and Nolan, B (eds.), Oxford University Press, UK, Chapter 9: 234-248.

JENKINS, S. P. (1999), "Analysis of Income Distributions", *Stata Technical Bulletin*, 48: 4-18. Reprinted in Stata Technical Bulletin Reprints, 8: 243-60.

KOYUNCU, M. and ŞENSES, F. (2004), "Kısa Dönem Krizlerin Sosyoekonomik Etkileri: Türkiye, Endonezya ve Arjantin Deneyimleri", Middle East Technical Univesity, ERC Working Papers in Economics 04/13.

MINISTRY OF DEVELOPMENT - REPUBLIC OF TURKEY (2014), *2015 Annual Program*, Ankara.

MINISTRY OF FAMILY AND SOCIAL POLICIES - REPUBLIC OF TURKEY (2015), *Sosyal Yardımlarda Dönüşüm: Sosyal Devletin Yeniden İnşası*, General Directorate of Social Assistances.

SEN, A. (1997), *On Economic Inequality*. Clarendon Press, Oxford.

SHORROCKS, A. F. (1982), "Inequality Decomposition by Factor Components", *Econometrica*, 50 (1): 193-211.

ŞENSES, F. (1999), Yoksullukla Mücadele ve Sosyal Yardımlaşma ve Dayanışmayı Teşvik Fonu, *METU Studies in Development*, 26(3-4), 427-51.

ŞENSES, F. (2003), "Economic Crises as an Instigator of Distributional Conflict: The Turkish Case in 2000-2001", *Turkish Studies* 4(2), 92-119

TAYMAZ, E. (2009), "Informality and Productivity: Productivity Differentials between Formal and Informal Firms in Turkey", Middle East Technical University, mimeo.

TURKSTAT (TURKISH STATISTICAL INSTITUTE) (2008-2012a), *Press Release: Marriage and Divorce Statistics*, Ankara.

TURKSTAT (2008-2012b), Press Release: Birth Statistics, Ankara.

TURKSTAT (2014), Press Release: Results of Poverty Study, Ankara.

TURKSTAT (2015), *Household Labor Force Surveys*, web-data base, Ankara.

OECD (2013), *Development Co-operation Report 2013: Ending Poverty*, OECD Publishing.

UYGUR, E. (2010), "The Global Crisis and the Turkish Economy", TEK Discussion paper, 2010/3.

WORLD BANK (2000), Turkey: Economic Reforms, Living Standards and Social Welfare Study, Report No. 20029-TU, Washington, D.C.: World Bank.

WORLD BANK (2003), Turkey: Poverty and Coping After Crises, Report No. 24185-TR, Washington, D.C.: World Bank.

WORLD BANK (2011), *The Job Crisis: Household and Government Responses to the Great Recession in Eastern Europe and Central Asia*, Washington DC: The World Bank.

WORLD BANK (2013), Turkey Managing Labor Markets Through the Economic Cycle, Report No. 70130-TR, Ankara.

Özet

Küresel finansal krizin Türkiye'de hane geliri, gelir dağılımı ve yoksulluk üzerindeki etkileri

Bu çalışmanın amacı küresel finansal krizin hane geliri, gelir dağılımı ve yoksulluk üzerindeki etkilerini Türkiye özelinde incelemektir. Çalışmanın temel veri kaynağını TÜİK tarafından toplanan Gelir ve Yaşam Koşulları Araştırması'nın mikro verileri oluşturmaktadır. Küresel finansal krizinin hane refahı üzerindeki etkileri incelenirken, 2009 yılındaki hane geliri, kriz öncesini ve sonrasını temsilen, sırasıyla, 2007 ve 2011 yılı hane gelirleri ile karşılaştırılmaktadır. Çalışmanın bulguları, 2007-2009 döneminde (reel) hanehalkı kullanılabilir fert gelirinin yüzde 3,6 düştüğünü göstermektedir. Ancak, eşdeğer fert geliri bu dönemde daha az bir düşüş göstererek yüzde 1,2 azalmıştır. Kriz dönemimde gelir eşitsizliğinin de azaldığı, mutlak yoksulluğun ise çok az da olsa düştüğü görülmektedir. Hane büyüklüğü ve kompozisyonunun, hanenin işgücü arzındaki değişimlerin ve primsiz sosyal yardımların küresel finansal krizin etkilerini azaltmada rol oynadıkları görülmektedir. Kriz sonrası dönemde ise gerek hanehalkı kullanılabilir fert geliri, gerekse de eşdeğer gelirin arttığı görülmektedir. Buna paralel olarak da mutlak yoksulluğun kayda değer bir gerileme gösterdiği ancak gelir dağılımının bir miktar bozulduğu gözlemlenmektedir.

Anahtar kelimeler: Küresel finansal kriz, hane geliri, gelir eşitsizliği, yoksulluk, Türkiye

JEL kodları: D10, D31, I30, I32.