

# A household level examination of regional income disparity in Turkey

Cem Başlevent

*Department of Economics, İstanbul Bilgi University, Kuştepe, Şişli, 80310 İstanbul, Turkey*

Meltem Dayıođlu

*Department of Economics, Middle East Technical University, 06531 Ankara, Turkey*

## Abstract

The purpose of this paper is to examine regional income disparity in the urban areas of Turkey during the 1994 - 2003 period. Making use of micro-data, we first explore the association of various household-level characteristics with regional disparity. In accordance with expectations, simulation exercises we carry out reveal that unfavorable demographic characteristics and higher dependency ratios contribute to regional disparity in household incomes. However, we argue that macroeconomic factors have made a larger impact on trends related to income inequality during a decade that saw the Turkish economy go through several turbulent periods. Finally, a decomposition analysis by income source identifies 'non-labor income' as the component that generates much of regional disparity due to its rather unequal distribution both within and across the regions.

## 1. Introduction

Empirical studies on income distribution in Turkey have repeatedly come to the conclusion that income inequality across Turkey's geographical regions is quite high (Özbudun and Ulasan, 1980; Celasun, 1986; Silber and Özmucur, 2000; TÜSİAD, 2000; World Bank, 2000). On account of Turkey's seemingly-perpetual 'developing country' status, Kuznets' half-a-century-old theory has provided one explanation for this disparity. According to Kuznets (1955), countries start out with rather egalitarian distributions at a time when the majority of the workforce is employed in low

productivity subsistence agriculture, and the orientation of the economy towards industry brings about inequality in incomes due to intersectoral productivity differentials. However, income inequality is expected to decline eventually as productivity differentials diminish. Considering that the western parts of Turkey are still much more industrialized compared to the agriculture-dominated east, regional disparity in incomes would naturally result. Indeed, earlier studies (Özbudun and Uluşan, 1980; Celasun, 1986) illustrate the large productivity differentials between agriculture and non-agricultural sectors in the pre-1983 period. Also within the Kuznets framework, Silber and Özmucur (2000) explain the increase in inequality for the country at large over the 1987-1994 period by the internal migration from rural to urban areas. Celasun (1986) also draws attention to the fact that, along with intersectoral productivity differentials, macroeconomic environment and public policy may have an impact on income inequality. Specifically, he shows that the worsening domestic terms of trade for agriculture has been instrumental in the rise in income inequality in Turkey.

Inspired by the so-called Kuznets' curve, recent studies on Turkey have looked for evidence of regional economic convergence but found none (see for instance SPO, 2003; Doğruel and Doğruel, 2003; Karaca, 2004). These results could mean that (1) Turkey has not completed its development process so that intersectoral productivity differences remain, (2) the macro-economic environment and macro-policies have had differential impacts on different regions/sectors, and/or (3) government policy geared toward closing the regional income gap has been unfruitful. Indeed, in an attempt to narrow the regional income gap, the Turkish government has designated certain provinces as 'development priority' areas offering various economic incentives to increase economic activity in these regions. While the bulk of the state interventions have taken the form of economic initiatives, socio-demographic characteristics such as fertility and household composition may also contribute to economic inequality by decreasing the per-capita income in poorer regions. Indeed, economically backward regions of the country display poorer demographics (see Appendix, Table A1). It might, therefore, be interesting to see as to what extent socio-demographics play a role in regional disparity and whether this can be another policy area in the reduction of regional disparity.<sup>1</sup>

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<sup>1</sup> Although not posited as a poverty or inequality reducing project, one of the recent projects of the Ministry of Health, supported by the World Bank, geared toward

The purpose of this paper, therefore, is to examine the potential impact of both socio-demographic and economic factors on regional income inequality in urban Turkey at two points in time, namely 1994 and 2003, for which official survey data are available. The characteristics we consider include household composition and the type of income received by households, which we take as an indicator of lack or availability of economic opportunities. A preliminary examination of micro data relating to the two years indicates that there has been a decline in both the overall and regional income inequality. Thus, the paper attempts to isolate the role of the above factors in bringing about the observed change in inequality over time. By concentrating on urban areas only, we would like to focus on factors other than inter-sectoral productivity differentials in explaining regional disparity. Rural to urban migration that occurs in response to such inter-sectoral differentials, may also impact inequality. In the data we employ, we cannot identify migrant households so that analyzing the impact of migration on regional income inequality is beyond the scope of this study. Instead, given what we know about the ongoing migration to the metropolitan areas in the west of the country, we assume that the Silber and Özmucur argument applies to the 1994-2003 period as well.

For an income distribution study such as this, the comparison of 1994 and 2003 presents an interesting exercise in itself due to the vastly different economic environments that prevailed in the two years. While 1994 was a crisis year in which the economy shrank by 6.1% and inflation rose to three-digit levels, 2003 represented a year of recovery from yet another and an even worse crisis that hit Turkey in 2001. The crisis in 2001 was so severe that in a single year the economy shrank by 9.5%. The crisis management program put into effect following 2001 reduced inflation to an annual rate of 23% in 2003. Despite these favorable developments, the 2003 figures are likely to reflect the impact of a decade characterized by high inflation and fluctuations in returns to financial investments and real wages. Indeed, household real incomes in 2003 were still about 30% below the 1994 levels.

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increasing the health care access of households living in poorer parts of Turkey, is likely to have a favorable impact on the household structure (and hence, income inequality) by reducing infant and child mortality, and helping the families reach their desired family size. Besides their immediate effect on the number of dependents, these changes may affect the labor supply behavior of household members, especially of women, thus improving the dependency ratio further.

The main factor behind both crises has been the large debt stock of the government (which reached almost 80% of GNP in 2002) and the increasing cost of servicing it. Needless to say, the macroeconomic environment and policies enacted to bring about macroeconomic stability will have effects on income distribution. To the extent that macroeconomic factors affect certain regions more strongly than others, they may lead to changes in regional disparity as well. However, predicting the effects of such variables as the price level, inflation, and the rate of change in inflation on regional inequality is not trivial (Bulir, 2001; Sarel, 1997; Volscho, 2004). Since we have only two time periods, it is not possible to engage in an analysis of the effects of macroeconomic variables on income distribution. Instead, we discuss these variables as possible reasons for the decline in inequality from 1994 to 2003.

The paper is organized as follows: Section 2 describes the data sets used and the methodology employed. In Section 3, following the presentation of descriptive patterns, an exercise is carried out to quantify the impact of household composition on inequality. In Section 4 we make use of conventional decomposition techniques to assess the contribution of various sources of income to overall inequality which may also prove useful in accounting for regional income differences. Since these sources often exhibit different degrees of inequality in their distribution, the decomposition analysis is useful in illustrating the different income distribution structures across regions. Section 5 concludes the paper.

## 2. The data and empirical methodology

We work with data drawn from the 1994 Household Income Distribution Survey (HIDS) and the 2003 Household Budget Survey (HBS) both conducted by the State Institute of Statistics (SIS) of Turkey. The 1994 HIDS covers 80,380 individuals from 18,262 urban households. In terms of nationwide figures, it reports the urban population in 1994 at nearly 32 million, which comes from just over 7.5 million households. The 2003 HBS, on the other hand, covers 73,032 individuals from 18,278 households. These figures indicate that by 2003, the number of urban households had reached 10 million, and urban population stood around 42 million. Although the two surveys differ from each other in a number of ways,<sup>2</sup> the definitions of the variables used in this study, in particular those relating to income,

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<sup>2</sup> For details on both surveys, see <http://www.die.gov.tr>.

are the same. Income includes after tax, in-cash and in-kind payments resulting from primary and secondary jobs as well as from non-labor sources, such as interest and rent incomes, dividends, transfers and the like. The survey design allows for the region-level analysis we are about to undertake based on Turkey's seven geographical regions: Marmara, Aegean, Mediterranean, Central Anatolia, Black Sea, Eastern Anatolia, and Southeastern Anatolia<sup>3</sup>.

We measure income inequality using the Gini coefficient and the squared coefficient of variation (SCV), which are among the most commonly used measures of income inequality. In order to account for the effect of various demographic/economic characteristics, we compute a series of income inequality measures and carry out exercises on synthetic data. Furthermore, we decompose the overall inequality due to various sources of income (i.e. labor income and non-labor income and imputed rent). The decomposition by income source analysis we employ is based on Shorrocks (1982) and follows Jenkins's (1995) application of the formulation to the Coefficient of Variation (CV).<sup>4</sup> The Shorrocks methodology is independent of the choice of the measure of inequality and computes the 'proportionate contribution' of sources based on the covariances between the values of each one of the sources and total income. Specifically, the proportionate contribution of a given source  $k$  when coefficient of variation is used as the measure of inequality is defined as (Jenkins, 1995):

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

where,  $\rho$  is the correlation coefficient between factor  $k$  and total income. This formulation gives higher weights to factors that are closely correlated with total income.

Household composition is often a part of the income distribution analyses, which are typically carried out at the household level. Households' rankings are determined based on per capita income. In order to account for economies of scale within the household, various *adult equivalence scales* are employed to obtain the effective number of adults (or *adult equivalents*) in the household. One of the most

<sup>3</sup> The State Institute of Statistics has recently introduced a new classification system that relies on 26 geographic clusters comprising of the 81 provinces of Turkey. Since it is not possible to re-organize the 1994 data according the new classification system, we merge appropriate clusters in 2003 to obtain the seven geographic regions mentioned above.

<sup>4</sup> In computing the contribution of various sources to inequality we make use of a routine written by Jenkins (1999) for STATA.

popular adult equivalence scales is the one that assumes an equivalence scale elasticity of  $\frac{1}{2}$ . According to this scale, adjusted household income is obtained by dividing household income by the square-root of household size. Another commonly used scale is the 'Eurostat' (or 'modified OECD') scale that also distinguishes between adults and children. Under that scale, the number of *adult equivalents* in the household is calculated by counting the first adult in the household as 1 person and each other adult as 0.5 adults. The children (i.e. ages less than 14 years) are counted as 0.3 adults. The formulations described above imply that larger households could be at an advantage in terms of adjusted per capita income as long as the number of income recipients increases with household size, whereas the opposite would be the case if most household members are dependents. The empirical analysis that follows shortly looks at in which direction the relationship goes in practice by examining the numbers of earners and dependents by income quintiles. Here, we use the term 'earner' to indicate recipients of labor or non-labor income and 'dependent' to indicate the others except 'unpaid family workers' who we treat as a separate category.

In summarizing the income distribution information we make use of quintiles which are constructed on the basis of household incomes corrected by the Eurostat adult equivalence scale as well as the consumer price index figures available at the province level. The latter correction is necessary to account for across region variation in cost-of-living. To obtain the income quintiles, households within each region are ranked from the lowest to the highest income and are divided into five equal income groups.

### 3. Household characteristics and inequality

On the basis of household incomes adjusted for adult equivalents, Table 1 presents the extent of income inequality in Turkey and across its regions. In parallel to the results of other income distribution studies carried out in Turkey, we find a gravely unequal income distribution with the Gini coefficient reaching as high as 0.54 in 1994. The distribution improves somewhat by 2003, the year in which the Gini coefficient falls to 0.44, but nevertheless remains highly unequal. The degree of income disparity across the regions is also apparent from Table 1 with Marmara receiving about half the total income in both years although it is home to less than 40% of the population. At the opposite end of the income distribution scale lie eastern provinces that receive income shares that are less than their

**Table 1**  
Income Inequality for Urban Turkey by Region in 1994 and 2003

Region	1994					2003				
	Share in population	Income share	Relative mean inc.	SCV	Gini	Share in population	Income share	Relative mean inc.	SCV	Gini
Marmara	0.363	0.516	1.421	21.87	0.595	0.390	0.484	1.242	1.730	0.444
Aegean	0.136	0.120	0.880	3.25	0.470	0.133	0.129	0.971	1.418	0.398
Mediterranean	0.122	0.097	0.790	6.80	0.500	0.130	0.108	0.833	1.278	0.418
Central	0.183	0.143	0.783	1.09	0.439	0.155	0.151	0.974	1.004	0.426
Black Sea	0.078	0.065	0.839	5.11	0.481	0.072	0.057	0.787	1.224	0.376
Eastern	0.043	0.026	0.604	1.09	0.376	0.051	0.036	0.701	0.624	0.384
Southeastern	0.076	0.034	0.451	1.00	0.380	0.069	0.034	0.503	0.870	0.381
<i>All</i>				<i>17.43</i>	<i>0.540</i>				<i>1.618</i>	<i>0.438</i>

respective population shares. In this respect, the region that fares the worst is Southeastern Anatolia, which has an income share that is less than half of its population share. Perhaps more importantly, over the 10-year-period under study, there has only been a slight improvement in regional disparity. The improvement is apparent from the fact that while the Marmara region housed a greater part of the population by 2003, its relative mean income dropped from 1.42 in 1994 to 1.24 in 2003 with the result that the other regions experienced slight improvements in their income but not necessarily population shares. Another favorable development has been that inequality within regions dropped (with the exception of Eastern Anatolia by the Gini coefficient). The decline is particularly noteworthy in the Marmara region. The rather unequal income distribution in this region along with its high population share meant that a substantial drop in the overall inequality figure for Turkey would still be observed had the within-region improvement to be restricted to Marmara only. It is also important to mention that the sizeable portion of the overall inequality (over 95%) in Turkey is due to the unequally distributed income within regions rather than across regions. All this information put together seems to be indicating that the reduction in inequality over the 1994-2003 period is mainly the result of reduction in inequality within rather than across regions.

To understand the sources of the income disparity across regions we first look at the association between household characteristics and regional income inequality. Through the use of synthetic data, we try to quantify the relative impact of these variables on regional income inequality and look for signs of improvement in regional income gap resulting from favorable developments in socio-demographics.

### *3.1. Overall structure*

The figures presented in Table 2 for the years 1994 and 2003 point to a small decline over time in the average household size in Turkey (from 4.2 to 3.9) as well as the negative association between household size and per capita income. There is also evidence that the income gap between larger and smaller households is widening. This can be understood by noting that the difference between the average (adjusted) household size for the bottom and top quintiles has gone up from around 1.5 (0.6) to 1.8 (0.7) from one survey year to the other. The data further reveal that while in 1994 the income ratio between a



**Table 2**  
**Quintile Averages for Various Household Characteristics**

	1994						2003					
	Bottom	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Top	All	Bottom	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Top	All
No. of earners	1.40	1.47	1.58	1.65	1.61	1.54	1.39	1.36	1.47	1.49	1.62	1.47
No. of unpaid family workers	0.09	0.11	0.11	0.12	0.11	0.11	0.05	0.05	0.05	0.05	0.04	0.05
No. of dependents	3.56	2.86	2.48	2.21	1.83	2.59	3.53	2.76	2.35	1.99	1.47	2.42
Dependency ratio	2.54	1.95	1.57	1.34	1.14	1.68	2.54	2.03	1.60	1.33	0.91	1.65
Household size	5.05	4.44	4.17	3.98	3.56	4.24	4.97	4.17	3.87	3.52	3.13	3.93
Household size (adjusted)	2.67	2.46	2.36	2.3	2.12	2.38	2.64	2.36	2.25	2.12	1.95	2.26
No. of children	1.76	1.31	1.11	0.93	0.8	1.18	1.73	1.14	0.91	0.72	0.60	1.02
Extended household (%)	21.0	17.7	19.1	18.8	14.2	18.2	20.3	18.1	18.3	13.7	11.2	16.3

four and a six-person household<sup>5</sup> was 1.4, in 2003 a family of four would be expected to enjoy an income that is over 50% that of a family of six. Despite the reduction in household size, it seems the larger households had a more difficult time turning their bigger size to earnings power in 2003.

Another household composition variable of interest is an indicator for extended households which have members other than the husband, wife, and children. The share of such households is around 18% in 1994 and 16% in 2003. The ‘extended’ status appears to be closely associated with the placement of the household in lower end of the income distribution since the share of extended households declines markedly from the bottom to the top quintile. A likely scenario here is that extended households include the parent(s) or sibling(s) of the household head who do not have the means to live on their own so that the extended household status ends up increasing the number of dependents per earner.

Besides household composition variables, the employment status of its members is also important in determining the position of the household in income distribution. As expected, we find that the average number of earners increases as we move from the bottom to the top income quintile with the exception of a small decline from the fourth to the top quintile in 1994. The share of unpaid family workers among the employed members has gone down from 11 to 5% from 1994 to 2003, but the decline is uniform across income quintiles. The pattern that emerges in terms of the quintile averages of the number of dependents is quite clear with the figure steadily declining as we move to the higher income groups. This is also the case for the ‘dependency ratio’ which we define as the ratio of average dependents to average earners. In both survey years, the dependency ratio for the bottom quintile is more than twice that observed in the top quintile. Households in the bottom quintile have about 2.5 dependents per earner, whereas there are about as many earners as dependents in the top quintile. Just as dramatic is the discrepancy between the income quintiles with respect to the number of children. While the number of children in the bottom quintile is close to 1.8 in both years, the figures for the top quintile are 0.8 in 1994 and 0.6 in 2003.

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<sup>5</sup> A four person household would roughly represent an average household, while a six person household a one standard deviation from the average.

### *3.2. Regional disparity with respect to household level variables*

In light of the observed patterns, we now look for regional differences with respect to the variables considered above. If it turns out to be the case that the less favorable descriptive statistics are obtained for the less developed regions, it can be argued that at least some of regional income disparity has to do with the socio-demographic factors considered.<sup>6</sup>

Indeed, the 'worst' dependency ratio and household size figures are obtained for Eastern and Southeastern Anatolia, the least developed parts of the country (see Table 3). In both survey years, the dependency ratios in these regions are about twice as large as those in the western regions. The factor contributing the most to this result must be that the average number of children is substantially higher in the eastern regions (two-to-one compared with the west). Another contributing factor is the greater prevalence of extended households in these regions. As discussed earlier, extended household status is associated with more dependents, which in turn pull the average household income down.

The descriptive patterns seem to indicate that the regional differences in the household characteristics do play a role in the dispersion of regional mean income figures. In an attempt to quantify the impact of household composition on inequality, we devised a simple exercise in which we compare the actual values of inequality measures with those obtained under the assumption that all households are identical in terms the number of dependents per earner. To be specific, we first calculated the nationwide average number of dependents per household for each number of earners, ranging from zero to 8 in the data. We then assigned the average number of dependents to each household depending on how many earners are present. Finally, we used the new 'synthetic' household size variable in computing adjusted household income figures.<sup>7</sup>

Table 4 presents the figures this exercise yields along with the actual values. We find that income inequality in 1994 would in fact

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<sup>6</sup> We should, however, keep in mind that the patterns we observe here will in part be due to the inevitable link between the number of earners and household incomes as well as the use of adult equivalence scales in obtaining household income figures. In other words, the better-off households/regions are that way partially because they have smaller dependency ratios.

<sup>7</sup> For simplicity, in this exercise we use the equivalence scale that defines adjusted household income as total income divided by the square root of household size.

**Table 3**  
Household Characteristics by Region

	1994							2003						
	Marmara	Aegean	Med'nean	Central	Black Sea	Eastern	South-eastern	Marmara	Aegean	Med'nean	Central	Black Sea	Eastern	South-eastern
No. of earners	1.65	1.59	1.48	1.48	1.57	1.32	1.32	1.50	1.47	1.49	1.44	1.40	1.38	1.41
No. of unpaid family workers	0.06	0.08	0.13	0.09	0.39	0.16	0.07	0.02	0.05	0.07	0.04	0.12	0.08	0.07
No. of dependents	2.38	2.15	2.79	2.59	2.30	3.58	3.80	2.19	1.99	2.47	2.37	2.39	3.52	3.80
Dependency ratio	<b>1.44</b>	<b>1.35</b>	<b>1.88</b>	<b>1.75</b>	<b>1.47</b>	<b>2.72</b>	<b>2.88</b>	<b>1.46</b>	<b>1.35</b>	<b>1.65</b>	<b>1.64</b>	<b>1.70</b>	<b>2.55</b>	<b>2.70</b>
Household size	4.09	3.81	4.41	4.16	4.25	5.06	5.18	3.71	3.51	4.04	3.85	3.92	4.99	5.27
Household size (adjusted)	2.33	2.21	2.44	2.36	2.4	2.7	2.71	2.18	2.09	2.30	2.24	2.27	2.67	2.75
No. of children	1.06	0.98	1.32	1.10	1.14	1.63	1.90	0.87	0.80	1.11	0.92	0.97	1.64	1.94
Extended household (%)	21.0	17.7	19.1	18.8	14.2	18.2	16.5	15.5	13.0	13.9	18.8	17.7	22.4	20.0

**Table 4**  
Exercise on the Impact of Household Composition on Inequality

	SCV				Relative mean income						
	Gini	Total	Within groups	Between groups	Marmara	Aegean	Med'nean	Central	Black Sea	Eastern	Southeast
<i>1994</i>											
Actual values	0.534	17.59	17.48	0.11	1.42	0.86	0.79	0.78	0.85	0.62	0.46
Synthetic values using country av.	0.516	14.38	14.29	0.09	1.38	0.83	0.84	0.80	0.89	0.71	0.52
<i>2003</i>											
Actual values	0.430	1.54	1.49	0.05	1.23	0.96	0.84	0.98	0.79	0.72	0.53
Synthetic values using country av.	0.411	1.37	1.33	0.03	1.20	0.92	0.87	0.99	0.82	0.81	0.62
Synthetic values using region av.	0.415	1.40	1.36	0.04	1.22	0.96	0.86	0.98	0.82	0.71	0.53
Synthetic values using region av. in 1994	0.415	1.40	1.36	0.04	1.22	0.96	0.84	0.98	0.81	0.72	0.54

be lower had the households across the nation been identical in terms of the number of dependents per earner, holding the incomes of the earners constant. Under that assumption, the Gini coefficient is nearly .02 lower, down from around 0.53 to 0.51. The squared coefficient of variation (SCV) would also have been lower, due to reductions in both its ‘within’ and ‘between-regions’ components. Further evidence that regional disparity would be smaller if households were similar in composition can be gathered from the relative mean income figures. While the relative mean income figures for the Marmara and Aegean regions become smaller, the remaining five regions experience some improvement in their positions. When the same exercise is repeated using 2003 data, very similar results are obtained. The Gini coefficient drops from 0.43 to 0.41.

As noted above, unfavorable demographics in poorer regions are indeed a source of regional disparity, so that improving upon them is expected to lead to the closing of the regional income gap. This finding raises the question of whether the decline in inequality over time and across regions can be explained by better demographics, particularly in the economically lagging regions. The descriptive statistics presented in Table 2 do indicate an overall improvement in the dependency ratio though not necessarily in all regions of the country. Table 3 shows that the decline in the average number of dependents has been faster in economically better off regions though they have also experienced a decline in the average number of earners. In an effort to see whether favorable demographics have been instrumental in reducing the overall inequality and closing the regional gap, we extend the analysis above by creating another synthetic data by assuming that the dependency ratios in 1994 continued to prevail in 2003. In doing so, we assume that other variables, in particular the labor supply behavior of household members, remain the same. Specifically, holding the number of earners constant in 2003, new dependency ratios are assigned to households within regions in accordance with the values observed in 1994. Since the synthetic data would be constructed using averages, for comparison purposes it is necessary that instead of the actual values in 2003 we use inequality indices that make use of average dependency ratios prevailing within regions. In comparison to the observed values, the new figures are expected to yield smaller values for the reason that within-region variation is eliminated. The results of these exercises are presented in the lower two panels of Table 4. As expected, equalizing the number of dependents per earner within

regions reduces income inequality (see row 3 under panel 2003). When the exercise is repeated by assigning households the number of dependents observed in 1994, the inequality indices and the relative mean incomes of regions hardly change. It seems that the role of demographics in reducing the overall inequality and closing the gap between regions over the 1994-2003 period has been a minor one. Furthermore, we deduce that an even more important source of improvement must have been the faster decline in the incomes of better off regions. In what follows next, we try to understand the sources of improvement stemming from various income components and their contribution to regional disparity.

#### 4. Contribution of the subcomponents of income to inequality

In analyzing the relationship between regional disparity and the socio-economic variables we have particularly directed our attention to the distinction between earners and dependents, defining an earner as a recipient of labor or non-labor income. However, the extensive literature on the contribution of various sources of income to inequality has shown that these sources exhibit different degrees of inequality in their distribution. Using various decomposition techniques, it has been found that labor market earnings are relatively more equally distributed than non-labor income (Fields, 1979; Reed and Cancian, 2001). In the case of Turkey, Silber and Özmucur (2000) make use of the 1994 HIDS and find that, on the whole, income from the primary job is relatively more equally distributed, though different patterns are observed when the population is broken down by employment status. The TÜSİAD (2000) study, which also uses the 1994 HIDS, finds entrepreneurial income (received by the self-employed and employers) and income from financial assets to be the two major contributors to total inequality, each making up around 47%.

Here, we focus our attention on the three main subcomponents of income, namely labor income, non-labor income, and imputed rent. The questions we would like to answer are: (1) "What is the degree of inequality in the distribution of these components?" (2) "How much is their contribution to total inequality?" Once these questions have been answered, we will consider whether that information could be relevant in accounting for regional incomes disparity. The three sources respectively accounted for around 60, 27, and 13% of household income in urban Turkey in 2003 (see Table 5). Labor income is

**Table 5**  
Distribution of Income Sources and Their Proportional Contribution to Total Inequality

	1994				2003			
	Labor income	Non-labor income	Imputed rent	Total income	Labor income	Non-labor income	Imputed rent	Total income
SCV (for recipients)	4.85 (4.11)	152.8 (107.8)	3.95 (2.41)	<i>17.43</i>	2.69 (1.93)	5.71 (3.56)	2.46 (1.44)	<i>1.62</i>
Gini (for recipients)	0.58 (0.52)	0.84 (0.78)	0.69 (0.54)	<i>0.54</i>	0.58 (0.48)	0.73 (0.60)	0.63 (0.47)	<i>0.44</i>
% receiving source	87.2	70.7	68.8		79.5	68.0	70.6	
Share of source received by quintile (%)								
Bottom quintile	5.1	3.2	4.7	<i>4.5</i>	6.2	4.2	5.6	<i>5.6</i>
2 <sup>nd</sup>	8.4	5.8	9.2	<i>7.8</i>	9.6	10.5	9.8	<i>9.9</i>
3 <sup>rd</sup>	12.2	8.3	13.0	<i>11.2</i>	13.2	15.3	14.8	<i>14.0</i>
4 <sup>th</sup>	18.4	12.0	20.9	<i>16.9</i>	20.0	20.3	21.9	<i>20.3</i>
Top quintile	55.9	70.7	52.1	<i>59.5</i>	51.0	49.8	47.8	<i>50.2</i>
Share of source in total income (%)								
Bottom quintile	69.2	19.2	11.6		66.7	20.3	13.1	
2 <sup>nd</sup>	65.9	20.7	13.4		58.5	28.9	12.8	
3 <sup>rd</sup>	66.6	20.3	13.1		56.6	29.6	13.6	
4 <sup>th</sup>	66.6	19.4	13.9		59.0	27.1	14.0	
Top quintile	57.5	32.7	9.9		60.9	26.9	12.3	
<i>All</i>	<i>61.2</i>	<i>27.5</i>	<i>11.3</i>		<i>60.0</i>	<i>27.1</i>	<i>12.9</i>	



**Table 5** (continued)

	1994				2003			
	Labor income	Non-labor income	Imputed rent	Total income	Labor income	Non-labor income	Imputed rent	Total income
Inequality in source measured by SCV (Gini)								
Bottom quintile	0.33 (0.32)	2.67 (0.75)	1.45 (0.61)	0.06 (0.14)	0.41 (0.36)	2.95 (0.77)	1.26 (0.58)	0.10 (0.18)
2 <sup>nd</sup>	0.28 (0.29)	1.91 (0.68)	1.13 (0.57)	0.01 (0.07)	0.45 (0.37)	1.51 (0.64)	0.82 (0.50)	0.01 (0.06)
3 <sup>rd</sup>	0.25 (0.28)	1.71 (0.66)	1.12 (0.56)	0.01 (0.06)	0.44 (0.37)	1.27 (0.61)	0.72 (0.46)	0.01 (0.05)
4 <sup>th</sup>	0.25 (0.28)	1.58 (0.63)	1.06 (0.54)	0.02 (0.08)	0.40 (0.35)	1.36 (0.62)	0.79 (0.48)	0.02 (0.07)
Top quintile	2.52 (0.51)	60.41 (0.85)	2.10 (0.60)	9.26 (0.48)	1.45 (0.49)	3.68 (0.67)	1.38 (0.55)	0.78 (0.31)
Contribution of source to total inequality (%)								
Bottom quintile	68.9	19.5	11.6		62.2	27.7	10.1	
2 <sup>nd</sup>	53.0	29.1	18.0		40.9	42.2	17.0	
3 <sup>rd</sup>	56.6	23.9	19.6		54.9	32.4	12.6	
4 <sup>th</sup>	80.5	12.9	6.6		57.7	28.6	13.7	
Top quintile	18.4	80.1	1.4		63.0	31.7	5.2	
All	20.6	77.5	1.9		62.2	29.9	8.0	

received by wage and salary workers, self-employed individuals, and employers. Non-labor income, on the other hand, consists of transfer payments, income financial assets, and real estate. “Imputed rents” are self-reported approximate figures for the annual amount of rent home-owner households would have paid if they had rented the dwelling they currently occupy.

During the past decade, the distinction between labor and non-labor income has been a popular theme of socio-economic discussions in Turkey due to the presence of a large public debt stock and rather high real interest rates. Governments have been harshly criticized for engaging in a transfer of wealth from low/middle income tax payers to the rentier class that benefits the most from the availability of lucrative and safe government bonds. If these criticisms are indeed correct, we should expect non-labor income to contribute significantly to income inequality in Turkey. Finally, it has been demonstrated in Başlevent and Dayioğlu (2005) and Dayioğlu and Başlevent (2005) that imputed rents received by home-owner households not only have a non-negligible impact on Turkey’s income distribution, but their examination reveals informative patterns also at the regional level. Therefore, that source of income has also been treated as a separate category.

#### *4.1. Inequality by source of income*

Similar to other studies in the literature, we find that of the three sources, non-wage income is the most unequally distributed with a Gini coefficient of .84 in 1994 and .73 in 2003 (Table 5). Among the recipients of this type of income, who make up about 70% of the households, the Gini coefficient is still .78 in 1994 and .60 in 2003. The main contributing factor to the exceptionally high inequality in 1994 seems to be that non-labor income is highly concentrated in the top quintile. The share of non-labor income received by the top quintile is 71%, whereas the corresponding figures for earnings and imputed rent are 56 and 52%, respectively. As a possible explanation, we could recall that 1994 was a crisis year in which interest rates were exceptionally high. Looking at the same picture from a different perspective, we observe that the share of non-labor income in total income is 33% in the top quintile whereas the figure for the remaining quintiles is around 20%. By 2003, however, this discrepancy has disappeared. Apparently, non-labor income has become a more principal source for middle income households, as a result of

increased access to various financial instruments, coupled with the continuing deterioration in real wages.

The relatively more unequal distribution of non-labor income leads to a disproportionately large contribution of this source to total inequality in 1994. Measured *a la* Shorrocks (1982) using the squared coefficient of variation as the measure of inequality, it turns out that over three-quarters of total inequality is due to the inequality in the distribution of non-labor income despite the fact that its share in total income is only 27.5%. Consequently, labor income and imputed rents both contribute in substantially smaller amounts relative to their shares of 61 and 11%, respectively, in total income. When the 'contribution' figures are examined by quintile, it turns out that the abovementioned result holds only in the top quintile, and thus is driven by the households in the upper extreme of the income distribution. In the other income quintiles, labor income contributes most to total inequality owing to its bigger share in total income in these quintiles. Examining the degree of inequality in non-labor income by quintile (Table 5), we find it to be more unequally distributed than labor income in all quintiles, with the worst distribution being observed in the top quintile. The last result follows from the fact that more so than the other quintiles, the top quintile embodies in it rather heterogeneous households. Turning to the results for 2003, we find that with the exception of the top quintile, there has been an increase in the share of non-labor income in total household income. This had the effect of increasing this source's contribution to total inequality although its distribution somewhat improved in 2003. The increase in the share of non-labor income over time can be explained by the drop in the level of real earnings (see Appendix Table A2) as a result of the 2001 financial crisis. It seems that individuals with non-labor income had more opportunities to protect their purchasing power than labor income recipients except for those in the top quintile, who lost quite substantially in terms of both labor and non-labor income – possible owing to their higher propensity of being employers, the loss in earnings has been half the loss in non-wage income. The substantial income losses experienced by households in the top quintile help explain the improvement in the overall income inequality.<sup>8</sup> The loss in purchasing power also reflected

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<sup>8</sup> Yükseler (2004) questions the reliability of income data reported in the 2003 HBS stemming from financial assets. Referring to the drop in this source's share in total income, he claims that an underestimation is in order. If this is indeed the case, we would be overestimating the drop in income inequality over the 1994-2003 period.

itself in imputed rents, with again the biggest loss observed in the top quintile. The end result of these changes has been that by 2003 the contributions of the sources have become roughly in line with their respective shares in total income.

#### *4.2. Income source and regional income disparity*

Having examined the link between access to various types of income and economic well-being, we can now move on to the examination of geographical regions in terms of the relevant variables. While the share of labor income recipient households is quite similar across the regions, the share of households receiving non-labor income (which we have shown to be the most strongly associated with inequality) is substantially lower in the Southeast in both survey years (see Table 6).

It turns out that there is quite a bit of variation in the ‘relative contribution’ figures computed at the regional level. In 1994, the share of non-labor income in total income is the highest in the Marmara region (34%) probably due to the fact that half the households in the top quintile reside in this region. Moreover, Marmara is the region where non-labor income is the most unequally distributed with a SCV of 18.01, which help explain the rather high overall income inequality reported for this region. The combined result of these two facts is that non-labor income is responsible for 82% of total inequality in Marmara, a remarkable figure given that the highest share observed in any of the remaining six regions is 26%. By 2003, the share of non-labor income dropped in Marmara whereas increasing shares were observed in all other regions. The rather sharp decline in non-labor income in the top quintile discussed earlier and the fact that a substantial part of this population lives in the Marmara region must have been instrumental in producing this result. Increasing shares in other regions, on the other hand, is consistent with the relatively smaller declines in non-labor income in all quintiles except for the top. In parallel to the decreasing share of non-labor income, its contribution to inequality has also declined in the Marmara region. In other regions where the share of non-labor income has increased in income, expect in the Black Sea region and Southeastern Anatolia, the opposite observation is made. The declining contribution of non-labor income to inequality in the Black Sea region and Southeastern Anatolia despite its increasing share and an even poorer distribution in 2003 is to do with the weights used in the decomposition technique. It is possible that a relative more unequally distributed source

**Table 6**  
Income Inequality, Distribution of Income Sources, and Their Proportional Contribution to Total Inequality by Region

	1994							2003						
	Marmara	Aegean	Med'nean	Central	Black Sea	Eastern	South-eastern	Marmara	Aegean	Med'nean	Central	Black Sea	Eastern	South-eastern
SCV														
Labor income	3.48	2.49	5.23	0.72	4.23	1.02	0.71	2.94	2.02	2.24	1.95	2.84	1.18	1.35
Non-labor income	18.01	0.61	1.52	0.25	0.81	0.04	0.26	6.20	6.04	3.59	3.39	2.62	2.70	5.39
Imputed rent	0.38	0.16	0.05	0.12	0.07	0.02	0.03	2.32	1.42	1.37	1.61	1.23	1.11	1.10
<i>Total income</i>	<i>21.88</i>	<i>3.25</i>	<i>6.80</i>	<i>1.10</i>	<i>5.11</i>	<i>1.09</i>	<i>1.00</i>	<i>1.73</i>	<i>1.42</i>	<i>1.28</i>	<i>1.00</i>	<i>1.22</i>	<i>0.62</i>	<i>0.87</i>
Share of households receiving source (%)														
Labor income	87.7	85.9	87.4	84.5	91.3	89.4	88.0	80.0	75.4	80.9	77.3	78.5	82.1	85.5
Non-labor income	69.9	73.8	67.5	79.0	77.5	71.1	47.3	63.7	73.5	73.0	77.1	71.8	67.1	48.5
Imputed rent	67.9	70.0	72.6	68.2	64.8	63.4	73.6	70.5	70.0	73.1	72.2	68.4	66.7	69.2

**Table 6** (continued)

	1994							2003						
	Marmara	Aegean	Med'nean	Central	Black Sea	Eastern	South-eastern	Marmara	Aegean	Med'nean	Central	Black Sea	Eastern	South-eastern
Share of source in total income (%)														
Labor income	54.5	63.1	72.5	64.3	73.9	79.1	74.3	59.3	54.5	64.1	57.8	61.4	71.2	71.1
Non-labor income	33.6	23.7	19.7	23.3	19.1	13.7	15.1	26.1	32.6	26.8	29.7	28.6	19.7	18.0
Imputed rent	12.0	13.2	7.8	12.4	7.0	7.2	10.6	14.6	12.8	9.0	12.6	10.1	9.3	10.9
Contribution of source to total inequality (%)														
Labor income	15.9	76.6	76.9	65.9	82.8	93.9	71.1	62.8	44.5	73.7	61.9	82.5	86.5	76.6
Non-labor income	82.3	18.6	22.4	23.1	15.8	4.0	25.5	28.6	50.0	23.1	29.2	13.9	10.0	19.1
Imputed rent	1.7	4.8	0.7	11.0	1.4	2.1	3.4	8.5	5.4	3.2	8.9	3.6	3.5	4.3

contributes little to inequality in total, simply because it has lower correlation with total income. Our results imply that the households receiving high non-labor income in Southeastern Anatolia and the Black Sea are not the ones ranked at the top of the distribution with respect to total income.

The relatively smaller share of imputed rent in total income and the fact that it is more equally distributed compared to other sources (plus the high home-ownership rate in all regions) lead to its substantially smaller contribution to total inequality. Nevertheless, its proportionate share to total inequality varies from one region to another stemming from differences in its distribution, total share in income and its correlation with income. In both 1994 and 2003, the imputed rent component has the largest relative contribution in Central Anatolia (11%). The reason for the relatively higher contribution in comparison to say the Marmara region, which has an even worse distribution of imputed rents but a similar share in total income, must be that households with high imputed rents are also the ones with high earnings and non-labor income. The large government sector in the capital city Ankara is probably another contributing factor as it leads to relatively uniform labor incomes reducing this source's share in total inequality.

A final point worth making a note of is the discrepancy in the relative contribution of the subcomponents in the Eastern and Southeastern Anatolia regions. Even though the two regions are similar in terms of mean income figures and the shares of the three subcomponents in total income, non-labor income contributed one-fourth of total inequality in the southeast in 1994 as opposed to only 4% in the east. The corresponding figures for 2003 were about 20 and 10%. We attribute this result to the fact that in that region, non-labor income is received by a substantially smaller share of households, who also happen to be the ones with high labor incomes and imputed rents.

## 5. Discussion

The paper examined income distribution in the urban areas of Turkey making use of household level data from official surveys administered in 1994 and 2003. We started out by establishing the unambiguous –but quantitatively small– impact of socio-demographic factors on income inequality both within and between the geographical regions of Turkey. We further showed that the favorable

demographic developments were not instrumental in reducing inequality or closing the regional income gap over the studied period.

Turning our attention to economic factors, we argued that the decline in inequality during the period under examination could not be explained by an improvement in the earnings of low-income households either, since their real incomes (along with the incomes of other households) also declined. In the absence of deliberate income equalizing policies of the government, we attribute the reduction in the overall inequality and the narrowing of the regional gap to the changing macro-economic environment.

Although we were not able to formally test the conjecture that macroeconomic variables are the main sources of improvement observed in the overall and regional distributions, the changes in the shares of labor and non-labor income in total household income, their distribution and contribution to total inequality give support to the above conjecture. It seems that the high inflationary environment of the early 1990s benefited the households in the top quintile, who were able to enjoy high real rates of returns on financial assets, increasing the inequality in non-labor incomes and their contribution to total inequality.

The post-crisis period of 2001, on the other hand, pulled down inflation and real interest rates (though not necessarily the volatility of returns to financial assets) and in the process, seems to have adversely affected the non-wage incomes, in particular, of the top quintile. Hence, we argue that fluctuations in the returns to the financial investments of high-income households and their concentration in the Marmara region have led to a drop in the contribution of ‘non-labor income’ to inequality and to the reduction in regional inequality. The achievement of less than full recovery in 2003 also reflected itself in lower real labor incomes, but again the relatively bigger losses for the top quintile reflected on the income distribution favorably. It must be also noted that the urban unemployment rate in 2003 was only a single percentage point higher than the 2001 figure so that it probably did not have a significant impact on the income distribution.

One could argue that 1994 was an unusual year to study the structure of income distribution. However, even if we consider 2003 for this purpose, we would still arrive at the conclusion that non-labor income contributes quite significantly to both the income inequality and regional income disparity. Hence, one possible way of narrowing the regional gap and reducing overall inequality is by generating a



better distribution of non-labor income, which could be done through appropriate taxation.

### References

- BAŞLEVENT, C. and DAYIOĞLU, M. (2005), "The Effect of Squatter Housing on Income Distribution in Urban Turkey", *Urban Studies*, 42 (1), 31-45.
- BULIR, A. (2001), "Income Inequality: Does Inflation Matter?", *IMF Staff Papers*, 48 (1), 139- 59.
- CELASUN, M. (1986), "Income Distribution and Domestic Terms of Trade in Turkey 1978-1983" *METU Studies in Development*, 12(1-2), 193-216.
- DAYIOĞLU, M. and BAŞLEVENT, C. (2005), "Imputed Rents and Regional Income Inequality in Turkey: A Subgroup Decomposition of the Atkinson Index", *Regional Studies*, forthcoming.
- DOĞRUEL, F. and DOĞRUEL, A.S. (2003), "Türkiye'de Bölgesel Gelir Farklılıkları ve Büyüme" (Regional Income Disparity and Growth in Turkey) in *İktisat Üzerine Yazılar I, Küresel Düzem: Birikim, Devlet ve Sınıflar*, A.H. Köse, F. Şenses and E. Yeldan (eds.) Ankara: İletişim Yayınları.
- FIELDS, G. S. (1979), "Income Inequality in Urban Colombia: A Decomposition Analysis", *Review of Income and Wealth*, 25, 327-41.
- JENKINS, S. P. (1995), "Accounting for Inequality Trends: Decomposition Analyses for the UK, 1971-86", *Economica*, 62 (245), 29-63.
- (1999), "Analysis of Income Distributions", *Stata Technical Bulletin*, 48, 4-18. Reprinted in *Stata Technical Bulletin Reprints*, 8, 243-60.
- KARACA, O. (2004), "Türkiye'de Bölgesel Gelir Farklılıkları: Yakınsama Var Mı?" Turkish Economic Association, Discussion Paper 2004-7, <http://www.tek.org.tr>.
- KUZNETS, S. (1955), "Economic Growth and Income Inequality," *American Economic Review* 65, 1-28.
- ÖZBUDUN, E. and ULUSAN, A. (eds.) (1980), *The Political Economy of Income Distribution in Turkey*, New York: Holmes and Meier Publishers.
- SAREL, M. (1997), "How Macroeconomic Factors Affect Income Distribution: The Cross-Country Evidence", IMF Working Paper 97/152.
- SHORROCKS, A. F. (1982), "Inequality Decomposition by Factor Components", *Econometrica*, 50 (1), 193-211.
- SILBER, J. (1989), "Factor Components, Population Subgroups and the Computation of the Gini Index of Inequality", *Review of Economics and Statistics*, 71 (1), 107-115.
- SILBER, J. and ÖZMUCUR, S. (2000), "Decomposition of Income Inequality: Evidence from Turkey", *Topics in Middle Eastern and North African Economies, Electronic Journal, Vol. 2.*, Middle East Economic Association and Loyola University Chicago, September 2000. <http://www.sba.luc.edu/orgs/meea/>.
- SPO (2003), "İllerin ve Bölgelerin Sosyo-ekonomik Gelişmişlik Sıralaması Araştırması" (Research on the Socio-economic Development Rankings of Provinces and Regions), from the State Planning Organization Web site: [www.dpt.gov.tr](http://www.dpt.gov.tr).

- REED, D. and CANCIAN, M. (2001), “Sources of Inequality: Measuring the Contributions of Income Sources to Rising Family Income Inequality”, *Review of Income and Wealth*, 47 (3), 321-33.
- STATA Statistical Software: *Release 8.0*. College Station, TX: Stata Corporation.
- TÜSİAD (2000), *Türkiye’de Bireysel Gelir Dağılımı ve Yoksulluk* (Personal Distribution of Income and Poverty in Turkey), İstanbul: Lebib Publishing House.
- VOLSCHO, T. W. (2004), “Income Distribution in 14 OECD Nations, 1967-2000: Evidence from the Luxembourg Income Study”, Luxembourg Income Study Working Paper Series, no. 386.
- WORLD BANK (2000), *Turkey: Economic Reforms, Living Standard and Social Welfare Study*, Poverty Reduction and Economic Management Unit.
- YÜKSELER, Z. (2004), “1994, 2002, 2003 Yılları Hanehalkı Gelir ve Tüketim Harcamaları Anketleri: Anket Sonuçlarına Farklı bir Bakış” (1994, 2002, 2003 Household Income and Consumption Expenditures Survey: A Closer Look at Survey Results), Turkish Economic Association, Discussion Paper 2004-23, <http://www.tek.org.tr>.

## Appendix

**Table A1**  
Socio-Economic Indicators by Region

Region	GDP per capita (million TL's)	Share in GDP (%)	Population (millions)	Rate of population increase (/1000)	Total Fertility rate
Marmara	2,657	37.0	17.4	26.7	1.9
Aegean	2,130	15.3	8.9	16.3	2.2
Mediterranean	1,726	12.1	8.7	21.4	2.6
Central	1,820	17.0	11.6	15.8	2.5
Black Sea	1,396	9.5	8.4	3.7	2.4
Eastern	841	4.1	6.1	13.8	3.9
Southeastern	954	5.1	6.6	24.8	4.9
<i>All</i>	<i>1,837</i>	<i>100.0</i>	<i>67.8</i>	<i>18.8</i>	<i>2.5</i>

*Source:* SPO (2003).

*Note:* Annual rates of population increase, which are indicative of migration patterns, are for the 1990 – 2000 period. Other data relate to the year 2000.

**Table A2**  
Changes in Real Income (in percentages) over the 1994-2003 Period

<i>Income Source</i>	Bottom quintile	2 <sup>nd</sup> quintile	3 <sup>rd</sup> quintile	4 <sup>th</sup> quintile	Top quintile
Labor income	- 11.97	-6.23	-11.30	-11.67	-26.29
Non-labor income	-1.13	7.69	1.97	-9.63	-52.98
Imputed rent	2.62	-10.91	-11.58	-14.14	-14.14
<i>Total income</i>	<i>-9.52</i>	<i>-5.63</i>	<i>-7.57</i>	<i>-11.16</i>	<i>-37.49</i>

*Note:* The 2003 figures are deflated using SIS reported mid-year average CPI figure where 1994=100 and 2003=8330.4

### Özet

#### Türkiye’de bölgesel gelir eşitsizliği: Hane düzeyinde bir inceleme

Bu çalışmada Türkiye'deki bölgesel gelir eşitsizliği, 1994 ve 2003 yıllarına ait kentsel kesim mikro-verileri kullanılarak incelenmektedir. Çalışmanın ilk bölümünde hanelerin sosyo-ekonomik yapısı ile bölgesel gelir eşitsizliği arasındaki ilişki sınımlanmıştır. Ampirik bulgular beklentiler doğrultusundadır ve demografik yapının ve bağımlılık oranlarının bölgesel gelir eşitsizliğinde rol oynadığını ortaya koymuştur. Ancak çalışmanın genel bulguları makroekonomik değişkenlerin incelenen dönemdeki değişikliklerde daha belirleyici olduğunu yönündedir. Yapılan ayrıştırma analiziyle, toplam gelirin en bozuk dağılıma sahip "faaliyet-dışı gelir" bileşeninin bölgesel gelir eşitsizliğine en büyük katkıyı yaptığı sonucuna varılmıştır.