

## Decomposition of Income Inequality in Turkey

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**Abstract:** Providing income distribution and justice of income distribution is one of the important phenomena of countries. At the same time, knowledge about income distribution directly displays country's economic condition since inequalities in income distribution are indicators of general economic inequalities. In this study, income variations were studied by putting forward the functional structure of income distribution in Turkey. Income inequality was computed by using data of Budget Survey between 2002 and 2006 by TurkStat and decomposition within various groups was investigated. The results show that the difference in the levels of affluence between genders, years, levels of education and occupations was found to be quite high. No significant difference in the levels of affluence was observed between rural and urban areas.

**Key words:** Decomposition, Gini coefficient, income inequality

### INTRODUCTION

Studies on personal income distribution in the literature of economics concentrate on income distribution modeling and measurement of income inequality. The basic field of interest is to determine a theoretical statistical distribution suitable for personal income distribution and choose the brief inequality measurement that will best show the level of inequality from the given statistical distribution. The Italian economist Pareto performed studies on personal income distribution regardless of source of income and social class of households and found the Pareto distribution, used for income distribution modeling, in 1897 (Pen, 1971). Those theories and methods which were particularly pioneered by Simon Kuznets and have been developed with the contributions of Atkinson (1995) and Amartya Sen for the last fifty years have been headed for the measurement of personal distribution and the evaluation of different distributions by making them comparative.

Personal income distribution is utilized to determine income inequalities in a country at a specific time slot. Personal income distribution can be used to examine the development of income inequality in a country over time (Goodman *et al.*, 1997). Furthermore, personal income distribution is also utilized to compare the income inequalities in various countries and to measure how different economic systems implemented in different countries have an impact on income inequality (Atkinson, 1995). With surveys on personal income distribution, some two different goals may be targeted. One of them is to reveal the level of inequality of any income distribution at a specific moment, while the second one is to make

Table 1: Gini values of countries

Countries	2007	Countries	2007
Germany	0.283	Ireland	0.343
Austria	0.291	Spain	0.347
Belgium	0.330	Italy	0.360
France	0.327	Luxembourg	0.308
Denmark	0.247	Portugal	0.385
Finland	0.269	Greece	0.343
the Netherlands	0.309	Turkey	0.432
England	0.360		

Human Development Report (2009)

comparisons in terms of level of inequality among various income distributions. In order to see whether income inequality has improved or has been impaired in a country over time, income distributions in various years may be compared with each other. Expressing income inequality with a single figure facilitates the ranking of preferences among income distributions.

Table 1 presents the 2007 Gini values of Turkey and the member countries of the European Union (EU) that were obtained from the data of United Nations Human Development Report 2009. When these values are examined, it is observed that income distribution inequality is higher in Turkey than in the European countries. While the Gini coefficient values of the EU member countries ranged from 0.24 to 0.36, this value was found as 0.43 for Turkey. When Table 1 is examined, it is seen that Denmark is a country with the lowest income inequality, whereas Turkey is a country with the highest income inequality, followed by Portugal.

Income distribution inequality is a criterion that is the numerical representation of income differences among the individuals constituting the population and that is used for comparison. Various inequality indexes, such as Theil,

Gini and Atkinson, which are accepted and widely used in literature, are available to compute income inequality. Of them, the most widely used index is the Gini coefficient developed by the Italian statistician Corrado Gini. The Gini coefficient is widely used in surveys on income distribution. Developed by the Italian statistician Corrado Gini, the coefficient is computed considering the Lorenz curve in surveys on personal income distribution. The Gini coefficient expresses the level of inequality with a single figure, thereby providing the comparison of various income distributions. The coefficient is defined on the closed interval [0,1]. Zero denotes the case with no inequality. The Gini coefficient is scale independent and provides transfer principles. In addition, the coefficient can also be calculated by weighting it with a continuous variable (Doganoglu *et al.*, 2001).

Recently, it has not been satisfied only with the numerical determination of income inequality. Decomposition of the inequality coefficient within different groups has also been examined. By means of income inequality decomposition, inequality values between groups with different characteristics and within-group inequality values can be determined. In this way, it is possible to see the distribution of general inequality index in terms of the characteristic under examination. For instance, the impact of gender on income inequality index, i.e. the difference between female and male income inequalities, can be observed. Okamoto (2009) proposed a new type of decomposition by population subgroup for the Gini inequality index. The decomposition satisfies the completely identical distribution condition, whereby the between-group inequality is null if and only if the distribution within each subgroup is identical to all the others. Kaya and Senesen (2009) found that gender-based inequality in income distribution was more influential on wage-income distribution in studies of the Gini decomposition in Turkey. Furthermore, they showed that income inequality based on gender difference was stronger in the private sector than in the public sector. Gertel *et al.* (2008), examined the short-term impact of Argentina's Social Assistance Program, known as "Jefes y Jefas de Hogar", on income inequality through the decomposition of the Gini coefficient. Dumlu and Aydin (2008) tried various regression models to use for the calculation of the Gini coefficient. Van (2001) developed a new method to compute the Gini coefficient and divided the Gini coefficient into three in the calculation of inequality, namely structural effects, real inequality, and interactive effects. He applied his method in the rural areas of China and discussed the traps and difficulties he had encountered when computing income inequality that had taken place accordingly.

The aim of this study was investigating income inequality within and between subpopulation. For this purpose the Gini Coefficient and its decomposition were decided to be the appropriate methods.

## MATERIALS AND METHODS

This study was conducted in 2010. In the study, the pooled data of 2002-2006 were formed depending on the data of "Household Budget Survey" that began to be regularly performed as of 2002 by the TurkStat in Turkey. Household Budget Survey which was designed for the purpose of data collection on consumption expenditures and income distribution was conducted on households for the period 1 January - 31 December in each year. A data set was created that consisted of some 63,131 individuals who had any kinds of job in the household and earned an activity income (salary, wage, daily wage, and entrepreneurial incomes). The individuals will be examined by gender, education and vocational occupation group in urban and rural areas in Turkey in general.

**Method:** When those studies which have been performed to determine income distribution are considered, the studies by Dagum stand out. In his studies, Dagum aimed to determine the statistical structure in order to put forward the distribution and character of the income variable. The distribution function he developed was beneficial to the determination of the structure of income variable. The distribution has various types depending on the values the parameters take, and its special case expressed with Type I is addressed in this study:

In Dagum Type I income distribution function, X is the income variable and  $x > 0$ ,  $d > 1/b$ ,  $b > 0$ ,  $h > 0$ , and the distribution function of income variable is expressed as:

$$F(x) = \left[1 + hx^{(-d)}\right]^{(-b)} \quad (1)$$

whereas its probability density function is expressed as:

$$f(x) = \frac{[bdhx^{(-d-1)}]}{[1 + hx^{(-d)}]^{(b+1)}} \quad (2)$$

Parameters b and d are termed 'shape' parameters, while h is termed 'scale' parameter (Botargues and Petrecolli, 1977).

**Gini coefficient and Dagum's Gini decomposition:** The Gini coefficient is variously defined. The first one is its computation by means of the Lorenz curve: in the representation of the Lorenz curve drawn considering the 20% shares, it is defined as the proportion of the area between line of perfect equality and the Lorenz curve to the area of the triangle under the line of perfect equality.

The direct formula of the Gini coefficient that is used to compute income inequality is presented below:

$$G = \left| 1 - \sum_{k=1}^n (X_k - X_{k-1})(Y_k - Y_{k-1}) \right| \quad (3)$$

In the equation, X denotes the cumulative rate of population variable, whereas Y denotes the cumulative rate of income variable (Dumlu and Aydin, 2008). In econometrics, the Gini coefficient is used as a standard solution to measure income inequality among individuals and among houses (Haidich and Ioannidis, 2004). Let values  $y_i$  ( $i = 1, \dots, n$ ) be the income units of population P with size n. If population P is divided into k groups and, at the same time, if each group size is shown with  $n_j$  and their mean income is shown with  $\mu_j$  ( $j = 1, \dots, k$ ), then the Gini coefficient for P is calculated as follows (Mussard *et al.*, 2003):

$$G = \frac{\sum_{i=1}^n \sum_{r=1}^n |y_i - y_r|}{2n^2 \mu} \quad (4)$$

For subpopulations  $P_j$ , the Gini coefficient is computed as:

$$G_{jj} = \frac{\sum_{i=1}^{n_j} \sum_{r=1}^{n_j} |y_i - y_r|}{2n_j^2 \mu_j} \quad (5)$$

The Gini ratio between two subpopulations is computed by means of equation:

$$G_{jh} = \frac{\sum_{i=1}^{n_j} \sum_{r=1}^{n_h} |y_{ji} - y_{hr}|}{n_j n_h (\mu_j + \mu_h)} \quad (6)$$

With  $P_j$  denoting the j-th subpopulation share and  $s_j$  denoting the j-th subpopulation income share, the decomposition suggested by Dagum divides the Gini coefficient into three components (Gertel *et al.*, 2008):

$$p_j = \frac{n_j}{n} \quad s_j = \frac{n_j \mu_j}{n \mu} \quad (7)$$

$$G = G^w + G^{nb} + G^t \quad (8)$$

$G^w$  measures the contribution of the Gini inequality within subpopulations to the total Gini ratio G, while  $G^{nb}$  measures the net contribution of the extended Gini

inequality between subpopulations to the total Gini ratio G and they are calculated as follows:

$$G^w = \sum_{j=1}^k G_{jj} p_j s_j \quad (9)$$

$$G^{nb} = \sum_{j=2}^k \sum_{h=1}^{j-1} G_{jh} D_{jh} (p_j s_h + p_h s_j) \quad (10)$$

$G^t$  measures the intensity of the “transvariation” between subpopulations:

$$G^t = \sum_{j=2}^k \sum_{h=1}^{j-1} G_{jh} (1 - D_{jh}) (p_j s_h + p_h s_j) \quad (11)$$

$$G^{gb} = G^{nb} + G^t \quad (12)$$

The sum of  $G^{nb}$  and  $G^t$  measures the gross contribution of the extended Gini inequality between subpopulations to the total Gini ratio G. Thus, the Gini coefficient is:

$$G = G^w + G^{gb} \quad (13)$$

$D_{jh}$  in equations is the relative economic affluence between two subpopulations, and it is a coefficient that takes a value at interval [0,1]. The two groups under comparison take a value approximating 0 as they resemble each other in terms of income and a value approximating 1 as they differ in terms of income:

$$D_{jh} = \frac{(d_{jh} - p_{jh})}{(d_{jh} + p_{jh})} \quad (14)$$

where,  $d_{jh}$  denotes the gross economic affluence between the j-th and the h-th groups, while  $p_{jh}$  indicates the income difference between the j-th and the h-th groups (Dagum, 1997; Kaya and Senesen, 2009):

$$d_{jh} = \int_0^{\infty} dF_j(y) \int_0^y (y-x) dF_h(x) \quad \forall \mu_j > \mu_h \quad (15)$$

$$p_{jh} = \int_0^{\infty} dF_h(y) \int_0^y (y-x) dF_j(x) \quad \forall \mu_j > \mu_h$$

## RESULTS AND DISCUSSION

In the study, the pooled data of 2002-2006 were formed depending on the data of “Household Budget Survey” that began to be regularly performed as of 2002

by the TurkStat. A data set was created that consisted of some 63,131 individuals who had any kinds of job in the household and earned an activity income (salary, wage, daily wage, and entrepreneurial incomes). The individuals will be examined by gender, education and vocational occupation group in urban and rural areas in Turkey in general.

First, the distribution and probability density functions of the income variable of individuals are formed as follows:

$$F(x) = \left[ 1 + (1 + e^{23.45})x^{(-2.65)} \right]^{(-0.42)} \quad (16a)$$

$$f(x) = \frac{\left[ (1.113)(1 + e^{23.45})x^{(-3.65)} \right]}{\left[ 1 + (1 + e^{23.45})x^{(-2.65)} \right]^{(1.42)}} \quad (16b)$$

The probability density function of the distribution, the parameters of which have been computed, is given below in Fig. 1.

When income inequality is examined by year, the income inequality among the years constitutes 3/4 of the total inequality (Table 2). When the mean incomes by year are considered (Table 3), the mean of 2002 increased in 2004; however, a decline is observed in the mean income in 2005. At the same time, in Table 3, it is seen that the mean income began to increase again as of 2006. Income inequality decreased over years. The levels of economic affluence by year are compared in Table 4. No significant difference in the level of affluence is seen among the years. Nevertheless, the difference is observed to have a trend of increase. Table 5 demonstrates the variation of income shares of women and men within the total income over years. This share, which might be regarded as an indication of the participation of women in workforce, expressed that it showed no development from 2002 to 2006. Unfortunately, this demonstrates that a significant amount of the total income in Turkey is shared by men. When the decomposition of gender-based income inequality by year is observed, the part expressed with

$G^w$  yields the inequality of women and men within each other, whereas  $G^{gb}$  denotes the contribution of gender inequality to income inequality. Accordingly, the contribution of gender inequality to income inequality in 2002 was a significant percentage as  $(0.07+0.06)/0.51 = 25\%$ . The contribution concerned was found as 27, 29, 30 and 28% in 2003, 2004, 2005 and 2006, respectively. When income inequality coefficients for women and men are considered, it is seen that the inequality index is declining in both genders. From Table 5, it is understood that this decline is higher for men in particular. In addition, another indication of income inequality between women and men in Table 5 is that the difference in the levels of economic affluence calculated on the basis of gender between 2002 and 2006 is significant. In other

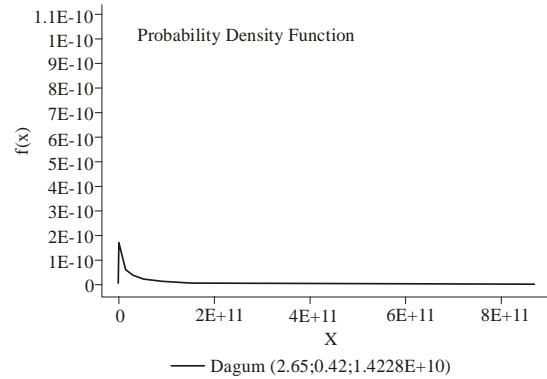


Fig. 1: Probability density function

Table 2: Gini decomposition of years

Years	$G^{gb}$			G
	$G^w$	$G^{nb}$	$G^t$	
	0.120810	0.030855	0.330235	0.481900

$G^w$ : Within-group component;  $G^{nb}$ : Net between-group component;  $G^t$ : Component of intensity of the transvariation between subpopulations;  $G^{gb}$ : Between-group component; G: Gini coefficient

Table 3: Mean incomes by year and their ratios to total income

Years	Mean income	Income rate	Gini coefficient
2002	5,183	0.15	0.51
2003	5,673	0.40	0.48
2004	6,197	0.15	0.48
2005	5,931	0.15	0.48
2006	6,128	0.16	0.47
All	5,771	1.00	0.48

words, the impact of inequality due to difference of gender on general inequality is quite great. The levels of affluence between rural and urban areas by year are examined in Table 6. According to the table, some increase is observed by year between the variations in economic affluence of rural and urban areas. It is seen that the difference in the level of affluence in 2002 increased more than twofold in 2004. According to the table, the rural section constitutes a significant amount of the total income, and it is seen that this rate did not change over years. From Table 6, it is observed that the mean incomes of both sections increased but the difference between them did not decrease. Table 7 yields the results of decomposition of income inequality in rural and urban areas by year. According to Table 7, the contribution of income inequality between rural and urban areas to total inequality was 25% in 2002, 42% in 2003 and 2004, and 43% in 2005 and 2006. This shows that the impact of the difference between rural and urban sections on total inequality increased over years. It was seen that while the inequality index declined in the rural section over years, inequality in the urban section declined by 2005 but increased again in 2006. When the mean incomes are examined in Table 8, the workers in jobs that do not require any qualifications have the lowest mean income. This vocational group is followed by service workers

Table 4: Gini coefficient and relative economic affluence by year

Years	Gini coefficient among years					Relative economic affluence				
	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006
2002	0.512					0.000				
2003	0.496	0.476				0.091	0.000			
2004	0.500	0.479	0.479			0.178	0.092	0.000		
2005	0.496	0.475	0.475	0.471		0.136	0.047	0.046	0.000	
2006	0.497	0.476	0.475	0.471	0.471	0.168	0.081	0.012	0.035	0.000

Table 5: Income inequality for women and men by year

Years	Decomposition of Gini coefficient									
	Share within income		G <sup>gb</sup>				Gini coefficient		Between-group Gini	Relative Economic Affluence
	Female	Male	G <sup>w</sup>	G <sup>nb</sup>	G <sup>t</sup>	G	Female	Male		
2002	0.10	0.90	0.38	0.07	0.06	0.51	0.56	0.50	0.561	0.547
2003	0.11	0.89	0.35	0.06	0.07	0.48	0.53	0.46	0.520	0.479
2004	0.12	0.88	0.34	0.07	0.07	0.48	0.54	0.46	0.527	0.482
2005	0.12	0.88	0.33	0.07	0.07	0.47	0.55	0.45	0.527	0.486
2006	0.11	0.89	0.34	0.07	0.06	0.47	0.53	0.45	0.525	0.546

Table 6: Variation in relative economic affluence between Rural and Urban Areas by year

Years	Share of income		Mean income			Relative economic affluence
	Rural	Urban	Rural	Urban	All	
2002	0.86	0.14	5,309	4,545	5,183	0.150
2003	0.73	0.27	5,986	4,972	5,673	0.191
2004	0.75	0.25	6,785	4,912	6,197	0.329
2005	0.75	0.25	6,502	4,714	5,931	0.330
2006	0.75	0.25	6,775	4,779	6,128	0.353

Table 7: Gini coefficient for rural and urban areas by year

Year	Decomposition of Gini coefficient						
	Gini coefficient		G <sup>gb</sup>				Between-group Gini
	Rural	Urban	G <sup>w</sup>	G <sup>nb</sup>	G <sup>t</sup>	G	
2002	0.51	0.52	0.38	0.02	0.11	0.51	0.518
2003	0.47	0.49	0.28	0.04	0.16	0.48	0.486
2004	0.47	0.48	0.28	0.07	0.13	0.48	0.487
2005	0.46	0.48	0.27	0.07	0.13	0.47	0.483
2006	0.45	0.49	0.27	0.07	0.13	0.47	0.489

Table 8: Mean incomes of vocational groups and their ratios to total income

Group no.	Mean income	Income rate	Gini coefficient
1: Legislators, senior officials and managers	12,322	0.24	0.47
2:Professionals	9,650	0.11	0.34
3:Technicians and associate professionals	7,463	0.07	0.41
4:Clerks	5,594	0.06	0.34
5:Service workers and shop and market sales workers	4,095	0.08	0.41
6:Skilled workers in agriculture, animal husbandry, hunting and fishery products	4,747	0.13	0.51
7:Craftsmen and workers in related jobs	4,329	0.14	0.43
8: Plant and machine operators and assemblers	5,268	0.10	0.36
9: Workers in jobs that do not require any qualifications	2,896	0.07	0.43
All	5,771	1	0.48

and shop and market sales workers. The highest mean income is owned by legislators, senior officials and managers and constitutes 24% of the total income. In other words, 1/4 of the total income is shared by legislators, senior officials and managers. Clerks get the lowest share from the income. When income inequalities are examined by occupational group, it is seen that inequality among workers in the agricultural field is higher. On the other hand, inequality among legislators,

Table 9: Gini decomposition for vocational groups

Vocation	G <sup>gb</sup>			
	G <sup>w</sup>	G <sup>nb</sup>	G <sup>t</sup>	G
	0.05	0.24	0.19	0.48

senior officials and managers is another striking result. When Table 10 is considered, the contribution of income inequality of occupation groups within each other to the total income inequality is very scarce, while the

Table 10: Level of relative economic affluence for vocational groups

	G1	G2	G3	G4	G5	G6	G7	G8	G9
G1	0.000								
G2	0.285	0.000							
G3	0.515	0.330	0.000						
G4	0.758	0.682	0.368	0.000					
G5	0.864	0.832	0.632	0.392	0.000				
G6	0.756	0.670	0.450	0.184	0.157	0.000			
G7	0.834	0.785	0.575	0.319	0.066	0.097	0.000		
G8	0.776	0.704	0.424	0.085	0.318	0.116	0.245	0.000	
G9	0.940	0.931	0.823	0.697	0.393	0.482	0.442	0.652	0.000

Group No 1: Legislators, senior officials and managers, 2: Professionals, 3: Technicians and associate professionals, 4: Clerks, 5: Service workers and shop and market sales workers, 6: Skilled workers in agriculture, animal husbandry, hunting, forestry and fishery products, 7: Craftsmen and workers in related jobs, 8: Plant and machine operators and assemblers, 9: Workers in jobs that do not require any qualifications

Table 11: Gini coefficient among vocational groups

	G1	G2	G3	G4	G5	G6	G7	G8	G9
G1	0.474								
G2	0.426	0.340							
G3	0.477	0.388	0.409						
G4	0.496	0.390	0.389	0.340					
G5	0.580	0.486	0.461	0.394	0.409				
G6	0.587	0.508	0.494	0.446	0.469	0.514			
G7	0.576	0.485	0.463	0.400	0.419	0.475	0.426		
G8	0.517	0.417	0.407	0.352	0.394	0.448	0.400	0.358	
G9	0.659	0.578	0.536	0.456	0.436	0.502	0.448	0.445	0.427

Group No 1: Legislators, senior officials and managers; 2: Professionals; 3: Technicians and associate professionals; 4: Clerks; 5: Service workers and shop and market sales workers; 6: Skilled workers in agriculture, animal husbandry, hunting, forestry and fishery products; 7: Craftsmen and workers in related jobs; 8: Plant and machine operators and assemblers, 9: Workers in jobs that do not require any qualifications

contribution of inequality between different occupation is extremely high (0.43/0.48 = 90%). Variations in the level of economic affluence by occupation group are given in Table 9 and 10. It is seen that the levels of affluence of the workers in jobs that do not require any qualifications are different from those of the workers in other occupation groups. When the levels of affluence of workers in agricultural field are considered, it is seen that the greatest difference is in legislators, senior officials and managers. When the Gini coefficient among occupation groups is considered, it is observed that the income inequalities of workers in jobs that do not require any qualifications and of individuals in other occupation are high (Table 11). When income by educational subpopulations is examined in Table 12, it is observed that the mean incomes of individuals, who received university education and higher, are high as expected. When the total income is distributed depending on education, it is determined that the largest slice consists of primary school graduates. At the same time, from Table 12, it is seen that there is income inequality for all levels of education. When the levels of relative economic affluence of educational groups are considered in Table 13, it is seen that difference of income increases with increasing level of education. The contribution of difference in education to income inequality is  $G^{sb} = 0.363$  (Table 14) and constitutes around 76% of the total inequality. When Table 15, including the coefficients of income inequality among educational groups, is

Table 12: Mean incomes of educational groups and their ratios to total income

Educational groups	Mean income	Income rate	Gini coefficient
1	2,591	0.019	0.486
2	3,240	0.023	0.511
3	4,882	0.382	0.464
4	5,010	0.114	0.475
5	6,490	0.243	0.441
6	7,674	0.042	0.353
7	11,786	0.178	0.399
General	5,771	1	0.481

Group No 1: Illiterate, 2: Literate but completed no school, 3: Primary school graduate, 4: Junior high school graduate, 5: High school graduate, 6: Vocational school graduate, 7: Graduate of university and higher

examined, it is seen that the Gini coefficients are generally high. Therefore, it might be stated that there is income inequality among those individuals who received different levels of education.

Table 16 presents unweighted Gini coefficients by year, while Table 17 gives the Gini coefficients weighted with the continuous variable of education by year. As a result of weighting carried out for Turkey in general, a very small decrease is observed in the Gini coefficient. When 2002-2006 periods are examined, it is observed that inequality tended to decline in 2006. It is observed that the change in the rural area reflected Turkey in general when considered without weighting, whereas the urban area reflected Turkey in general in the event of weighting. When the results of rural area are examined, it is observed that in both cases, income inequality was higher than that

Table 13: Relative economic affluence level of educational groups

	G1	G2	G3	G4	G5	G6	G7
G1	0.000						
G2	0.220	0.000					
G3	0.587	0.399	0.000				
G4	0.596	0.415	0.028	0.000			
G5	0.760	0.623	0.304	0.276	0.000		
G6	0.853	0.748	0.491	0.466	0.205	0.000	
G7	0.944	0.895	0.772	0.760	0.616	0.524	0.000

Group No 1: illiterate, 2: Literate but completed no school, 3: Primary school graduate, 4: Junior high school graduate, 5: High school graduate, 6: Vocational school graduate, 7: Graduate of university and higher

Table 14: Gini decomposition for educational groups

	G <sup>gb</sup>			G
	G <sup>w</sup>	G <sup>nb</sup>	G <sup>t</sup>	
When considered for education	0.117	0.166	0.197	0.481

difference in the levels of affluence between genders was found to be quite high. A significant amount of the total income originated from the rural area. No significant difference in the levels of affluence was observed between rural and urban areas. However, it was

Table 15: Gini coefficient among educational groups

	G1	G2	G3	G4	G5	G6	G7
G1	0.486						
G2	0.505	0.511					
G3	0.522	0.507	0.464				
G4	0.534	0.517	0.469	0.475			
G5	0.564	0.536	0.466	0.467	0.441		
G6	0.580	0.543	0.453	0.451	0.407	0.353	
G7	0.677	0.636	0.538	0.531	0.470	0.403	0.399

Group No 1: illiterate, 2: Literate but completed no school, 3: Primary school graduate, 4: Junior high school graduate, 5: High school graduate, 6: Vocational school graduate, 7: Graduate of university and higher

Table 16: Unweighted Gini coefficients

	2002 - 2006	2002	2003	2004	2005	2006
Turkey in general	0.482	0.512	0.476	0.479	0.471	0.471
Urban	0.475	0.477	0.479	0.475	0.476	0.477
Rural	0.493	0.498	0.481	0.492	0.489	0.487

Table 17: Gini Coefficients Weighted with the Continuous Variable of Education

	2002 - 2006	2002	2003	2004	2005	2006
Turkey in general	0.471	0.501	0.469	0.468	0.458	0.455
Urban	0.464	0.501	0.457	0.458	0.451	0.44
Rural	0.487	0.493	0.5	0.465	0.46	0.482

of the urban area. When income inequality is examined by year, it is observed that as a result of weighting with the education variable, income inequality was lower than the results obtained without weighting.

### CONCLUSION

In this study, in which income inequality was examined, it was seen that between 2002 and 2006, the annual mean income increased and, at the same time, the inequality in income distribution decreased in Turkey. This study is the first study that is investigating the income inequality in Turkey by using the pooled data. However, income variation wasn't analyzed at the household level since the data set were not panel data. In addition, no significant improvement in the level of economic affluence over years was sustained. From the share women obtained from income, it was clearly observed in the study that the participation of women in labour in Turkey was rather low. Furthermore, the

determined that this difference increased over years. As a result of decomposition based on occupation groups, the incomes of legislators, senior officials and managers constitute one-fourth of the total income. Another result of the study is that the difference in income among the occupation groups was significant. The fact that a large amount of total income is composed of primary school graduates supports the results found as regards the rural area. In addition, differences occur in the level of affluence depending on an increase in the level of education. In the last section of the study, the Gini coefficient was weighted by the continuous variable of education. As a result of weighting, it was seen that the Gini coefficient yielded lower results than its results obtained without weighting. That is to say, difference of educational status has a major impact on income inequality. As income inequality is seen to be at significant dimensions in various variables, important tasks fall to policymakers. Even if at long term, it is required to enhance the level of education, to make

investments in order to eliminate difference between urban and rural areas and to generate employment-enhancing policies nationwide.

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