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## Income Distribution in Rural Areas of Turkey: A Case Study in Adana Province

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**Abstract:** In the present study, we have focused on income distribution in rural areas in Adana Province of Turkey. According to the research, the richest 20% of households receive 58.47% of the total income, while the poorest twenty percent receive 3.21% of total income earned in rural areas of Adana province. A Gini coefficient for the region is 0.539. Income distribution in the region is getting worse. The main reason for this is that, a 6.4% reduction in GNP in 1999.

**Key words:** Turkey, Adana Province, rural area, income distribution, Gini coefficient

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### INTRODUCTION

An importance of production factors has been increased due to improvement in social and technical division of labour with the economic developments. As a result of this, total and per capita productions with national income value addition have increased.

National income is calculated by adding the money value of total flow of goods and services produced in an economy over a specific time<sup>[1]</sup>. In other words, national income is a money value of wages and salaries, profit, interest and rent unearned incomes which are obtained from work, enterprises, capital and land. Division of total national income among households in the economy is called income distribution.

Analyzing of percentages is one of the main measurements used in income distribution. Household percentages are compared with income percentages of each percentage group by dividing households to 100 groups as 1% or 20 groups as 5% or 10 groups as 10% or 5 groups as 20%. For example, when the households dividing into 5 groups as 20% (quintiles) income share of each group will be equal, i.e. income share of each 20% household group will be 20%. Furthermore, it is enabling to compare between the countries by quintiles. For example, it can be compared that shares of the first 1, 5 or 10% into total income.

The common income distribution characteristic of almost all economics is that a highest proportion of households falling within the lowest, while a very small proportion of households fall within the highest income

percentage group. This feature remains remarkably stable over the time, the main changes being a general upward shift in the whole distribution rather than a greater compression of it.

Economic indicators showed that, the poverty in Turkey is getting increased during 1999. Just as, the additional income share of each group was not equal in developing terms, the burden of poverty is not hared equally by income groups. In any event, losses of majority people, who are at their life continuation frontier is much more than losses of the richest minority people. Income distribution inequity does not effective merely while the economy is getting better off, it is also effective while it is getting worst.

Thus, it is to be able to put cost of economic shrink to Turkey clearly, comparison of GNP with other countries performance and the deepness income precipice in the country should be exposed<sup>[2]</sup>.

According to the World Bank Development Report<sup>[3]</sup> based on differences between national income with in 133 countries, Turkey has taken place among the last 25 countries having the worst income distribution. Even in some African countries such as Tanzania, Uganda and Rwanda income is distributed well than in Turkey.

In the study made in Fiji<sup>[4]</sup> pointed that, income distribution varies with geographic differences, ethnic groups and economic activities. Average household incomes in Rewa are more than in Lau, where more people are involved in agriculture work, which pays less. Rewa owes its prosperity to its closeness to Suva, because there is much more business and economic activity in the

city and people living nearby have better opportunities to get better -paying work. It is also pointed at that income differences within each of the major ethnic groups are more significant than between ethnic groups.

In addition, the study made in USA showed that taxes had negative effects on income distribution. Specifically, this study shows that the imposition of carbon taxes sufficient to stabilise emissions at 1990 levels by 2010 would reduce the growth of US per capita income (a reasonable proxy for real wage growth) by about five percent per year. Analysis shows that carbon taxes, cause relatively large losses in the poorest quintile (lowest one-fifth of the population). These losses, added to modest losses in the middle quintiles, underwrite gains for the richest fifth of the population<sup>[5]</sup>.

Under the light of this brief information, income distribution of rural areas in Adana Province in Turkey was proposed as a case study here.

First of all, income distribution surveys in Turkey for various years have been investigated and then using by primary data, questioners, income distribution of Adana Province exposed.

**MATERIALS AND METHODS**

In this research, 9 villages from Seyhan and Yuregir districts of Adana were selected and the original data (questionnaire) gathered by interview with 468 farmers from these villages. The numbers of questioners are measured by cluster sampling method. Three questionnaire eliminated. Seyhan and Yuregir districts present the 34% of rural population and 61.5% of GNP of Adana. As the survey has been done in April, 1999, current prices of the time was used (1\$=379.600 TL). In addition, income distribution surveys made by SIS and other secondary data have been used. Data have been analysed on the Questionnaire Evaluation Program version 2.1 and MS Exel 2000.

In this research, Gini coefficient, 20% income groups and Lorenz curve criteria were analysed. Below formulation was used to estimate Gini coefficient.

$$G = 2 / (n^2 * \bar{Y}) * \left( \frac{y_1 + 2y_2 + 3y_3 + \dots + ny_n}{n} \right) - (n+1)/n$$

y1: smallest income, y2 the next and so on up to person n.  
n: observations Y.

**INCOME DISTRIBUTION IN TURKEY**

The first income distribution survey has been conducted by The State Planning Organisation in 1963. In the survey, total household's incomes earned in 1963 have been classified according to the greatness without making any social groups and income types discrimination.

Table 1: Income distribution of Turkey in respect of geographic differences (%)

Income groups	Years					
	1987			1994		
	General	Urban	Rural	General	Urban	Rural
20%	5.2	5.4	5.2	4.9	4.8	5.6
20%	9.6	9.3	10.0	8.6	8.2	10.1
20%	14.1	13.6	14.9	12.6	11.9	14.8
20%	21.2	20.7	21.9	19.0	17.9	21.8
20%	49.9	50.9	47.8	54.9	57.2	47.7
Gini Coefficient	00.437	00.444	00.417	0.492	00.515	00.414

Source: <sup>[6-8]</sup>

It is also the first comprehensive study about income distribution as it comprises knowledge gathered from the number of varies sources. Other income distribution surveys are conducted in 1968, 1973, 1978, 1983, 1987 and 1994. Total income in Turkey, whether in urban areas or in rural areas, are unjustedly distributed between households.

However, although, households obtain less income in rural areas than those in urban areas, it is distributed between households living in rural areas better than those in urban areas<sup>[6]</sup>. The fact that although most significant money, the bulk of the national income, is made in the urban areas, people with few skills or little education generally have a worse life in town.

While the income distribution in urban areas getting worse from 1987 up to 1994, it is not significant differences in income distribution of peasant households has been determined (Table 1).

GDP in the first half of 1999 decreased a 5.0% due to the negative effects of Far East and Russian Crisis at the beginning of the 1999 year and a narrow in domestic production and demand as a result of the instability in the country because of general election decision in the second half of 1998.

In the same period, since the Net Foreign Factor Incomes is decreased by 31.3%, reel GNP was decreased by 5.8%. Decreasing in added values of agricultural and service sectors were 5.5%, while those in industrial sector was 3.9%. In addition, one of the biggest disasters Turkey has ever seen in 20th century, Golf Earthquake, has effective in the most significant region regarding to either population or economic activities in August, 1999. Seven provinces are included by the region and total GDP and added value of industry share of those provinces are 34.7 and 46.7%, respectively. Thus, it was predicted that, the earthquake effects on the growth would be negative 1% point<sup>[9]</sup>.

**RESULTS AND DISCUSSION**

Adana is the one of the number of provinces which has the worse income distribution in Turkey. It is taken 6th place within the biggest provinces with

**Table 2: Area assets according to income groups**

Income groups (million TL/person/year)	Average income		Average area size (da)	Income/area (per da)		Farmers	
	million TL	\$		million TL	\$	Number	%
0-250	158.3	417.0	29.4	5.4	14.2	139	29.9
251-500	380.7	1002.9	54.7	7.0	18.4	132	28.4
501-750	651.0	1715.0	84.9	7.7	20.3	54	11.7
751-1500	1077.4	2838.3	164.4	6.6	17.4	82	17.6
1501-3000	1980.3	5216.8	169.4	12.0	31.6	36	7.7
3001- +	4362.7	11492.9	325.3	13.4	35.3	22	4.7
Average	780.7	2056.6	91.6	8.5	22.4	465	100.00

**Table 3: Agricultural firms according to area sizes**

Area sizes	Average area sizes (da)	Number of firms	
		Number	%
0-100	36,2	341	29.0
101-250	167,3	99	38.9
251-500	339,5	19	15.1
501- +	1209,5	6	17.0
Total	91,7	465	100.0

1.689.115 amount of its population. Three-fourths of population is living in towns and the other fourth in rural areas.

The survey in 1994 showed that, the poorest 20% receive 4.12% of total income while the research, the richest 20 percent of households receive 64.5% of the total income earned in the city centre<sup>[10]</sup>. In other words, the richest group gets the 15.6 times more than the first poorest income group. In this survey, the richest 20 percent of households receive 58.5% of the total income, while the poorest 20 percent receive 3.21% of total income earned in rural areas of Adana province. The differences between this two income groups is 18.2 times. So, income distribution in the rural areas is worse than those in urban areas of Adana province.

**Population:** The result indicates that, 465 observed firms were determined average 4.6 persons in the farms. The proportion of the women and man is 47.6 and 52.5%, respectively. In this study was found average 2.4 men and average 2.2 women in the agricultural enterprisers.

Approximately 41% of the household in the investigated farm enterprisers is about 15-49 aged, 21% of them is 50 aged and over, 20% of them is 7-14 aged, 19% of them is 6 aged and the others include lower age group.

**Education:** There was approximately 51% reader and writer (without school) and persons that have primary school diploma. In this study, there was no uneducated household person. The percentage of person who graduate from university is higher in comparison with the other rural income studies.

**Land assets:** The information about area asset in the firms was shown in Table 2 and 3. Average area sizes of observed firms is 91.7 da and average annual income per

capita is 780.7 million TL(2.057\$). Average area asset of the firms are 62.1% watery area and 37.7% dry area. Firm's area was operated about 49% ownership, 10.6% shareholder and 40% rent.

According to Table 2, an important part of observed firms as 29.9%, which have less than 250 million TL per capita income, while the average income is 158.3 million TL(417 \$). The percentage of firms that have income between 251 and 500 million TL is 28.4% and average income is 380.7 million TL(1003 \$). Area sizes, are 29.4 and 54.7, respectively. The following group is about 17.6% of the observed firms is between 751 and 1500 million TL incomes.

The percentage of firms which have more than 3 billion TL income is only 4.7%. From the Table 2, it can be seen that, farmers' income is increasing with the farm size. For example, as firm sizes, which have 0-250 da, acquire 5,394.000 TL/da (14.2 \$/da), these value firms, which have more than 3000 da is 13,410.000 TL/da (35.3 \$/da). The overall annual average income per da is about 8,518.000 TL(22.4 \$).

This may be conclude to the insufficient or wrong agricultural policy which allows to large size farms to take the most of the agricultural supports thus more intensive agricultural production.

In the Table 3, firms were grouped according to area sizes. As can be seen from the Table 3, 29% of these firms have less than 100 da area, 38.9% of these has about 101-250 da, 15.1% of these has about 251-500 da and 17% of these has over 500 da. Average area size is 91.7 da.

Whit regard to income source, about 74.3% of farmers' incomes acquire from agricultural activity, while the rest of income (25.7%) acquire from the other activities out of agricultural.

**Income distribution:** In this study, Percent Shares, Gini Coefficient and Lorenz Curve criterions were used to determine the differences between income groups.

**Lorenz curve:** The Lorenz Curve Criterion is the most frequently used graphical technique to depict and analyse the size distribution of income<sup>[11,12]</sup>. It is the relationship between the cumulative proportion of income units and the cumulative proportion of income received when the units are arranged in ascending order of their income. The

Table 4: Income Distribution in Rural Areas of Adana Province in 1999

Income groups	Share of total income			Cumulativevalue(%)
	(1.000 TL)	\$*	%	
1.%20	11,643.63	306,7	3.21	3.21
2.%20	24,278.91	639,6	6.69	9.90
3.%20	40,801.81	1,074.9	11.24	21.13
4.%20	74,041.74	1,950.5	20.40	41.53
5.%20	212,259.30	5,591.7	58.47	100.00
Total	363,025.38	9,563.4	100.00	100.00
Gini Coefficient			0.539	

\*April, 1999; 1\$=379.600 TL

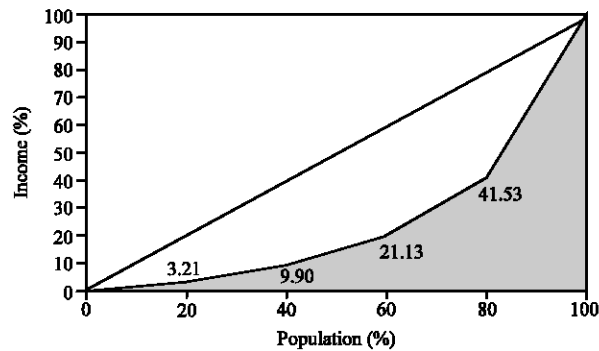


Fig. 1: Lorenz curve for Adana province

45° line is called the egalitarian line. If a country had an equal income distribution, the Lorenz Curve could be the egalitarian line. That is, any 10% of the households would get 10% of the income; and 20% would get 20% of the income and so on. The greater the concavity of the Lorenz curve, the greater the inequality (Table 4). In the Fig. 1, all population showed in horizontal line and vertical line represents total personal income. As can be seen from the Fig. 1, the area between Lorenz Curve and diagonal is quite large. In other words, the degree of inequality in income distribution of the region is very high.

**Gini coefficient:** The Gini index<sup>[13]</sup> is the most widely used measure to analyse the size distribution of income and wealth. The Gini coefficient is the ratio of the difference between the line of absolute equality (the diagonal) and the Lorenz curve to the triangular region underneath the diagonal. The Gini index lies in the range of "0" to "1". As this value rises, the inequality in income distribution increases, or vice-versa. It can be shown that the Gini index is equal to one minus twice the area under the Lorenz curve<sup>[14]</sup>.

In this survey, income distribution merely in rural areas of Adana province has been investigated. Calculated Gini coefficient for this area is 0.539 (Table 4).

If we compare the Gini coefficients 1999 to the preceding surveys, 1987 and 1994, it can be said that, income distribution inequality in rural areas of Adana

Province has been gradually increasing. The main reason for this is that, a 6.4% reduction in GNP in 1999.

**Percentages:** Analyzing of percentages is one of the measurements used in personal income distribution and is the most certain one. That is specifically used in international comparison.

Households divided into equal groups, such as, 20, 10, 5 and 1%. Then, household percentages with income share of each group were compared.

In this survey, households divided into 5 income groups as 20%. According to the Table 4, the richest 20 percent of households receive 58.5% of the total income, while the poorest 20 percent receive 3.21% of total income earned in rural areas of Adana province. The differences between this two income groups is step by step increasing up to 18.2 times. This difference in the developed countries is about 7-8 times. So, degrees of income distribution inequality in the rural areas are more than those in urban areas of Adana province.

### CONCLUSION AND SUGGESTIONS

This study showed that, inequality in income distribution of the region is gradually rising. The lowest and highest personal annual income in investigated farm enterprises are 33,3 million TL and 7,500.0 million TL. Average annual income is 780,7 million TL (2056,6\$). As an overall average, 75% of income generated from agricultural and 25% from other activities.

Calculated Gini Coefficient for the region is 0.539. Differences between the poorest income group and the richest group is increased from 15.6 times in 1994 up to 18.2 times in 1999. Economic crises and natural disasters are effective on Adana Province as much as it was on Turkish economics.

Price policy applications in Turkey is another basic reason effective on the increase in inequality of income distribution in agricultural sector. Small size farm enterprises could not benefit from the government price support. The reason for this is that, they are marketing only a small part of their products as they consume the most of them. Moreover, large size farm holdings have less production costs due to scale economics. High crop price determination enhances inflation and small-size farms are damaged more than largest farms. Therefore, price policy followed leads to increase the gap between small and big size farmers income.

Especially, increasing employment capacity and decreasing inflation rate which is like a riches tax are the other elements could be used to correct income distribution inequality.

These are some suggestions to decrease this deformity in the income distribution, such as:

- Efforts to improve social security should be accelerated,
- To be able to decrease unemployment, excessive labour force from agriculture should be moved to other sectors,
- Studies to increase agricultural productivity should be accelerated,
- To ensure more benefits to the farmers in the region from the agricultural credits,
- It should not be forgotten that, added taxes has negative effects on income distribution,
- In addition, a stable growth and development in Turkish economy is effective to be able to ensure social justice and to decrease in inequality in income distribution.

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