Impact of Agricultural Policy Reform on Regional Rural Poverty in Turkey

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Abstract

The direct income support policy, by which producer price subsidies in agriculture were replaced, targeted to mitigate potential short-term adverse impacts of the subsidy removal, besides to facilitate the transition to efficient production patterns. The main objective in this study is to analyze the impact of this policy on rural poverty. Intra-regional differentiation of the factors that affect rural poverty is given a particular emphasis. The model predicts that the direct income support policy has an insignificant impact on rural poverty gap. We also conclude that the main result does not change for different agricultural regions.

1 Introduction

In Turkey, accordingly with the disinflation policy embarked in early-2000, an agriculture policy reform was also in place to achieve the goal of fiscal stabilization program. Structural reforms addressing the elimination of producer price subsidies in agriculture and replacing them with a targeted direct income transfer program within limited time frame were introduced. It was aimed by the direct income support policy to mitigate potential short-term adverse impacts of subsidy removal and at the same time to facilitate the transition to efficient production patterns. If the agricultural policy reform, which targeted to eliminate income instability, did really achieve what was expected from this policy, then there should have been a positive impact on income distribution and a decline in number of people, who were living below poverty line. Therefore, the main objective in this paper is to analyze the impact of agricultural reform on rural poverty. Intra-regional differentiation of the factors that affect rural poverty is given a particular emphasis such that these factors are investigated whether to differentiate between various agricultural regions.

In the first part of the study a poverty analysis is conducted. The quantitative household survey data is used in the analysis. Firstly, the daily calorie-need of an adult is determined in a "monetary approach" setting.[1] And then, costs of food and non-food basic requirements of an adult and of each household are calculated for the selected regions of Turkey. Regional rural poverty lines are established based on the information gathered above. Each household's welfare level is compared with regional and nationwide poverty lines to figure out who lives in poverty and in food-poverty in rural areas of Turkey. In the second part, an econometric analysis is carried out to explore the determinants of rural poverty in these specific rural areas. By using the cross-section econometrics, rural poverty gap indices are estimated based on the education status, demographic structure, work status, source of income, income level of the households, and on agricultural input use and agricultural structure, as well. Searching for divergences between regions in terms of the factors that affect rural poverty and divergences among factors in terms of their influences on different poverty levels are given particular emphases. Finally, besides micro indicators, impacts of macroeconomic indicators are examined for better understanding of the factors behind rural poverty.

The paper is organized as follows: regional and nationwide rural food-poverty levels are determined in the next section. In section three, poverty lines are established. In section four, econometric analyses are achieved. Finally, it is concluded in section five.

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[1] See Ravallion (1992; 1998), Laderchi *et al.* (2003), Asra and Francisco (2001), Bidani *et al.* (2001) and World Bank (2005).

2 The Model: Regional, Rural, Food-Poverty Lines

The micro-level data used in the analyses is obtained from the World Bank coordinated project completed recently.[2,3] It consists of social, economic and demographic information covering 5507 rural households chosen in 500 villages with population less than 2000 (about 11 households per village).[4] These villages/households are chosen such that they are involved intensively with the production of 8 major and traditional agricultural products: wheat, tea, hazelnuts, maize, cotton, sugar beet, olives and tobacco. As the collected data belongs to rural areas with population less than 2000, these households are presumed to reflect the rural people, whose source of income is mainly agricultural sector. Therefore, by using this data, regional and nationwide, rural food-poverty lines, as well as food-poverty ratios are determined in 4 steps.

2.1 Daily calorie requirement for an adult

The "required calorie" approach is used to calculate food-poverty lines in the rural areas. This approach calculates the daily calorie-intake required for an adult (Baysal, 1991). Baysal (1991) calculates the daily calorie required for labor force and differentiates the calorie-requirement by gender and age groups. In this study, working age groups are the focus.[5] For each age group, the required calorie-intake is calculated as the average calorie requirement of males and females. An adult's daily calorie-requirement is determined by taking the average of various age groups' calorie needs. Based on this methodology, an adult's daily calorie requirement is calculated as 2450 units.

2.2 Food equivalent of the required calorie

The food equivalent of the calculated daily calorie-requirement is determined according to the food-basket prepared previously by Dumanlı (1996). Dumanlı has prepared the food-basket that provides the daily calorie-intake required for one labor. In Dumanlı's work, the amount of daily required calorie is 3500 units due to his focus group being heavy-working labor. Therefore, the amounts of specific food items appeared in this basket is multiplied by 0.7, and the consumption amounts (in grams) are adjusted as to provide 2450 calories per day.

2.3 Monetary value of the required calorie: Food-poverty lines

The next step is to find the monetary value of the required calorie in each region. Consumer prices of food items included in the basket are used to calculate the monetary value. Household based food-price data is obtained from the household survey. By using this data, average price paid per gram of each food is calculated for all selected regions, and for the country as well. Each region's own average prices are considered, while calculating separately the value of food-basket in each selected region. Furthermore, average prices obtained from the whole sample are used to calculate the country-level monetary value of the basket. Region-level monetary values of the basket providing the aforementioned daily calorie required for an adult are defined as the region-level food-poverty lines. Similarly, the country-level monetary value of the basket is defined as the nationwide food-poverty line. It is worth mentioning that these food-poverty lines are defined as daily bases. Therefore, daily food-poverty lines are multiplied by 30 as to give monthly food-poverty lines. Summary of statistics is presented in Table 1.

2.4 Food-poverty ratios

Food-poverty ratios are determined by comparing households' welfare levels with food-poverty lines. In the existing literature, either households' income levels or their level of expenditures is taken into account to proxy households' welfare. Households' food and beverage expenditures are considered, in this regard.[6] Alternatively, food poverty lines could be com-

[2] ARIP (Agricultural Reform Implementation Project) by Undersecretary of the Treasury, Turkey and World Bank, 2003-2006.

[3] Raw data is checked for inconsistencies and outliers. Statistically insignificant households are excluded. Inconsistent data in terms of economics are excluded, as well.

[4] The questionnaire used in collecting the data was applied both in 2002 and 2004 and about 3300 households were common in both years. However, only 2004 results are used in this research.

[5] Working age groups consist of people who are between 12 and 50 years old.

[6] We believe that households' expenditures are more appropriate measures of welfare than their income levels, as non-agricultural income data is not reliable in rural areas (Ravallian, 1992; WB, 2000; May, 2001; Coudouel et al. 2002). Furthermore, income has an effect on realized levels of consumption, however consumption depends entirely on the availability and attainability of goods and services. Therefore, as Senses (2003) states that the main concern of poverty measurement is consumption other than income, since poverty measurement is supposed to target the coverage of basic needs, which is in

pared with households' total expenditures. However, if this was the case, households who were above the food poverty line with respect to their total expenditures could still be below this line, when their food and beverage expenditures were considered. Therefore, instead of the total expenditures, the expenditures on food and beverages are compared with the food-poverty lines in order not to underestimate food-poverty ratios. It is worth mentioning that food poverty lines are calculated for one person. Hence, food-poverty lines have to be converted into their household equivalents. For this reason, the "adult equivalent scale" is taken into account to calculate the adult equivalents of people of various ages in households.[7] Households' monthly required expenditures are divided by adult equivalent number of people in each household, and hence per adult food and beverage expenditures are calculated. In Table 1, the regional and nationwide monthly food-poverty lines, and ratios of people under these lines are presented.

	F-P Line(TL)	F-P Ratio(%)
Turkey	56.323.530	4,85
Region 1	55.613.472	7,07
Region 2	56.853.403	5,35
Region 3	67.859.465	6,45
Region 4	50.700.538	2,77
Region 5	54.550.502	4,40
Region 6	48.355.888	3,55
Region 7	61.126.708	3,33
Region 8	49.703.058	2,13
Region 9	56.885.421	4,84

Table 1: Rural Food Poverty (F-P) Line and Food Poverty Ratio by Regions

When the region-level food-poverty lines are considered, the highest and lowest lines are observed in the third and sixth agricultural regions, respectively. This fact may tell that the highest and lowest food prices are in the third and sixth regions, respectively. Furthermore, the food-poverty lines are below the country average in the first, fourth, fifth, sixth and eight regions, whereas they are above in the second, third and seventh agricultural regions. When the ratios of people under the food-poverty lines are considered, the lowest and highest rates are observed in the eight and first agricultural regions, respectively.

turn related to the consumption of goods and services.

[7] According to the "adult equivalent scale", the first adult in any household is weighted by 1, the second and each of the fallowing adults are weighted by 0.587 and each child is weighted by 0.3. Furthermore, people of 12+ age is considered to be adult.

3 Rural Poverty Lines

Regional and nationwide poverty lines are determined by adding non-food expenditure to the food-poverty lines. Firstly, all households in the sample are grouped into 1% ranges according to their adult equivalent monthly food expenditures. Secondly, the groups that capture the food-poverty lines are labelled. And then, the average non-food expenditures of households in these labelled groups are calculated.[8] Finally, the calculated average non-food expenditures are added to corresponding food poverty lines to reach region-level and nationwide poverty lines. After that, these poverty lines are compared with total expenditures.[9] Note that, total expenditures are considered as the means of comparison, as the rural poverty lines are determined by taking both food and non-food expenditures into account. In Table 2, regional and nationwide monthly poverty lines and ratios of people under these lines are presented.

It is worth mentioning that a region's relatively high poverty line can be due to either a high food-poverty line or high non-food expenditures in that particular region. Besides, relatively high regional prices of both food and non-food items are also effective factors. As shown in Table 2, the highest poverty line is observed in the first agricultural region, while the lowest is in the sixth region. The food-poverty line in the first region is below the country average, however, its poverty line is well above. As might be expected, the highest poverty ratio is observed in the first region. Apparently, this ratio pulls the country's average upwards.

	Poverty Line(TL)	Poverty Ratio(%)
Turkey	168.279.288	21,35
Region 1	244.707.167	52,38
Region 2	168.264.761	11,07
Region 3	188.841.656	11,57
Region 4	120.252.586	5,79
Region 5	133.262.623	10,99
Region 6	92.203.139	5,76
Region 7	127.112.523	4,22
Region 8	99.781.403	5,05
Region 9	149.213.812	7,17

Table 2: Rural Poverty Line and Poverty Ratio by Regions

[8] Average non-food expenditures of the households, who are just above and below the food-poverty lines (i.e., in the range of ±1% of the food-poverty line).

[9] Before the mentioned comparison is carried out, adult equivalent scale is also applied, here.

4 Estimating Rural Poverty Gap

In this section, the factors that affect rural poverty gap are estimated by employing cross-section econometric models. Poverty gap statistic of poor households is considered as the dependent variable. In the previous section, 1176 of 5507 households are found to live in poverty. The poverty gap statistic of these households is calculated by taking the difference between the monthly adult equivalent poverty line and per adult monthly total expenditures. Factors that may affect poverty gap are determined according to theoretical approaches and empirical findings of the existing literature on the poverty problem in Turkey. Indicators related to education level, demographic structure, working conditions, source of income, level of income, agricultural input use and agricultural structure are found to be the potential factors that may have impact on poverty and poverty gap. Explanatory variables related to above indicators are derived from the aforementioned survey.

Total sample of 1176 poor households is checked for possible outliers. Five households are excluded, in this regard. The multi-collinearity problem is also checked by using correlation matrix of the explanatory variables and no serious collinearity is detected. Another important problem might be heteroscadasticity, and thus, White's heteroscadasticity consistent estimators are used.

Econometric analyses are completed in four stages. A benchmark model is constructed and estimated in the first-stage. The implicit form of this model with expected coefficient signs is given in equation (1).[10] In the second stage, the focus is on finding whether the explanatory variables have varying impacts on poverty gap in different regions. In the third stage, poverty gap variable is tested as to reveal whether certain thresholds are embodied. And finally, impacts of macroeconomic and nation-wide indicators, which are emphasized in the international applied literature, are tested.

$$pg = f\left(\begin{array}{c} \underset{(-)}{hh9e}, \underset{(-)}{hh58e}, \underset{(+)}{hmlit}, \underset{(+)}{hmn}, \\ \underset{(-)}{naish}, \underset{(-)}{wssh}, \underset{(-)}{aish}, \underset{(+,-)}{dipshai}, \\ \underset{(-)}{cn}, \underset{(-)}{sn}, \underset{(-)}{sa}, \underset{(-)}{aieha}, \underset{(-)}{irlsh}, \underset{(-)}{spn}, \\ \underset{(-)}{pcalo}, \underset{(-)}{pectal}, \underset{(+,-)}{anctal}, \underset{(-)}{potal} \end{array}\right) \quad (1)$$

[10] The final version of the base model. Various alternative models with alternative variables were run to reach the final version.

Variables:

pg	poverty gap
$hh9e$	intercept dummy
$hh58e$	intercept dummy
$hmlit$	intercept dummy
hmn	number of people in the household
$naish$	share of non-agricultural income in total
$wssh$	share of wages and salaries in total
$aish$	share of agricultural income in total
$dipshai$	share of direct income payments in agri.income
cn	number of cattle
sn	number of sheep
sa	sown area
$aieha$	agricultural input expenditure per hectare
$irlsh$	share of irrigated land in total
spn	number of secondary products
$pcalo$	per capita agricultural land owned
$pectal$	share of perennial crops in total agri.area
$anctal$	share of annual crops in total agricultural area
$potal$	share of poplar trees in total agricultural area

Intercept Dummies:

$$hh9e \left\{ \begin{array}{l} \text{1 if hh.head's education is 9 years/}_{or}\text{more} \\ \text{0 otherwise} \end{array} \right\}$$

$$hh58e \left\{ \begin{array}{l} \text{1 if hh.head's education is b/w 5\&8 years} \\ \text{0 otherwise} \end{array} \right\}$$

$$hmlit \left\{ \begin{array}{l} \text{1 if all household members are illiterate} \\ \text{0 otherwise} \end{array} \right\}$$

The two intercept dummies regarding the years of education $hh9e$ and $hh58e$ are both expected to have decreasing impact on poverty gap. The other intercept dummy $hmlit$ representing illiteracy is, however, expected to have increasing impact. Similarly, as the number of household members (hmn) increases, a rise in poverty gap is expected. Four variables are included with regard to the household income. Among these variables, wages as a share of non-agricultural income ($naish$), salaries income as a share of non-agricultural income ($wssh$) and agricultural income as a share of non-agricultural income ($aish$) are expected to decrease poverty gap. However, the share of direct income payments in agricultural income ($dipshai$) may decrease or increase poverty gap.

Capital accumulation in rural areas is represented by three variables: total number of sheep (sn), total number of cattle (cn), and total sown area (sa). The sheep, cattle and sown area can be considered as both final and investment goods. Therefore, a rise in these

variables is expected to have decreasing impact on poverty gap. Additionally, an increase in agricultural input use per agricultural area (*aieha*) is expected to reduce poverty gap, as an increase in yield is expected due to an expected increase in production since the input use increases. Similarly, a rise in the share of irrigated land (*irlsh*) is also expected to increase the yield and income, and hence to reduce poverty gap. A rise in number of secondary products (*spn*) and in income can also be anticipated, as the agricultural yield increases. Therefore, a rise in number of secondary crops would have decreasing impact on poverty gap.

To proxy the distribution of agricultural land ownership, agricultural land per household members (*pcalo*) is considered. An increase in this variable may be interpreted as the increase in production scale, and hence an increase in per capita income. Poverty gap is anticipated to decrease by the increase in per capita owned agricultural land.

In Turkey, prices of annual crops seem to be more volatile compared to prices of perennial crops and trees. Modeling the impact of this price volatility on income and poverty gap, especially in different regions, becomes important due to the regions' varying crop patterns. Therefore, the relationship between the type of agricultural production and the poverty gap is analyzed by employing three variables: the share of annual and perennial crop areas and of poplar tree area in total agricultural land. As the share of perennial crops and of poplar trees increase, a decrease in poverty gap is expected. The opposite impact is anticipated for the annual crops.

4.1 The first-stage estimation

The base model, whose implicit form is given in (1) is estimated in this stage. According to the estimation results presented in Table 3, poverty gap seems mostly autonomous. The independent variables are able to explain only 16 percent of the variation in poverty gap (i.e., $R^2 = 16\%$). But, majority of the coefficients have the anticipated signs, however their statistical significances show variations. It is worth noting that the variation in an economic indicator is explained by both economic and social factors in the current model's setting. Therefore, elasticities are not calculated. For the same reason, some of the variables having the expected coefficient signs, but being statistically insignificant, are not excluded from the equation.

Sample size: 1171				
Variables	Coefficient	St. Dev.	t-stat	Prob.
C	48208	5015.01	9.61	0.00
hh9e	-9921	4530.91	-2.19	0.03
hh58e	-2433	3688.61	-0.66	0.51
hmlit	6367	1992.52	3.20	0.00
hmn	1941	288.90	6.72	0.00
naish	-237	130.49	-1.82	0.07
wssh	-161	47.06	-3.42	0.00
aish	-116	41.54	-2.79	0.01
dipshai	0.00	0.00	-1.94	0.05
cn	-186	271.80	-0.69	0.49
sn	-68	51.78	-1.31	0.19
sa	-27	17.45	-1.56	0.12
aieha	0	0.01	-2.27	0.02
irlsh	-58	24.77	-2.33	0.02
spn	-3271	445.44	-7.34	0.00
pcalo	-217	97.28	-2.23	0.03
pectal	-129	121.12	-1.06	0.29
anctal	124	91.81	1.35	0.18
potal	-985	670.46	-1.47	0.14
R-2	0.16	F-stat		12.02
Adj. R-2	0.15	Prob. (F-stat)		0.00

Table 3: Base Model Estimation Results

Estimation results reveal that both number of people in a household and education level of a household-head affect poverty gap. We find that poverty gap is increasing by a rise in the former, while it is decreasing by a rise in the latter. Furthermore, we find that holding of a household-head particularly a secondary-school degree is quite influential on poverty gap. Similarly, if all household members are illiterate, this has an increasing impact on poverty gap. In fact, the autonomous part of poverty gap increases with illiteracy. As might be expected, more years of education imply less autonomous poverty gap. Moreover, we find negative relations between poverty gap and the indicators relating to household income wherein these indicators have statistically significant coefficients. Especially, share of non-agricultural income is quite influential on poverty gap. This result is quite expected as the agricultural income is more unstable compared to wages/salaries and non-agricultural income.

Share of direct income payment in agricultural income is observed to have insignificant impact on poverty gap. As it is not known how much of these payments are spent on agricultural input use or on mechanization to have an increase in yield (and an increase in income), and as these payments are paid for sown area, but not for the amount produced or for the amount of yield, the direct income support is not actually leading farmers, but instead price movements do.

Capital stock of rural families seem to have decreasing impact (an increase in capital stock means a rise in potential income) on poverty gap, but neither

of the regarding variables has statistical significance. Regarding the agricultural structure, a rise in agricultural input use per hectare and a rise in share of irrigated land are both expected to increase the yield, and hence increase agricultural income. Thus, these are expected to lower the poverty gap. Estimation results are in line with the expectations, and the results are statistically significant. Similarly, a rise in number of secondary crops has the same impact. Alternative use of agricultural land between annual crops, perennial crops and trees are found to have expected signs, but they are statistically insignificant. The last indicator regarding the agricultural structure is per-capita owned agricultural land in a household. In fact, this variable is used to proxy the distribution of agricultural land. In line with the anticipation, a rise in this variable is found to decrease poverty gap and to be statistically significant.

4.2 The second-stage estimation

In the second-stage estimation, the varying size of the autonomous poverty gap and of impacts of explanatory variables in various regions are evaluated. Firstly, the base model is extended as to include regional intercept dummies. It is statistically found that the autonomous poverty gap is significantly different from the average only in five regions. Secondly, based on the model above, slope and interaction dummies are introduced in the regions, where the autonomous poverty gap is statistically different from the average. In these two estimations, the statistically significant variables of the base model are also found to be significant and to have expected effects showing the consistency of the base model. However, the models in general explain between 17-23 percent of the variation in poverty gap. Moreover, regional intercept, slope or interaction dummies are found to have only slight impacts.

4.3 The third-stage estimation

The poor performance of the base model and its extended versions in terms of the adjusted R^2-statistic bring to mind the question of whether there is a threshold level of poverty gap that the base model can explain better below or above that threshold level. In this regard, poverty gap data is regrouped into five (each represents 20% range). To see impacts of the base model's independent variables on different poverty gap groups, new intercept-dummy variables are introduced as to reflect these groups.

Estimation results reveal that the autonomous poverty gap does change significantly within the poverty gap groups. The percentage-variation of autonomous part from constant term of the equation in each poverty gap group is given in Table 4.

Poverty Gap Groups	Calculated coefficients	% deviation from constant term
poverty gap gr 1	7,787	-93.6
poverty gap gr 2	36,192	-70.4
poverty gap gr 3	63,595	-48.0
poverty gap gr 4	90,326	-26.1
poverty gap gr 5	116,619	-4.6

Table 4: Coefficients of Regrouped Poverty Gap Dummy Variables

Another finding is that in the upper two groups, or in the two groups just below the poverty line, a lower autonomous part and a higher explanatory power might be expected. However, the regressions that model the impact of base model's indicators on poverty gap statistics of these two groups do not result in a significant improvement.

4.4 The fourth-stage estimation

Household-level data has not provided enough evidence so far in explaining the factors that have significant effect on poverty gap. Therefore, it is fair to say, up to this point, the higher percentage of poverty gap remains autonomous in both various regions and various poverty gap groups.

In this section, we mainly test the hypothesis of whether the macroeconomic and nationwide indicators/factors are also ineffective in explaining the poverty gap. The existing applied literature in this regard mostly focuses on linkages between growth, income distribution and poverty. However, their findings do vary. In order to test the above hypothesis, the database is rearranged as to provide province based averages. After that, new province level variables are introduced to the model such as public agricultural investments as a share of total public investment ($aginpuin$), growth rate ($grow$), marketed value as a share of total production value ($shmvpv$), urbanization rate (urb) and level of socioeconomic development ($soecdv$). Table 5 presents outcomes of this estimation.[11]

[11] The variable *haney* reflects the average number of years in households' education.

Sample size: 71				
Variables	Coefficient	St. Dev.	t-stat	Prob.
C	189986	28095	6.76	0.00
haney	-7011	2991	-2.34	0.02
aieshai	0.00	0.00	3.73	0.00
spn	-4639	1303	-3.56	0.00
dipshai	0.00	0.00	-1.78	0.08
owashto	-643	285	-2.25	0.03
hhkbmuar	-598	219	-2.72	0.01
aginpuin	-109	76	-1.43	0.16
shmvpv	-1004	289	-3.47	0.00
R-2	0.47	F-stat		6.90
Adj. R-2	0.40	Prob. (F-stat)		0.00

Table 5: Province Based Poverty Gap and Explanatory Factors

When macroeconomic and nationwide indicators are introduced to the model, the overall explanatory power increases to 47 percent. This result is at least an explanation for the autonomous part of poverty gap, which cannot be reduced by the previous econometric analyses in this study.

In the current model, poverty gap decreases by an increase in either household based average number of years in education, number of secondary products, per-capita owned agricultural land or share of owned land in total, whereas it increases by a rise in either share of input expenditures in agricultural income or share of direct income support in agricultural income. Furthermore, among the macroeconomic and socioeconomic variables, province based growth rate, urbanization rate and socioeconomic development level have insignificant coefficients. Finally, we find that both public agricultural investment as a share of total public investment and marketed value of production as a share of total value have the expected coefficient signs. Poverty gap decreases by an increase in these variables.

5 Conclusion

Preliminary outcomes provide the information that certain income groups might be suffering from structural poverty, which means these people cannot change the socioeconomic conditions that they are living in, and even if they experience a change in these conditions, these changes do not have significant effect on their level of poverty. In addition, household-based, socioeconomic indicators (micro level data) have very limited power in explaining the households' poverty gap, particularly for the most poor ones, though we find macro oriented policies more influential, especially in breaking the structural poverty. Similarly, the direct income support has no significant impact neither on poverty, nor on poverty gap.

References

[1] Asra, A. and V. Santos-Francisco. (2001), "Poverty Line: Eight Countries' Experiences and the Issue of Specificity and Consistency", Asia and Pacific Forum on Poverty: Reforming Policies and Institutions for Poverty Reduction to be held at the Asian Development Bank, 5–9 February 2001, Manila.

[2] Atahan, D. (2006). Yoksulluk: Kavramlar, Olcum Yontemleri ve Turkiye'de Kirsal Yoksullugu Belirleyen Faktorler, Unpublished M.Sc. Thesis, Hacettepe University, Department of Economics, Ankara.

[3] Baysal, A. (1991). Genel Beslenme, Hatipoglu Yayinevi, Ankara.

[4] Bidani, B., G. Datt, J.O Lanjouw and P.Lanjouw. (2001), "Specifying Poverty Lines: How and Why?", Paper presented at the Asia and Pacific Forum on Poverty: Reforming Policies and Institutions for Poverty Reduction to be held at the Asian Development Bank, Manila, 5-9 February 2001.

[5] Coudouel, A., J. Hentschel and Q. Wodon. (2002), "Poverty Measurement and Analysis in the PRSP Sourcebook" World Bank, Washington D.C.

[6] Dumanlı, R. (1996). Turkiye'de Yoksulluk Sorunu ve Boyutları, Yoksullukla Mucadele Stratejileri, Hak-İs Konfederasyonu Yayinlari, Ankara.

[7] Laderchi, C. R., R. Saith and F. Stewart. (2003), "Everyone Agrees We Need Poverty Reduction, but Not What This Means: Does This Matter?", WIDER Conference On Inequality, Poverty and Human Well-being", May 30-31, Helsinki, Finland.

[8] May, J. (2001), "An Elusive Consensus: Definitions, Measurement and Analysis of Poverty", in Choices for the Poor: Lessons from National Poverty Strategies, 23–54. (Available on http://www.undp.org/dpa/publications).

[9] Ravallion, M. (1992), "Poverty Comparisons: A Guide to Concepts and Methods", Living Standards Measurement Study, Working Paper, No 88.

[10] Ravallion, M. (1998), "Poverty Lines in Theory and Practice", Living Standards Measurement Study, Working Paper, No 133.

[11] Senses, F. (2003), "Kuresellesmenin Oteki Yuzu: Yoksulluk", Iletisim Yayinlari, 3.baski, Istanbul.

[12] World Bank (2000), "Making Transition Work for Everyone: Poverty and Inequality in Europe and Central Asia", Washington D.C.

[13] World Bank (2005), "Introduction to Poverty Analysis", World Bank Institute, August 2005.

Appendix

Agricultural regions:

Region 1	Balikesir, Bilecik, Bolu, Canakkale, Edirne, Istanbul, Kirklareli, Kocaeli, Sakarya
Region 2	Afyon, Aksaray, Ankara, Bolu, Cankiri, Corum, Eskişehir, Karaman, Kayseri, Kirikkale, Kirsehir, Konya, Nevsehir, Nigde,Sivas,Yozgat,
Region 3	Aydin, Izmir, Kutahya, Manisa, Usak
Region 4	Antalya, Burdur, Isparta, Mugla
Region 5	Adana, Adiyaman, Gaziantep, Hatay, Icel, Kahramanmaras, Sanliurfa
Region 6	Diyarbakir, Batman, Bingol, Bitlis, Elazıg, Hakkari, Mardin, Mus, Siirt, Tunceli, Van
Region 7	Agri, Erzincan, Erzurum, Kars, Malatya
Region 8	Amasya, Bartin, Kastamonu, Ordu, Samsun, Sinop, Tokat, Zonguldak
Region 9	Artvin, Rize, Giresun, Gumushane, Trabzon