Pro-Poor Growth in Turkey

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ABSTRACT – The objective of the study is to examine whether growth performance in Turkey is pro-poor over the post-2001 crises period or not. We focus on two sets of issues: first we study impressive economic growth performance of Turkey with public finance reforms and structural reforms and the decrease of the income inequality after these changes. Second we evaluate whether this rapid economic growth performance and inequality improvement creates pro-poor growth or these changes are insufficient for poverty reduction estimating the various pro-poor growth indexes in Turkey during the period of 2003-2009. We used Household Budget Surveys that is conducted by Turkish Statistical Institution. The income inequality in Turkey is analysed with the help of the main inequality measures and the income shares graph of virgintiles by using OECD equivalence scale. The changes in inequality in Turkey evaluated dividing whole period into two sub-periods namely 2003-2007 and 2007-2009, in the former period it is observed a declining inequality and in the latter period it is presented slightly increases in inequality. The poverty in Turkey is estimated using three different poverty measures, i.e., head count, poverty gap and squared poverty gap. Further, pro-poor growth is analyzed by the help of Kakwani and Son (2004)'s method by the way of poverty decomposition of growth and inequality. Thus growth process is pro-poor only at the end of first sub-period namely 2006 and 2007.

JEL Classification: I32, O15
Key Words: Economic Growth**,** Poverty, Inequality, Pro-poor Growth, Turkey

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I. Introduction

The poverty reduction become a famous debate issue after World Bank's discussions on the alleviate poverty in developing countries since 1990 and especially after the Report on *Attaching Poverty* in 2000 (World Bank 2000). The relationship between inequality and growth have discussed after the Kuznet's (Kuznets, 1955) inverted U-shaped relation between inequality and economic growth. Fields (1995) and Fields and Jakubson (1994) could not find evidence to inverted U curve using cross-section panel data. The new contributions to this relationship try to explain relation from inequality to growth under the light of endogenous growth theory (Alesina and Perotti, 1994; Persson and Tabellini (1994).

The importance of economic growth for poverty alleviation has become a major concern in the researches (Deininger and Square, 1996, Dollar and Kraay, 2002). These researches suggest a positive correlation between poverty alleviation and economic growth estimating growth elasticity of poverty. Their findings have been criticized by others (Bourguignon, 2003; Ashley, 2007, Lenagala and Ram, 2010). Bourguignon (2003) discuss the growth elasticity of poverty explaining the heterogeneity across countries and adding the role of income redistribution in poverty reduction. All these changes bring the poverty among these variables and put it on the one corner of triangle (Zaman and Ahmad, 2013). In addition to economic growth and poverty, income distribution is also considered and poverty decomposition methodologies proposed in the literature (Datt and Ravallion, 1992; Ravallion, 2001; Son, 2007).

Economic growth and poverty is handled in pro-poor growth which is accrued at the end of 20th century (Chenery et. al., 1974; McCulloch and Blauch, 1998). The pro-poor growth concept becomes under the interest as following of the poverty reduction objectives of economic development (Kakwani and Pernia, 2000; Ravallion and Chen, 2003; Kraay, 2006). The basic of pro-poor researches is about how economic growth affects poor, how economic growth's benefits are distributed and how much poor profit from these benefits (Ravallion, 2004; Kakwani and Son, 2008; Klasen, 2008; Son and Kakwani, 2008).

As a developing country Turkey has experienced a rapid economic growth performance after 2001 crises year until to 2008. Since the economic development continues, it is interesting question how much of the proportional benefits of the growth going to the poor in Turkey.
The income inequality in Turkey has slightly decreased from 2003 to 2007. We evaluate whether this rapid economic growth performance and inequality improvement creates pro-poor growth or anti-poor in Turkey during the period of 2003-2009.

Turkey has experienced high income distribution inequality compared with the other developing countries. The Gini coefficient has 0.427 in 2003 which shows very high inequality level in Turkey. After the 2001 economic crises Turkey has recovered the economy and experienced an impressive growth. In this period, the tight monetary and fiscal policies have been implemented in order to transition to a strength economy, and then the macroeconomic indicators have shown improvement process. As Turkey achieved main improvements on the macroeconomic indicators with the public finance reforms and structural reforms, this study finds the distributional impacts and poverty reduction of these macroeconomic policies.

The rest of this research is organized as follows: The next section summarizes different pro-poor growth definitions and reviews the related literature. Section 3 summarizes issues in measuring pro-poor growth and Section 4 explains data and methodology, Section 5 is about growth, income inequality and poverty in Turkey. Section 6 displays the results. And finally Section 7 concludes.

II. Pro-Poor Growth

The poverty reduction debates bears on the main role of economic growth to poverty reduction. The trickle-down view that implies the benefits of economic growth go to the rich first, and then the poor after the rich spending their gains was the dominant thinking in the 1950s and 1960s (Kakwani and Pernia, 2000). This argument has analysed with the empirical researches looking at the relationship between the income of the poor and economic growth (Dollar and Kraay, 2000; Ravallion and Chen, 1997). Dollar and Kraay (2000) estimated growth elasticity of poverty as 1 and concluded that the income of the poor rises one-for-one with growth. These researches are critised in two respects one is that they do not seem robust analysis (Kakwani and Pernia, 2000; Ashley, 2008). The other one is that there is cross-country heterogeneity behind this cross-country studies (Kakwani and Pernia, 2000; Bourguignon, 2003). Bourguignon (2003) was also criticized methodology with respect to functional specification and mentioned about the lack of the earlier point is that complex but yet identity-related relationship between mean income growth and poverty change. He points other researches on the distinguishing the effects on poverty reduction of growth on the one hand and distributional changes on the other.

Datt and Ravallion (1992) and Kakwani (1993) proposed a decomposition analysis of poverty measures into growth and redistribution components. New methodological contributions to poverty decomposition take into account explanation changes in poverty over time (Son, 2003). Kakwani and Pernia (2000) defined pro-poor concept using Sen's (1987) concept of well-being in terms of functionings and capabilities and McCulloch and Baulch (1999)'s a simple operational definition of pro-poor growth that measure called the poverty bias of growth. Kakwani and Pernia (2000) called an economic growth as pro-poor if the poor benefit proportionally more than the rich. So, they explained necessary strategies such as the removal of institutional and policy induced biases against the poor and the adoption of direct pro-poor policies (Kakwani and Pernia, 2000). Ravallion critised this definition since it does not take account absolute gains for the poor but rising inequality during a period of overall economic expansion may come with large absolute gains to the poor. Ravallion and Chen (2003) define the growth as pro-poor if poverty falls when growth takes place. They advise a direct approach looking at growth rates for the poor and define a "growth incidence curve" showing how the growth rate for a given quantile varies across quantiles ranked by income.

III. Measuring Pro-poor Growth

In the literature, many measures of pro-poor growth proposed with respect to pro-poor growth definitions. Four pro-poor growth measures are used in the analysis as follow: The first measure of pro-poor growth is proposed by Ravallion and Chen (2003)'s measure which is based on changes in the income of individual poor people using the cumulative distribution function of income, F(x). By definition, if we invert F(x) at the pth quantile, we get the income of that quantile:

$$x_t(p) = F_t^{-1}(p) = L_t^{'}(p)\mu_t \qquad (1)$$

Where $x_t(p)$ is the income of the pth quantile, $L_t(p)$ is the Lorenz curve, $L_t^{'}(p)$ is the slope of Lorenz curve, μ_t is the mean income. Comparing two dates, *t*-1 and *t*, the growth rate in income of the p^{th} quantile is

$$g_t(p) = \left[x_t(p) / x_{t-1}(p)\right] - 1 \qquad (2)$$

Where $g_t(p)$ is called as *growth incidence curve* (GIC). Growth incidence curve shows how the growth rate for a given quantile varies across quantiles ranked by income (Ravallion and Chen). It follows from (2) that:

$$g_t(p) = \frac{L_t^{'}(p)}{L_{t-1}^{'}(p)}(\gamma_t + 1) - 1 \qquad (3)$$

where g(p) is the growth rate in the income of the p^{th} quantile and $g_t(p)$ is the ratio of mean per capita income in period t to that in period t-1. In other words, the changes in the income of an individual in the p^{th} quantile are weighted by the shift parameter in the slope of the Lorenz curve. Cumulating Equation (3) up to the proportion of the poor (H_t) gives an equivalent expression for a change in the Watt's index of poverty:

$$\frac{-W_t}{dt} = \int_0^{Ht} \frac{\log x_t(p)}{dt} dp = \int_0^{Ht} g_t(p) dp \qquad (4)$$

The Ravallion and Chen (2003)'s "rate of pro-poor growth" is the mean growth rate of the poor. This gives the change in the Watts index per unit time divided by the headcount index.

Normalising Equation (3) by the number of poor people we get what Ravallion and Chen (2003) define as their measure of pro-poor growth.

The second measure is proposed by Son (2004) that it is a "poverty growth curve" (PGC) methodology. It evaluates whether observed growth spells are unambiguously pro-poor. This method is similar to Ravallion and Chen's (2003) "growth incidence curve" and Son (2004) compares these two methods. She follows Kakwani and Pernia's (2000) definition and defines pro-poor growth as "economic growth may be called pro-poor if the poor enjoy the benefits of growth proportionally more than the non-poor". In the *poverty growth curve* method, pro-poor growth is taken into account with relative approach, not absolute. Son (2004) uses Lorenz curve and a change in the Lorenz curve indicates whether inequality is increasing or decreasing with economic growth. Thus, growth is unambiguously pro-poor if the entire generalized Lorenz curve shifts upward. From the definition of the Lorenz curve, it can be written as;

$$L(p) = \frac{\mu_p p}{\mu} \qquad (5)$$

which is the share of mean income of the bottom *p* percent of population and where μ_p is the mean income of the bottom *p* percent of population (Son, 2004). On taking the logarithm of both sides, Equation (5) becomes

$$ln(\mu_p) = ln\left(\mu L(p)\right) - ln(p) \qquad (6)$$

Taking the first difference in Equation (6) gives

$$\Delta ln(\mu_p) = \Delta ln\left(\mu L(p)\right) \qquad (7)$$

where

$$g(p) = \Delta ln(\mu_p) \quad (8)$$

g(p)is the growth rate of the mean income of the bottom p percent of the population when individuals are ranked by their per capita income (expenditure). g (p) varies with p ranging from 0 to 100 and may be called poverty growth curve. Son (2004) is applied this method to Thailand data which comes from the Socio-Economic Surveys (SES) covering the period from 1988 to 2000. The results show that growth is pro-poor in 1992–94 and 1994–96 periods. In 1996–98 and 1998–2000 periods economic growth rate is negative because of the economic crises and poverty increases in these periods.

The third measure is *pro-poor growth index* that is proposed by Kakwani and Pernia (2000). Kakwani and Pernia (2000) introduce policy issues on struggle with poverty, reducing income inequality and promoting economic growth. Then, they decompose the total change in poverty into two components namely the *impact of growth* when the distribution of income does not change and *the effect of income redistribution* when total income does not change. This decomposition is identified as:

$$\delta = \eta + \zeta \quad (9)$$

where δ is proportional change in poverty when there is a positive growth rate of 1 percent. η is the pure growth effect (percentage change) and ζ is the inequality effect. Then pro-poor growth index is shown as:

$$\phi = \frac{\delta}{\eta} \ . \quad (10)$$

The growth will be pro-poor if $\phi > 1$, meaning that the poor benefit proportionally more than the non-poor, if $0 < \phi < 1$, growth is not strictly pro-poor, even though it still reduces poverty incidence and finally if $\phi < 0$, economic growth actually leads to an increase in poverty (Kakwani and Pernia, 2000).

The last pro-poor measure is suggested by Kakwani and Son (2008) named the poverty equivalent growth rate (PEGR). PEGR takes into account both the growth rate in mean income and how the benefits of growth are distributed between the poor and the non-poor. It can be seen as a measure of pro-poor growth and also as an alternative measure of the impact of inequality changes on poverty. The PEGR is defined as:

$$\gamma^* = (\delta/\eta)\gamma = \phi\gamma \quad (11)$$

γ^* is the PEGR and γ is present growth rate, from equation (11) δ is the growth elasticity of poverty, η is the neutral relative growth elasticity of poverty derived by Kakwani (1993)

ζ measures the effect of inequality on poverty reduction, ϕ is relative pro-poor growth index proposed by Kakwani and Pernia (2000). When $\gamma^* > \gamma$, growth is defined as pro-poor.

IV. Data and Methodology

This research utilizes the Household Budget Surveys from 2003 to 2009 that is conducted by Turkish Statistical Institution. For this study, the equivalent income per adult is chosen as welfare indicator. The equivalent incomes are calculated by using OECD equivalence scale. The equivalent income per adult is defined as:

$$Y_{ij} = \frac{R_i}{S^e} \tag{18}$$

where R_i and Y_{ij} stand for household income and equivalent income per adult (Guncavdi and Selim, 2009).

The poverty measures used in this research come from Foster *et al.* (1984). Foster *et al.* (1984) suggest a general formula measure of poverty, which is formulated as follows:

$$P_\gamma = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z - x_i}{z}\right)^\gamma, \qquad \gamma > 1 \tag{21}$$

γ is a constant parameter. For γ=0, P_γ reduces to P_o, and for γ=1, to P_1 and γ=2, to P_2. They are namely *head-count ratio* (P_o), *poverty gap* ratio (P_1) and the *Foster-Greer-Thorbecke* (P_2) poverty index. The head-count ratio of poverty simply indicates the proportion of the population for whom income is less than the pre-determined poverty line. The poverty gap ratio is defined as a percentage difference between the poverty line and income of the poor.

In this study, we used Poverty Equivalent Growth Rate (PEGR) that developed by Kakwani and Son (2008). While the PEGR is defined as $\gamma^* = (\delta/\eta)\gamma = \phi\gamma$ and γ^* is the Poverty Equivalent Growth Rate index, γ is present growth rate, δ is the growth elasticity of poverty, η is the neutral relative growth elasticity of poverty, ϕ is relative pro-poor growth index and the other indicator is ζ that measures the effect of inequality on poverty reduction.

The following information is required in order to analyze and interpret the results of the study. When poverty equivalent growth rate is negative (γ^*<0), meaning that poverty increases, and when it is positive (γ^*>0), poverty decreases. When poverty equivalent growth

rate is less than present growth rate ($\gamma^* < \gamma$), the growth is not pro-poor, if it is higher than present growth rate ($\gamma^* > \gamma$) the growth is pro-poor. When the neutral relative growth elasticity of poverty is negative ($\eta < 0$) the effect of growth reduces poverty, if it is positive ($\eta > 0$) the effect of growth increases poverty. When the effect of inequality on poverty reduction is negative ($\zeta < 0$) the effect of inequality reduces poverty. If it is positive ($\zeta > 0$) the effect of inequality increases poverty. The effect of growth and inequality must be negative ($\eta < 0, \zeta < 0$) in order to achieve pro-poor growth ($\gamma^* > \gamma$).

V. Growth, Inequality and Poverty Trends in Turkey

From the beginning of the 1980s, Turkey become an open economy and the contribution of total factor productivity has increased, the real wages and national currency has decreased, the average growth rate that the main source is capital accumulation became 4% (Gürsel, 2011). Turkey faced with three economic crises in 1994, 1999 and 2001 and the contribution of total factor productivity to economic growth decreased to negative. In December 1999 a stabilization program based on the foreign exchange rate started to be applied. The aim of this program was to decrease the inflation rate to single digits and to decrease the real interest rate and to ensure resources in the economy were used effectively and to increase the potential boost to the economy. However, this program did not come up with the goods, and the situation quickened the onset of the 2001 financial crisis. Turkey was announced the "transition program to a strong economy" after 2002, regulations on the bank system, floating exchange rate system, targeting inflation and structural changes has applied to Turkish economy. The average growth rate in Turkey from 2002 to 2010 was 4.8 % (in Table 1). When we divide this period into two sub-periods namely 2002-2007 and 2007-2010, in the former period it is observed rapid growth achieved based on domestic demand, resulted with current account deficit, entry of hot money. The average growth rate exceeded 7 % in this term. The latter period, increases at the money supply and inflation, rises in the tax burden of indirect taxes have created deflationary effect on growth. The growth rate decreased to 0.6 % in 2008 and the economy deteriorated 4.8 % in 2009 with the effects of world economic crises on the economy. Correspondingly per capita income reached to 10438 $ in 2008 steady increasing from 3492$ in 2002, it deteriorated to 8559 $ in 2009 and with the higher growth rates in 2010 and 2011, it again increased to above 10000 $.

Table 1 Turkish Economy Growth Rates and Per Capita Income

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Growth Rate(%)	-5.7	6.2	5.3	9.4	8.4	6.9	4.7	0.6	-4.8	9.2	8.5
PCI ($)	3021	3492	4559	5764	7022	7586	9240	10438	8559	10022	10444

Source: Turkish Statistical Institution

The Gini coefficient has 0.427 in 2003 which shows very high inequality level in Turkey at 2003. The changes in inequality in Turkey can be divided into two sub-periods namely 2003-2007 and 2007-2009, in the former period it is observed a declining inequality and in the latter period it is presented slightly increases in inequality. The inequality in Turkey is analysed by using positive and normative inequality measures which give different weights to various parts of income distribution. Table 2 shows the equivalent individual income inequality has decreased on the basis of six measures until 2007. While Gini coefficient is 0.43 in 2003, it decreased to 0.41 in 2004 and to 0.37 in 2007. Moreover, the coefficient of variation index decreased from 1.23 to 0.86 in 2007. All these reductions denote that income inequality has decreased and there is an income distribution improvement from 2003 to 2007. After 2007 the inequality in Turkey follows an uptrend with increasing Gini coefficient from 0.37 to 0.40, coefficient of variation to 1.02 from 0.89.

Table 2. The inequality measures for Turkey from 2003 to 2009

	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Gini coefficient	0,43	0,41	0,39	0,38	0,37	0,39	0,40
Standard deviation of logs	0,78	0,75	0,75	0,71	0,71	0,74	0,79
Coefficient of variation	1,23	1,10	0,94	0,90	0,86	0,89	1,02
Theil mean log deviation	0,32	0,30	0,28	0,25	0,25	0,26	0,28
Atkinson (€=0.5)	0.16	0.14	0.13	0.12	0.12	0.12	0.13
Atkinson (€=1.0)	0.27	0.26	0.24	0.22	0.22	0.23	0.24

The poverty measures in this research are estimated using the relative poverty approach in 2003. The relative poverty in Turkey was 15.8% in 2003. The following years poverty rates is estimated based on this poverty line and converting the poverty line to current values using the consumer price indexes for following years. Table 2 show these poverty rates that shows decreasing poverty in Turkey, the head count index (P_0) is 15.8% in 2003, it is decreased to

8.0 in 2008, and it is increased to 8.1 in 2009. All three poverty measures give analogous results. In Turkey after 2001 economic crises, the poverty and income inequality decreased in 2003-2007 period on the basis of related measures.

Table 2. Poverty measures for Turkey in 2003-2009 period

	2003	2004	2005	2006	2007	2008	2009
Head Count	15,84	13,85	12,25	9,09	8,08	7,95	8,06
Poverty Gap	4,64	4,12	3,85	2,70	2,14	2,10	2,37
FGT	2,02	1,80	1,79	1,15	0,84	0,87	1,07

VI. Results

In the light of high growth rates and income inequality improvements, the expectation is that the growth process is pro-poor in Turkey from 2003 to 2007, because both poverty and inequality has decreased in this period. This expectation has examined applying Kakwani and Son (2008) methodology and the findings are given in Table 3.

Table 3. Pro-poor growth analysis results for Turkey in 2003-2009 period

		2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009
The growth rate of mean income	γ	8,8	5,9	3,0	6,3	3,8	-1,6
Poverty equivalent growth rate	γ^*	4,9	3,0	15,6	9,0	0,7	-4,8
Pro-poor growth measure	ϕ	0,6	0,5	5,2	1,4	0,2	0,7
The net effect of growth on poverty	η	-2,4	-2,3	-2,3	-2,6	-2,8	-7,7
The net effect of inequality on poverty	ζ	1,0	1,1	-9,7	-1,1	2,3	2,6
The effect of growth on poverty	δ	-1,3	-1,2	-12,0	-3,7	-0,5	-5,1

Note: These coefficients are estimated for the Poverty Gap Ratio.

As seen from the Table 3, the poverty equivalent growth rate (PEGR) is positive ($\gamma^*>0$) in 2003-2008 period and this verifies the reduction in poverty. However, PEGR is less than the growth rate of mean income ($\gamma^*< \gamma$), and that indicates the growth is not pro-poor in 2003-2005 period. The expected result does not verify. The decomposition components account this situation. First of all, pro-poor growth measure give the analogous result because it is less than 1 ($\varphi<1$). The growth elasticity of poverty shows poverty reduction ($\delta<0$), the neutral relative growth elasticity of poverty is negative ($\eta<0$), meaning that growth affects poverty positively and helps to poverty reduction. The answer of the why the expected result does not verify about pro-poor growth is based on the effect of inequality on poverty (ζ). This components must be negative ($\zeta<0$) for pro-poor growth, however the effect of inequality on poverty is positive ($\zeta>0$) from 2003 to 2005. Because of this, the expected pro-poor growth does not eventuate. But this result is opposite to income inequality results (Gini, coefficient of variation). The reason is that these income inequality measures take into account the whole individuals' income distribution, but pro-poor growth emphasizes only distribution of poor income. Furthermore, these results show that PEGR is higher in 2003-2004 periods than in 2004-2005 periods. This result is consistent with real macroeconomic indicators given in Table 1 as the growth rate is higher in 2004 than 2005.

The pro-poor growth in Turkey is valid only two years namely from 2005 to 2006 and from 2006 to 2007. Poverty equivalent growth rate (PEGR) is positive ($\gamma^*>0$) in these years and at the same time PEGR is higher than the growth rate of mean income[†] ($\gamma^*> \gamma$), and that indicates the growth is pro-poor from 2005 to 2007. The main contribution comes from inequality improvement, pure inequality effect of -9.7 percent.

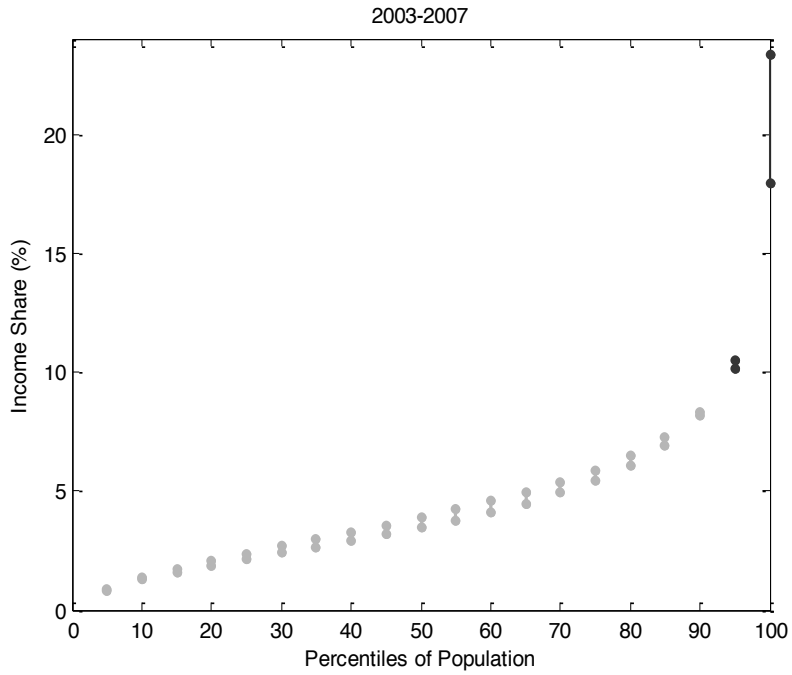
Poverty equivalent growth rate (PEGR) is positive ($\gamma^*>0$) in 2008 but it is negative in 2009 as a result of economic crises effect on growth. However, PEGR is less than the growth rate of mean income[‡] ($\gamma^*< \gamma$), and that indicates the growth is not pro-poor in 2008 and 2009.

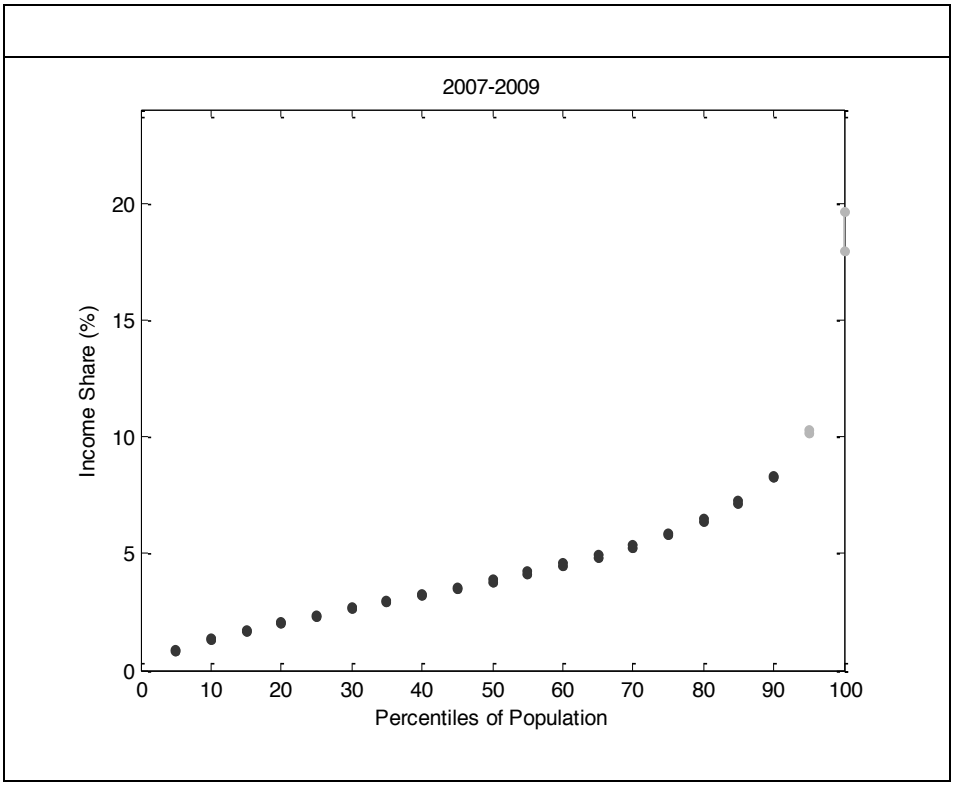
For the understanding inequality changes under these to periods, Figure 1 shows vigintiles for the first period and Figure 2 for the second period. In the graphs, each dot shows the income share for one year. If they are grey it means there is an improvement in their income shares from initial year to final year whereas the black ones indicate decreasing shares from

[‡] Head count index is not sensitive the distribution of income among poor. This measure takes into account the numbers of individuals under poverty line however it does not emphasize whether poor is close or far to the poverty line. Moreover Kakwani and Pernia (2000) denote that the P_2 (severity of poverty) measure that gives greater weight to poorer individuals: the poorer person, the greater the weight given to his or her income shortfall from the poverty line; thus it takes into account distribution among the poor. While P_2 measure for the year 2005 indicates that growth is not pro-poor and PEGR measure can be considered equal to the growth of mean income, so it is hard to say that the growth is pro-poor.

initial to final year. Figure 1 presents that the richest 5 percent income group get nearly 23.3 percent of total income in 2003 and this vigintile fell to 17.9 per cent in 2007. Therefore the dots have black colours. The decrease of their income share is remarkably high as 5.4 per cent. As a consequence, the declining shares for the highest two income groups from 2003 to 2007 and the increasing shares for the lowest and middle income groups reveal that there is an improvement in inequality

Figure 1: Income Shares by Vigintile





IV. Conclusion

The objective of this study is analyzing whether the rapid growth process is pro-poor or not in 2003-2009 period in Turkey. For this purpose, distribution of disposable income per equivalent household member and poverty measures are calculated. Then, pro-poor growth is analyzed by the help of Kakwani and son (2008)'s methodology.

In 2003–2005 period Turkey has experienced a rapid growth process, and the poverty and income inequality measures show reduction in poverty and income inequality. However, pro-poor growth analysis indicates that the growth process is not pro-poor because poor people's income distribution shares have reduced. But the growth performance in 2006 and 2007 creates a pro-poor growth in Turkey.

Moreover, it is shown that, income distribution inequality measurements may be insufficient for pro-poor analysis. So it is declared that, the detailed income distribution diagrams and tables can be helpful for searching the effects of inequality on growth. It would helpful that the study's extent will be expanded with future works via adding urban and rural area analysis.

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