

Does Economic Growth Help Poor People? Evidence from Iran in the first five-year plan

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Abstract

This paper examines the relationship between growth and poverty in Iran during the first five-year plan. In other words, effort has been made to show whether economic growth in Iran helped poor people or not. For this purpose the concept of pro poor growth has been analyzed with application to the economy of Iran, both in urban and rural areas and in the country as a whole. We use an indicator of pro poor growth in order to determine the degree to which poor people benefited or lost from the economic growth in Iran.

The results indicate that during the period of 1988-93, the extent of poverty declined in Iran. The decomposition of changes in poverty into 'pure growth effect' and 'pure inequality effect' showed that the former effect is negative and the latter is positive both in urban and rural areas and in the country as a whole. Pro poor growth index measured by poverty indices as headcount ratio, poverty gap ratio, and Foster-Greer-Thorbecke index shows that economic growth both in urban and rural areas and in the country of Iran is pro poor. Thus, according to findings in this paper, economic growth helps the poor people.

Keywords: Economic growth, poverty, Pro poor growth, pure growth effect, pure inequality effect, Poverty indices, Iran.

1- Introduction

The most important aim of the policies followed by the government of Iran after the Islamic revolution is alleviating poverty. The Islamic revolution brought about a new idea and a serious belief that in a just society, growth must be accompanied by equity. So, the objective of effort in economic performance is to reduce poverty with the aim to be accomplished by economic growth.

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During the first five-year plan, the economy of Iran has grown well, but there is an important question: does the economic growth help poor people? This is a controversial subject. Some economists think that economic growth is good for the poor, though many others believe the benefits of the growth did not reach the poor. Also, there are arguments in between.

Ravallion (1995) concluded that in developing countries, the growth process typically neither had strongly adverse impacts on the relative position of the poor nor had it been associated with a tendency for inequality to either increase or decrease.

The main purpose of this paper is about the consequence of performance of economic activities and its impact on the poverty situation in Iran. So, we examine the relationship between economic growth and poverty.

An analysis of the periods from the 1950s until the 1970s emphasizes the possible trade-off between growth and poverty. The famous Simon Kuznets' inverted U hypothesis' (Kuznets, 1955) which postulated an inverted U shaped relationship between growth and inequality ; i.e., as per capital income increased the inequality first increased and then decreased. The Kuznets hypothesized relationship had been examined by others, but evidence does not guarantee an inverted U shaped relationship (Deininger and Squire, 1998).

In the 1970s, emphasis shifted to the mechanisms to reduce poverty without restraining the growth (Chenery, Ahluwalia, 1974). Then, in the 1980s, researchers viewed growth as the vehicle for poverty reduction.

In the 1990s, growth and poverty relationships fell into challenges by a number of studies. The Economist reported the two main opposite views on the relationship between growth and poverty:

“Growth really does not help the poor: in fact it raises their incomes by about as much as it raises the incomes of everybody else ...”(The Economist, May 27, 2000, p.94), “there is plenty of evidence that current patterns of growth and globalization are widening income disparities and hence acting as a brake on poverty reduction.” (The Economist, June 20, 2000, p.6)

We can summarize different arguments about the effect of growth on poverty as follows:

- 1- The effect can go either way with no systematic path. (Goudie and Ladd, 1999)

- 2- The impact of growth on poverty depends on how the benefits are distributed across the population (Deininger and Squire, 1998).
- 3- There is a very strong systematic relationship between growth and poverty, that is, growth reduced poverty (Ravallion and Chen, 1997).
- 4- There is a strong systematic relationship between growth and poverty, but its responsiveness differs between urban and rural areas (Ali and Thorbecke, 1998).

In this paper we use criteria in order to examine the relationship between growth and poverty in Iran and investigate whether economic growth in Iran is pro poor.

Pro poor growth was the dominant belief during the 1950s and 1960s. The consequence of the pro poor is that everybody acquires the minimum basic necessities of life. It must be emphasized that the government adopt policies in favor of the rich. So, it is necessary for the government to pursue micro and macro policies that benefit poor people in order to not widen the gap between the poor and the rich. Two important questions are raised:

- 1- When can we say that growth is pro poor?
- 2- How can we measure pro poor growth?

We can define pro poor growth as enabling the poor to take part in the labor force and benefit from economic growth.

Three fields of study on poverty are involved in Iran:

- i) Estimates of poverty line,
- ii) Measures of poverty situation,
- iii) Interpretation of poverty under economic growth.

The first and second fields of study have been carried out enough by Pesaran (1975), Mehran (1977), Sohrabi (1979), Azimi (1985), Rahimi and Kalantary (1992), Assadzadeh and Paul (2001), Mahmoudi (2001) and others, but no serious study has been done with the third; i.e., poverty situation under economic growth is the main objective in this paper.

2- Methodology

The methodology used in this paper is based on data gathered from the Statistical Center of Iran and the Economic Research Department of Central Bank of the Islamic Republic of Iran by using estimate of poverty line and poverty ratios.

Rahimi and Kalantary (1992) estimated the poverty lines for urban and rural sectors in Iran (Table 1).

**Table (1): Estimation of Poverty Line for Iran
at 1989 Prices (1000 Rials)**

Estimate	Urban	Rural
Poverty	123.3	98.9

Source: Rahimi and Kalantary (1992)

Assadzadeh and Satya Paul (2001) estimated poverty line for urban and rural sectors in Iran, and non-food component of poverty line (table 2).

**Table (2): Estimation of Poverty Line for Iran
in 1989 (1000 Rials)**

Sector	Ratio of non-food expenditure to food expenditure	Non-food component of poverty line	Poverty Line
Urban	1.000	123.296	246.592
Rural	0.587	58.057	156.962

Source: Assadzadeh and Paul (2001)

For review of the approaches used in this study, see Ravallion (1994).

2-1- Measuring Poverty

Two issues in measuring of poverty arise: Identification; i.e., who are the poor? And aggregation, that is, an index of poverty on the basis of information about the poor. The former problem involves the choice of criteria for the poverty line and determining who are below the line, thus identifying a poverty situation. The most important indices for the latter problems are: Headcount ratio (H), Poverty gap ratio (PG) and Foster-Greer-Thorbecke index (FGT) which we focus on in this paper. For review the literature on the measures of the

poverty indices, see Sen (1997), Atkinson (1987), Kakwani (2000), Ravallion (1994). The simplest poverty measure is to count the number of the poor and check the percentage of the total population in this quintile. This ratio is called headcount ratio which is a very crude index:

$$H = q/n$$

Where: q = number of poor people and n = number of people. This measure merely tells us how many people are poor, but not how severe is their poverty and gives the poorest and richest of the poor the same weight. We can look deeper at poverty by measuring income inequality among the poor which is known as poverty gap ratio:

$$PG = (Z - YP) / Z$$

Where: YP = average income of the poor, and Z = poverty line.

Another poverty measure which views the poverty deeper than poverty gap ratio is Foster-Greer-Thorbecke index:

$$P\alpha = 1 / n [\Sigma (Z - Yi)] / Z$$

Where: Yi = per capita income of individual, α = poverty aversion parameter and $P\alpha$ is FGT index. The poverty aversion parameter can take any positive value or zero. As greater value of α is, the index weight situation of the very poor (the poorest in poverty line quintile) is more. When $\alpha = 0$ the index becomes the simple headcount ratio, with $\alpha = 1$, it becomes poverty gap and shows the relative importance accorded to all individuals below the poverty line. As α increases, more importance is given to the shortfalls of the poorest households. The FGT index used in this paper takes $\alpha = 2$ and assumes that each poor household is assigned a weight equal to its short stuff from the poverty line. Figure 1 illustrates the shape of FGT function, $P\alpha$, for $\alpha = 0$, $\alpha = 1$, $\alpha = 2$.

P_α Poverty measure

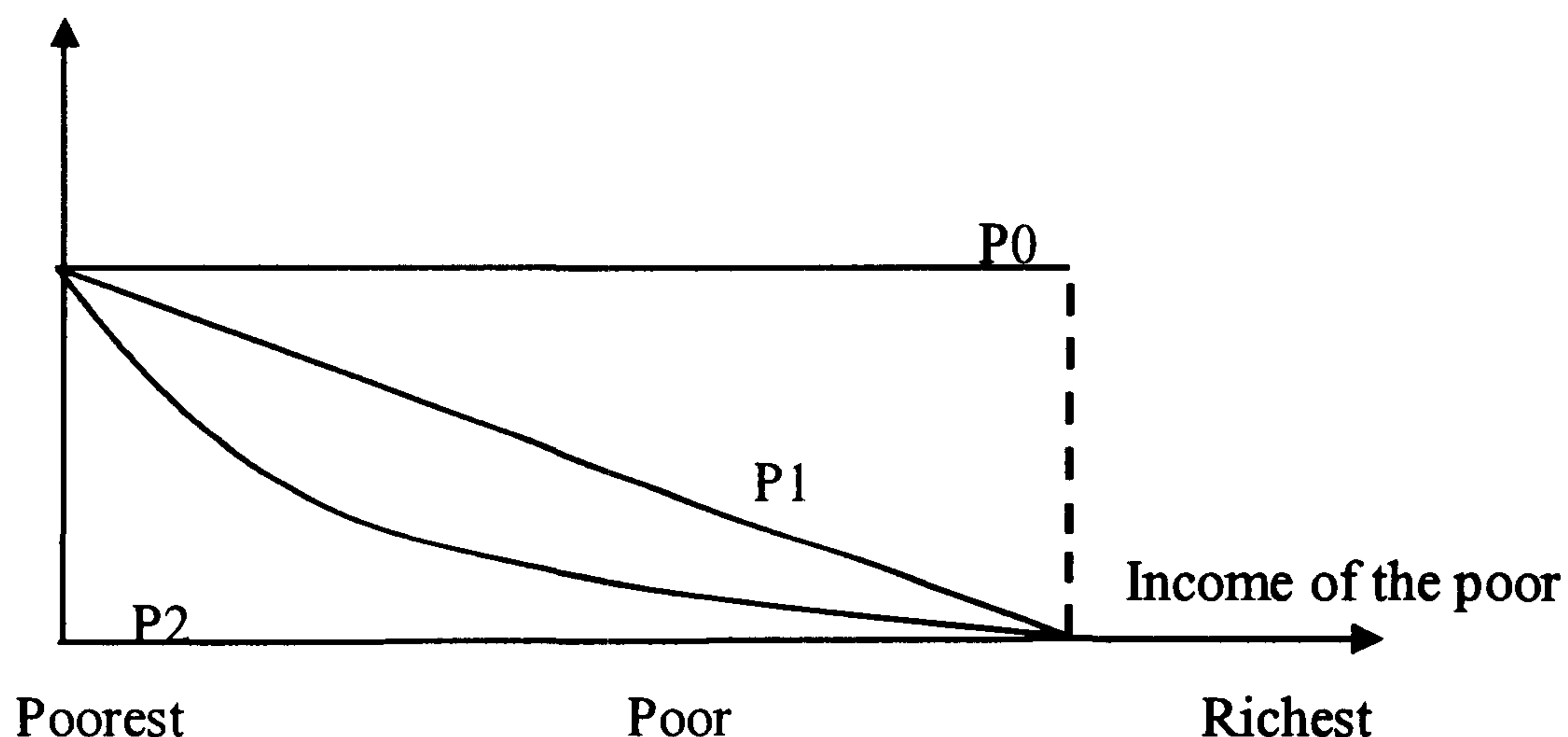


Figure (1): Comparison of FGT Index with Various Poverty Aversion

Relationship between poverty measures, P_α , and income of individual in the quintile of the population below the poverty line is depicted in figure (1). P_0 shows constant relationship between P_α and income of the poor. This measure accords to the poorest the same weight as to the richest of the poor. Thus sum of each individual's P_0 is simply the headcount ratio. Since the poverty gap income minus poverty line grows larger, gives more weight to the poorest and loses of the richest in the poverty measure; so, the measure P_1 has a linear and decreasing relation with income. The third measure, P_2 , quantified the poverty aversion which is strictly convex in income. The more increase in poverty measure the greater will be the poor (Ravallion, 1994, p.48).

Thus, the calculations of the headcount ratio, poverty gap ratio and FGT index show different aspects of poverty that is the number of the poor, the degree of income inequality and severity of poverty.

2-2- The Model

To explain the impact of growth on poverty and analyses usefulness of growth, it is necessary to incorporate all the possibilities that enhance well-being of the poor. However, it is really hard to do. So the major capacities, which lead

to improve the quality of life, should be chosen. Then it needs to adopt the appropriate indicators in order to show the degree of pro poor growth.

One approach to look at the impact of growth on poverty is to compare mean incomes across distribution ranked by income, which is a direct approach, called "Pen's Parade" (Pen, 1971). To see whether it is pro poor, it needs to calculate the growth rate in the mean of the poorest quintile. This approach is applied by Dollar and Kraay (2000). This approach takes a step further by a model known as "growth incidence curve" which shows how the growth rate for a given quintile varies across ranked by income. The mentioned model measures the rate of pro poor growth via integration on the "growth incidence curve" that is used by Ravallion and Chen (2001) in their important article "Measuring pro poor growth".

Here we used the new indicator of pro poor growth introduced by Kakwani and Pernia (2000) to analyze the nature of economic growth for the country, urban and rural sectors in Iran.

In order to understand the impact of growth on poverty and show its pro poorness, it needs to measure the impact of changes in each of the following circumstances:

a) The impact of growth when the distribution of income does not change which we call "pure growth effect".

b) The effect of income distribution when total income does not change, which we call "pure inequality effect".

For this purpose, suppose (P) is a poverty measure which is depended upon the poverty line (Z), the mean income (Y) and the income inequality measurement (L) ;i.e. the Lorenz curve:

$$P = f(Z, Y, L) \quad (1)$$

Defining total proportional change in poverty between two periods with respect to growth and inequality is as follows:

$$P_{1,2} = \ln P_2(Z, Y_2, L_2) - \ln P_1(Z, Y_1, L_1) \quad (2)$$

Where: $P_{1,2}$ = total change in poverty, Y_i and L_i are mean income and Lorenz curve in period i ; $i = 1, 2$.

So, proportionate change in poverty between two periods would depend upon the pure growth effect, $g_{1,2}$, and pure inequality effect, $I_{1,2}$:

$$P_{1,2} = F(g_{1,2}, I_{1,2}) \quad (3)$$

The pure growth effect can be expressed as:

$$g_{1,2} = 1/2 [\text{Ln}P'_2(Z, Y_2, L_1) - \text{Ln}P_1(Z, Y_1, L_1) + \text{Ln}P_2(Z, Y_2, L_2) - \text{Ln}P'_1(Z, Y_1, L_2)] \quad (4)$$

The pure inequality effect is:

Mean incomes Y_1, Y_2 are adjusted for price changes between two periods, but poverty line, Z , is fixed

$$I_{1,2} = 1/2 [\text{Ln}P'_1(Z, Y_1, L_2) - (\text{Ln}P_1(Z, Y_1, L_1) + \text{Ln}P_2(Z, Y_2, L_2) - \text{Ln}P'_2(Z, Y_2, L_1))] \quad (5)$$

Therefore, the aggregation of the two effects would be:

$$P_{1,2} = g_{1,2} + I_{1,2} \quad (6)$$

Total change in poverty is equal to the sum of pure growth effect and pure inequality effect. Pure growth effect would be negative⁽¹⁾, but pure inequality effect could be either positive or negative depending on whether growth makes inequality better or worse.

Defining poverty elasticity (e) as the percentage change in poverty resulting from one percent increase in growth rate therefore:

$$e = P_{1,2} / G_{1,2}$$

Where: $G_{1,2}$ = percentage change in growth rate.

Also, let pure growth effect elasticity e_G , and pure inequality effect elasticity, e_I , as percentage change in growth effect and percentage change in inequality effect resulting from one percent increase in growth rate. So:

$$e_G = g_{1,2} / G_{1,2} \quad \text{and} \quad e_I = I_{1,2} / G_{1,2} \quad \text{then:} \quad e = e_G + e_I$$

If e_I is negative, means that the growth is in favor of the poor and growth is pro poor. If e_I is positive, means that the growth is in favor of the rich and

1- Because with the constant distribution positive growth would reduce poverty.

growth is pro rich. Now introduce an index of pro poor growth, Ψ , as the ratio of poverty elasticity to pure growth affect elasticity, that is:

$$\Psi = e / e_G \quad \text{or} \quad \Psi = e_I / e_G + 1$$

This tells us: if pure inequality effect elasticity, e_I , is negative, then pro poor growth index would be greater than unity ($\Psi > 1$) and growth is pro poor⁽¹⁾.

And if pure inequality effect elasticity, e_I , is positive then pro poor growth index would be less than unity ($0 < \Psi < 1$) and the situation is known as trickle-down growth⁽²⁾. In the latter case if the value of pure inequality effect elasticity is greater than the absolute value of pure growth effect elasticity ($|e_I| > |e_G|$) then pro poor growth index would be negative ($\Psi < 0$) and the growth is pro rich⁽³⁾.

It should be noted that, when the growth rate is negative; i.e., during recession, the pro poor index would be as:

$$\Psi = e_G / e \quad \text{or} \quad \Psi = 1 / (1 + e_I / e_G)$$

Now, with the negative growth rate, the incidence of poverty declines in the case of negative pure growth effect elasticity ($e_G < 0$).

Now with the negative growth rate resulted in increasing in the incidence of poverty, which means positive poverty elasticity ($e > 0$) and also pure growth effect elasticity ($e_G > 0$).

Thus, depending on the relative value of poverty elasticity and pure growth effect elasticity, recession will be pro poor or pro rich. If the relative value of poverty elasticity is ($e < e_G$) the recession will be pro poor which means pro poor growth index is greater than unity ($\Psi > 1$). When poverty elasticity is larger than pure growth effect elasticity ($e > e_G$) the recession will be pro rich. In this case pro poor growth index is less than unity ($\Psi < 1$).

1- Growth makes the poor proportionally more benefit than the rich.

2- Growth is against the poor though reduces poverty incidence.

3- Growth is against the poor and increase poverty incidence.

3- Empirical Results

Poverty ratios in Iran during the period of the first five-year plan (1988-1993) were calculated as shown in Table 3.

Table (3): Estimation of Poverty Ratio for the Period 1988-1993 In Iran (%)

Year	Headcount ratio			Poverty gap ratio			FGT index		
	urban	rural	country	urban	rural	country	urban	rural	country
1988	51.2	55.2	52.9	19.4	21.8	20.4	10.0	11.7	10.7
1993	33.8	46.4	39.2	11.7	18.4	14.6	5.6	9.9	7.4

It is shown in the Table 3 that the poverty index declines with either ratio in each sector, rural, urban or the country. So, we can say that economic activities resulted in an improvement of the poverty situation in Iran. Moreover, it is shown that poverty in rural sector is more serious than in urban sectors and the country as a whole.

Proportional changes in poverty ratio during the first five-year plan are summarized in the table 4.

Table (4): Annual Percentage Change in Poverty Indices

Period	Headcount ratio			Poverty gap ratio			PGT index		
	Urban	Rural	Country	Urban	Rural	Country	Urban	Rural	Country
1988-93	-8.0	-3.4	-5.8	-9.6	-3.3	-6.5	-10.9	-3.3	-7.1

In order to show the impact of economic growth on poverty, it has been needed to decompose the change in poverty into the pure growth effect which is proportional change in poverty when the mean income changes holding the relative income distribution measured by the Lorenz curve constant, and pure inequality effect which is proportional change in poverty when relative income distribution changes, but the mean income holds constant. As we can see from the table 5, the pure growth effect is negative, but the pure inequality effect is positive in each sector – urban, rural or the country.

**Table (5): Pure Growth and in Equality Effect of Poverty in Iran
during the Period of 1988 – 93**

Effect on poverty	Sector	Headcount ratio	Poverty gap ratio	FGT index
Growth	Urban	- 9.8	- 13.1	- 14.4
	Rural	- 3.7	- 6.6	- 5.1
	Country	- 6.8	- 10.0	- 9.8
Inequality	Urban	1.8	3.5	3.5
	Rural	0.3	3.3	1.8
	Country	1.0	3.5	2.7

Between 1988 and 1993, the proportion of the population in urban, rural and the country of Iran measured by headcount, poverty gap, and FGT ratio are declined. With the growing real gross domestic product per capita an annual rate of 4.1 percent during the same period, poverty elasticities have been calculated and the results are shown in the Table 6

For example, the proportion of poor people, as measured by the FGT index declined at an annual rate of 7.1. It means on average a one percent growth rate leads to a reduction in poverty incidence of 1.73 percent. The reduction in poverty can be explained by 2.39 percent decline in pure growth effect and 0.66 increase in pure equality effect. In other words, if inequality had not increased, each one percent growth would have decreased poverty by 2.39 percent.

**Table (6): Poverty Elasticities with Respect to Different Poverty Indices
in Iran During the Period of 1988- 93**

Elasticity of	Sector	Headcount ratio	Poverty gap ratio	FGT index
Poverty	urban	-1.95	-2.34	-2.66
	rural	-0,83	-0.80	-0.80
	country	-1.41	-1.58	-1.73
Pure growth effect	urban	-2.39	-3.19	-3.51
	rural	-0.90	-1.61	-1.24
	country	-1.66	-2.44	-2.39
Pure inequality effect	Urban	0.44	0.85	0.85
	Rural	0.07	0.80	0.44
	Country	0.24	0.85	0.66

Consequently, economic growth in Iran had been pro poor and the results are shown in Table 7. For example, with respect to the FGT index the economic growth in Iran during the first five-year plan with a value of 0.72 was pro poor.

Table (7): Measuring of Pro poor Growth Index with Respect to Different Poverty Indices during the Period of 1988-93

Measure of	Sector	Headcount ratio	Poverty gap ratio	FGT index
Pro poor growth	urban	0.81	0.73	0.76
	rural	0.92	0.50	0.64
	country	0.85	0.65	0.72

As we see in Table 7 measures of pro poor growth index by FGT index is larger than poverty gap ratio⁽¹⁾ and smaller than headcount ratio. According to the value judgment about pro poor growth index, Ψ , if the value of pro poor growth index is negative, growth would be anti poor; i.e., pro rich. If its value were positive, growth would be pro poor. In the case of positive value, if the pro poor growth index were greater than unity, it would be strongly pro poor growth. Measuring pro poor growth index by different poverty indices in Iran during the period of 1988-93 in each sector urban, rural or the country confirms that the growth is pro poor, but not to a high degree.

According to the measurements, the pro poorness of growth in rural sector with respect to headcount ratio more or less is stronger than urban sector and country, but with respect to other indices is weaker than urban sector and the country.

Thus, the empirical application suggests an inverse relationship between growth and poverty in Iran; i.e., growth helps to reduce poverty, and a positive relationship between poverty and inequality. The results suggest inequality should not be sacrificed for growth and vice versa. That is, we can rely on

1- The poverty gap ratio is the product of the headcount ratio and the average amount by which the per capita income of the poor falls short of the poverty line expressed as a proportion of the poverty line.

policies, which consider growth and inequality simultaneously. So, the policy implication would be that the government should give priority to the growth-based strategies that improve opportunities for poor people.

We can say that if there is sufficient economic growth, it would reduce poverty. If the politicians work well and institutional environment is well-established, economic growth could be substantial. But when institutional environment is not in a well-organized position and as we know some aspects of the environment are hard to change and put them right, moreover, some politicians may not have an interest to change the institutional environment; therefore, poverty reduction results will be held largely in the social and political sphere.

After all, measuring pro poor growth index made us to conclude that the growth is good for poor people in urban, rural and the country of Iran.

4- Conclusion

In spite of the importance of growth and poverty relationship and highest priority of poverty alleviation, there have been very limited studies on this subject. No effort had been made to study the goodness of economic growth with respect to poor people in Iran. The main objective of this paper is to examine the relationship between economic growth and poverty in Iran. Attempts have been made to answer a serious question: Does economic growth help poor people? For this purpose, the concept of pro poor growth has been analyzed, the analysis carried out in the case of Iran for urban, rural and the country during the first five-year plan. By using the indicator of pro poor growth index, the degree to which poor people benefited or lost from economic growth had been measured.

The results indicate that during the period of 1988-93, the extent of poverty declined in urban, rural and the country of Iran. Changes in poverty decomposed into 'pure growth effect' and 'pure inequality effect'. The decomposition found that the pure growth effect was negative, but the pure inequality effect was positive in urban, rural and the country. Thus, between 1988 and 1993 the proportion of the poor people in urban, rural and the country of Iran measured by headcount ratio, poverty gap ratio, and Foster-Greer-Thorbecke index declined. Measuring pro poor growth index by various poverty indices show that the economic growth in Iran either in urban, rural and the country is pro poor.

So, we can say that the impact of economic reform policies initiated by the government during that period improved the poverty situation in Iran; and according to the findings of this paper, economic growth is good for poor people. It should be noted that in measuring pro poor growth we focus on that part of income distribution that mostly affects the poor. We could use the Gini coefficient index in order to measure the pro poor growth, but the Gini index gives the maximum weight to the individual, near the mode of income distribution, so it is not a good tool for this purpose. Thus, the index used in this paper is superior to the Gini index and preferred to the 'growth incidence curve' for analyzing the pro poor growth.

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