

The Effect of Macroeconomic Policies on Poverty in Iran

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Abstract

The objective of this study is to analysis the effectiveness of government intervention on poverty groups using a general equilibrium model. The social accounting matrix of year 2002 was used to estimate the GE model. The results indicate that absolute poverty line for the urban and rural regions are 3.7 and 2.4 million Rials respectively. Also the result shows that the majority of Iranian households are living under the poverty line. Thus, it is expected that the average propensity to consume among the households is high but on the other hand the average propensity to save is low.

Keywords: Iran, intervention, Poverty line, household, general equilibrium

1. Introduction

One of the main objectives of the government economic development programs in each country is to improve the economics conditions of people and reduce the poverty of the society. A structural change is required to be applied to reduce the poverty situation of the society. This could be done by an economic and social solution of poverty decreasing policy. Some economists believe that poverty is as a result of some economic – social factors. So it is necessary to try to find the main elements of poverty. A short term solution is a direct or indirect payment to the consumers. Subsidy on basic goods can be considered as a short – term support policy. But the long term aim is that the government has to protect the poverty groups by providing a necessary revenue acquisition condition. The creation of economic chances for poor people in order to combat with poverty is another long term solution. But the current government intervention policy doesn't provide any desirable chances for the poverty groups. In this study an attempt was made to use a general equilibrium model to analyze the effectiveness of government intervention policy regarding to the poverty issues.

2. Literature Review

Most of the previous studies have worked on only one of the components of government expenditure as a factor affecting on the poverty.

Cane (2000) in Indonesia investigated the expenses of the road construction on the poverty. In this study they tried to separate the different states with suitable and unsuitable road. The results showed that one percent increase in the investment causes a 0.3 percent decrease in poverty in a 5 years period. Balsa Cane and Purina's study (2002) in Philippines showed that one percent increase in accessing to the road with instructive facilities decreases the income of poor people by 0.32 percent. Van D wall's study (1998) in Vietnam showed that the expanding of the irrigation facilities to the poor households who had small land increases the poor households' income more than the rich households. Fane and Junk findings (2002) showed that a 10 percent increase in investment on irrigation projects causes a 1.13 percent decreases in poverty index. Fane (2003) in his study showed that among the different components of government expenditure in rural sector, investment in research and extension, irrigation, rural instruction and infrastructures had more effect on decreasing the poverty. Lion man and Schubert (2004) by the Neo Keynes standard model investigated the government expenditure effect on consumption behavior of the people. The results of their study showed that an increase on the government expenditure could cause an increase in private consumption. Bhasin and et al (2005) investigated the effects of eliminating of commercial taxes on the poverty and the distribution of the rich people income. In this study the households are divided to a number of groups such as; the farmer with land, Government employers, private sector employers, the labors without land and unemployed people. The statistic general equilibrium model was used and the data were calibrated for the year 1999 and in order to access to the equilibrium condition before making the scenario the GAM soft ware was used. The effects of

shocking (the eliminating the trade taxes) on the poverty and households income by using the DAD software and the effects of income distribution with PCGLVE software was analyzed. In this research two scenarios were planted and their effects were followed. These scenarios included the perfect eliminating of import tariffs for the total import with the 100 percent increase in tax on the value added and the eliminating of all export taxes and the 100 percent increasing on value added. The result showed that the first scenario causes the decreasing of poverty and the second scenario causes a worse condition for the poor people.

Corryton and Cockburn (2005) in Philippine used a CGE model with 12 production sectors to investigate the effect of a reduction in tariffs on the poverty. Their model had 12 production sector, including 4 agricultural sub sectors, 5 industrial sub sectors and 3 services' sectors. In order to investigate the poverty resulting from the change in household income and consumptive price of consumer because of reduction of tariffs, the FGT index was used. To examine the income distribution of people a Gini coefficient was used. In overall, the results showed that any reduction in tariffs causes a decrease in the consumer price by 2.57 percent and so the household real income increase by 0.9 percent. Household consumption expenditure price index was calculated after the tariffs' reduction for the rural and urban household.

3. Method and Material

General equilibrium models (GE) have been used since early 1980s. The GE Models have advantages of showing the relationship between production sectors at micro and macro levels and also affects on changing of policies in different economic sectors. The literature related to the general equilibrium model shows that the theory of the model was developed since 1930s. Uhansen (1960) used the general equilibrium model for the first time to study the Norway's economy. The structure of this model is based on the definition of Walraws' general equilibrium model which was formulated by Arrow and Debru in the 1950s. In this study the effect of growth in households' expenditure on poverty was examined. The changes in consumption and prices levels were estimated by increasing of expenditure by 20 and 50 percent respectively. The next step was to examine the results on a selected group of expenditure at rural and urban household levels. In order to evaluate the expenditure change on, the FGT index was used. The FGT index is as follow (Datt, 1998) :

$$P_{\alpha} = \int_0^z \left[\frac{Z - X}{Z} \right]^{\alpha} f(X) dX \quad \alpha \geq 0 \quad (1)$$

Whereas, variable x shows the household consumption expenditure, $f(x)$ is the household consumption expenditure function (the ratio of population who consume the x expenditure, z represents the poverty line and α is a non-negative parameter. The above function can be written in a simple form (Minot & Goletti, 2001):

$$P_{\alpha} = \left(\frac{1}{N} \right) \sum \left(\frac{Z - X}{Z} \right)^{\alpha} \quad (2)$$

Where, N is the numbers of population. The higher value of α shows the inequality between the poor people. In this study three values of; 0, 1, 2 for α were used. The required data for this study are based on the last social accounting matrix of year 1380 which was collected from the Central Bank of Iran. The matrix has 14 rows and parallel columns including agricultural and none agricultural goods and activities, production factor (labor and capital), institutions (urban and rural households and government), various taxes (i.e. income tax, sale tax, import tax), and national saving and investment. The data for analyzing the poverty such as monthly expenditure and household level of selected urban and rural regions are collected by the Iran statistic center annually. The data's related to the consumption expenditure of the urban and rural households of the year 1385 were obtained from Iran statistic center for 2000 urban and rural households. The GAMS software was applied to estimate the model and the DAD soft ware was use to calculate the FGT index d .

3. Results and Discussion

The FGT index proposed by Foster, Greer and Thorbecke in 1984 was used. The FGT index is considered as a function of poverty gap ratio which is formulated in equation 2: n shows the numbers of all households, z , and poverty line, Y_i , household income. The three values for α are; the census ratio, $\alpha = 0$, to measure the poverty gap $\alpha = 1$ and to measure the poverty intensity $\alpha = 2$. In fact if α is more than 1, more sensitivity and weight would give to the poverty. The high value of P_2 indicates that the most weight is given to the households who have a highest distance from the poverty line. So as the index increases the income gap between households will increase.

This index could be calculated within the sub-sectors which have special social – economic impact in the regions. Thus the index can show the poverty intensity in the different groups of poor people. The individual poverty index is shown in Figure (1). According to the figure an increase in the individual income in order to reach to the poverty line doesn't cause any change in the poverty census ratio. The relation between the poverty gap index P_1 and income also is negative and has a constant slope. It means that by increasing the income of poverty groups, their distance to the poverty line will decrease in linearly. The index of poverty index gives a higher weight to the poor

people. According to this index the level of poverty gap of poor people has a higher value. This finding confirms the convexity of poverty intensity curve related to the income level which is shown in figure 1 (Ravallion, 1994).

The FGT index was used to calculate the percent of the individuals who are under the poverty line the poverty gap and poverty intensity as a result of decreasing in government expenditure. The effect of a reduction in government expenditure in general equilibrium model would decrease the commodity contribution in government consumption and decreases taxes. A decrease in tax level would increase the consumers demand. A reduction in government expenditure could lead to decrease the producers' costs and internal prices. As a result of reduction in prices the individual demand has increased significantly.

Reduction in the price of composed consumer goods has increased the real income of households and their expenditure and saving capacity. The result of General Equilibrium model indicate that the demand of consumption goods has an inverse relation with the price of composed goods and a direct relation with the consumption expenditure. So the level of changing in price of consumer goods due to the different levels of reduction in government expenditure has been estimated within the model at rural and urban regions. The computed poverty indexes in the present condition are presented in the table (1). In order to calculate this index the poverty line was used. According to the results of this study the absolute poverty line for the urban and rural regions in the year 1385 in Iran were 3716040 and 2386543 Rials respectively per month. Of course it shouldn't be forgotten that the absolute poverty line value isn't so important in this study. The result also indicates that about 28.78 percent of rural households and 39.7 percent of urban households are living below the poverty line. The poverty gap for the two groups is 6.18 and 9.6 percent respectively. The table (1) shows the poverty line and the related indices.

The scenarios of decreasing the government expenditure is included five levels, 10, 20, 30 and 50 percent. According to the theoretical basis, it is expected that by reducing the government expenditure the investment of private sector and employment increases. It is also expected that reduction in taxes would cause the production cost to decrease and the price of the goods and produced services will decrease. The results of government expenditure reduction on poverty indexes in urban and rural areas are given in tables 2 and 3.

The results presented in the table 3 indicate that the present of difference in poverty indices among the urban and rural groups will decrease the government expenditure. In both groups decreasing of the expenditure will lead to reduction in poverty gap and intensity continuously. For example a 50 percent decrease in the expenditure, the index of the poverty gap between the urban households decreases more than 8 percent while this figure for the rural households is 7 percent. Also the absolute amount of the poverty gap in the urban region with a 50 percent decrease is more than rural region. So a 50 percent decrease in the expenditure, the index of poverty intensity among the urban households will improve by 7.6 percent while the same figure for the rural households is 6.28 percent. In over all, according to the findings of this study it seems that the poverty intensity and poverty gap in the urban regions of Iran is greater than the rural regions (table 3). Between poverty gap and poverty intensity is a positive and relatively high correlation; hence in the region which the poverty gap is high, the poverty intensity is high too. It should be mentioned that it might be possible in a special region the poverty gap be more than the other regions and at the same time the poverty intensity be lower. This means that in the region which the poverty intensity is more, the distribution of income is more unjust in a way that majority of the population are low income. With decreasing government expenditure from 10 to 50 percent, the poverty gap among the urban households will decrease by 2.33 to 8.47 percent.

The poverty intensity will decrease with the decrease of the expenditure by about 3.2 percent to 7.6 percent. Also a decrease in government expenditure by 10 to 50 percent the poverty gap in the rural region will decrease by 1.1 to 7.01 and the index of poverty index will decrease by 1.38 percent to 6.28. It can be seen that the amount of change in poverty gap and poverty intensity in the urban region is more in relation to the rural regions.

5. Conclusion

It can be summarized that based on the results of this study, a considerable percentage of Iranian households are below the poverty line. Hence it is expected that the average propensity to consume among the households be too high, but as it was seen, the average propensity to consume is low. In terms of theory, it can be said that in the condition of Iran with a high inflation rate, the opportunity cost of consumption is high. On the other hand with a high propensity of saving and investment in the society, it can be said that the individuals try to overcome the high inflation rate they try to save and invest more. This behavior of society could relatively explain the reasons why the consumption expenditure does not increase by an increase in income level.

According to the findings of this study it can suggest that in order to reduce the number of people under the poverty line some policy measures should be taken. First of all government should try to reduce the inflation rate by increasing the production capacity of the society. This can be done by encouraging the private sector to invest in production section rather than in services section. The security for investment is an important element in Iran that should be done by the government. Parallel to inflation reduction policies, it is also needed to increase the real income of the low level population by providing them cheap foods and public services. The distribution of wealth and income is not fair in Iran. The gap between rich and poor is increasing significantly as a result of poor tax management system. So it can be suggested an efficient and justice wealth distribution system in Iran.

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Table 1. poverty line and the FGT indices, 1385

Household	Absolute poverty line	F(0)	F(1)	F(2)
Urban	3716040	39.7	9.6	3.5
Rural	2386543	28.78	6.18	2.2

Source: findings of the Study

Table 2. the effect of decreasing the government expenditure on the poverty indexes of urban regions

Poverty indexes	Present condition	Decreasing of the expenditure by 10 (percent)	Decreasing of the expenditure by 20 (percent)	Decreasing of the expenditure by 30 (percent)	Decreasing of the expenditure by 50 (percent)
Poverty gap $\alpha = 1$	9.6	9.39	9.22	9.12	8.85
	The changes in relation to the present situation (percent)	From -2.23 to -8.47			
Poverty intensity $\alpha = 2$	3.5	3.39	3.38	3.3	3.25
	The changes in relation to the present situation (percent)	From -3.2 to -7.6			

Origin: research findings

Table 3. The effect of decreasing the government expenditure on the poverty indexes of rural regions

Poverty indexes	Present condition	Decreasing of the expenditure by 10 (percent)	Decreasing of the expenditure by 20 (percent)	Decreasing of the expenditure by 30 (percent)	Decreasing of the expenditure by 50 (percent)
Poverty gap $\alpha = 1$	6.18	6.11	6.02	5.92	5.77
	The changes in relation to the present situation (percent)	From -1.1 to -7.01			
Poverty intensity $\alpha = 2$	2.2	2.17	2.15	2.09	2.07
	The changes in relation to the present situation (percent)	From -1.38 to -6.28			

Origin: research findings

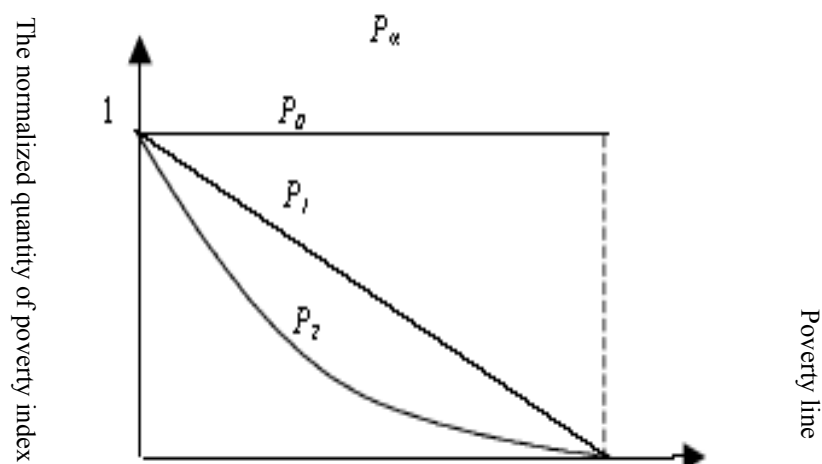


Figure 1. measuring the poverty of individual