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THE IMPACT OF ECONOMIC GROWTH AND INSTITUTIONAL QUALITY ON POVERTY IN IRAN

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ABSTRACT

The objective of this research is to evaluate the impact of institutional quality and economic growth on poverty in Iran. Poverty and inequality are among the social phenomena, considered by decision-making centers and academic communities. Thus, its investigation and the methods of reducing these phenomena are considered among the most important tasks of economic policy makers. This research uses Generalized Method of Moments (GMM) during the period of 1984-2015 to evaluate the impact of economic growth and institutional quality on poverty. The results indicate that economic growth in Iran has led to increased poverty and reduced institutional quality index of poverty. The current research recommends that government to use pro-poor growth policy to reduce poverty.

Keywords: *Poverty, Economic Growth, Institutional Quality*

INTRODUCTION

Poverty is a problem affected various countries for several years, and despite economic growth, it is found still among non-developed or developing countries. Economic growth has been recognized as an important factor involved in poverty reduction. While the impact of economic growth on increased income of the poor people has been proven, Dollar and Kraay (2002) And Adams (2004) and Basu and Mallick (2008) did not show any significant relationship between economic growth and poverty, and despite the belief that economic growth reduces the poverty, poverty reduction through economic growth has remained a vague claim. At present time, a few economists might believe that growth is all that needed to improve the life of the poor people (Ghaffari, 2014: 223).

Accelerating the process of poverty reduction requires a strategy, which in addition to improving the rate of economic growth, pays attention to other dimensions, such as removing the institutional restrictions and developing new opportunities. Analysis of the nature of institutions helps us have a deep understanding of poverty and it provides more effective strategies in order to reduce poverty. This paper differs from other studies in this regard, since the correlation among the institutional quality variables has been solved using principle components analysis method given the high correlation among the institutional quality variables. While institutional quality variable of the political risk have been used only in most of the papers, institutional quality variables of political risk, economic risk, and financial risk are used in this research.

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Reviewing the studies conducted on the impact of economic growth and institutional quality on poverty, theoretical principles of the research are reviewed and the empirical model is introduced and required data are examined. Finally, conclusions and recommendations are presented.

REVIEW OF LITERATURE

In general, the number of studies conducted on the impact of economic growth and institutional quality on poverty both in Iran and foreign countries is limited. However, we tried to collect and present the relevant studies.

Piraee and Ghanaatian (2006) evaluated the impact of economic growth on poverty and income inequality in Iran during the period of 1995 to 2003 in urban and rural areas of Iran using pro-poor growth indices (Kakwani and Perina, Son, Kakwani, Khandeker and Son). The results of this research suggest that the number of poor people in urban and rural areas of Iran decreased during the period of 1995-2003 and the severity and depth of poverty decreased in urban areas and increased in rural areas in the same period.

Using panel data econometric model, Sadeghi et al. (2009) examined the impact of economic growth of countries on poverty and inequality for developing countries, such as Iran and developed countries. The research results indicated that increase in the GDP growth variable led to reduced poverty and inequality of income.

Chang and Calderon (2000) evaluated the relationship between institutional quality and poverty during the period of 1960 to 1990 with ordinary least squares method and two-stage least squares method in 49 countries of three continents of Asia, Africa, and the United States. The findings of this study indicate a negative relationship between institutional quality index and different poverty indicators.

Devangi et al (2013) used the Generalized Method of Moments (GMM) during 1985 to 2009 to investigate whether the economic growth and institutional quality in Asia were effective in reducing poverty and inequality. The results of the research showed a significant and positive correlation between GDP growth and poverty and improving institutional quality was associated with reduced poverty.

Dhrifi (2013) examined the triangle of economic growth, inequality, and poverty. In this research, a simultaneous equations model of panel data was used to examine the relationship between income inequality and economic growth in 70 countries during the period of 1990-2010. The results of this study show that the rate of economic growth increased poverty and improving the institutional quality resulted in reduced poverty.

Amini and Dal Bianco (2016) used the Generalized Method of Moments (GMM) to examine the relationship between poverty, economic growth and income inequality in 109 developing countries during the period of 1981-2008. They concluded that improving the institutional quality reduced poverty and also increased the impact of economic growth on poverty reduction.

Cuestas and Intartaglia (2016) evaluated the impact of institutional quality on poverty during the period of 1985-2009 in 69 countries. They concluded that improving institutional quality both in the short-term and long-term led to reduced poverty.

THEORETICAL PRINCIPLES

The theoretical principles of this research were reviewed in two sections. In the first section, the relationship between economic growth and poverty is investigated, and in the second section, the relationship between institutional quality and poverty is investigated.

Relationship between economic growth and poverty

In analyzing the relationship between economic growth and poverty, three concepts of trickle-down growth, immiserizing growth, and pro-poor growth were developed (Ravallion and Chen, 2003). In the trickle-down growth, which was the governing thought in 1950s and 1960s, the benefits resulting from economic growth gradually and indirectly pass from rich people to poor people. In the immiserizing growth, high economic growth leads to increased poverty. Accordingly, by increasing the average income, large groups of people become poor and it has been argued that economic growth may make poor people poorer. Based on this view, when countries implement development strategy policies without considering the comparative advantages, it would result in loss of resources of the country and make the community poorer. The immiserizing growth scenario was proposed by Bhagwati (1988) in the conditions of Green Revolution. In those conditions, farmers produced more agricultural products using new seeds, led into reduced price of agricultural products. However, there were poor farmers who were not able to use technology and new seeds and suffered by reduction of agricultural prices. Thus, the green revolution increased the inequality and poverty among farmers and landowners. (Bhagwati,1988). Two completely different definitions are found in the literature on pro-poor growth. Based on the first definition, presented by Kakwani and Pernia (2000), "pro-poor growth means that if the economic growth occurs, the income of the poor people would be higher than that of the non-poor people". This definition focuses on the change in the growth flow. In this case, the growth would be in the interest of the poor people when the income of poor people increases more than that of people who are not poor. Another definition provided by Ravallion and Chen (2003) and Ravallion (2004) states that pro-poor growth is a growth that reduces poverty. Based on this definition, if growth reduces the poverty, even slightly, it would be for the favor of the poor people. In this regard, literature on whether economic growth is in the interests of the poor or not, especially in recent years, has expanded, and various views have been followed by different results on the relationship between poverty and economic growth. Thus, it is necessary to re-evaluate the relationship between economic growth and poverty in this new structure.

relationship between institutional quality and poverty

North (1990) has stated that institutions are rules of game in the community. In other words, they are constraints established by humans and develop interactions among the human beings. As a result, institutions make motivations in human exchanges structured. These motivations are political, economic or social (North 1990). Institutions include social networks, gender roles, legal systems, administrative and political systems, and the government system in general, with have more interaction with each other (Deolalikar et al, 2002: 2). Institutions are divided into two government and non-governmental classes. Government institutions cover many aspects such as providing public education and health services, public order and security, and infrastructure. The governance has been also determined as availability and quality of public services and the extent to which the poor people have access to these services. Social, cultural, and institutional factors directly and indirectly influence the poverty reduction policies. For example, political deprivation might restrict access of some groups to social services and poverty

reduction programs. The growth of agricultural sector might be less beneficial for poor people due to institutional problems in the implementation of land reform programs. Moreover, taboos and social and cultural beliefs in some groups might result in deliberate deprivation of certain groups to participate in anti-poverty programs (Deolalikar et al., 2002: 11).

In general, institutional quality directly and indirectly affects poverty through a number of intermediary factors (Deolalikar et al., 2002). The following figure shows the nature of the relationship between institutional quality, economic growth, and poverty reduction. It also describes how institutional quality reduces poverty, so that improving the institutional quality can affect economic growth and income distribution through selecting macroeconomic trade and economic policies such trade and financial liberalizing, and the flexibility of the exchange rate and the labor market. However, more emphasis is on the direct impact of institutional quality on poverty.

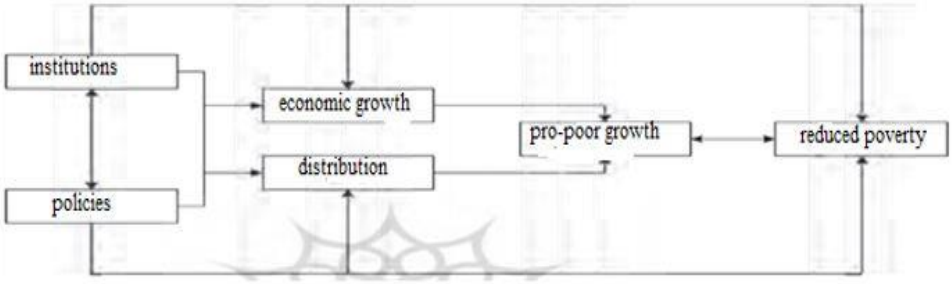

Figure 1: relationship between institutional quality and poverty reduction (Source: Deolalikar et al., 2002)

While empirical literature focuses on the relationship between institutions and economic performance, less attention has been paid to the relationship between institutional quality and poverty so far. A key explanation for it is lack of an analytical framework to analyze institutional quality in economics and economic history to investigate the poverty. Given many potential dimensions and types of institutions and the multi-dimensional nature of poverty, it is necessary to develop a unique framework, which can analyze the relationship between institutional quality and poverty.

INTRODUCTION OF MODEL AND DATA

In this paper, the Generalized Method of Moments (GMM) is used to estimate the model. The reason to use the generalized method of moments (GMM) is factors such as variance heterogeneity, auto-correlation, endogenous variables in the model and the lag of dependent variable on the side of the explanatory variables. These factors result in inefficiency of the generalized least squares and ordinary least squares models (Gujarati, 2011: 321). If the explanatory variables of the regression model are endogenous, they might be correlated with the regression error term and ordinary least squares estimator would be biased (Adkins and Carter Hill, 2008).

To test endogenous of the variables, Durbin-Wu-Hausman test is used. One of the ways to control endogenous of variables is using an instrumental variable. An instrument will have the

necessary power when it is correlated highly with the variables tested, while it is not correlated with the components of the error (Ebbes et al., 2005). To detect the endogenous explanatory variables in the model, we should abandon the use of ordinary least squares method and find an appropriate method, which produces unbiased estimators. One of the known methods proposed in the econometric literature is the instrumental variables (Gujarati 2011).

Among the instrumental variables methods, generalized method of moments (GMM) is appropriate to solve the problems of endogenous variables and so on. One of the advantages of the GMM method is that it can provide efficient estimates of the parameters in the non-linear models with an endogenous variable by using the instrumental variables (Fei Han, 2012: 2).

The appropriate instrumental variables have the following three characteristics:

1. Relevance: the instrumental variable should be correlated with the endogenous variable.
2. Endogenous instrument: The instrumental variable should not be correlated with the error term
3. It should not be used as an explanatory variable in the model (Gujarati, 2011)

To ensure that the GMM method is appropriate, sargan- Hansen test is used to estimate the model. Sargan- Hansen test is used to prove the validity and reliability of the instrumental variables (Baum and Schaffer, 2003).

In order to evaluate the impact of economic growth and institutional quality on poverty in Iran's economy, the following model is used:

$$FGT_t = \beta_0 + \beta_1 FGT_{t-1} + \beta_2 (GDPPER)_t + \beta_3 (NAHADI)_t + U_i \qquad (2)$$

FGT: it is a poverty index and Foster, Greer, and Thorbecke indices would be used for this purpose. The reason to use this index is indicating the proportion of poor people and the depth of poverty in the studied population, suggested by Foster, Greer, and Thorbecke indices (1984).

$$FGT_\alpha = P_\alpha = \frac{1}{n} \sum_{i=1}^{q} \frac{(z - x_i)^\alpha}{z^\alpha} \qquad (3)$$

N is the number of sample people, q is number of poor people, z is poverty line and xi is the income of i^{th} poor person. If the parameter α is zero, this index would be converted to census index, and if it is one, this index would be converted to gap index. If α=2, this index would show more sensitivity to the depth of poverty and it is converted into FGT. In this research, poverty line is calculated based on its absolute concept and the need of 2300 calories per day calculated in the Research Projects of Statistics Center during the period of 2015-2018 in order to calculate the FGT index.

GDPPER is an economic growth index and per capita GDP is used for this purpose. GDP per capita data are extracted from the World Bank's website at price of 2010, based on GDP per capita data.

NAHADI: It is the institutional quality index, and political, financial and economic risk is used in this regard. In this research, the institutional quality indicator is derived from ICRG index in the period of 1984-2015. As the variables determining the institutional quality are reported monthly, they have been turned to annual by averaging. Political, economic, and financial risk factors, the variables of the quality of the administrative system, the economic and social conditions, racial tensions, foreign conflict, religious tensions, military involvement in politics,

government stability, investment prospects, government budget deficit risk, current account balance are used as a percentage of exports and imports, exchange rate stability risk and foreign debt payment risk were used as the representative of institutional quality variables. In this paper, due to the unmatched weight of the data, the data were first normalized so that all data to be matched in terms of unit. To combine institutional quality data, the principle component method is used to weight them. For this reason, weighing is used as follows:

$$NAHADI=/30X_1+/23X_2+/26X_4+/29X_5+/28X_6+/29X_7+/32X_8+/32X_{10}+/32X_{12}+/24X_{18}+/29X_{19}+/26X_{20} \quad (4)$$

The KMO index is equal to 0.749 (higher than 0.6), indicating that the principle components analysis method is appropriate to identify the model structure.

ESTIMATE METHOD

In this section, the stationary of the variances is first measured by the Generalized Dickey-Fuller test. The Durbin-Wu-Hausman test is used to investigate the endogenous explanatory variables. Then, the estimation is performed based on the generalized method of moments and sargan-Hansen test is used to test the relevance and validity of the instrumental variables used.

Generalized Dickey-Fuller test

In the GMM method, investigating the stationary of the variables has particular importance. Thus, before model estimation, we should investigate the stationary of data. In this research, Generalized Dickey-Fuller test is used to test the variables. The test and critical statistics related to each of the variables are calculated using Eviews software and they are presented below:

Table 1: results of stationary test of model variables

Variable	Abbreviation	Computational statistic value	Significance level	Critical values	Degree of accumulation	Results
Economic growth	GDPPER	-3,06	1%	-2,64	I(0)	stationary at level
			5%	-1,95		
			10%	-1,61		
Institutional quality **	NAHADI	-2,64	1%	-3,67	I(0)	Stationary at level and intercept
			5%	-2,96		
			10%	-2,62		
Poverty	FGT	-13,716	1%	-3.724	I(0)	Stationary at level and intercept
			5%	-2.986		
			10%	-2.632		

Source: research findings. ** Significant at level of 0.10

As shown in Table (1), the variables of poverty and economic growth are significant at 5% level and the institutional quality variable is significant at 10% level. It could be stated that all variables of the GMM model are stationary at level and at the level with intercept.

5-2- Durbin- Wu- Hausman endogenous test

One of the important issues in regression estimation is exogenous explanatory variables. A variable is endogenous if it has a significant correlation with error term components. If the explanatory variables of model are endogenous, estimation using a single-equation ordinary least squares method would provide biased estimates.

Table 2: Durbin- Wu- Hausman endogenous test

Dependent variable	Independent variable	Wu- Hausman statistic	p-value
Poverty (pov)	Economic growth (RPGR)	12.75	0.0004
Poverty (pov)	Institutional quality (INSQ)	6.25	0.012

Source: research findings

The results of Table 2 show a significant correlation between economic growth and the principle regression residuals, so economic growth is an endogenous variable. In addition, the institutional quality variable in the poverty equation is considered an endogenous variable. This suggests that the use of ordinary regression to evaluate the relationship between economic growth and institutional quality and poverty causes bias and unreliable results, and it is necessary to use instrumental variables methods in these conditions.

Impact of economic growth and institutional quality on poverty

We use Sargan test to examine the appropriateness of instrumental variables.

J-Sargan-Hansen test of inequality model

In the generalized method of moments, J statistic tests the correctness of the selection of instrumental variables. The J statistic multiplied in the number of observations has a chi-square distribution with degrees of freedom equal to the difference between the number of instrumental variables and the number of estimated coefficients (Newey and West, 1987).

Table 3: The test of appropriateness of selected instrumental variables of the second model (J-Statistic test)

J-Statistic	χ^2	p-value
2.845	84.759	0.0000

Source: research findings

Table (3) rejects the null hypothesis on the inappropriateness of instrumental variables at a significant level of 5%. Thus, it can be concluded that the instrumental variables have been correctly selected.

The results of estimating the impact of economic growth and institutional quality on poverty

The impact of economic growth and institutional quality on poverty in the Iranian economy is estimated using the empirical model of Devangi et al. (2013) using the generalized moments estimator method.

Table 4: Estimation results by generalized method of moments

dependent variable FGT			
Explanatory variables	Coefficients	Statistic t	Probability
C	9.191	3.043	0.0053
FGT_{t-1}	0.903	1.993	0.0568
$GDPPER_t$	0.801	2.774	0.0101
$NAHADI_t$	-0.368	-3.478	0.0018
$R^2 = 0.62$			

Source: research findings

Based on Table (4), one percentage of increase in poverty with a time lag increases poverty by 0.903 percent. This result indicates the dynamics of poverty over time, so that poverty rate is increasing in the current period.

With regard to the impact of the economic growth variable, the results of the model show that one percentage of increase in economic growth increases poverty by about 0.80, suggesting increased poverty as a result of economic growth and the lack of confirmation of the research hypothesis, which suggests the negative impact of economic growth on the poverty index during the study period. Based on the theoretical principles presented in the third chapter of this research, the increase in poverty occurs when increase in economic growth is beneficial for only a small number of people. It is known as immiserizing growth pattern. The immiserizing growth can increase the poverty through different ways (1): when increased economic growth leads to reduced employment and when opportunities for manufacturing activities among the poor people are worsened (2) when economic growth leads to reduced productivity, the level of wages is not improved, and the living conditions in different parts of the society are worsened (Edwards, 1995), (3) when the increased export of the goods is due to reduced price of exported goods (Bhagwati, 1958), (4) and when implementing development policies without considering the relative privilege leads to waste of resources and increased poverty. The employment rate in Iran, based on statistics released by the Center of Statistics, has increased from 10.3 in 2004 to 12.4 in 2011, indicating an increase in unemployment in recent years in the Iranian economy despite economic growth. In addition, based on ease of business index in the Iran's economy, Iran's rank reached from 108 in 2005 to 142 in 2008 and with slight increase to 129 in 2010, indicating the weakness in business space in Iran (Zamanzadeh and Alhosseini, 2013, 173). The research results are in line with those of the studies conducted by Dhrifi (2013) and Piraee and Ghanaatian (2006).

With regard to impact of institutional quality, the model results show that one percentage of increase in institutional quality reduces poverty by 0.368 units, indicating increased impact of institutional qualifications on poverty reduction. This result confirms the research hypothesis, which states improving institutional quality reduces the poverty. Based on ADB (2002), high political stability is required to create an environment for economic growth. Political stability is one of the most important factors determining the country's profitability and reduced investment risk. The threat of political change and the new regime can impose high taxes or confiscate capital assets and prevent domestic and foreign investment. Thus, political instability would disappoint the domestic and foreign investment, which prevents rapid economic growth and exacerbates the poverty. Chang and Calderon (2000) reported that as institutional quality of the country increases, the severity of poverty would reduce, since improving institutional quality might reduce the power of those, controlling the economy, leading to reduced uncertainty and improved public services and allocating facilities for people. Hassan et al (2007) reported that the impact of improving the variables of law governance, government stability and controlling the corruption on poverty is always negative. It means that better institutional quality probably is associated with lower level of poverty. The results of the research carried out by Chang and Calderon (2000) and Tibaldi and Mahan (2010) and Devangi et al. (2013) and Cuestas and Intartaglia (2016) suggest a positive impact of improving institutional quality on reducing the poverty.

CONCLUSION AND RECOMMENDATIONS

The most important outcome of economic growth for each country is its impact on the level of poverty. In analyzing the relationship between economic growth and poverty, the three concepts

of trickle-down growth, immiserizing growth, and pro-poor growth have been developed (Ravallion and Chen (2003)). Stable growth rate in developing countries might be an important factor in reducing the number of poor people, while it might not be true. In other words, as a result of economic growth, it is likely that wealthy people to face with increased incomes, but poor people experience no change in their income level, which is due inequality of income distribution in the country. Thus, it is necessary to re-evaluate the correlation between economic growth and poverty in this new structure. Economists have also indicated that the institutions of the country play an important role in achieving a stable economic growth and sustainable investment. This research aims to answer the question of how economic growth and institutional quality affect poverty and income inequality. Hence, this research investigates the impact of economic growth and institutional quality on poverty, and uses the time series data of period of 1984 to 2015 in annual base in this regard. After testing the stationary and Durbin-Wu-Hausman test, Generalized Method of Moments (GMM) is used to evaluate the impact of economic growth and institutional quality on poverty. In addition, the validity of the instrumental variables in Generalized Method of Moments was tested using the Sargan and Hansen test and the following results were obtained:

1. Economic growth has a positive and significant impact on poverty, so that increasing economic growth increases the poverty.
2. Institutional quality variable has a negative and significant impact on poverty during the study period in Iran, so that improving institutional quality variable reduces the poverty.

Based on the investigations conducted in this research, economic growth could not reduce poverty. During the research period, economic growth acted against the poor people. Thus, it is recommended that the government to use pro-poor growth policy to reduce poverty.

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