

2nd World Conference On Business, Economics And Management - WCBEM 2013

Studying Effects of Human Capital on Income Inequality in Iran

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Abstract

Economic and social justice are of the main goals of forming Islamic government. Programming with the aim of improvement in income distribution needs to know the effective factors on it. In this study we used average education of labor as human capital. Using ARDL approach over the period of 1969 - 2007, we conclude that increasing in human capital and physical capital can reduce Gini Index and hence make income distribution fairer. In other hand, increasing in unemployment and inflation rate and GDP, can increase Gini index and make income distribution more unfair.

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Selection and peer review under responsibility of Organizing Committee of BEM 2013.

Keywords: Income distribution, Gini Index (Coefficient), physical capital, Human Capital;

1. Introduction

Studying income distribution is an important issue and also knowing what factors have effect on making income distribution fairer and what factors can make it unfair is a vital key to solve the problem of income inequality and narrowing the gap between the rich and the poor.

The aim of this paper is to find some important variables that have effect on income inequality. In addition, we try to introduce some ways to make income distribution fairer. We have chosen capital, in both human and physical concept, in order to analyse this variable deeper. The mean level of labour schooling is an index that measured human capital with educational concept in this paper (like Scully, 2002). Unemployment and inflation rates are two other important variables, which can change income distribution (in many researches such as Blinder and Esaki, 1978, Buse, 1982, Nolan, 1986, these are studied as main reasons of having income inequality). It is known that the Gini coefficient is higher during periods of high unemployment and inflation. From inverted U curve hypothesis of Simon Kuznets, 1955, as a country develops, there is a natural cycle of economic inequality that at first increases in inequality, and then decreases it after a certain average income is attained. Therefore another important variable affecting income distribution is GDP that we study it, too. The Gini coefficient and income deficit both are used for measuring income inequality in this paper.

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2. Model

The model we have in mind for the equality equation (EQ) is:

$$EQ = f(hc, fc, u, p, gdp)$$

Where hc is human capital (mean level of labor schooling), fc is real physical capital, u is unemployment rate, p is inflation rate and gdp is real gross domestic product. Using a natural logarithm model, first of all the base-e logarithm of each variable is defined. In time series context the first issue is whether these time series are stationary (i.e. contain unit roots). To determine this, Dickey – Fuller tests were performed on all variables and the results above 95 percent level of confidence are presented in Table 1. A perusal of this table reveals that Lu and Lp are stationary I (0) but neither of other variables is stationary. That is comparison of the test statistics with the asymptotic critical values indicates that other variables are I(1). With this finding, it is necessary to see if the variables are counteracted. Using Banerji, Dolado, Mesterer, we have:

$$\tau = \frac{\sum_{i=1}^p \rho_i - 1}{\sum_{i=1}^p s\rho_i} = \frac{[-.13936 - .37504] - 1}{.1694 + .16372} = \frac{-1.5144}{.33312} = -4.546$$

here ρ_i , are coefficients of dependent variable with delay and s_i are their standard errors. The test shows that variables are cointegrated above 95b percent level because t statistic is less than the critical value of -4.43. Therefore variables are not drifting apart and the distance between them over time remains constant.

The model is estimated by ARDL approach due to the nature of variables, which is used. Because these variables have an influence on income inequality with delay we have chosen this approach for estimation. The results of estimation over period of 1969-2007 are presented in Table 2. It is true that variables are not auto correlated, as can be seen from the Durbin-Watson value appearing in this table. From Table 3 we can conclude that the residuals are free from autocorrelation at the 95 percent level and the functional form of the model is correct above 95 percent level. Residuals have Normal distribution and also homoscedasticity; the level of error is 5 percent.

Now we can have the long run model:

$$Lgini = -.535 - .353 Lhc - .209 Lfc + .106 Lu + .047 Lp + .399 Lgdp$$

(-9.168) (-11.732) (-4.202) (3.397) (4.01) (8.725)

The t statistics are in parentheses.

The statistical results of the model above show that all estimated parameters are significant above 95 percent confidence level. While the human and physical capital contributes negatively to Gini coefficient, their contribution to income equality will be positive. It means that by increasing these two variables, we can make income distribution fairer. Otherwise, any increasing in unemployment and inflation rate and GDP can make income distribution unfair.

As we have used ARDL approach now we can estimate error correction model, the result of this estimation is:

$$Ldeciles = 3.247 - 1.276 Lhc - .296 Lfc + .442Lu + .2 Lp + .949 Lgdp$$

(18.828) (-17.257) (-2.316) (4.529) (6.431) (7.595)

The t statistics are in parentheses and all estimated parameters are statistically significant above 95 percent level.

As it is shown the results are exactly the same as previous model with Gini coefficient.

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