The Study of Minimum Wage Effect on Poverty in Iran

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ABSTRACT

The minimum wage is a symbol of working force which is remembered as a remedy for workers' services. This minimum wage is paid without considering work condition in order to provide the basic needs of workers. Minimum wage is a valuable means to fight against poverty. This research is a case study which studies the effect of wage on poverty in Iran. The cities selected here are; Tehran, Isfahan, Fars, Boushehr, western Azerbaijan, Gilan, Mazandaran, Kermanshah, Kerman and finally Sistanand Balouchestan. These studies have been done during 18 years based on fixed effects model and Levin-Lin-Chu test. Here Gini coefficient is the index to calculate poverty. This research showed that the minimum wage had negative relation with Gini coefficient. Results showed that the minimum wage led to decrease of Gini coefficient logarithm.

KEYWORDS: Minimum Wage, Poverty, Gini coefficient, consumption service, product cost index.

1. INTRODUCTION

To be more meticulous, we look at the determination of the minimum wage in industry. The most important success is the issue of homogeneity in country. When the approach industry is considered, the expectation is that the industries should be equal from the viewpoint of productivity and efficiency. Therefore, industry approach could be comprehensive and purposeful in determining the minimum wage.

The other meticulous approach related to determining the minimum wage is the approach of determining the minimum wage on the level of employment. The advantage of this approach is that, it facilitates targeting on vulnerable groups based on jobs separation. In lots of jobs, workers do not ask about changes in their wage rate. This problem happens usually in jobs which need fewer skills. Since these jobs are a lot in developing countries, the policy of minimum wage for employment seems effective. However, the crucial problem of industry approach and employment approach is the issue of clarifying methods of observation on these systems. Moreover, with development of new jobs, the employment approach in the policy of minimum wage might bring about some problems.

In the available literature, the fundamental criterion to adjust wages is the consumer price index. Logically, this criterion is able to evaluate purchasing power of workers. However, in practice this criterion is not always alone. Issues such as budget deficit, employment and so forth are also influential.

The best advantage of wages adjustment based on consumer price index is that it is a clarified and simple index.

METHODOLOGY OF PANEL DATA

The method used in this research is estimation based on panel data. There are other names for panel data such as combined data which is a combination of time series and cross- sectional data, micro panel micro data, longitudinal data and analysis of event history. Based on Baltagi's statement, panel data refers to combining cross-sectional observations of families, companies, countries and so forth during several time series.

According to this definition panel data not only considers independent variable based on data related to one province, but also considers it in accordance with other provinces.

Other indexes could be used as the basis of adjustment. For instance, minimum wage could be adjusted as an average of wages; however, the problem is that this index is effective on the average wage by itself. Usually there is no certain time period for adjustment. This period depends on inflationary condition of country. Usually time periods are reviewed based on minimum wage and in a logical, highly inflationary condition. This fact may also happen based on an annual period. Based on the report of international organization of employment, the reaction of companies to the minimum wage are different. One of the reactions is that companies may take advantage of workers with the minimum wage to do the hard jobs, they may also make remedy for the effects of the policy of minimum wage with decreasing other costs.

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In 2006, another research was done which studied the effects of minimum wage policy on the industry of official restaurants and hotels, in Swede. In this research, econometric model in competitive condition determines the employment condition in the curve of request for working force. This research was about to evaluate minimum wage policies on unskilled workers, in this research, four groups of workers were compared with one another. First, there were workers with wage less than the minimum wage of their first and the coming year ($w_t^m < w_{t+1}^m$)Second, there was group of workers with an average wage of their minimum wage of the first and the coming year($w_t^{mn} < w_{it} < w_{t+1}^m$)Third, there were workers with a wage which was average of their minimum wage of the first year and 1.5 times more than their minimum wage of the coming year($w_{t+1}^m < w^t < w_{t+1}^m$. 1/5) finally the fourth group of workers whose wage was 1.5 times more than the minimum wage of the coming year($w_{it} > w_{t+1}^m$. 1/5)the third group was defined as control group. This study shows that the effects of minimum wage on employment are negative in the first group. The constancy of employment or loss of job does not exist in the second and third group is not observed, in the fourth group it is very little, however, it is not zero.

The effects of minimum wage on work force, poverty and financial budget in Brazil

In Brazil the studies show that in the official section of work force, minimum wage policy has negative effect on employment, however, in non-official section, and then it has had positive effect. The positive effect on the non-official section is the result of transition of work force from official section to non- official section. Therefore, this study shows that employment in official section of economy is in accordance with business (neoclassic theory). However, employment in non- official section of economy is not in accordance with business (Fogul and Ramus, 2001). The effect of minimum wage on the combination of employment and wage hiding is important from the viewpoint of income produced by social insurance, because the social insurance organization cannot take advantage of the employment of non- official section which does not pay the insurance. Anindyasen, Rybczynski, Van De Wall, in 2010 studied the effect of minimum wage on poverty and employment in Canada based on a research titled Adolescent's employment, poverty, and minimum wage. The relation between minimum wage and employment was negative, meaning that, the increase of minimum wage leads to the decrease of employment. They also mentioned that increase of minimum wage, may lead to poverty as a result of unemployment among low waged families. However, low waged families will never access to increase of the minimum wage. In 2011Catherin Terel, Enrique Alaniz and JindLing, in an article titled the effect of minimum wage on employment and poverty in Nicaragua studied the issue of title. The result of this research showed that in this country from 1996 to 2008 the increase of minimum wage, increased wages, however, it decreased the employment of workers in the private section who were under support of labor unity rules.

The relation between minimum wage and poverty is declared here.

a. The increase of minimum wage increases the opportunity of getting out of poverty for family of a poor worker.

b. If the worker whose minimum wage is increased is the master of family. The increaser of minimum wage will decrease his poverty and may turn it into wealth. The reason is that in comparison with an immature young worker, such a person will not lose his job because of the increase of minimum wage.

Advantages of using panel data
Baltagi mentioned advantages of panel data, these advantages are represented here:
1. Since attention of panel data to individuals, companies, states, and these units is based on time period, variance difference is limited among these units.
2. Via combining observations of time series and cross- sectional data, panel data represents estimations with more information, less similar linearity, more degree of freedom and finally more efficiency.
3. According to cross- sectional and repetitive observations, it is true to say that panel data is better for studying changes in a better way.
4. Panel data provides a better condition for investigating unemployment period, employment circle, and work force.
5. Panel data determine effects which are not observed easily in time series data and cross- sectional data. For instance, it provides a better condition for determining effects of minimum wage rules on employment and revenue.
6. Panel data enables us to study more complicated models. For example, in comparison with time series data or cross- sectional data, panel data is able to study phenomena such as technological changes in a better way.

Panel data can decrease inflation that might be caused by considering all individuals and enterprises.

METHODOLOGY

The purpose of this research is to show that the increase of determined minimum wage by related organizations could help to destroy the absolute poverty. This political tool also could decrease relative poverty to some extent, and then as a result, living condition of workers' families would be improved. Since this research represents a true perception of results of this research to the official members, then it could be used by social insurance organization and the ministry of employment and public affairs. In this research the following issues are also considered.

- Study and recognition of approaches of determining minimum wage in Iran and in the world.
- Study and analysis of effects of minimum wage on poverty.

The present research has used a combination of descriptive method, experimental method and cause and effect method. After reviewing theories of study, experimental study was done, theories of the present research was studied first, then with modeling the capacity of wage would be calculated according to the minimum wage and via usage of Nepal data, then the effect of changes of minimum wage on workers employment would be calculated and certainly the panel data technique would be used to achieve equations. The software EVIEWS is used in this research to achieve regression models.

Here there is the summery of research method:

- In organizing seasons and texts the analogical method based on scientific argumentation has been used.
- Analogical method is also used to study theories and opinions.
- The study of subject and works and studies of economists is done based on library approach.
- The source of information in this research is collected from informative banks of central banks and statistics center of Iran and published information by other official centers, here is a list of information which is collected.
- Minimum wage data: the unit of remedy for services of employment and public affairs ministry.
- The index of price of consumptive goods and services: central bank of Islamic republic of Iran.
- Gross domestic product (GDP), employment, unemployment, population, and wage average" Iran statistics center.
- The classification of provinces based on achieved information is done by Iran statistics center and the temporal period is related to years 1991- 2009.

Criteria to measure poverty

Criteria used in distribution of wages are two kinds based on their attention to social and individual welfare or being just a statistical tool to measure the amount of people's wage; mental criterion and concrete criterion.

Mental criterion explicitly discusses social welfare and value judges. This criterion is dependent on comparison of the maximum social welfare which is the result of fair distribution of wages based on preferences of society and the lack of welfare which is the result of unfair distribution of wages. On the other hand, concrete criterion does not explicitly use the concept of social welfare and value judgments. Here, usually statistical tools and criteria are used to measure the study case among people of a society. Etkinson and Sen are two samples of concrete indexes. Statistical society is in fact a collection of elements sharing the same feature. This research is a case study done in Iran; therefore, it is not possible to specify the statistical society meticulously. Moreover, since stimulations are done based on variables, provinces such as

; Tehran, Fars, Boushehr, Azerbayijangharbi, Gilan, Mazandaran, Kermanshah, Kerman and finally Sistan o Balouchestan about which there was enough data were considered as statistical society.

The steps of doing the research

Consider the regression model based on Nepal data:

$$Y_{it} = B_{i,\,t} + B_2 \times_{I,t} + \in_{i,t} \quad 1$$

In this equation i is i^{th} sectional unit, t is i^{th} time period, here the maximum N of sectional unit and the maximum T of time period exists.

The estimation of model 1 depends on the idea of us about origin width, slope coefficients, and error sentence. There are two general forms in estimation of the model 1

a. Origin width and slope coefficients in time and space period are fixed, and error sentence in time period and for different people is different.

b. Slope coefficients are fixed, origin width is different for different people.

The simplest method to omit space dimensions and combined data time (a) and also regression estimation is ordinary least squares method. In this state, 2model is like this:

$$Y_{it} = B_1 \times_{I,t} + \in_{i,t} \quad 2$$

As you see, in the estimation 2, origin width and slope efficient are common among all sections, the estimation 2 is done with the method of ordinary least squares which is famous as panel least squares methods(PLS).

Another method for single consideration of each of the sectional units is that origin width is different for each of them, assuming that slope coefficients are fixed among all sections; panel regression could be like this:

$$Y_{it} = B_{1,I} + B_2 X_{c,t} + \epsilon_i 3$$

In this equation, i shows origin width, and origin widths of sections could be different. This difference could be the result of special features of each section. In econometric, model(14-3) is well known as regression model of fixed effects or least squares of imaginary variable model.

The argument of fixed effects model is that in clarifying regression model, it was not successful to model explanatory variables changing according to the time period.

The essential idea begins with 3. The advocates of random effects model believe that instead of assuming that in equation $B_{1,i}$ is fixed, let's assume that there is a random variable with this average $B_{1,i}$ And therefore, the origin width for each single section is declared like this.

$$B_{1,I} = B_1 + \epsilon 4$$

In equation (4)ϵ_1Is the random error sentence with average zero and variance 0_ϵ^2 therefore, estimation is done regarding to the difference between slope and origin width.

Estimation of combined data

Since this research is a comparative study done on 10 provinces located in Iran from 1991 to 2009, estimations based on combined data are used. Controlling political shocks that may influence minimum wage in several provinces over a certain period of time is not considered in this research. In order to show that all model variables are reliable, static condition for each of the variables is studied.

Statics

In researches based on panel data, statics tests are the most important tests used for estimating one regression with reliable coefficients. Moreover, there are different tests to determine reliability of the data.

Study of static condition of variable LEARN

For the variable EARN, first static test is done through Eviews 7 software, and then two hypotheses H_0 andH_1 are considered to study static condition of the mentioned variable.

H_0: $p_i = 1$

H_i: $p_i < 1$

	Statistic	Prob
Levin, Lin and Chu t	-5.777	0.0000

According to gained probability, results of this test for variable the average annual earnings with confidence level equal to 100 percent are significant.

Study of static condition of variable LCPI (services and commodity price index)

For the variable LCPI, two hypotheses H_0 andH_1 are considered:

H_0: $p_i = 1$

H_i: $p_i < 1$

	Statistic	Prob
Levin, Lin and Chu t	-3.2111	0.0007

According to gained probability, results of this test for variable LCPI with confidence level equal to 100 percent are reliable.

Study of static condition of variable LGDP (gross domestic product)

For the variable GDP, two hypotheses H_0 andH_1 are considered:

H_0: $p_i = 1$

H_i: $p_i < 1$

	Statistic	Prob
Levin, Lin and Chu t	-56.2447	0.0000

According to gained probability, results of this test for variable GDP with confidence level equal to 100 percent are reliable. Therefore, null hypothesis is rejected and H_1 is accepted.

Study of static condition of variable LMW(minimum wage)

For the variable MW, two hypotheses H_0 andH_1 are considered:

H_0: $p_i = 1$

H_i: $p_i < 1$

	Statistic	Prob
Levin, Lin and Chu t	0.3701	0.6444

According to gained probability, results of this test for variable minimum wage are not significant.
Study of static condition of variable LPOP(population)
For the variable POP, two hypotheses H_0 and H_1 are considered:
H_0: $p_i = 1$
H_i: $p_i < 1$

	Statistic	Prob
Levin, Lin and Chu t	-0.7005	0.2418

According to gained probability, results of this test for variable POP are not significant.
Study of static condition of variable LUI(unemployment)
For the variable UI, two hypotheses H_0 and H_1 are considered:
H_0: $p_i = 1$
H_i: $p_i < 1$

	Statistic	Prob
Levin, Lin and Chu t	-4.0688	0.0000

According to gained probability, results of this test for variable unemployment with confidence level equal to 100 percent are reliable.
Study of static condition of the residual
For the residual, two hypotheses H_0 and H_1 are considered:
H_0: $p_i = 1$
H_i: $p_i < 1$

	Statistic	Prob
Levin, Lin and Chu t	-5.0789	0.0000

According to gained probability, results of this test for the residual with confidence level equal to 100 percent are reliable.

Main Body

In Canada the policy of minimum wage is performed both in national level and regional level. Part of the active work force working in fishing and agriculture section does not follow this policy, moreover, in national level, this policy does not include workers under the age of 17, and in regional level, this policy does not include workers under the age of 18. In Canada, no automatic adjustment is done based on wage index or the total price index.

In Japan, the policy of minimum wage does not include disable workers, each year the policy of minimum wage is reviewed in Japan. This review is announced based on the growth of wages, price index, and consulting with parliament of minimum wage. This policy of national minimum wage in Japan is useful for the section of metallic industries and mineral industry. In Japan, the policy of least wage is performed regionally.

In South Korea the policy of minimum wage is determined by government. This policy is comprehensive but has no automatic adjustment and the adjustment is gained based on consulting with employment minister and cooperative committee of determination of minimum wage. Workers under the age of 17 could take the minimum wage up to 80 percent. The minimum wage in France is adjusted based on the index of consumer's price (usually 2 percent more). However, more adjustment is done based on consultation with national consulters 'committee.

In Holland, this policy is determined by government and varies for workers of different group ages. 28 years old workers take 85 percent of the determined minimum wage and sequentially, 16,17,18,19,20,21 years old workers receive 34.5, 35.5, 45.5, 52.5, 61.5, and 72.5 percent of the determined wage. In Holland no automatic adjustment is done based on inflation rate or wage index.

In Luxembourg, the minimum wage just includes workers of private section. In Luxembourg the minimum wage for 15, 16 and 17 years old workers is 60, 70 and 80 percent of the determined amount. In Luxembourg this rate is adjusted based on the index of consumer price, and its review is a function of the process of financial growth. The noticeable point is that this rate is 20 percent more than the minimum wage for skilful workers.

In Greece the minimum wage is determined based on an agreement between workers' organizations and employers' organizations. This policy just encompasses workers of private section. Governmental workers are supported by a separate law and there is no automatic adjustment. The increase of minimum wage happens after one

or two years based on the agreement of employers and employees. In Brazil from 1946 to 1988 the policy of minimum wage with the approach of meeting life costs was performed as a regional program. From 1988 the issue of meeting social security and healthcare costs was added to determination of the minimum wage. In this year, the issue not paying the pension which is less than minimum wage was legislated. Based on rules of Brazil, the minimum wage must not change in 3 years. Though in Brazil the minimum wage should provide the ability to meet life costs, this did not happen and in 1987 the minimum wage paid to workers was just 30 percent of primary value of minimum wage. (Fogul, Ramus, 2001).

One of the important issues in the era of determining the minimum wage is the amount of adjustment in accordance with changes of other economic indexes. Usually the minimum wage is determined with the purpose of meeting the least life needs of a family. This determination should be in accordance with consumption patterns; here consumption patterns include economic, social, and cultural aspects in countries where the index of price is used as a proper index for this sort of evaluation. But the question is whether it happens in reality? The function of countries in this era clarifies how the minimum wage is determined and whether with the policy of minimum wage related to competitive economy, social purposes are met?

One of the indexes discussed in the adjustment of minimum wage is evaluation based on the ratio of minimum wage to the average of wages. The purpose of minimum wage is to improve the average wages and to decrease the wages gap. The mentioned index declares whether this gap is decreased or not.

The base to determine minimum wage in Iran

The issue of minimum wage has always been a logical necessity in employment law of Iran. However, historical evolutions happening in approaches of determining the minimum wage in Iran shows the changes in effectiveness of minimum wage on employment in Iran. Now we take a glimpse at these evolutions.

Moreover, the ratio of minimum wage to some vital indexes such as life cost, the real growth rate, and work productivity is analyzed.

What group does the minimum wage influence? What are the features of this work force from the viewpoint of gender, education, individuality and job? Minimum wage is influential on evaluating the income of insurance rights of social insurance organizations. The minimum wage is affected by evolutions of work condition. The other question is whether minimum wage helps to destroy poverty of vulnerable classification of workers. Answer to this question depends on the effect of minimum wage on the index of employment. Then here this point is mentioned that if the number of workers losing their jobs due to the policy of minimum wage is more than the amount of increase in wages, then the minimum wage will not improve social welfare, moreover, it will worsen the condition of society.

Poverty and capitalism

Pure capitalism believes in freedom of act and economic activities, therefore, it does not let the government interfere in planning for destruction of poverty. The motto "Laissez passes" emphasizes this fact; this motto was first considered by Physiocrats and later by classics. Adam Smith, the leader of classic school believed that direct interference of government in economic activities just decreases the public welfare and productivity. However, there are defenses from capitalization economists trying to say fighting against poverty is an internal fight through capitalism economy. For instance we can remember the principle of agreement between personal advantages and public advantages. However, experience shows that the result of capital systems has been the division of people into two categories, poor people and rich people. The advocates of capital system accepted this fact, and then tried to find ways in order to fight against poverty and its destructive effects. The most obvious solution is establishment of social security organizations. Today, after discovering the huge problem of capitalism, declared even by Marx, the application of non-capitalized methods has led to fairly distribution of incomes and decrease of poverty.

Lorenz Curve

Lorenz curve is in fact the geometrical display of distribution of income among people of a country. For drawing this curve, first the population base on income is ranked in different groups from down to up. The number of these groups is usually 5, and each group specifies 20 percent of population based on income from down to up, then for each group the portion of received income (a percent of the total national income) is calculated. With this information it is possible to show the relation between the percentage of families(x) and their income (y) in the geometrical figure 1. (Jafari Samimi , Ahmad, 2006)
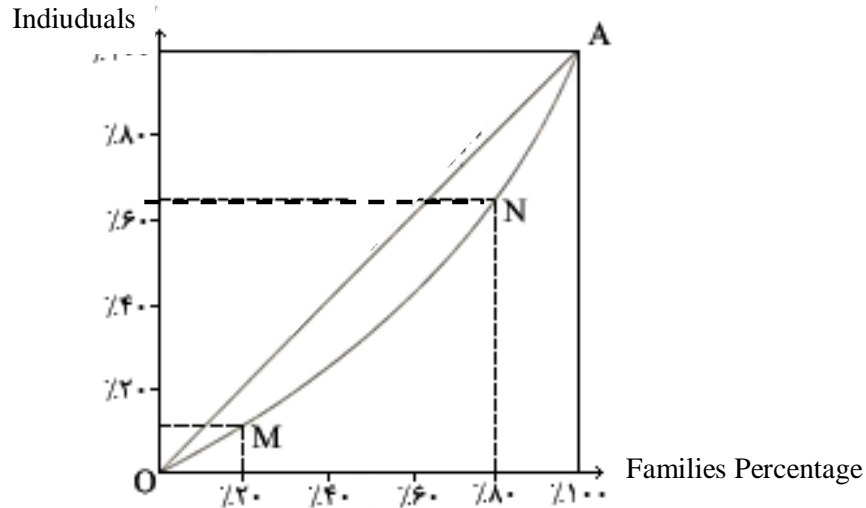
Based on this explanation, when x is on the horizontal axis and y on the vertical axis then we can say that if we assume that low 20 percent of population has a 20 percent of total income, 40 percent of them has 40 percent of total income, 60 percent of them have 60 percent of total income and 80 percent of them, has 80 percent of income, then the result is that the portion of all different population groups from income is equal. The geometrical display of absolute equality is shown with a 42 degree OA line on figure no. 1.

As shown on this diagram, if all income is for one person, in a completely unequal state of distribution of income, then we can say that x of low percent of population dedicates no portion of income to itself. In this state, the curve of distribution of income (Lorenz Curve) is changed into the line OMA.

Gini coefficient

Gini coefficient is the most famous index of inequality of income and the most common index used in analyzing distribution of income. Therefore, more than other indexes the index of Gini coefficient has been accepted and rejected and its context and positive and negative features have been presented. Originally, Gini coefficient as a relative index , has been defined as the ratio of income inequality in an imaginary society to the maximum possible size of inequality in an absolutely unfair pattern of distribution of income.

Based on this definition, the size of Gini coefficient is two times more than the extent between society distribution of income and the absolute equality line in Lorenz curve.

If people have the ability to choose their income, all of them will choose high incomes. Therefore, each person in the society see himself deprived from the expected income and this is the result of difference in the amount of current incomes. Therefore, Ginicoefficient shows the ratio of absolute magnitude of incomes in the pattern of distribution of income of an imaginary society to the degree of absolute magnitude in an absolutely unequal pattern of distribution of income. Diagram no. 1-2 shows the level of Gini coefficient resulted from Lorenz curve and line of absolute equality (45 degree) to the whole level between absolute equality line and horizontal line.

$$G = \frac{SB}{SOAM} \; or \; G = \frac{the\,extent\,of\,Lorenz\,curve\,and\,line\;45\;degrees}{the\,extent\,of\,underline\;45\;degrees}$$

This coefficient is located between zero and one. When Lorenz curve coincides on 45degree line, Gini coefficient equals zero which shows distribution of income is absolutely equal. When coefficient equals one, there is absolute inequality in distribution of income; therefore, Lorenz curve finds the shape of OAM line according to figure 1. In calculating Gini coefficient, usually the basis is the per capita income of each family and it depends on this assumption that without paying attention to the age of people, their welfare depends on income. To achieve precise results, it is better to use per capita income or an equivalent index. Gini coefficient is also used in the below cases.

1. Comparing distribution of income in different years in several countries or various provinces.

2. A criterion used for different categories of a society to clarify the degree of inequality of income distribution.

Here the features of Gini coefficient index are represented;

- The limitation of Gini coefficient between zero (absolute equality) and one (absolute inequality).
- The index is a proper index, because the changes of income components have no effects on it.

- It shows equal sensitivity to al incomes.
- It is not disintegrable and provides the transition of PigouDalton .
- It does not satisfy the basis of relative sensitivity.(Jafari, Ahmad, 2006).

DISCUSSION AND RESULTS

The research model, while Gini coefficient is dependent variable.

$Log (G_{it})= G_o + G_1 \log(cpi_{it)} + G_y \log(EARN_{it})+ C_3 \log(GDP_{IT}) + G_4 LOG(MW_{it}) + G_5 \log(pop_{it}) + g_4 \log (UI_{it}) + U_{it}$(18-4)

In this equation G is Ginni efficient, cpl is the price index of consumptive services and goods, EARM is annual income of individuals, GDP is gross domestic product, MW is minimum official wage, pop is population and UI is unemployment index.

11-4 Stagnation (Gini coefficient is dependent variable).

To study stagnation, we assume H_0 and H_1. For I we assume $H_{0=} p_i=l$ and at least for one of the i here we assume $H_1= p_i< 1$

	statistic	prob
Levin-Lin-Chu	-4.6332	0.0000

The results show that with 100 percent level, there would be no original difference and it stays constant. Therefore, the model is constant.

Interpretation of results in Tehran

1- Origin width is 0.129 in Tehran, which this shows that other factors which are not mentioned in this model were more effective than other variables on poverty factor.

2- Log (CPI) coefficient is 0.48, which this shows the point that by increase of each unit in logarithm of consumption price indices, Gini coefficient logarithm for nearly 0.48 would be decreased. This estimation has negative effect on employment variable.

3- Log L(EARN) coefficient is 0.114, which this shows the point that by increase of each unit in logarithm of annual earning, Gini coefficient logarithm for nearly 0.114 would be increased. Also, this estimation has positive effect on employment variable.

4- Log (GDP) coefficients 0.019, which this shows the point that by increase of each unit in logarithm of Gross domestic product, Gini coefficient logarithm for nearly 0.019 would be decreased. This estimation has a positive and direct effect on employment.

5- Log (MW) coefficient is 0.44, which this shows the point that by increase of each unit in logarithm of minimum wage, Gini coefficient is logarithm for nearly 0.44 would be decreased.

6- Log (pop) coefficients 0.193, which this shows the point that by increase of each unit in logarithm of population, Gini coefficient logarithm for nearly 0.193 would be decreased.

7- Log (UI) coefficient is 0.59, which this shows the point that by increase of each unit in logarithm of unemployment, Gini coefficient logarithm for nearly 0.59 would be increased. This estimation has a positive effect on employment.

Interpretation of results in Fars

1- Origin width is 0.26 in Fars, which this shows lower effect than variables in Tehran.

2- Log (CPI) coefficient is 0.48, which this shows the point that by increase of each unit in logarithm of consumption price indices, Gini coefficient logarithm for nearly 0.48 would be decreased in this province.

3- Log L (Earn) coefficient is 0.114, which this shows the point that by increase of each unit in logarithm of annual earning, Gini coefficient logarithm for nearly 0.114 would be increased.

4- Log (GDP) coefficient is 0.19, which this shows the point that by increase of each unit in logarithm of gross domestic product, employment logarithm for nearly 0.19 would be increased. This estimation has a positive and direct effect on variable of Gini coefficient.

5- Log (MW) coefficient is 0.44, which this shows the point that by increase of each unit in logarithm of minimum wage, Gini coefficient logarithm for nearly 0.44 would be decreased.

6- Log (pop) coefficient is 0.193, which this shows the point that by increase of each unit in logarithm of population, Gini coefficient logarithm for nearly 0.03 would be decreased.

7- Log (UI) coefficient is 0.59, which this shows the point that by increase of each unit in logarithm of unemployment, Gini coefficient logarithm for nearly 0.59 would be increased.

Interpretation of results in Isfahan

1- Origin width is 0.13 in Isfahan, which this shows that the factors which are not related to this model are so effective in this model.

2- Log (CPI) coefficient is 0.48, which this shows the point that by increase of each unit in logarithm of consumption price indices, Gini coefficient logarithm for nearly 0.48 would be decreased in this province.

3- Log L (Earn) coefficient is 0.114, which this shows the point that by increase of each unit in logarithm of annual earning, Gini coefficient logarithm for nearly 0.001 would be increased.

4- Log (MW) coefficient is 0.44, which this shows the point that by increase of each unit in logarithm of minimum wage, Gini coefficient logarithm for nearly 0.44 would be decreased.

5- Log (pop) coefficient is 0.193, which this shows the point that by increase of each unit in logarithm of population, Gini coefficient logarithm for nearly 0.193 would be decreased.

6- Log (UI) coefficient is 0.59, which this shows the point that by increase of each unit in logarithm of unemployment, Gini coefficient logarithm for nearly 0.158 would be decreased.

Interpretation of results in Mazandaran

1- Origin width is 0.107 in Mazandaran, which this shows that the effective factors out of this model were effective on poverty variable.

2- Log (CPI) coefficient is 0.48, which this shows the point that by increase of each unit in logarithm of consumption price indices, Gini coefficient logarithm for nearly 0.48 would be decreased in this province.

3- Log L (Earn) coefficient is 0.114, which this shows the point that by increase of each unit in logarithm of annual earning, Gini coefficient logarithm for nearly 0.001 would be decreased.

4- Log (GDP) coefficient is 0.19, which this shows the point that by increase of each unit in logarithm of gross domestic product, Gini coefficient logarithm for nearly 0.19 would be increased.

5- Log (MW) coefficient is 0.44, which this shows the point that by increase of each unit in logarithm of minimum wage, Gini coefficient logarithm for nearly 0.44 would be decreased.

6- Log (pop) coefficient is 0.193, which this shows the point that by increase of each unit in logarithm of population, Gini coefficient logarithm for nearly 0.193 would be decreased.

7- Log (UI) coefficient is 0.59, which this shows the point that by increase of each unit in logarithm of unemployment, employment logarithm for nearly 0.59 would be increased.

Interpretation of results in Kermanshah

1- Origin width is 0.76, which this shows the lower effectiveness comparing the factors in this province with other provinces.

2- Log (CPI) coefficient is 0.48, which this shows the point that by increase of each unit in logarithm of consumption price indices, Gini coefficient logarithm for nearly 0.48 would be decreased in this province.

3- Log L (Earn) coefficient is 0.114, which this shows the point that by increase of each unit in logarithm of annual earning, Gini coefficient logarithm for nearly 0.114 would be increased.

4- Log (GDP) coefficient is 0.119, which this shows the point that by increase of each unit in logarithm of gross domestic product, Gini coefficient logarithm for nearly 0.119 would be increased.

5- Log (MW) coefficient is 0.44, which this shows the point that by increase of each unit in logarithm of minimum wage, Gini coefficient logarithm for nearly 0.119 would be decreased.

6- Log (pop) coefficient is 0.193, which this shows the point that by increase of each unit in logarithm of population, Gini coefficient logarithm for nearly 0.193 would be decreased.

7- Log (UI) coefficient is 0.59, which this shows the point that by increase of each unit in logarithm of unemploymen ,Gini coefficient logarithm for nearly 0.59 would be increased .

Interpretation of results in boushehr

1- Origin width is 0.1 in this province, which this shows low effectiveness of other factors on Gini coefficient variable in this model.

2- Log (CPI) coefficient is 0.48, which this shows the point that by increase of each unit in logarithm of consumption price indices, Gini coefficient logarithm for nearly 0.48 would be decreased in this province.

3- Log L (Earn) coefficient is 0.114, which this shows the point that by increase of each unit in logarithm of annual earning, Gini coefficient logarithm for nearly 0.114 would be increased.

4- Log (GDP) coefficient is 0.19, which this shows the point that by increase of each unit in logarithm of gross domestic product, Gini coefficient logarithm for nearly 0.19 would be increased.

5- Log (MW) coefficient is 0.44, which this shows the point that by increase of each unit in logarithm of minimum wage, Gini coefficient logarithm for nearly 0.44 would be decreased.

6- Log (pop) coefficient is 0.193, which this shows the point that by increase of each unit in logarithm of population, Gini coefficient logarithm for nearly 0.193 would be decreased.

7- Log (UI) coefficient is 0.59, which this shows the point that by increase of each unit in logarithm of unemployment, Gini coefficient logarithm for nearly 0.59 would be increased.

Interpretation of results in western Azerbaijan

1- Origin width is -0.0104 in this province, diagram of this province starts from lower point of origin, and the effect of other factors on dependant variable were so low.

2- Log (CPI) coefficient is 0.48, which this shows the point that by increase of each unit in logarithm of consumption price indices, Gini coefficient logarithm for nearly 0.48 would be decreased in this province.

3- Log L (Earn) coefficient is 0.114, which this shows the point that by increase of each unit in logarithm of annual earning ,Gini coefficient logarithm for nearly 0.114 would be increased .

4- Log (GDP) coefficient is 0.19, which this shows the point that by increase of each unit in logarithm of gross domestic product, Gini coefficient logarithm for nearly 0.19 would be increased.

5- Log (MW) coefficient is 0.44, which this shows the point that by increase of each unit in logarithm of minimum wage, Gini coefficient logarithm for nearly 0.44 would be decreased.

6- Log (pop) coefficient is 0.193, which this shows the point that by increase of each unit in logarithm of population, Gini coefficient logarithm for nearly 0.193 would be decreased.

7- Log (UI) coefficient is 0.59, which this shows the point that by increase of each unit in logarithm of unemployment, Gini coefficient logarithm for nearly 0.59 would be increased.

Interpretation of results in Hormozgan

1- Origin width is 0.0008 in Hormozgan, in which the low effect of other factors on model was observed, this situation is the same for boushehr .

2- Log (CPI) coefficient is 0.48, which this shows the point that by increase of each unit in logarithm of consumption price indices, Gini coefficient logarithm for nearly 0.48 would be decreased in this province.

3- Log L (Earn) coefficient is 0.19, which this shows the point that by increase of each unit in logarithm of annual earning, employment logarithm for nearly 0.19 would be increased.

4- Log (GDP) coefficient is 0.19, which this shows the point that by increase of each unit in logarithm of gross domestic product, Gini coefficient logarithm for nearly 0.19 would be increased.

5- Log (MW) coefficient is 0.44, which this shows the point that by increase of each unit in logarithm of minimum wage, Gini coefficient logarithm for nearly 0.44 would be decreased.

6- Log (pop) coefficient is 0.193, which this shows the point that by increase of each unit in logarithm of population, Gini coefficient logarithm for nearly 0.193 would be decreased.

7- Log (UI) coefficient is 0.59, which this shows the point that by increase of each unit in logarithm of unemployment, Gini coefficient logarithm for nearly 0.59 would be increased.

Interpretation of results in Sistan and Baluchestan

1-origin width is -0.571 in this province, which this shows that other factors which are not related to this model have more effect in comparing with other provinces.

2- Log (CPI) coefficient is 0.48, which this shows the point that by increase of each unit in logarithm of consumption price indices, Gini coefficient logarithm for nearly 0.48 would be decreased in this province.

3- Log L (Earn) coefficient is 0.114, which this shows the point that by increase of each unit in logarithm of annual earning, Gini coefficient logarithm for nearly 0.114 would be increased.

4-Log (GDP) coefficient is 0.019, which this shows the point that by increase of each unit in logarithm of gross domestic product, , logarithm of Gini coefficient increases to 19 percent.

5- Coefficient of MW log for this province equals 44 percent and this shows that when a unit increases for log of minimum wage, it decreases log of Gini coefficient up to 44 percent.

6- Coefficient of pop log is 193 percent which demonstrates that increase of a unit for pop log leads to decrease of log of Gini coefficient up to 193 percent.

7- Coefficient of UI log equals 59 percent which shows that a unit increasing in unemployment log, log of Gini coefficient increases up to 59 percent.

Evaluation of Kerman province results:

1. Origin width of Kerman is 8 percent and shows that other factors would influence independent factor in addition to considerable variables.

2. Coefficient of CPU log for this province is 48 percent which it shows that a unit increasing for per log of consumption service and product cost index, would lead to 48 percent decrease in log of Gini coefficient.

3. Coefficient of EARN log for Kerman province is 114 percent which it shows that a unit increasing per annual income, then log of Gini coefficient would be increased up to 114 percent.

4. Coefficient of MW log in the mentioned province would be increased up to 19 percent.

5. Coefficient of MW log is 44 percent that shows a unit increasing per minimum wage log, log of Gini coefficient would be decreased up to 193 percent.

6. Coefficient of UI log is 59 and shows a unit increase per unemployment log, log of coefficient would be increased up to 59 percent.

Random effect test (analysis)

Approximation of following model is based on random effects approach(2004)

Log G= -0.828-0.093 log CPI + 0.072log EARN+ 0.005 log GDP- 0.004 log MW+ (-2.38), (-1/85), (1.7), (0.24), (-1/7)

$_{0.01}$ log pop+ 0.056 log UI + 3 $_{it}$

(0.03) (1/81)

R- sqared= 0.07

Adjusted R – squared= 0.04

F- Statistic= 2.34

Durbin – Watson stat= 1.32

Selection between two fixed and random effects approaches (Hosman test).

As it was mentioned, to select between two fixed and random effects approaches we have used Hosman test for this model following:

Test summary	Chi-sq.statistic	Chi- sq.d.f.	prob
Cross- section random	19.6477	6	0.0032

This test states that estimating this model would be available with 100 percent accuracy, using fixed effects approaches. So first assumption based on random effects approach would be refused. Instead the second assumption based on efficiency of fixed effects approaches would be acceptable to estimate the model's variables.

Fixed effects model analysis:

After several studies and using relevant methods to choose appropriate approach, fixed effects approach was acceptable. In the following model, due to effective variables on the dependent variables, we have estimated dependent variables by fixed effects method as follows.

Log G= 0.508- 0.048 LOG CPI+ 0.114 LOG earn + 0.019 LOG GDP- 0.044 LOG

(1/59) (-1/67) (4/4) (1.78) (-8/57)

MW-0/193 log pop+ 0/059 log UI + 3 it

(-4/29) (4/56)

R- squared= 0.69

Adjusted R- squared R- squared= 0.66

F- statistic= 25/02

Durbin- Watson stat= 2/.4

In this study we have used logarithm of Gini coefficient as dependent variable to investigate effects of minimum wage policies on it.

The process of poverty rate is gained from different ways. Gini coefficient is always a valid way in interpreting poverty. According to results, the coefficient log(MW) is 44 percent which shows that for bone unit increase in logarithm the minimum wage of Gini coefficient logarithm decreases up to 44 percent. Normal logarithm of minimum wage which does not let inflation happen is determined based on price index(CPU). The results show that even if the minimum wage led to loss of jobs, it could be better for families with low saleries, therefore it decreases poverty. In fact the relation between logarithm of Gini coefficient and logarithm of minimum wage is negative meaning that with the increase of minimum wage, Gini coefficient decreases and the result is that poverty decreases. However, researches show that the increase of minimum wage also leads to decrease of poverty. These were the most important results of the research. However, the most fundamental purpose of annual legislation of law of

minimum wage is destruction of absolute poverty and decrease of relative poverty. Via increase of minimum wage, families with low wages will take advantage of the condition. Benjamin(2001) and Vastilgerd (1946) believe that the law of minimum wage is able to omit absolute poverty, then it could be discussed seriously. Now the question is whether there is a useful and proper replacement for it to decrease poverty or not.

Conclusion

In this research, model estimation was considered, results of model estimation showed that increasing minimum wage leads to decrease of employment, then Gini coefficient of dependent variable was estimated and results showed that with increase of minimum wage, Gini coefficient decreases and it means that increasing minimum wage leads to decrease of poverty.

Log (Mw) coefficient is 0.001 and this number shows that with increase of one unit of minimum wage logarithm, employment decreases up to 0.001. Moreover, this hypothesis is also acceptable that increase of minimum wage might be just a policy in response to increase of unemployment resulted from low level of minimum wage.

Therefore, one of the hypotheses of this research related to significant relation between minimum wage and employment is proved, in fact, relation between minimum wage and employment in 10 provinces of the research is negative and significant.

Log (EARN) coefficient is 0.001 and shows that with increase of one unit of annual earning, employment logarithm decreases up to 0.001. Moreover, the estimated parameter shows that there is a direct and negative relation between annual earning and employment.

Log (GDP) coefficient is 0.004 and shows that with increase of one unit of gross domestic product, employment logarithm increases up to 0.004 and this parameter has a positive and direct relation with employment. In fact, with increase of GDP, employment increases as well.

Log (UI) coefficient is 0/158 and it shows that with increase of one unit of unemployment logarithm, employment logarithm decreases up to 0.158. In fact, this estimated parameter has negative impact on employment. It is obvious that with increase of unemployment, employment decreases.

Log (POP) coefficient is 0.03 and it shows that with increase of one unit of population, employment logarithm decreases up to 0.03.moreover, the estimated parameter has positive and negative effects on employment variable.

Now, it is time to understand whether increasing minimum wage of families with low salaries improves the condition. First, it is better to estimate effect of minimum wage on employment and Gini coefficient. Gini coefficient has been gained by using data related to 10 provinces of Iran from 1991 to 2009.it should be noticed that number of studies related to this subject have been limited in Iran and available data were related to 2005 or previous years, however, more data related to recent years have been achieved by one of the responsible members of statistical researches center of Iran. The results of this research shows that increase of minimum wage increases Gini coefficient, consequently poverty decreases both in relative and absolute levels. Moreover, minimum wage affects employment and its increase leads to decrease of poverty.

Suggestion

The present paper confronts many limitations from viewpoint of statistical data; therefore it was unavoidable to omit some provinces from the research. It has been suggested that in the future years and according to development of statistical information, the same research be done for more provinces in order to achieve more reliable results. Moreover, other key factors such as governmental payments to people could be considered in future researches. This factor has not been considered in the present paper for two reasons, one reason is that governmental payment to people is a relatively new subject on which little information exists and the second reason is that giving opinion about effect of governmental payment on poverty needs more contemplation.

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