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Minimum Wage and Youth Employment: The Case Study of Iran's Manufacturing Industries

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Abstract: The purpose of this paper is to examine the effect of minimum wage on the youth employment using panel technique in Iran's manufacturing industries at the 4-digit aggregation level of ISIC classification, during 2001-2006. There is the controversy surrounding minimum wage because the effects of the introduction and increase of minimum wage may differ greatly depending on the labor market structure. In order to capture the effects which various un-observed labor supply and demand factors may have on the youth employment, The Kaitz Index (as the ratio of the minimum wage to the average wage) has been used in our analysis. The obtained results provide the small but positive effect of minimum wage on youth employment.

Key Words: *Youth Employment, Minimum Wage, Kaitz Index, Iran's Manufacturing Industries, Panel Data.*

1. Introduction

The impact of minimum wage legislation has been widely discussed and is a major concern among labor economists, especially the effect of minimum wage on the employment of youths-a major group that is influenced by such legislation. The negative employment effects of minimum wages were taken for granted for decades (Brown et al., 1982). Only in the 1990s was this consensus view challenged when several studies based on natural experiments demonstrated that minimum wage increases often had no negative employment effects and sometimes the effects were even positive (Card and Krueger, 1995). However, considerable debate about the relevance of the new view remains (Dolado et al., 1996; Neumark and Wascher, 2007).

To some extent, this controversy appears to be justified because the effects which result from the introduction or increase of minimum wage differ from one country to another, depending both on the content and application of the approved legislation and the particular structure of the labor market. In a perfect competitive labor market, the introduction of a minimum wage would tend to reduce unemployment. But, in a monopsony structure of the labor market, the effect might well be the opposite (Blazquez *et al.*, 2009). These conflicting assessments on the effects of minimum wage are clearly revealed in many of the empirical studies devoted to the subject. Most pioneering works were primarily focused on the economy of the United States and based on a competitive structure of the labor market. They concluded that the existence of minimum wage had a negative effect on youth employment (Hashimoto and Mincer, 1970; Welch, 1974; Brown *et al.*, 1982; Hamermesh, 1985; Wellington, 1991; Neumark and Wascher, 1992; Deere *et al.*, 1995; Currie and Fallick, 1996; Partridge and Partridge, 1998; Williams and Mills, 1998; Baker *et al.*, 1999; Pereira, 2003; Yuen, 2003; Neumark *et al.*, 2004). Assuming the existence of a monopsony structure, other studies have provided, in contrast, evidence for the neutral, or even positive, effects of minimum wage on youth employment (Wellington 1991; Card, 1992a and 1992b, Katz and Krueger 1992, Card and Krueger 1994, Machin and Manning 1994; Card and Krueger, 1995; Manning and Machin, 1996; Dickens et al., 1998, 1999; Bhaskar & To, 1999; Lang and Kahn, 1999).

The present article deals with the impact of minimum wage on youth employment using Iran's manufacturing industries data during 2001-2006 at the 4-digit aggregation of International Standard Industrial Classification (ISIC). This paper is organized in five sections. After the introduction in the first section, section 2 provides a

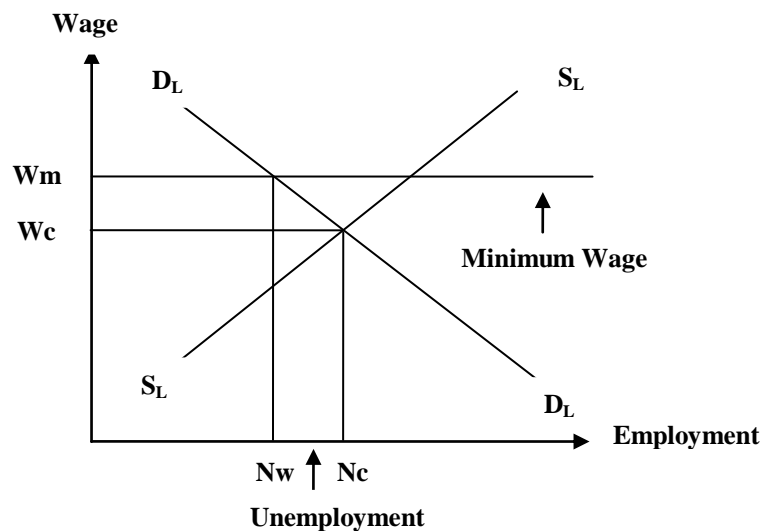
summary review of literature on the subject. Section 3 presents model specification and data description. Section 4 considers the empirical results and finally a conclusion will be provided in section 5.

2. Review of Literatures

In general, the results obtained by the analytical works carried out for the last few decades in developed countries to measure the impact of minimum wage on the aggregate employment and unemployment tend to show negative elasticities in the estimated employment functions. This appears to be particularly the case when the minimum wage has been significantly increased or it has been initially established at a relatively high level (Blazquez et al., 2009). The analysis follows tends to discuss what some of the theoretical economic models tell us about the linkage between minimum wage and employment. This section starts by presenting the predictions of the basic version of the Competitive Model, namely the supply-demand model, which says that the minimum wage lowers the employment of minimum wage workers, because it establishes an “artificial wage-floor” which has nothing to do with the market requirements such as the prevailing productivity growth and unemployment rate. This will be followed by a discussion of the predictions of alternative model, as the Monopsony Model, which tell us that the link between minimum wage and employment might be positive. Other extensions have also emerged in the form of partial sector (in a two-sector model), heterogeneous analyses and ‘shock Effects’ model.

The competitive model: The most basic model of minimum wage effects on employment and unemployment focuses on a single competitive labor market. In this model of the market, the labor force is homogeneous. The demand for labor of the firm is a decreasing function of real wages (Fig. 1). The fixation of a minimum wage level above the equilibrium level, says W_c , would lead to a drop in the demand for labor, all things being equal. Then, the workers whose productivity is below the minimum wage are shut out of the labor market.

Fig 1: The competitive labor market



Source: Ghellab (1998)

The monopsony model: Contrary to the predictions of the competitive model, under the hypothesis of the monopsony model, the negative relationship between minimum wage and employment is not proven. Such a relationship may be positive. The main postulate of the monopsony model is that employers have a certain market power in setting wages in such a way that labor supply is a positive function of the wages paid. This means that the higher the wages, the more abundant the labor force. In this context, the labor market is compared with that of a “one company town”, where there is only one buyer of labor. If an employer wants to attract the labor force in the town, say “the villagers”, he should pay higher wages. Higher wages, through the

setting up of a minimum wage, would help him to retain his workers, thus maintaining a higher level of employment (Ghellab, 1998).

Two-sector Model: Minimum wage provisions in most countries, and particularly in the U.S., have historically granted exemptions based on industry and size, so coverage has not been universal. Besides partial coverage, labor economists have also pointed to the importance of noncompliance with the law (Brown, 1999). Both these realities provide the basis for a two-sector model, whose covered sector's employment, like the model based on universal coverage, is affected by the minimum wage, while the uncovered sector's demand for labor depends on the market –determined wage in that sector. Workers displaced by the minimum wage from the covered sector move to the uncovered sector, whose flexible wage falls as supply increases. However, since in response to the fall in wages in the uncovered sector, some of the displaced workers with higher reservation wages would still prefer not to work, it is clear, as Brown (1999) puts it, that activities in the uncovered sector may dilute but not totally eliminate the unemployment effects of the minimum wage (Edagbami, 2006).

Heterogeneous labor model: This model was recently integrated into minimum wage analysis. Low-wage groups usually have in their fold (often doing the same tasks) other relatively skilled and better-paid workers who are only indirectly affected by the minimum wage. The members of this latter group are used as substitutes for workers directly affected by minimum wages, causing a decline in overall employment since it takes less than one skilled worker to substitute for one minimum wage worker, or to substitute one grade of labor for another. The danger in this is that the balance of overall unemployment effects of minimum wage may be small, leading erroneously to the policy conclusion that few low-skilled workers were hurt (Freeman, 1996). Hence the justifiable focus on teenagers, blacks and females against, respectively, youth adults, whites and males, since the former group of workers has the highest concentration of the most disadvantaged (Brown, 1999).

3. Model, Data, and Estimation Methodology

The relevance of the effect of minimum wage on employment clearly varies according to the weight of the minimum wage relative to the average wage. As previous works have shown, the impact of minimum wage will be greater on a given wage distribution, the closer it is to the average wage. Evidence shows that when it is high, its impact is negative, while if it is low, the consequences of its introduction are negligible (Katz and Krueger, 1992). For this reason, the most common approach for examining the effects of the introduction and increase of minimum wage on employment on a territorial basis is to use the Kaitz Index (KI) which is defined as the ratio of the minimum wage to the average wage. An important reason for employing this index is that it makes possible to collect the non-observable labor supply and demand factors, because its denominator –the average wage- can be affected either by supply or demand shocks (Blazquez et al., 2009). As most academic works in the subject made clear, young people between 15 and 24 years of age usually have the lowest wages and, as a result, tend to be one of the most examined collectives in the empirical works aimed to study the impact of minimum wage on employment. The following equation of youth employment is commonly used as the starting point for any theoretical framework aimed to analyze the impact of minimum wage on employment.

$$EM_{it} = F(KI_{it}, X_{it}) \quad (1)$$

Where the sub-indexes *i* and *t* represent, respectively, the industry and time under study; EM the youth employment; KI the Kaitz index; and X captures a number of variables which affect both labour supply and demand.

$$KI = \frac{W_{min}}{W_{med}} \quad (2)$$

Where W_{min} is the minimum wage per worked hour for full time workers and W_{med} the average wage per worked hour. This study has used the model similar study by Blazquez et al. (2009) as following:

$$\begin{aligned} \log EM_{it} &= \beta_1 + \beta_2 KI_{it} + \beta_3 \log Prod_{it} + \beta_4 \log VA_{it} \\ &\quad + \beta_5 \log K_{it} + \beta_6 \log HC_{it} + u_{it} \end{aligned} \quad (3)$$

$$i = 1, 2, \dots, N$$

$$t = 1, 2, \dots, T$$

$$\beta_2 < 0, \beta_3 < 0, \beta_4 > 0, \beta_5 > 0, \beta_6 < 0$$

Whereas, $(\log Prod_{it})$ shows the logarithm of labor productivity in industry i and at time t . The expected sign is negative, $\log VA_{it}$ is the logarithm of real value added and $\log K_{it}$ is the logarithm of real capital stock. The positive coefficients are expected for these variables. $\log HC_{it}$ is the logarithm of human capital. Human capital can be as a special factor for a specific industry. Thus, the expected sign is negative. In this paper, HC calculated from skilful labor to total productive labor. In this paper, data was used at the 4-digit aggregation level of ISIC classification during 2001-2006 (due to lack of new data). Raw data collected from Center of Statistic of Iran.

4. Empirical Results

This paper has used a panel data regression model. Also, in order to select the appropriate method of estimation among OLS the pooled model, Fixed Effects (FE), and Random Effects (RE), we applied the Chow, Lagrange Multiplier (LM) by Breusch-Pagan (1980) and Hausman tests using Stata 9.1 and Eviews 7. (For more details about panel data technique and the related tests, see Baltagi, 2008, Hsiao, 2005 and Gujarati, 2004). Table 1 presents Chow, Lagrange Multiplier and Hausman tests for the model.

Table 1: Chow, Lagrange Multiplier and Hausman Tests

Test	Test-Statistic	P-value	Result
Chow	17.06	0.0000	FE
LM	274.17	0.0000	RE
Hausman	132.86	0.0000	FE

The Chow test is a test for choosing between simple OLS regression and fixed effects that based on table 1 it shows that fixed effects is suitable model. Also, the LM test is to decide between random effects regression and simple OLS regression that result shows random effects regression is appreciated. To decide between fixed or random effects, Hausman test can be run a where the null hypothesis is that the preferred model is random effects vs. the alternative the fixed effects (Green, 2008). Based on information in table 1, the suitable model is fixed effects as presented in table 2.

Table 2: Results of Estimation of Model

Depended Variable: log Productivity			
Independent Variable	Coefficient	t-Statistic	Prob.
KI	9.15E-07	2.752091	0.0063
LogProd	-0.5523	-8.843616	0.0000
logVA	0.9593	40.28263	0.0000
logK	0.0200	2.309582	0.0216
logHC	-0.0391	-2.345918	0.0196
F	319.78		
P-value	0.0000		
D.W	1.4941		
R ²	0.9857		
R ² Adjusted	0.9827		

Based on table 2, the coefficient of KI is positive and statistically significant, but this coefficient does not support the negative effect of minimum wage on youth employment. Also, the coefficient of logProd is negative and statistically significant with expected sign. The coefficients of logVA and logK are positive and significant with expected sign. The coefficient of logHC has the expected sign and is statistically significant. The F statistic indicates that all the coefficients in the model are different than zero and the model is statistically significant. Also, R-square shows the 98 percent of variance of dependent variable explained by independent variables. In sum, we can conclude that, according to these results, there is no evidence of any negative effect of minimum wage on youth employment for the period 2001-2006. There are, however, some indications of a slightly positive effect, a result which is consistent with other research on the subject (Card and Krueger, 1995; Dickens et al., 1998, 1999; Bhaskar & To, 1999; Lang and Kahn, 1999). In fact, there are two reasons which help us to explain both the absence of any negative impact on youth employment and the lack of any increase in the youth unemployment. In the first place, the monopsony model indicates that for a monopsonist the increase of youth (minimum) wages tends to be accompanied by employment growth as the average cost for the employer is below the marginal cost. At the same time, there has been a significant increase in labor supply and there is high unemployment in Iran's labor market that the more of these unemployed workers are young people that they are more inclined to accept any wage level offered to them (below the minimum wage) than the rest of the workers.

5. Conclusion

This study examined the effect of minimum wage on youth employment in Iran's manufacturing industries at the 4-digit aggregation level of ISIC classification during 2001-2006. The results obtained do not provide sufficient evidence of any negative effect of minimum wage on youth employment in Iran's manufacturing industries over the period under study. This result may appear to indicate the existence of a monopsony structure in the labour market. In other words, the obtained results provide the small but positive effect of minimum wage on youth employment. Therefore, the policy implication derived from this empirical study suggests that in the short run the minimum wage has no adverse effect on youth employment, however, the long-run effect of the minimum wage on youths may be large and harmful as the increasing early dropout of them from school into the labor market interrupts the accumulation of human capital and thus deters the long-run economic growth of the economy. Also, this policy can cause an increase of the unemployment rate, longer unemployment periods, and the rise of long-term unemployment. Thus, the minimum wage policies should be administered with great caution.

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