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Evidence from China

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Abstract: This article examines the impact of the minimum wage on employment in China using data from 2000 to 2005. The effect of the minimum wage on employment levels was found to be mixed. Overall, minimum wages have no significantly adverse effect on employment. In particular, the results in the eastern region of China indicate few significant negative effects, which is consistent with the minimum wage theory in the competitive market. In contrast, the central and western regions experience few significantly positive effects, which is consistent with the theory in the monopsony model. The results are robust regardless of ownership (non-state-owned enterprises, collectives, private enterprises, and other types), industry type (manufacturing, wholesale and retail trade, hotel and restaurant), and gender of workers. Low real minimum wages, weak enforcement capabilities, and the buyer's labor market—the three factors that may account for the effects of minimum wages on employment in China—are analyzed.

In 1993, the Chinese government issued guidelines for minimum wage legislation and each province introduced a minimum wage with reference to cost of living and other labor market conditions.¹ More than a decade later, the question of whether the minimum wage legislation should continue is still debated. Many argue that the minimum wage has a negative effect on employment. By increasing labor costs, it

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aggravates the existing excess labor market and decreases the international labor comparative advantage (Cheung 2006; Kong 2006; Wang 2004). On the other hand, supporters argue that the minimum wage will not increase the unemployment rate. Instead, it can protect labor benefits and assist in the transition from a labor-intensive industry to a capital- or technical-intensive industry (Kang 2006; Liu 2006; Qiao 2006). Interestingly, there is no empirical work to verify whether minimum wages in China have a positive or negative effect on employment. Obviously, the underlying facts are very important to future labor market policymakers.

The conventional wisdom was that an increase in the binding minimum wage should reduce employment among low-skilled workers. Earlier work summarized in Brown, Gilroy, and Kohen (1982, 1983) confirmed that a 10 percent increase in the minimum wage leads to a 1 to 3 percent decrease in teenage employment. Neumark and Wascher (1998) found similar negative results using time series data. The results are also supported in panel data analysis and natural experiment methodology (Aaronson and French 2007; Campolieti, Fang, and Gunderson 2005a, 2005b; Cunningham 1981; Freeman 1979; Kawaguchi and Yamada 2007; Neumark and Wascher 1992, 2000; Singell and Terborg 2007; Welch and Cunningham 1978). However, subsequent empirical analyses provided mixed evidence on the employment impact of a minimum wage. For example, Wellington (1991), using the same methodology as Brown et al. (1983), found that a 10 percent increase in minimum wage decreased teenage employment by only 0.6 percent with no impact on young adults. Many other studies also find mixed evidence (Burkhauser, Couch, and Wittenberg 2000a, 2000b; Currie and Fallick 1996; Neumark and Wascher 2001).

On the other hand, the minimum wage may have a neutral or positive impact on employment in a monopsony model (Aaronson and French 2007; Dickens, Machin, and Manning 1999; Stigler 1946). Using industry-based British Wages Council data from 1975 to 1992, Dickens et al. (1999) showed that a minimum wage does not have a negative impact on employment. Katz and Krueger (1992) surveyed employment and wage changes in fast-food restaurants in Texas before and after the national minimum wage change in 1991. They found that a minimum wage increases employment more in the firms that were likely to have been most affected than in firms unrelated to mandated wage changes. Several studies provide evidence consistent with the monopsony model that minimum wage has either no effect or a positive effect on employment (Abowd, Kramarz, Margolis, and Philippon 2000; Card 1992a, 1992b; Card, Katz, and Krueger 1994; Card and Krueger 1994, 1995, 2000; Katz and Krueger 1992; Machin and Manning 1994).

This article will examine the impact of a minimum wage on the employment rate using provincial panel data from 2000 to 2005, controlling other market factors, including gross domestic product (GDP), population 15 years old and above, and price levels of each province.² The impact results in mixed effects. The same issues are examined over three regions (eastern, central, and western) in China. Some significant negative effects exist in the results found in the eastern region, which is consistent with the minimum wage theory in the competitive market. In

contrast, the central and western regions experience a few significantly positive effects, which is consistent with the theory in the monopsony model. The results are similar regardless of ownership (non-state-owned enterprises, collective, private enterprises and other types), industry type (manufacturing, wholesale and retail trade, and hotel and restaurant), and gender of the workers.

To the best of our knowledge, this article is the first to provide an empirical examination of the effect of a minimum wage on employment in the Chinese labor market. The results have important implications for the current debate about minimum wage legislation. Our national data analyses indicate that current minimum wages overall do not have an adverse effect on the labor market. Our regional analyses indicate that the minimum wage policy should vary across different regions in the future. In the eastern coastal region, the effect of minimum wage on employment is more consistent with the competitive market. In the future, we should be concerned that minimum wage may have a negative effect on the employment level. However, in the central and western regions, the minimum wage policy seems to have increased social welfare without hurting the labor market. These two different results have important policy implications for reducing the current regional income inequality.

Our results are consistent with the findings in developing countries. Current studies in developing countries have found little or no evidence that a minimum wage has a negative effect on employment. Gindling and Terrell (1995), using family survey data in Costa Rica, found that the minimum wage is not well implemented—one-third of the workers are paid below the minimum wage. Bell (1997) found that minimum wage had no impact on Mexico's employment in 1990. However, it did have a negative impact on employment in Colombia. The reason may be that Colombia has a much higher minimum wage than Mexico. Rama (2001) found a very modest negative employment effect of minimum wage doubling in Indonesia, but the results varied by the size of the enterprise—larger firms actually showed positive employment effects.

Model Setup and Variable Summary

There are two economic theories predicting the relationship between minimum wage and employment rate. The first one is set up in the competitive market. If an effective minimum wage is introduced into a free labor market, the workers get higher pay but this leads to an excess of available labor, hence the minimum wage leads to unemployment. The second theory is set up in a monopsony market, where employers have certain powers in deciding wages and the labor supply is the increasing function of wage (Dickens et al. 1999; Stigler 1946). In a monopsony labor market, enterprises determine the labor quantities and wage rates where marginal cost is equal to marginal revenue. If a minimum wage is promulgated lower than the equilibrium result in a perfect competitive market, it will raise average labor costs, reduce marginal costs, increase wage rates, and promote the employment level.

Both theories provide an empirical framework to test the impact of minimum wage on employment. Of course, many other factors need to be controlled, such as GDP, population 15 years old and above, and price levels of each province. In particular, Burkhauser et al. (2000a) discuss the time effects on the simple model of minimum wage impact on employment. Their results suggested including a one-year lag of the minimum wage into the model, as well as the year dummies. The provincial data are used for our analysis of thirty provinces from 2000 to 2005.

Following the above discussion, our estimation model is:

$$E_{it} = \alpha + \theta * MW_{it} + \theta * \text{Lag} MW_{it} + \Pi X_{it} + u_{it}, \quad (1)$$

where E_{it} is the employment level for province i at time t , which is defined as the log of the number employed; MW_{it} is the minimum wage level, and $\text{Lag} MW_{it}$ is a one-year lag of the minimum wage, which indicates the lag effect of the minimum wage. A minimum wage may have a positive or a negative effect on the employment rate. In Equation (1) X_{it} is a vector of control variables, including the log of real GDP, log of population 15 and above, and the price level or Consumer Price Index (CPI) of each province.³ The authors also controlled year dummies for each regression.⁴

The data for employment numbers for the general population and for those 15 and above were collected from the *China Labor Statistics Yearbook* (2001–2006), which is compiled and published by the Bureau of Labor in China. The aggregate average wages, GDP and CPI, were collected from the *China Statistics Yearbook* (2001–2006). Minimum wage data are provided by the Wage Division of the Ministry of Labor and Social Security of the Peoples Republic of China (PRC) from 2001 to 2006.

Table 1 summarizes the above variables. As we can see, current minimum wages in China are still relatively low. The average minimum wages in many countries are about 40–60 percent of the average wages. In 2000, there were only six provinces in China (Shanxi, Inner Mongolia, Heilongjiang, Anhui, Henan, and Hainan) with minimum wages of about 40 percent of the average provisional wage. Among those provinces, Hainan had the highest minimum wage ratio, about 48.60 percent of its average wage. Shanghai had the lowest minimum wage ratio, about 27.51 percent of its average wage. The minimum wages in other provinces are about 30–40 percent. In 2001, only Anhui and Hainan had a minimum wage ratio over 40 percent, with the highest of 46.87 percent in Hainan. There are eight provinces with a minimum wage ratio lower than 30 percent of their average, with the minimum ratio of 22.32 percent in Qinghai. In 2002 and 2003, Hainan was the only province with a minimum wage of 40 percent of its average wage. The provinces with a minimum wage rate lower than 30 percent increased their rate to 11 percent in 2002 and to 18 percent in 2003, with the minimum of 19.9 and 18.75 percent in Qinghai respectively. In 2004, all the provinces had a minimum wage of less than 40 percent of average wages, and twenty provinces with a minimum wage to average wage ratio of less than 30 percent.

Table 1

Summary of Statistics

Variable	Observations	Mean	Standard deviation	Min.	Max.
Minimum wage (RMB/month)	180	327	82	185	663
Total employment (unit: persons)	180	7,301,607	5,716,544	409,000	25,600,000
GDP (unit: RMB100 million)	180	4,540	3,884	111	22,367
Population over age 15 (unit: persons)	179	857,144	594,314	43,446	3,333,340
CPI	180	101	2	97	106
Summary of minimum wages by year					
2000					
Minimum wage (RMB/month)	30	272.56	57.54	185	424.83
Minimum wage/average wage	30	0.36	0.05	0.28	0.49
2001					
Minimum wage (RMB/month)	30	287.57	64.49	220.00	467.50
Minimum wage/average wage	30	0.33	0.05	0.22	0.47
2002					
Minimum wage (RMB/month)	30	310.09	65.55	220.00	512.50
Minimum wage/average wage	30	0.31	0.05	0.20	0.44
2003					
Minimum wage (RMB/month)	30	324.75	66.43	220.00	552.50
Minimum wage/average wage	30	0.29	0.05	0.19	0.40
2004					
Minimum wage (RMB/month)	30	357.91	72.59	251.67	602.50
Minimum wage/average wage	30	0.28	0.04	0.19	0.36
2005					
Minimum wage (RMB/month)	30	408.49	84.13	306.40	662.50
Minimum wage/average wage	30	0.28	0.04	0.20	0.38

The number of employment and minimum wage data are redefined in the model because the Chinese economy is still transitioning from a planned economy to a market-oriented economy. The number of employed in our model includes employees in urban and rural areas, excluding self-employed individuals, peasants (having no wages, they are not affected by the minimum wage system), and state-owned units. Employees in state-owned units are excluded because employment in state-owned enterprises (SOEs) is decreasing due to government policy. Since the 1997 decisions made by the Fifteenth Central Committee of the Communist Party, SOEs have been experiencing revolutionary changes. The Chinese government reformed the SOEs strategically by invigorating large enterprises and relaxing control over small ones. Therefore SOEs shrunk in some competitive industries and their employment numbers have been decreasing, as shown in Table 2.

Table 2 indicates that, compared with 1997, employment in SOEs decreased by 41.25 percent in 2005, averaging 5.16 percent each year. This reduction is due to economic system reforms and is irrelevant to the minimum wage system. Therefore the state-owned subgroup is excluded when estimating the impact of minimum wage on total employment.

In addition, the data for minimum wage have to be recalculated. Minimum wage data are provided by the Wage Division of the PRC Ministry of Labor and Social Security. In general, most provinces adjust the minimum wage on July 1 every year. However, each province has several standards and also has the flexibility to change the minimum wage within the year. These standards need to be combined into a single standard for each province. The suggested method for combining the minimum wage is time weighted average minimum wage (Rama 2001). Take the example of Jiangsu province in 2002. There are four levels of minimum wage (430, 360, 300, 250 [RMB per month]) existing in different districts before July 1, 1992. The levels are adjusted to new ones (460, 370, 320, 260) after July 1. The average minimum wage was $(430 + 360 + 300 + 250)/4 = 335$ before July 1 and $(460 + 370 + 320 + 260)/4 = 352.5$ after July 1. The minimum wage data for Jiangsu province in 2002 was $([335 \times 6]/12) + ([352.5 \times 6]/12) = 343.75$.⁵

Regression Analysis

In this section, regression analyses are conducted based on the regression model. To do so, the authors first look at the aggregate effect of minimum wage on employment using nationwide data. To examine the different labor market effects due to different development levels across three regions, the national data are decomposed into three regional analyses. Furthermore, subgroup analyses are conducted by ownership of the firms, by industry type, and by gender to check the robustness of the findings.

The panel data originated from thirty provinces over time, and thus we check the heteroskedasticity for each model and serial correlation. As expected, both heteroskedasticity and serial correlation are detected for each model. Therefore,

Table 2

Employment in State-Owned Enterprises (1997–2005)

	1997	1998	1999	2000	2001	2002	2003	2004	2005
Number employed (unit: 10,000 persons)	11,044	9,058	8,572	8,102	7,640	7,163	6,876	6,710	6,488
Annual growth (%)	—	–18	–5.40	–5.50	–5.70	–6.30	–4.00	–2.4	–3.31

each of the following models uses generalized least squares by correcting the heteroskedasticity and serial correlation.

Impact on Aggregate Employment

Table 3 reports the results of minimum wage impact on aggregate employment. The first column estimates the full sample using all provinces. The coefficients of the minimum wage and its lag are positive but not significant, which indicates that in China the minimum wage does not have an adverse effect on employment. As expected, the employment level is significantly higher for the higher GDP level. The population 15 years old and above is also significantly associated with the employment level. Compared with the eastern region, we find that the central and western regions experience significantly low employment levels.

The subsamples of three regions (eastern, central, and western) are examined separately due to their different developmental levels. In column 2, the coefficient of minimum wage is negative but not significant. The coefficient of the lag of the minimum wage is significantly negative at the 5 percent level. However, the coefficients of minimum wages in other regions are all positive but not significant. The comparison across regions indicates that the eastern region is a more competitive market economy and minimum wage slightly reduces the employment level with lag effect.

Recall that the employment number used in Table 3 excludes employed persons in state-owned units in urban areas because employment in SOEs is decreasing due to government policy. This number includes employment at collective enterprises, different types of non-state-owned or noncollective enterprises, and private enterprises. The collective enterprises are a special product of the economic system reform. With the gradual transformation to a socialist market economy, the collective economy is shrinking, so that employment in collective enterprises becomes smaller and smaller. In contrast, private enterprises and other types of enterprise are becoming larger and larger. Therefore, in the following subgroup analyses, three types of ownership are examined: collective enterprises, private enterprises, and other types.

Impact on Employment by Ownership

China is a socialist country and most of the economic resources are under the control of the central government. With the development of economic reform, the non-state-owned economy has developed quickly. Therefore, when the impact of a minimum wage on employment in China is studied, it is important to make clear the effect of a minimum wage on enterprises with different types of ownership. As the ratio of SOEs is becoming smaller, so is the employment number in state-owned enterprises as China's enterprise reform continues. The reduction of the employment number has very little to do with the minimum wage system. Hence,

Table 3

Impact of Minimum Wage on Total Employment (Dependent Variable: Log of Total Employees Outside SOEs)

	Full sample	Eastern region	Central region	Western region
Log (minimum wage)	0.098 (0.073)	−0.067 (0.138)	0.321 (0.184)*	0.176 (0.141)
Lag (minimum wage)	0.050 (0.076)	−0.234 (0.107)**	0.094 (0.204)	0.105 (0.184)
Log (GDP)	0.536 (0.057)**	0.901 (0.046)***	−0.315 (0.176)*	0.117 (0.093)
Log (population age 15 and above)	0.526 (0.053)***	0.261 (0.055)***	1.416 (0.166)***	0.868 (0.088)***
Log (CPI)	−0.003 (0.006)	−0.024 (0.012)**	0.017 (0.023)	−0.002 (0.007)
Dummy variable for central region	−0.101 (0.043)**			
Dummy variable for western region	−0.195 (0.048)***			
Constant	5.439 (1.274)***	14.217 (1.899)***	−12.788 (3.766)***	−1.238 (2.033)
Observations	150	60	45	45
Number of provinces	30	12	9	9

Notes: Standard errors in parentheses. *, **, and *** denote significance at 10%, 5%, and 1%, respectively. Year dummies are included in the regression but are not reported for space efficiency.

it is important to particularly examine the employment effect of minimum wage at collective enterprises, private enterprises, and other enterprises.

Table 4 reports the results of the employment effect of minimum wage on collective enterprises. The first column indicates that the minimum wage significantly increases the employment level for collective enterprises. The dummy effect indicates that the central region has significantly higher employment at collective enterprises than the eastern region. If the three regions are examined separately, it is found that in the western region minimum wage plays a significant positive role in employment. In comparison, Table 5 and Table 6 report the employment effects of minimum wage on private enterprises and other types of enterprises. In both tables, the results show that a minimum wage has no significant adverse effect on employment (except in the eastern regions for other enterprises). For other types of enterprises (e.g., foreign enterprises), insignificant effects are expected in other regions except in the eastern region, since most of the other type of enterprises are in the eastern region (see also the dummy effects in the first column). However, most of China's private enterprises are small and produce labor-intensive products. If a minimum wage reduces employment in China, it will have a significantly negative impact on employment in private enterprises. The results may indicate that a minimum wage may not be well implemented in private enterprises.

Impact on Employment by Industry

Previous literature has documented that the impact of a minimum wage varies by firm size or industry type. Rama (2001), using Indonesia's minimum wage doubling in real terms in the first half of the 1990s, indicates that the impact of minimum wage on employment differs with firm size. The impact of minimum wage on employment in small firms may be negative, since small and medium-size firms better fit the competitive models. In addition, Singell and Terborg (2007) found different employment effects within and between low-wage industries, such as the food industry and the hotel and restaurant industry. In China, the manufacturing industry is composed of capital-intensive large firms, which are better able to resist minimum wage demands. In contrast, firms in China's wholesale and retail trade industry and hotel and restaurant industry are usually small, and the workers in these labor-intensive industries are unskilled and low-paid. For the above reasons, the subgroup analyses in the manufacturing industry, the wholesale and retail trade industry, and the hotel and restaurant industry are conducted respectively. Minimum wages are expected to have a larger impact on employment in the latter two industries because they are relatively low-wage industries.

In Tables 7, 8, and 9 [pp. 31–33], we see the impact of minimum wage on employment in these three industries. For each industry, state-owned employment is excluded from the dependent variable employment rate. Results from the manufacturing industry indicate a positive effect of the minimum wage on the

Table 4

Impact of Minimum Wage on Collective Enterprise Employment
(Dependent Variable: Log of Collective Enterprise Employees)

	Full sample	Eastern region	Central region	Western region
Log (minimum wage)	0.248 (0.094**)	-0.025 (0.159)	0.147 (0.189)	0.390 (0.178)**
Lag (minimum wage)	0.043 (0.101)	0.073 (0.131)	-0.099 (0.170)	0.148 (0.245)
Log (GDP)	0.242 (0.069)***	0.578 (0.079)***	0.336 (0.228)	-0.001 (0.076)
Log (population age 15 and above)	0.726 (0.066)***	0.354 (0.080)***	0.643 (0.214)***	0.979 (0.082)***
Log (CPI)	0.010 (0.008)	0.019 (0.014)	0.004 (0.020)	0.002 (0.012)
Dummy variable for central region	0.235 (0.070)***			
Dummy variable for western region	-0.190 (0.085)**			
Constant	-3.161 (1.635)*	3.734 (2.483)	0.322 (4.559)	-7.674 (2.440)***
Observations	150	60	45	45
Number of provinces	30	12	9	9

Notes: Standard errors in parentheses. *, **, and *** denote significance at 10%, 5%, and 1%, respectively. Year dummies are included in the regression but are not reported for space efficiency.

overall employment level. There is no significant difference in the employment level across the three regions. Interestingly, minimum wage has a significantly negative impact on employment in the eastern region, while it has a significantly positive impact on employment in the western region. The employment effect of minimum wage at the wholesale and retail industry, as shown in Table 8, is not significant overall, and there is a significantly positive lag effect on the western region. The employment effect of minimum wage in the hotel and restaurant industry, as shown in Table 9, is significantly positive overall, and the western region contributes substantially to this positive effect. To sum up, there are slight negative effects in the eastern region, no significant results in the central region, and positive effects in the western region. These results indicate that the labor market from the eastern region to the western region is changing from a competitive mode to a monopsony mode.

Table 5

Impact of Minimum Wage on Private Enterprise Employment (Dependent Variable: Log of Private Enterprise Employees)

	Full sample	Eastern region	Central region	Western region
Log (minimum wage)	0.209 (0.154)	−0.370 (0.498)	0.051 (0.264)	−0.120 (0.281)
Lag (minimum wage)	0.043 (0.161)	0.346 (0.446)	0.083 (0.264)	−0.470 (0.326)
Log (GDP)	0.742 (0.090)***	1.343 (0.171)***	−0.686 (0.223)***	0.424 (0.151)***
Log (population age 15 and above)	0.111 (0.102)	−0.409 (0.194)**	1.108 (0.204)***	0.292 (0.145)**
Log (CPI)	−0.026 (0.012)**	−0.050 (0.044)	0.026 (0.026)	−0.007 (0.017)
Dummy variable for central region	−0.348 (0.079)***			
Dummy variable for western region	−0.047 (0.080)			
Constant	12.476 (2.548)***	24.477 (6.767)***	−8.025 (4.988)	12.045 (3.624)***
Observations	150	60	45	45
Number of provinces	30	12	9	9

Notes: Standard errors in parentheses. *, **, and *** denote significance at 10%, 5%, and 1%, respectively. Year dummies are included in the regression but are not reported for space efficiency.

Impact on Employment by Gender Groups

Previous literature has documented that there are differences in the effects of minimum wage on gender (Brown et al. 1982). Because of physiological factors, most firms prefer employing male workers if the wage rate is the same for both genders. Similarly, female workers are the first to be dismissed when higher wages require firm layoffs. Therefore, there is a certain degree of discrimination regarding female employment in labor markets, and a minimum wage may have a larger effect on females than males.

To examine whether the same effect occurs in the Chinese labor market, similar data by gender group was obtained. Employment rates for males and females include those in urban area firms (excluding SOEs) and the private sector. Table 10 [p. 34] indicates that, overall, there is no significant effect of minimum wages on employment level. Across regions, the effect of minimum wage on employment level ranges

Table 6

Impact of Minimum Wage on Other Enterprise Employment (Dependent Variable: Log of Other Enterprise Employees)

	Full sample	Eastern region	Central region	Western region
Log (minimum wage)	0.096 (0.080)	-0.094 (0.155)	0.337 (0.205)	0.158 (0.148)
Lag (minimum wage)	0.044 (0.082)	-0.245 (0.120)**	0.113 (0.228)	0.117 (0.191)
Log (GDP)	0.551 (0.058)***	0.920 (0.050)***	-0.438 (0.195)**	0.118 (0.097)
Log (population age 15 and above)	0.513 (0.055)***	0.249 (0.060)***	1.520 (0.186)***	0.870 (0.092)***
Log (CPI)	-0.004 (0.007)	-0.027 (0.013)**	0.014 (0.024)	-0.003 (0.007)
Dummy variable for central region	-0.119 (0.044)***			
Dummy variable for western region	-0.196 (0.055)***			
Constant	5.795 (1.348)***	14.862 (2.099)***	-14.425 (4.223)***	-1.167 (2.093)
Observations	150	60	45	45
Number of provinces	30	12	9	9

Notes: Standard errors in parentheses. *, **, and *** denote significance at 10%, 5%, and 1%, respectively. Year dummies are included in the regression but are not reported for space efficiency.

from an insignificant negative sign in the eastern region to an insignificant positive sign in the middle region, and a significant sign in the western region.

The results in Table 11 [p. 35] indicate that there is no significant gender employment discrimination. Overall, this table indicates a negative but not significant effect of minimum wage on female employment. Similarly, the effect of minimum wage on the employment level ranges from an insignificant negative sign in the eastern and central regions to an insignificant positive sign in the western region.

All of the above regression results indicate that minimum wages in China have mixed effects on employment. The results vary across three regions comprising the labor market segment in China. The eastern region experiences slight negative effects, while the western region experiences slight positive effects. The former case is more consistent with the results in the competitive market, while the latter case is more consistent with the results in the monopsony model. Even though we do

Table 7

Impact of Minimum Wage on Manufacturing Employment (Dependent Variable: Log of Manufacturing Employees)

	Full sample	Eastern region	Central region	Western region
Log (minimum wage)	0.270 (0.135)**	−0.467 (0.279)*	−0.168 (0.188)	0.475 (0.234)**
Lag (minimum wage)	0.006 (0.143)	−0.247 (0.262)	−0.397 (0.188)**	0.372 (0.277)
Log (GDP)	0.948 (0.078)***	1.554 (0.131)***	1.101 (0.102)***	0.190 (0.090)**
Log (population age 15 and above)	0.069 (0.077)	−0.457 (0.138)***	−0.361 (0.090)***	0.717 (0.091)***
Log (CPI)	−0.005 (0.011)	−0.025 (0.022)	0.013 (0.026)	−0.006 (0.017)
Dummy variable for central region	0.042 (0.061)			
Dummy variable for western region	−0.087 (0.067)			
Constant	9.754 (2.115)***	25.931 (4.063)***	20.045 (3.091)***	−3.977 (2.939)
Observations	150	60	45	45
Number of provinces	30	12	9	9

Notes: Standard errors in parentheses. *, **, and *** denote significance at 10%, 5%, and 1%, respectively. Year dummies are included in the regression but are not reported for space efficiency.

not report yearly dummy effects, we note that the year variables are all significant in the regression. This indicates that macropolicy or even globalization events have a significant effect on employment.

There are several reasons that may explain this mixed result. First, minimum wages in China are still relatively low. As can be seen in Table 1, the minimum wage increased from an average of RMB287 per month in 2000 to RMB408 per month in 2005, but the ratio of minimum wages to average wages was actually declining from 36 percent to 28 percent, with an average decreasing rate of 1.99 percent each year. Both the competitive model and the monopsony model indicate that when the minimum wage is lower than the market wage, there is no effect on employment.

Second, a national minimum wage system has been initiated but poorly executed, which has led to a small effect on the whole labor market. There have been many cases reported but only a few are described here. In 2005, the labor union in Hebei province administered a four-month-long survey regarding minimum wage

Table 8

Impact of Minimum Wage on Wholesale and Retail Trade Employment
(Dependent Variable: Log of Wholesale and Retail Trade Employees)

	Full sample	Eastern region	Central region	Western region
Log (minimum wage)	0.160 (0.137)	0.068 (0.229)	0.114 (0.177)	0.269 (0.255)
Lag (minimum wage)	0.121 (0.149)	-0.117 (0.220)	-0.074 (0.160)	1.163 (0.309)***
Log (GDP)	0.772 (0.092)***	1.183 (0.117)***	0.012 (0.271)	0.239 (0.123)*
Log (population age 15 and above)	0.154 (0.093)*	-0.401 (0.120)***	-0.289 (0.821)	0.787 (0.116)***
Log (CPI)	0.006 (0.010)	0.040 (0.018)**	-0.022 (0.018)	0.001 (0.016)
Dummy variable for central region	0.184 (0.082)**			
Dummy variable for western region	0.140 (0.091)			
Constant	5.388 (2.327)**	13.302 (3.635)***	0.000 (0.000)	-10.551 (3.404)***
Observations	150	60	45	45
Number of provinces	30	12	9	9

Notes: Standard errors in parentheses. *, **, and *** denote significance at 10%, 5%, and 1%, respectively. Year dummies are included in the regression but are not reported for space efficiency.

in all types of firms. Among the 1,021 enterprises investigated, 42 percent of the enterprises did not execute a minimum wage and 76 percent of the workers could not get legal payment for additional worktime on holidays. Among 267 SOEs, 82 percent paid the minimum wage. About 49 percent of the 754 non-SOEs paid the minimum wage.⁶ A survey of Beijing home-service workers in 2005 indicated that half of the worker earnings were below the legal minimum wage of RMB580 per month.⁷ From January to August 2006, Shanghai municipal labor inspection teams received 647 complaints regarding minimum wages, handled 907 cases of violations of minimum wage rules, and reimbursed a minimum wage differential of RMB6,650,000 for approximately 28,000 labor force participants.⁸ In May 2006, the Harbin Municipal Bureau interviewed 1,000 workers in eight industries and found that overtime work, sordid work environments, and low wage levels were very common. With the exception of the construction and stone material processing enterprises, all other investigated industry minimum wage levels were lower than

Table 9

Impact of Minimum Wage on Hotel and Restaurant Employment
(Dependent Variable: Log of Hotel and Restaurant Employees)

	Full sample	Eastern region	Central region	Western region
Log (minimum wage)	0.544 (0.279)*	0.563 (0.879)	0.276 (0.442)	1.442 (0.492)***
Lag (minimum wage)	1.208 (0.318)***	1.327 (0.921)	0.517 (0.454)	1.925 (0.499)***
Log (GDP)	0.290 (0.146)**	0.098 (0.343)	1.477 (0.411)***	0.338 (0.110)***
Log (population age 15 and above)	0.506 (0.144)***	0.164 (0.410)	−0.309 (0.379)	0.616 (0.107)***
Log (CPI)	−0.010 (0.019)	0.006 (0.052)	0.079 (0.038)**	−0.072 (0.025)***
Dummy variable for central region	−0.294 (0.143)**			
Dummy variable for western region	−0.242 (0.170)			
Constant	−8.030 (3.970)**	−4.188 (12.514)	0.668 (7.410)	−12.723 (3.875)***
Observations	129	55	37	37
Number of provinces	30	12	9	9

Notes: Standard errors in parentheses. *, **, and *** denote significance at 10%, 5%, and 1%, respectively. Year dummies are included in the regression but are not reported for space efficiency.

RMB590 per month.⁹ The situation before 2006 was even worse. In fact, many enterprises take overtime payments, retirement pensions, social security funds, doles, and allowances into account when setting minimum wages. According to the enterprise minimum wage regulations, punishment for violating minimum wage rules is a fine of from 20 to 100 percent of the difference between the minimum wage and the previous payment.¹⁰ A subsequent rule increased this number to five times the earlier punishment.¹¹ However, the enterprises are not really impacted by this rule because of weak enforcement by the local office of the Bureau of Labor. Therefore, weak enforcement might be another factor accounting for the insignificant negative effect on employment in China.

Third, the Chinese labor market is in a very special stage, as the economy is transitioning from a planned economy to a market-oriented economy. From the perspective of the market economy, the labor market is competitive, as employers have the freedom to offer wages based on market information. However, the

Table 10

Impact of Minimum Wage on Male Employment (Dependent Variable: Log of Male Employees)

	Full sample	Eastern region	Central region	Western region
Log (minimum wage)	0.190 (0.149)	-0.224 (0.330)	0.174 (0.145)	0.624 (0.355)*
Lag (minimum wage)	0.236 (0.156)	-0.049 (0.304)	0.113 (0.145)	1.033 (0.371)***
Log (GDP)	0.627 (0.095)***	0.915 (0.173)***	0.204 (0.171)	0.385 (0.092)***
Log (population age 15 and above)	0.209 (0.094)**	-0.191 (0.169)	0.597 (0.209)***	0.559 (0.085)***
Log (CPI)	-0.014 (0.014)	-0.028 (0.023)	0.008 (0.011)	-0.029 (0.028)
Dummy variable for central region	0.196 (0.075)***			
Dummy variable for western region	0.147 (0.097)			
Constant	7.937 (2.612)***	20.020 (4.999)***	0.448 (4.306)	-3.120 (3.675)
Observations	150	60	45	45
Number of provinces	30	12	9	9

Notes: Standard errors in parentheses. *, **, and *** denote significance at 10%, 5%, and 1%, respectively. Year dummies are included in the regression but are not reported for space efficiency.

reform of SOEs leads to large numbers of unemployed in the cities. In addition, rural laborers are moving from the farm to industries in the cities or suburban areas. These two effects give the labor market features similar to a monopsony market. In such a labor market, employers have obvious advantages over employees, giving enterprises a certain market power over wages. The recent shortage of rural workers is evidence that when wages are lowered to their reserved price, rural workers prefer to work on the farm rather than in the city.¹²

Conclusion

This article examines the impact of minimum wage on employment in China using data collected from 2000 to 2005. Results indicate that the minimum wage has mixed effects on employment. The results vary across three regions with the eastern region experiencing slightly negative effects, and the western region experiencing slightly positive effects. The former case is more consistent with the results in a

Table 11

Impact of Minimum Wage on Female Employment (Dependent Variable: Log of Female Employees)

	Full sample	Eastern region	Central region	Western region
Log (minimum wage)	−0.032 (0.167)	−0.263 (0.380)	−0.044 (0.196)	0.562 (0.349)
Lag (minimum wage)	0.282 (0.181)	−0.251 (0.360)	0.072 (0.203)	0.807 (0.381)**
Log (GDP)	0.931 (0.085)***	1.185 (0.173)***	1.022 (0.154)***	0.462 (0.117)***
Log (population age 15 and above)	−0.038 (0.088)	−0.331 (0.178)*	−0.251 (0.137)*	0.446 (0.110)***
Log (CPI)	−0.020 (0.016)	−0.041 (0.030)	0.025 (0.025)	−0.002 (0.026)
Dummy variable for central region	0.172 (0.062)***			
Dummy variable for western region	0.032 (0.070)			
Constant	13.076 (2.681)***	24.454 (5.561)***	13.387 (3.769)***	−3.016 (3.985)
Observations	150	60	45	45
Number of provinces	30	12	9	9

Notes: Standard errors in parentheses. *, **, and *** denote significance at 10%, 5%, and 1%, respectively. Year dummies are included in the regression but are not reported for space efficiency.

competitive market, while the latter case is more consistent with the results in a monopsony model. The results are robust regardless of ownership type (non-SOE, collective, private enterprise, and other), industry type (manufacturing, wholesale and retail trade, hotel and restaurant), and gender of the workers. Our position is that three factors—low real minimum wages, weak enforcement capabilities, and a buyer's labor market—may account for the above effects of minimum wages on employment in China.

The results have important implications for the current debate about minimum wage legislation. First, current minimum wages overall do not have an adverse effect on the labor market. This implies that current minimum wages can protect the minimum income of unskilled labor without further damaging the labor market. Given the current huge gap of income inequality, it may be wise to keep the current minimum wage policy. Second, the different results across regions indicate that the minimum wage policy should continue to vary across different regions in the future. In the eastern coastal region, the effect of minimum wage on employment is

more consistent with the competitive market. In the future, the minimum wage may have a negative effect on the employment level. However, in the inner regions, the minimum wage policy seems to have increased social welfare without hurting the labor market. These two different results have very important policy implications for reducing regional income inequality.

In future research, it would be helpful to look at particular samples that are directly affected by the minimum wage policy. Due to data limitation, our analysis was limited to a more macrolevel data analysis. Survey data are needed among low-skilled laborers to precisely detect effects of the minimum wage.

Notes

1. See PRC Ministry of Labor, "Enterprise Minimum Wage Legislation," File number 333, 1993.

2. The wage division of the Ministry of Labor and Social Security provided the data starting in 2000. According to their explanation, not all provinces started the minimum wage in 1996. The data between 1996 and 1999 are incomplete and were not reported.

3. The other option is to control the labor force. We did both and got consistent results. We chose to report population 15 years old and above in the sense that minimum wage may cover more than the labor force.

4. We also include a one-year lag of minimum wage in a separate regression model (Brown et al. 1982; Neumark and Wascher 1992; Singell and Terborg 2007). We did not report the results, since they are similar to the model without lag of minimum wage. The tables are available from the authors upon request.

5. Five provinces (Liaoning, Zhejiang, Guangdong, Fujian, and Shandong) have several different district minimum wages, and the adjustment times are not consistent with other districts in the province. For these provinces, the average minimum wage of the district is calculated at different time periods and then the average for the whole province is obtained. For example, Shenzhen in Guangdong province had minimum wages of 600 and 465 before May 1, 2004, and 610 and 480 after that date. The other district minimum wages are 480, 430, 380, 340, 310, 290, 270, respectively, before December 1, 2004 and 684, 574, 494, 446, 410, 377, 352 after that date. So the average minimum wage standard is $540.45 \left[\frac{((600 + 465) \times 4) + ((610 + 480) \times 7)}{11} \right] = 540.45$ before December 1 and $545 \left[\frac{(610 + 480)}{2} \right] = 545$ in Shenzhen. The final minimum wage standard in Guangdong province is $388.83 \left[\frac{((480 + 430 + 380 + 340 + 310 + 290 + 270 + 540.45) \times 12) + ((684 + 574 + 494 + 446 + 410 + 377 + 352 + 545) \times 1)}{13} \right] = 388.83$.

6. *People's Daily* (June 22, 2006).

7. *Beijing Daily Messenger* (April 14, 2006).

8. www.cyol.net/rencai/content/2006-09/08/content_1504836.htm.

9. <http://news.acftu.org>.

10. PRC Ministry of Labor, 1993.

11. PRC Ministry of Labor and Social Security, 2004.

12. PRC Ministry of Labor and Social Security, *The Survey Report of the Shortage of Migrant Workers*, September 9, 2004.

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