

# Minimum Wages in China: Standard and Implementation

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**Abstract:** Utilizing various sources of data, this paper describes the evolution of minimum wage system in China and analyzes its enforcement. In 2010, 13% of workers in our sample earn wages below local minimum wages. This result is worse than most of developed countries but better than countries with about the same level of economic development as China. Both descriptive statistics and regression analysis indicate that some focused groups of workers ought to be targeted when implementing the minimum wages, including female and less educated workers. Our analysis further indicates that the effect of compliance in minimum wages is not only determined by the effort to enforcement, but also correlated with the level of minimum wage, economic structure, ownership type, and labor market conditions, etc. Our study also implies that the current minimum wage level in China is in accordance with China's current stage of economic development, and frequent and large increase of minimum wage should be restrained.

**Keywords:** Minimum Wage Standard, Minimum Wage Enforcement, Policy Design

**JEL Codes:** L51 J31 J58

## I. Introduction

The minimum wage system has been widely accepted in many countries, which makes it one of the fundamental pillars of labor market institutions. The original intention to set up minimum wage is to intervene the market wage rate at equilibrium, so the institution per se is regulative. When looking at the compliance of minimum wage, the leakages exist in almost every country, which brings up controversy with the institution in terms of its effectiveness and enforcement. Therefore, the policy makers should pay attention to how to design the minimum wage system effectively.

It has been more than two decades since the introduction of minimum wages in China. In the past decade, the minimum wage has been influencing the labor market outcomes. The existing studies focus on its impacts on employment (Ding, 2010; Ma *et al.*, 2012), working time (Jia and Zhang, 2013a), spillover (Luo and Cong, 2009; Jia and Zhang, 2013b), and income distribution (Luo, 2011). Concerning the minimum wage per se, however, the policy makers should care about whether the minimum wage is effectively enforced and what affects the compliance of minimum wages.

The first message we need to evaluate the implementation of minimum wage is to

look at the share of workers who earn below the minimum wages. Based on the urban household survey data we use in this paper, in 2010 there is 13.26% of workers whose monthly wages are less than local minimum wage. The share is 17.26 and 9.84% in 2005 and 2001 respectively. International comparison indicates that developed countries tend to have good performance in compliance of minimum wage. According to a report by Bureau of Labor Statistics (2013), in 2012 only 2.6% of workers are reported to work below the federal minimum wages in United States. Observation on United Kingdom reveals that 1% of workers earn less than minimum wages (Machin *et al.*, 2003).

In contrast, the situation is much more serious in developing countries where the informal employment is ubiquitous. In Brazil, 5-10% of formal employment and 15-30% of informal employment are reported wages below minimum wage (Lemos, 2004, 2009). The share is about 30% in Honduras (Gindling and Terrell, 2010), 16% in Mexico (Bell, 1997), and 24% in Peru (Baanante, 2004).

In addition to how many, it is also important for labor market regulators to know who are not covered by the minimum wage. To target relevant individuals and improve the implementation of minimum wages, it would be of policy implications to understand the characteristics of those who are not covered by the minimum wage and the job characteristics with minimum wage compliance.

The coverage of minimum wage might be the outcome of implementation, but some other factors also have effect on coverage. First of all, the minimum wage per se is related to how easy to implement the institution. It is evident that high minimum wage produces large targeting groups of worker, which increases the difficulty of enforcement naturally. That is why we discuss the evolution of minimum wage in China a little bit.

Second, the general trend of labor demand and supply affects how easy it would be to implement minimum wage. In recent years, driven by demographic change and robust labor demand, the shortage of unskilled labor is more and more frequent and the wage rates have been going up quickly. According to the NBS, the average monthly earnings for migrant workers are RMB 2690 in 2013. It is observed significant trend of wage convergence between migrant and local workers (Cai and Du, 2011). In this context, the spontaneous changes in the labor market would improve the coverage even without further efforts to enforcing the minimum wage.

Third, the dynamics of economic restructuring, industrial organization and other labor market institutions affect the compliance of minimum wage. For instance, it is easy for employees in manufacturing to have explicit labor relations with their employers, which makes low costs for enforcement. The improvement in other employment institutions affects the implementation too. For example, a more regulated *Employment Contract Law* would make enforcement in minimum wages easier; introduction of collective bargaining would facilitate monitoring the minimum wages at firm level.

To understand the compliance of minimum wages in China, various data sources are applied to evaluate the changes in minimum wages with international comparison. Using micro level data, we analyze the coverage of minimum wage and its determinants. The data include the minimum wages at local labor market, cross country data, and the China Urban Labor Survey conducted by Institute of Population and Labor Economics in 2001, 2005, and 2010 respectively. The survey was implemented in Shanghai, Wuhan, Fuzhou, Shenyang and

Xi'an. Both local residents and migrants are included in the sample, and the sampling strategy of proportional probability stratification is applied. The sample is representative at city level. The descriptive statistics and regression is weighted by sampling weights to avoid bias. To meet the purpose of this study, only wage employment is included.

The rest of this paper is organized as follows. The next section introduces the minimum wage system in China and discusses the impacts of changing standard on implementation. Section 3 looks at the coverage of minimum wage using household survey data. Section 4 analyzes the enforcement of minimum wage and its determinants. The final section concludes the paper.

## II. Minimum Wage Regulation in China

The level of minimum wage is not only the core element of minimum wage regulation, but also relates to the enforcement and effects of minimum wage. Although minimum wage regulation has a history of almost 20 years in China, it is still not very clear at what level should minimum wage be set, and what factors should be taken into consideration when adjusting minimum wage. These ambiguities have resulted in casualness in setting minimum wage and increased difficulties in minimum wage enforcement. In this section, we will first review the evolution of minimum wage regulation in China, and then discuss the level and adjustment of minimum wage as well as their relationship with minimum wage enforcement.

### 2.1 Evolution of Minimum Wage Regulation in China

China officially recognized the *Minimum Wage-Fixing Machinery Convention* in 1984<sup>①</sup>. However, from 1984 to 1992, there was simply no official minimum wage in China. In 1993, the Chinese Government issued its first minimum wage regulation, the *Enterprise Minimum Wage Regulation*. This regulation stipulates that a minimum wage can only be modified after it has been effective for at least one year. This regulation requires that local governments set the minimum wage according to local average wage, productivity, unemployment rate, economic development and minimum living expenses, and all enterprises should comply with this regulation. These conditions provide considerable flexibility for provinces and cities in setting their minimum wages, with the economic development principle giving them the flexibility to restrain minimum wages to attract foreign investment (Wang and Gunderson, 2011). Minimum wage regulation was formally established in 1995 when the *Labor Law of the People's Republic of China* was set into force. As a result, most provinces in China announced their first monthly minimum wages around 1995.

In the end of 2004, temporary labor shortages in some developed areas caught the attention of policy-makers. In the same year, a modified minimum wage regulation, the *Minimum Wage Regulation*, was adopted. According to this new regulation, minimum wage should be adjusted at least once every two years. This is a big improvement over the 1993 regulation. Employers should not include subsidies, such as overtime pay, as part of the wage, when calculating the minimum wage. Penalties for violation of the regulation were increased

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<sup>①</sup> *The Minimum Wage-Fixing Machinery Convention* was established in 1928 by the International Labor Organization (ILO).

from 20-100 percent of the owed wage to 100-500 percent. A minimum wage per hour that applies to part-time workers was also stipulated in this updated regulation.

Minimum wage regulation was also part of the *Labor Contract Law* which took effect on May 1st, 2008. However, at the end of 2008, the Department of Human Resources and Social Security of China advised local governments against increasing minimum wage in 2009 in case of possible negative impacts of the international financial crisis. As the influence of the financial crisis waned, there was a new round of minimum wage increases from 2010. In 2010, 30 of 31 provinces increased their minimum wages, with the average increase at 23 percent<sup>①</sup>. In each of 2011, 2012 and 2013, 24 provinces increased their minimum wages, and the average increase in each year was around 20 percent<sup>②</sup>. The Chinese Government has also promised to continue this increase in its twelfth five-year plan. In a recent proposal by the National Development and Reform Commission, the Chinese Government has set the goal that by the end of 2015, minimum wage should reach to 40 percent of average wage of urban employment persons. It is apparent that China has entered an era of frequent minimum wage adjustments.

## 2.2 The Level of Minimum Wage in China

Unlike many developed economies, China does not set up universal national minimum wage, while the provincial governments are responsible for minimum wage adjustments in each province. According to the *Minimum Wage Regulation* of 2004, multiple minimum wages are allowed in the same province. Therefore, to obtain a basic understanding of how the minimum wage standard has been set and increased in China, in this section, we use a two-step weighted approach to calculate the national minimum wage in each year. First, we calculate the average minimum wage in each province in each year using the actual enforcement days of each minimum wage as the weight. Second, we calculate the average national minimum wage using urban employment of each province as the weight.

In Figure 1, we present minimum wage changes in China from 1995 to 2013<sup>③</sup>. It is evident that both nominal and real minimum wages have been increasing since 1995. However, if we measure minimum wage by relative minimum wage (the ratio of minimum wage to average wage, referred to as relative minimum wage hereafter), we will find that minimum wage in China have been decreasing in recent years. Compared with OECD countries, minimum wage in China is still at a relatively low level. As of 2012, the relative minimum wage in OECD countries was about 35 percent, while in China this ratio was only 24 percent<sup>④</sup>.

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<sup>①</sup> This value is calculated by the author based on the China Minimum Wage Database.

<sup>②</sup> This value is calculated by the author based on the China Minimum Wage Database. In 2013, only minimum wage adjustments in the last three quarters were considered.

<sup>③</sup> Although minimum wage regulation was first introduced in 1993, most provinces issued their first minimum wages in 1995. That is why we do not report a national minimum wage before 1995 in Figure 1.

<sup>④</sup> According to the China Minimum Wage Database, the annual minimum wage in 2012 was 11438 yuan. According to the *China Statistical Yearbook* 2013, the annual average wage of urban employees in 2012 was 46769 yuan. As a result, the relative minimum wage is 24 percent for 2012.

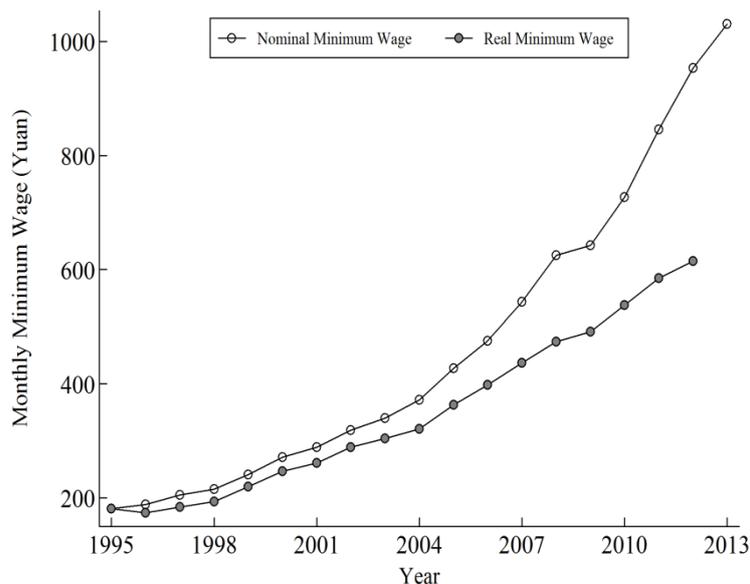


Figure 1 Minimum Wage Increase in China, 1995-2013

Source: China Minimum Wage Database, available from <http://www.chinaminimumwage.org>.

Note: Nominal minimum wage is adjusted by CPI to calculate real minimum wage, using 1995 as the base year.

Due to the lack of long-term data on average wage from labor force surveys, we used the average wage data published by the National Bureau of Statistics of China (NBS) when calculating the relative minimum wage. However, as pointed out by Du and Wang (2008), the average annual wage published by NBS is based on a labor survey in urban China, and migrant workers and workers in informal sectors, who generally earn less than the average wage, are not fully represented in the sample. As a result, the official average wage is overestimated, while the relative minimum wage is underestimated.

In fact, if we calculate the relative minimum wage using the average wage from a well-represented sample, we will find that minimum wage in China is already at a relatively high level (see Figure 2)<sup>①</sup>. The relative minimum wage in China has already reached the target set by the National Development and Reform Commission of China.

<sup>①</sup> For Figure 3, the average wage is calculated from the China Urban Labor Survey, which was conducted by the Institute of Population and Labor Economics, Chinese Academy of Social Sciences, in 2001, 2005 and 2010. For more details of the survey, please visit <http://iple.cass.cn/cate/1103.htm>.

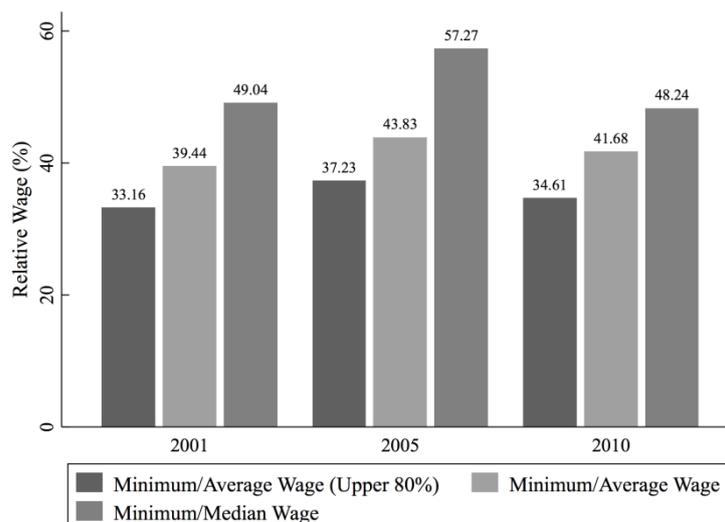


Figure 2 Relative Minimum Wage: 2001, 2005 and 2010

Source: The average and median wages are from the three waves of China Urban Labor Survey (CULS). The minimum wage data is from the China Minimum Wage Database (CMWD), available from <http://www.chinaminimumwage.org>.

For international comparisons, we also collect the latest minimum wage data for 150 countries and calculate the level of minimum wage relative to per capita GDP (see Table 1 and Figure 3). From an international perspective, the relative minimum wage and per capita GDP are negatively correlated: high income countries have a low relative minimum wage, while in low income countries, the necessary costs of basic living (a proxy for minimum wage) account for a large proportion of per capita GDP.

Table 1 Relative Minimum Wage and Per Capita GDP (by the End of 2013)

Income Group	Relative Minimum Wage (%)
Low income countries	104.76
Lower middle income countries	64.78
China	38.90
Upper middle income countries	39.83
High income countries: Non-OECD	28.19
High income countries: OECD	39.31

Source: [https://en.wikipedia.org/wiki/List\\_of\\_minimum\\_wages\\_by\\_country](https://en.wikipedia.org/wiki/List_of_minimum_wages_by_country)

Note: Relative minimum wage is calculated using the latest available data for each country. China belongs to the upper middle-income countries.

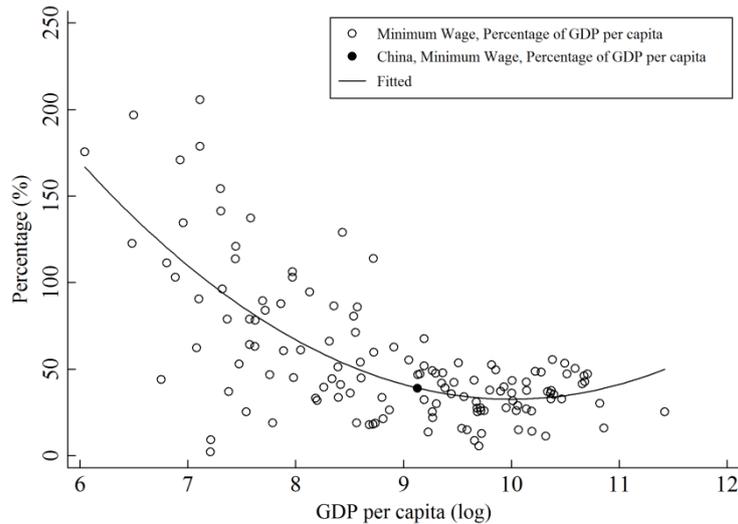


Figure 3 The Relationship between Minimum Wage and Per Capita GDP

Source: Per capita GDP is from the World Development Indicator (WDI) database by the World Bank. The 2012 data is used here. The latest available minimum wage is from Wikipedia entry “List of Minimum Wages by Country” (available from [http://en.wikipedia.org/wiki/List\\_of\\_minimum\\_wages\\_by\\_country](http://en.wikipedia.org/wiki/List_of_minimum_wages_by_country)).

Note: Both minimum wage and per capita GDP have been adjusted by purchasing power parity (PPP), published by the World Bank.

As is evident from Figure 3, China is exactly on the fitted curve. If the relationship between the relative minimum wage and per capita GDP is universal, the minimum wage increase in China should not exceed the increase in per capita GDP over the next few years or even longer term. However, it is obvious that, as evidenced by Figure 4, the minimum wage increase in China has greatly exceeded the increase of per capita GDP in recent years.

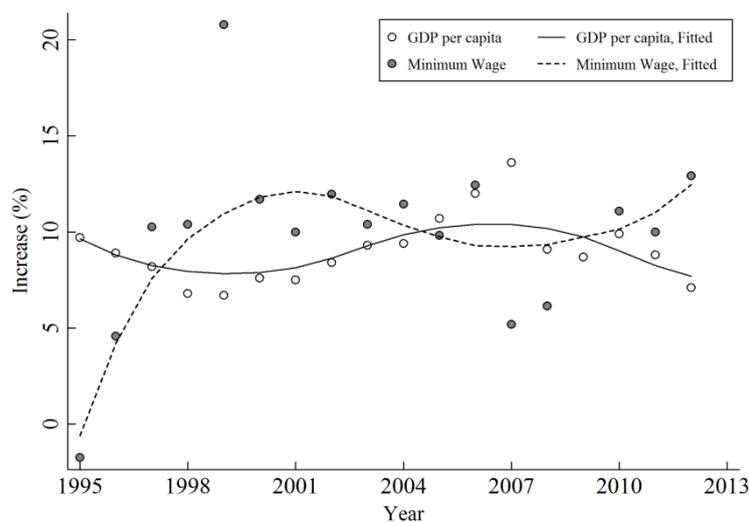


Figure 4 The Increase of Minimum Wage and Per Capita GDP in China

Source: Minimum wage data is from the China Minimum Wage Database (available from

<http://www.chinaminimumwage.org>); per capita GDP is obtained from the *China Statistical Yearbook* 2013.

Note: All the data have been adjusted by GDP deflator.

As described above, if we consider the relationship between minimum wage and the stage of economic development, minimum wage in China is already very high, in terms of both absolute level and international comparisons. In the current context of economic slowdown, especially when provincial governments tend to use minimum wage as a tool of income redistribution, continued large increase of minimum wage may become an important factor of pushing higher labor cost. If minimum wage in China continues to increase at 20 percent in the next few years, it may also generate great pressure on economic growth.

### 2.3 Monthly or Hourly Minimum Wage?

From an international perspective, most developed countries, for example, United States, United Kingdom and Canada, only adopt hourly minimum wage. In China, according to the *Minimum Wage Regulation* of 2004, there are two kinds of minimum wages: monthly minimum wage and hourly minimum wage. Monthly minimum wage applies to full-time workers, while hourly minimum wage applies to part-time workers. Adopting two types of minimum wages have considered the general tradition of paying wages in China, and the proper protection of part-time workers. However, although there are clear regulations on how monthly minimum wage and hourly minimum wage can be transformed into each other, there are still some problems in actual enforcement of two minimum wages.

First, some provincial governments didn't pay much attention to hourly minimum wage. Taking the five cities in CULS as an example, all cities including Shanghai, Wuhan, Shenyang, Fuzhou and Xi'an greatly increased monthly minimum wage between 2001 and 2005, and between 2005 and 2010 (see Table 2). However, although the *Minimum Wage Regulation* requested local governments to set up hourly minimum wage in 2004, some cities like Xi'an didn't publish hourly minimum wage even in 2005<sup>①</sup>. Besides, enforcing monthly minimum wage needs to monitor both working time and monthly wage, and enforcing hourly minimum wage needs to distinguish between part-time and full-time jobs. These can all increase the difficulties and complexities of minimum wage enforcement.

Table 2 Minimum Wage during the Three Waves of CULS

City	Monthly Minimum Wage (Yuan/Month)			Hourly Minimum Wage (Yuan/Hour)		
	2001	2005	2010	2001	2005	2010
Shanghai	490	690	1120	4.00	6.00	9.00
Wuhan	260	460	900	-	5.00	9.00
Shenyang	380	450	900	-	4.00	8.50

<sup>①</sup> Some provinces have been publishing hourly minimum wages since 1995, when the *Enterprise Minimum Wage Regulation* was first introduced. However, this hourly minimum wage is calculated directly from monthly minimum wage (a typical worker generally works four weeks per month and 20.92 hours per week), and is very different from hourly minimum wage that applies to part-time workers. After the *Minimum Wage Regulation* of 2004 was set into force, most provinces stopped publishing calculated hourly minimum wage.

Fuzhou	380	470	800	-	4.54	8.50
Xi'an	320	490	760	-	-	7.60

Note: Monthly minimum wage applies to full-time workers, while hourly minimum wage applies to part-time workers. “-” means no hourly minimum wage at the time of survey.

Second, adopting a monthly minimum wage in China will induce firm to take advantage of the current wage system by increasing working hours when maximum working hour regulation are not well monitored by governments. Jia and Zhang (2013a) find that minimum wage adjustment can increase male weekly working hours, although male employment is not affected.

Third, minimum wage workers generally have less human capital and bargaining power in labor market, and they generally need to work longer hours than non-minimum wage workers. The CULS data indicate that there are obvious differences in weekly working hours among different labor forces (see Table 3). Migrant workers generally have to work longer hours than local workers. Workers with low educational attainment generally have to work longer hours than workers with relatively high educational attainment. If working hour is not well monitored by governments, enforcing monthly minimum wage will probably sacrifice the interests of migrant and less-educated workers, whom minimum wage regulation needs to protect in the first place.

Table 3 Weekly Working Hours of Different Labor Forces

Year	<i>Hukou</i>		Education			
	Migrant	Local	Primary School and Below	Junior High School	Senior High School	College and Above
2001	46.69	41.12	46.51	42.43	41.44	40.67
2005	45.02	41.11	43.91	43.14	41.11	40.04
2010	43.21	40.91	44.20	42.49	41.11	40.31

Source: Authors' computation based on CULS data.

Finally, part-time workers only account for a small proportion of total urban employment. According to the *Labor Contract Law*, “part-time labor” means a form of labor for which the compensation is chiefly calculated by the hour and where the employee generally averages not more than 4 hours of work per day and not more than an aggregate 24 hours of work per week for the same employer. According to this definition and CULS data, hourly minimum wage only applies to 2% of total employment.

As can be inferred from above analysis, to target the minimum wage workers more effectively and decrease the enforcing difficulties, the Chinese Government should try publishing only an hourly minimum wage, which applies to both full-time and part-time workers.

### III. The Coverage of Minimum Wage

The very basic information we need to evaluate the enforcement is to look at how many workers are earning below local minimum wages. According to the *Minimum Wage*

*Regulation* enacted in 2004, both monthly and hourly rates are adopted where the former is applied to full time worker and the latter to part time jobs. The Article 2 of *Employment Contract Law* defines full time job. Based on this definition, we distinguish every job we get from our samples and the application of minimum wages.

### *Demographics*

The demographic determines wages. For the sake of enforcement, the linkages between demographics and wage give explicit message of who are easily to fall below minimum wage. Based on the three rounds of household survey, Table 4 presents the compliance of minimum wage by gender, education, and age.

Without controlling for other factors, Table 4 indicates that the average wages for female is significantly lower than male. In 2001 average monthly earnings for female are about 78.3% of those of male, and the ratio went up to 80.9% in 2010. Measured by hourly wages, the ratios are 79.9%, 82.0%, and 82.9% in 2001, 2005, and 2010 respectively. The women are more likely to earn less than minimum wage since their wages are lower than male workers. In 2001 female workers who earn earnings below minimum wage are 5.7 percentage points higher than their male counterpart, and the shares are 7.8 and 6.1 percentage points higher in 2005 and 2010 respectively. This significant difference reflects possible existence of labor market discrimination. More importantly, it provides targeting groups to enforce the minimum wage.

The less educated workers are always the major targeting groups for minimum wage. Our sample also indicates significant difference of coverage among workers with different education. Samples from the three rounds of survey all indicate trend of increasing wage with education. When compared by hourly rates, the more educated workers tend to have more advantages. For example, in 2010 average monthly wage rate for workers with primary education or less is 47.9% of that of workers with college or above. Measured by hourly wages, the former is 41% of the latter. It is obvious that less educated workers are more likely to earn wage below minimum wage. Table 4 indicates that, despite of the coverage variations due to adjustment of minimum wages over time, the group of workers with least education is most likely to fall below minimum wage. In 2010, 32.5% of workers with primary school or below earn below local minimum wages. For workers with junior high school, the share is 23.8%.

The compliance of minimum wage is also associated with the wage changes over life cycle. As indicated in Table 4, the coverage of minimum wage shows an inverted U shape with age increase. It is worthwhile to note the coverage for two age groups. The first one is the new labor market entrants whose ages are between 16 and 20. Both their average wage rates and coverage rate are low. In 2010, 18.8 of workers in the group earn wage rate below minimum wage. The other interesting group is those aged 50 or above. Although the average wage is not the lowest among groups, they have large wage variations within group, as evidenced by high standard deviations in the parenthesis. As a result, we still see a relatively large share of this group of workers earn below minimum wage.

Table 4 Compliance of Minimum Wage by Demographic

	Monthly Rate			Hourly Rate			Coverage (%)		
	2001	2005	2010	2001	2005	2010	2001	2005	2010
<b>Gender</b>									
Male	1078 (874)	1411 (1192)	2488 (2049)	6.42 (5.83)	8.39 (7.74)	14.83 (12.8)	93.1 (25.4)	89.1 (31.1)	91.2 (28.3)
Female	844 (576)	1109 (943)	2012 (1463)	5.13 (3.91)	6.88 (6.21)	12.29 (9.97)	87.4 (33.2)	81.3 (39.0)	85.1 (35.6)
<b>Education</b>									
Primary and Below	664 (452)	721 (344)	1414 (782)	3.40 (2.26)	4.02 (2.50)	7.46 (4.32)	75.9 (42.9)	54.9 (49.8)	67.5 (46.9)
Jr. High	760 (413)	900 (591)	1620 (920)	4.41 (2.71)	5.21 (3.94)	9.12 (5.46)	85.3 (35.4)	74.0 (43.9)	76.2 (42.6)
Sr. High	943 (761)	1184 (815)	2000 (1872)	5.63 (4.75)	7.09 (5.27)	11.99 (11.8)	92.5 (26.3)	88.0 (32.5)	88.0 (32.5)
College and Above	1404 (1006)	1875 (1613)	2954 (1984)	8.77 (7.14)	11.69 (10.4)	18.21 (12.9)	97.9 (14.2)	96.0 (19.5)	96.9 (17.3)
<b>Age</b>									
16-20	673 (347)	898 (369)	1378 (629)	3.18 (2.17)	5.09 (2.85)	6.82 (3.45)	83.6 (37.2)	87.0 (33.7)	81.2 (39.2)
21-30	1080 (806)	1484 (1181)	2401 (1841)	6.13 (5.14)	8.88 (7.67)	14.61 (12.6)	94.6 (22.6)	93.3 (25.0)	93.9 (24.0)
31-40	957 (683)	1175 (1104)	2525 (1836)	5.67 (4.59)	6.93 (7.20)	15.11 (11.4)	92.3 (26.7)	83.7 (36.9)	93.2 (25.3)
41-50	910 (661)	1203 (1060)	1967 (1364)	5.52 (4.14)	7.24 (6.71)	11.63 (8.37)	89.6 (30.5)	82.1 (38.4)	83.2 (37.4)
50+	1070 (1012)	1389 (1107)	2304 (2394)	6.83 (7.23)	8.79 (7.49)	14.18 (15.1)	87.3 (33.3)	87.0 (33.7)	82.8 (37.7)

Source: Authors' computation based on CULS data.

Note: The standard deviations are in parenthesis.

### *Hukou*

Rural migrant workers have been the indispensable component of labor supply in urban labor market. According to the NBS, in 2013 the rural migrant workers totaled 166 million, which accounted for 40 per cent of urban employment. With labor market development, *hukou* has disconnected with employment determination and wage formation gradually, even its link with social protection is still obvious.

Table 5 presents the same indicators as Table 4, but by *hukou* status. In 2001 and 2005, local workers have higher average wages. However, with the increasing labor scarcity, wage rates for migrant workers have been growing rapidly. In 2010, wages for migrant workers are slightly higher than their local counterpart in our sample. This is consistent with observations from aggregated information. According the NBS, real wage growth per annum for migrant workers is 12.7% between 2007 and 2013, much faster than urban local workers. It is good to believe that the spontaneous changes in labor demand and supply facilitate the compliance of

minimum wage in this case even without additional effort to enforcement.

Table 5 Coverage of Minimum Wage: Local Workers and Migrants

Year	Local Workers	Migrant Workers
<b>Monthly Wages (RMB, Yuan)</b>		
2001	986 (775)	934 (745)
2005	1298 (1120)	1086 (844)
2010	2280 (1858)	2304 (1605)
<b>Hourly Wages (RMB, Yuan)</b>		
2001	6.05 (5.17)	4.57 (4.78)
2005	7.91(7.27)	5.66 (5.26)
2010	13.86 (11.90)	12.61 (10.10)
<b>Coverage (%)</b>		
2001	91.1 (28.5)	87.7 (32.8)
2005	86.3 (34.4)	79.1 (40.7)
2010	88.5 (32.0)	89.4 (30.8)

**Source:** Authors' computation based on CULS data.

**Note:** The standard deviations are in parenthesis.

The results in Table 5 indicate that local workers have better compliance in the case of 2001 and 2005. However, the share of local workers falling below minimum wage in 2010 is 0.9 percentage point higher than migrant workers. It has something to do with the labor market dynamics, which improves the situations of migrant workers. The result is also associated with insufficient social protection of migrant workers. Figure 5 depicts the compliance of minimum wages and coverage of social protection for both migrant workers and local workers as well. The left panel reflects the workers working below minimum wages and the right panel for the above.

Two features of Figure 5 are worth noting. First of all, regardless of compliance of minimum wage, the coverage of social protection for local workers is much higher than migrant workers. Second, as far as workers working below minimum wages are concerned, there is even more significant disparity between migrant workers and their local counterpart.

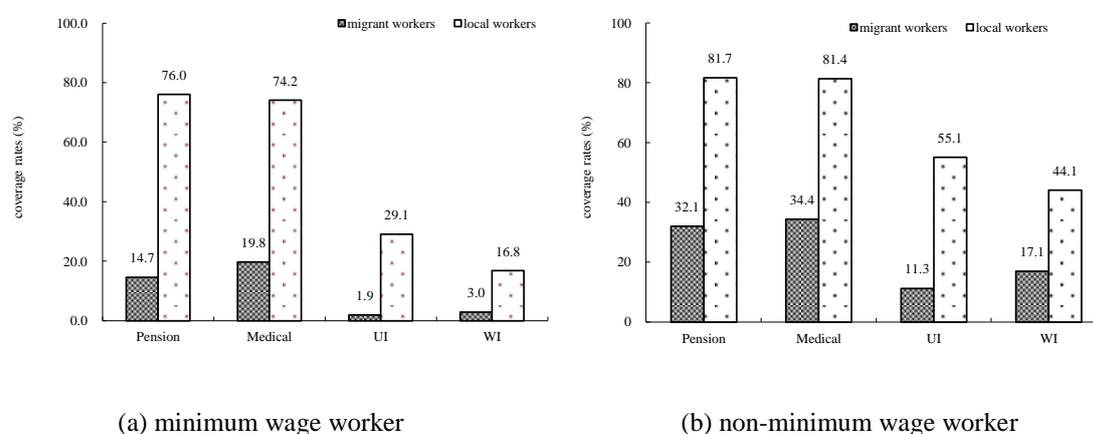


Figure 5 The Coverage of Minimum Wage and Social Security

Source: authors' computation based on CULS data.

Note: "UI" stands for unemployment insurance, while "WI" stands for injury insurance.

### *Sector, Occupation, and Ownership*

It is of policy relevance to observe the compliance by ownership or sector. The ownership, occupation, and sectors reflect the job characteristics that are associated with how difficult to enforce minimum wage. Table 6 lists the compliance of minimum wage by the three dimensions respectively.

For simplicity the subsectors are regrouped into four groups as consumer services, business services, manufacturing, and other secondary industries. The consumer services include wholesale and retail, education, culture, entertainment and sports, and general services. The business services include production and supply of electricity, heat, gas, and water, transportation and logistics, software and IT, finance, construction, real estate, R & D. Both consumer services and manufacturing are characterized by intensively using labor, as evidenced by low hourly wage rates.

Greater variations in wage distribution are found in the sectors of consumer service. For example, the coefficients of variation in the sector for monthly and hourly rates are 0.75 and 0.87 respectively while the coefficient is 0.63 in manufacturing. So, the disparity in average wage is small, but the compliance with minimum wage in consumer service is 10 percentage points below. Thus it can be seen that the performance of minimum wage enforcement has something to do with the industrial organization. In other words, when one city is dominated by manufacturing and another is dominated by consumer service, the outcomes could be different even the local governments take the same effort to enforcement.

It seems that the types of ownership make difference in compliance too. The employers are grouped as public administration, SOEs, and private sectors. Workers in SOEs have similar average wages to those in private sector; however, the latter has worse compliance in minimum wage. In 2010, the share of workers earning below minimum wages are 6.2 percentage point higher in private sectors than in public sectors.

Table 6 Compliance of Minimum Wages by Sector, Occupation, and Ownership

	Monthly Rate			Hourly Rate			Coverage (%)		
	2001	2005	2010	2001	2005	2010	2001	2005	2010
<b>Sector</b>									
Consumer	978	1126	2016	5.68	6.73	12.19	89.3	81.4	81.4
Service	(688)	(818)	(1518)	(4.86)	(5.31)	(10.6)	(31.0)	(38.9)	(38.9)
Business	1142	1677	2694	6.85	10.17	16.09	95.9	94.0	95.0
Service	(1077)	(1509)	(2381)	(7.14)	(9.85)	(14.8)	(19.8)	(23.8)	(21.9)
Manufacture	847	1190	2093	5.16	7.10	12.59	88.9	90.0	91.2
	(617)	(932)	(1321)	(3.92)	(5.91)	(7.94)	(31.4)	(30.0)	(28.4)
Others	987	1312	2458	6.18	8.27	15.01	89.4	80.6	93.9
	(659)	(1249)	(1649)	(4.30)	(8.24)	(9.70)	(31.0)	(39.6)	(24.1)
<b>Ownership</b>									
Public	1066	1454	2693	6.64	9.01	16.96	89.4	89.8	91.2

Admin.	(878)	(1133)	(2244)	(6.20)	(7.20)	(14.9)	(30.8)	(30.2)	(28.4)
SOEs	898	1264	2147	5.50	7.65	13.09	91.2	90.2	91.0
	(614)	(972)	(1528)	(3.92)	(6.27)	(9.57)	(28.4)	(29.7)	(28.7)
Private	1058	1178	2167	5.77	6.90	12.44	91.3	78.9	84.8
	(919)	(1176)	(1799)	(6.01)	(7.63)	(11.1)	(28.3)	(40.8)	(36.0)
<b>Occupation</b>									
Person in Charge	-	2010	3623	-	12.42	21.52	-	98.1	96.5
	-	(1598)	(3217)	-	(10.2)	(20.3)	-	(13.6)	(18.4)
Professionals	-	1769	2924	-	11.13	18.22	-	97.4	97.0
	-	(1449)	(1864)	-	(9.50)	(12.3)	-	(15.8)	(17.1)
Clerk	-	1251	2688	-	7.92	16.58	-	85.7	94.1
	-	(998)	(2444)	-	(6.85)	(15.3)	-	(35.1)	(23.6)
Attendants	-	1000	1770	-	5.83	10.24	-	73.8	75.9
	-	(888)	(1520)	-	(5.63)	(9.64)	-	(44.0)	(42.8)
Production Workers	-	1153	1935	-	6.66	11.46	-	92.3	90.2
	-	(712)	(1093)	-	(4.40)	(6.86)	-	(26.6)	(29.8)

Source: Authors' computation based on CULS data.

Note: The standard deviations are in parenthesis.

### *Informality*

The informal sectors are always key targeting areas to enforce minimum wages. The informal employee is defined as the employees without employment contract or workers who worked in enterprises with less than seven employees. The findings from the three waves of data are indicated in Table 7.

First, it is not surprising that significant disparity in compliance of minimum wages exists between formal and informal sectors. In 2010, the compliance in formal sectors is 17.7 percentage points higher than that in informal sectors. Second, with increasing minimum wages over time, the compliance in informal sectors has been deteriorating. The coverage rate in 2010 has fallen 3.9 percentage points from 2001. Third, more heterogeneity is found within formal sectors over time. For instance, the coefficient of variation for monthly wages in informal sector has been going up from 0.64 in 2001 to 0.82 in 2010. The result is consistent with observations in other countries where the informality diversifies with economic development (Andrews *et al.*, 2011). The heterogeneity within informal sectors has been challenging with the enforcement of minimum wage in terms of necessity and difficulties. On the one hand, with economic development, some workers might voluntarily choose informal job, which brings up the necessity to intervene the wage through institution. On the other hand, the heterogeneity of informal employment in job characteristics and job quality makes it more difficult to identify what to enforce in formal sector, which increases the costs of enforcement.

Table 7 The Compliance of Minimum Wages by Informality

Monthly Rate			Hourly Rate			Coverage (%)		
2001	2005	2010	2001	2005	2010	2001	2005	2010

Formal	1010 (790)	1465 (1218)	2358 (1865)	6.09 (5.17)	8.97 (7.87)	14.3 (12.0)	92.1 (27.0)	91.7 (27.6)	90.2 (29.8)
CV	0.78	0.83	0.79	0.85	0.88	0.84	0.29	0.30	0.33
Informal	667 (427)	885 (636)	1526 (1250)	3.58 (4.34)	5.09 (4.24)	8.06 (6.98)	76.4 (42.5)	72.8 (44.5)	72.5 (44.7)
CV	0.64	0.72	0.82	1.21	0.83	0.87	0.56	0.61	0.62

Source: Authors' computation based on CULS data.

Note: The standard deviations are in parenthesis. CV is short for "coefficient of variation".

#### IV. Determinants of Minimum Wage Enforcement

In section 3, we observe that there are huge differences in minimum wage coverage among different labor forces. In this section, we will use micro data from the three waves of China Urban Labor Survey (CULS) to analyze the determinants of minimum wage coverage.

##### 4.1 Data

The minimum wage data used in this section is from the China Minimum Wage Database (CMWD), which is available from <http://www.chinaminimumwage.org>. This database is established by the Institute of Population and Labor Economics, Chinese Academy of Social Sciences. The database contains minimum wage and other labor market indicators of nearly 3000 county-level regions in China from 1993 to the present day.

The micro-level data used in this section is from China Urban Labor Survey (CULS), which was conducted in 2001, 2005 and 2010 by the Institute of Population and Labor Economics, Chinese Academy of Social Sciences. In the 2001 survey (CULS 1), five cities, Shanghai, Wuhan, Shenyang, Fuzhou and Xi'an, were sampled. In each city, we interviewed 700 urban households and 600 migrant workers in 70 communities, based on multi-stage random sampling principle. In the 2005 survey (CULS 2), another seven cities, Wuxi, Yichang, Benxi, Zhuhai, Shenzhen, Baoji and Daqing, were sampled, besides the five cities in CULS 1. We interviewed 500 urban households and 500 migrant households in each city based on the same sampling principle. In 2010 (CULS 3), Guangzhou was added to the survey, besides the five cities in CULS 1. In each city, following the same sampling principle, we interviewed 700 urban households and 600 migrant households.

In this section, to maintain consistency across surveys, we only use data of Shanghai, Wuhan, Shenyang, Fuzhou and Xi'an, which were sampled in all three rounds. Also, because minimum wage regulation only applies to employees in firms and public institutions, we delete observations whose employment status is employer or self-employment. Besides, according to the definition of "part-time worker" in *Labor Contract Law*, we also distinguish between full-time and part-time workers.

##### 4.2 Specification

In our model, the explained variable is a dummy variable, i.e. whether one's wage is below the official minimum wage (1 for below or equal to minimum wage, 0 for above

minimum wage). The explained variable is highly related to wage, so the right-hand of the model include variables that should appear in a typical wage equation. These variables can be classified into three categories: individual demographic and human capital variables, household-level variables, regional and firm-level variables.

Individual demographic and human capital variables include workers' gender (dummy variable, 0 for female), age, age squared, education in years, training (dummy variable, 0 for no training), and health condition (discrete variable, with 1 to 4 standing for bad, general, good and very good health condition respectively, using "bad" as the base), etc.

Household-level variables include workers' marital status (dummy variable, 0 for unmarried), number of household members, whether there are children below 6 in the household (dummy variable, 0 for no children below 6), etc.

Regional and firm-level variables include whether the worker holds a local *hukou* (dummy variable, 0 for non-local *hukou*), city (discrete variable, using Shanghai as the base), industry (discrete variable, using manufacturing as the base; the definitions of production services and consumer services are the same with section 3), types of ownership (dummy variable, using public sector as the base), and the interaction terms of some variables, etc.

A linear probability model is applied in our analysis. As pointed out by Wooldridge (2010), if the purpose of the research is to study the marginal effects of the explanatory variables, and if most of the explanatory variables only take a few unique values, then the use of a linear probability model is much better, and the problem that some predicted value may fall outside the range [0, 1] should not be concerned. Besides, compared with Probit model, it is straightforward to explain the coefficients of a linear probability model. As a result, in this section, we apply a linear probability model in all regressions.

### 4.3 Regression Results

Table 8 presents the regression results of determinants of minimum wage enforcement under three different specifications. In specification (1), the explanatory variables include the city dummies, the industry dummies, and the ownership dummies, but don't include the interaction terms of them. In specification (2), the explanatory variables include the interaction terms of these dummy variables, but don't include the variables separately. In specification (3), the explanatory variables include both the dummy variables and their interaction terms.

After controlling other factors, minimum wage coverage for female is still worth than male in all three specifications. This may be partially caused by the fact that female average wage is lower than male. This may also reflect discrimination against female in labor market, and minimum wage protection for female is not enough. In 2005, the coefficients of age and age squared imply an inverse U relationship between minimum wage coverage and age, i.e. younger and older individuals tend to be less likely covered by minimum wage, which is consistent with our analysis in section 3.

More education tends to decrease the possibility that one's wage will fall below the minimum wage. The contribution of training to wage determination is becoming more and more important in recent years. Better health conditions have positive impact on wage. Education, training and health condition are all core elements of human capital, and they all

contribute positively to wage, which is consistent with human capital theory.

In all three specifications, household-level variables generally have trivial effects on wage. However, married individuals with children have greater responsibilities for their families. As a result, they generally have to work much harder and hold a more stable job, and may be less likely to fall below the minimum wage.

Table 8 Determinants of Minimum Wage Coverage

Explanatory Variables	(1)			(2)			(3)		
	2001	2005	2010	2001	2005	2010	2001	2005	2010
Gender	-0.05***	-0.07***	-0.06***	-0.05***	-0.06***	-0.06***	-0.05***	-0.06***	-0.06***
Age	-0.00	0.01**	-0.00	-0.00	0.01**	-0.00	-0.00	0.01**	-0.00
Age Squared	0.00	-0.01*	0.01*	0.00	-0.01*	0.01*	0.00	-0.01*	0.01*
Education	-0.02***	-0.03***	-0.02***	-0.02***	-0.03***	-0.02***	-0.02***	-0.03***	-0.02***
Training	-0.01	0.06**	-0.05***	-0.01	0.04	-0.05***	-0.01	0.04	-0.05***
Health: General	-0.11***	-0.27***	-0.17**	-0.11***	-0.27***	-0.16*	-0.11***	-0.27***	-0.16*
Health: Good	-0.12***	-0.32***	-0.24***	-0.12***	-0.30***	-0.23***	-0.12***	-0.30***	-0.23***
Health: Very Good	-0.13***	-0.35***	-0.25***	-0.14***	-0.33***	-0.23***	-0.14***	-0.33***	-0.23***
Marital Status	-0.01	-0.02	-0.01	-0.01	-0.01	-0.02	-0.01	-0.01	-0.02
No. of Household Members	0.01	-0.01	0.01	0.01	-0.01	0.01	0.01	-0.01	0.01
Children Below 6 in the Family	-0.00	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
Local Labor	-0.04*	-0.02	0.04***	-0.04**	-0.05*	0.03**	-0.04**	-0.05*	0.03**
City: Wuhan	-0.05***	0.15***	0.06***				-0.04	0.08**	-0.01
City: Shenyang	0.04**	0.12***	0.08***				0.11***	0.17***	0.05
City: Fuzhou	0.00	-0.02	0.01				0.13***	0.16**	-0.02
City: Xi'an	0.03**	0.05***	-0.00				0.02	0.06**	-0.00
Industry: Production Service	-0.04***	0.00	-0.01				-0.07***	0.04	-0.02
Industry: Consumer Service	0.00	0.07***	0.09***				0.04	0.08***	0.08**
Industry: Other Industries	0.01	0.10***	-0.01				0.02	0.06*	0.03
Private Sector	-0.03*	0.07***	0.04***				-0.02	0.04	0.05
Shanghai * Manufacturing * Private Sector				-0.02	0.04	0.05			
Shanghai * Production Service * Public Sector				-0.07***	0.04	-0.02			
Shanghai * Production Service * Private Sector				0.03	0.06**	0.01	0.12**	-0.01	-0.01

Shanghai * Consumer Service * Public Sector	0.04	0.08***	0.08**			
Shanghai * Consumer Service * Private Sector	-0.02	0.06*	0.07*	-0.04	-0.06	-0.06
Shanghai * Other Industries * Public Sector	0.02	0.06*	0.03			
Shanghai * Other Industries * Private Sector	-0.01	0.25**	-0.13**	-0.00	0.15	-0.21***
Wuhan * Manufacturing * Public Sector	-0.04	0.08**	-0.01			
Wuhan * Manufacturing * Private Sector	-0.09***	0.28***	0.10	-0.03	0.16*	0.06
Wuhan * Production Service * Public Sector	-0.06***	0.09*	-0.01	0.04	-0.02	0.02
Wuhan * Production Service * Private Sector	-0.07***	0.12**	0.08**	0.06	-0.03	0.07
Wuhan * Consumer Service * Public Sector	-0.03	0.13***	0.12***	-0.03	-0.03	0.04
Wuhan * Consumer Service * Private Sector	-0.09***	0.38***	0.30***	-0.07	0.18***	0.17**
Wuhan * Other Industries * Public Sector	-0.04	0.09*	-0.02	-0.02	-0.04	-0.04
Wuhan * Other Industries * Private Sector	-0.05	0.67***	0.02	-0.01	0.50***	-0.05
Shenyang * Manufacturing * Public Sector	0.11***	0.17***	0.05			
Shenyang * Manufacturing * Private Sector	0.10	0.09	0.01	0.02	-0.11	-0.09
Shenyang * Production Service * Public Sector	-0.03	0.08*	0.05	-0.07	-0.12*	0.02
Shenyang * Production Service * Private Sector	-0.06*	0.05	0.10**	-0.08	-0.19**	0.03
Shenyang * Consumer Service * Public Sector	0.06*	0.21***	0.14***	-0.09*	-0.04	0.00
Shenyang * Consumer Service * Private Sector	-0.05	0.26***	0.21***	-0.17**	-0.03	0.03
Shenyang * Other Industries * Public Sector	0.04	0.12***	0.12**	-0.09	-0.11*	0.03
Shenyang * Other Industries * Private Sector	0.21**	0.35***	-0.10	0.10	0.09	-0.23**
Fuzhou * Manufacturing * Public Sector	0.13***	0.16**	-0.02			
Fuzhou * Manufacturing * Private Sector	-0.07**	0.01	0.04	-0.17***	-0.19**	0.01
Fuzhou * Production Service * Public Sector	-0.02	0.03	0.04	-0.08*	-0.16**	0.08
Fuzhou * Production Service * Private Sector	-0.10***	-0.02	0.01	-0.14**	-0.25***	-0.00
Fuzhou * Consumer Service * Public Sector	-0.01	0.10***	0.05	-0.18***	-0.14**	-0.02
Fuzhou * Consumer Service * Private Sector	-0.08**	0.08**	0.08**	-0.22***	-0.20**	-0.03

Fuzhou * Other Industries * Public Sector				0.03	-0.00	0.04	-0.12**	-0.22***	0.03
Fuzhou * Other Industries * Private Sector				-0.05	-0.03	-0.02	-0.17**	-0.28**	-0.08
Xi'an * Manufacturing * Public Sector				0.02	0.06**	-0.00			
Xi'an * Manufacturing * Private Sector				0.11	0.01	0.10	0.11	-0.09*	0.06
Xi'an * Production Service * Public Sector				0.00	0.07**	0.01	0.04	-0.03	0.04
Xi'an * Production Service * Private Sector				-0.00	0.08*	-0.01	0.06	-0.06	-0.03
Xi'an * Consumer Service * Public Sector				0.04	0.15***	0.05	-0.02	-0.00	-0.03
Xi'an * Consumer Service * Private Sector				0.02	0.15***	0.11***	-0.02	-0.04	-0.01
Xi'an * Other Industries * Public Sector				0.06*	0.09**	-0.04*	0.01	-0.03	-0.07
Xi'an * Other Industries * Private Sector				0.14	-0.01	-0.05	0.12	-0.18**	-0.12
Constant	0.47***	0.53***	0.58***	0.47***	0.54***	0.58***	0.47***	0.54***	0.58***
$R^2$	0.08	0.18	0.14	0.09	0.23	0.16	0.09	0.23	0.16
No. of Observations	4602	4324	6445	4602	4324	6445	4602	4324	6445

**Note:** \*\*\*, \*\*, and \* represent significance level at 1%, 5%, and 10%, respectively.

In 2001 and 2005, average wage of migrant workers was lower than local workers. However, in 2010, migrants' average wage became slightly higher than local workers. As we discussed in section 3, the role of market forces is becoming more and more important in wage determinations in recent years, due to the lack of migrant workers. However, if we consider the differences in social protection between local and migrant workers, we will find that the actual income of migrant workers is still lower than local workers. In Table 9, we present the differences in social protection between local and migrant workers.

Table 9 Social Protection of Local and Migrant Workers (%)

Social Protection	CULS 1		CULS 2		CULS 3		
	Migrant	Local	Migrant	Local	Migrant	Local	
<b>All</b>							
Pension	6.27	37.45	14.03	73.94	30.03	80.75	
Medical	6.63	37.34	14.96	65.26	32.66	80.30	
Unemployment	-	-	6.84	32.80	10.40	51.82	
Working Injury	-	-	12.23	28.42	15.62	40.76	
<b>Minimum Wage Worker</b>							
Pension	5.92	21.23	6.33	63.53	14.65	76.04	
Medical	5.09	18.03	6.84	45.76	19.75	74.15	
Unemployment	-	-	5.94	17.14	1.93	29.12	
Working Injury	-	-	6.82	9.09	2.97	16.82	
<b>Non-Minimum Wage Worker</b>							
Pension	6.28	39.05	16.12	75.85	32.05	81.74	
Medical	6.74	39.23	17.25	68.73	34.42	81.39	
Unemployment	-	-	7.20	35.60	11.28	55.14	
Working Injury	-	-	13.87	31.83	17.05	44.14	

**Note:** A minimum wage worker refers to a worker whose wage is equal to or below the official minimum wage. A non-minimum wage worker refers to a worker whose wage is above the official minimum wage. In CULS 1, information on unemployment and working injury insurance is not available.

In general, migrant workers are better covered in terms of social insurance as times goes on, although the percentage of covered migrant workers is still lower than local workers. Besides, the improvement of social protection for migrant workers is mainly contributed by migrant workers who earn above minimum wage, and the proportion of migrant minimum wage workers covered by social protection is still very small. In fact, the percentage of migrant minimum wage workers covered by unemployment insurance and working injury insurance has declined in 2010 compared with 2005.

Most cities have worth minimum wage coverage than Shanghai. A higher minimum wage coverage implies greater efforts by local labor inspection agencies in enforcing minimum wage regulation. However, as nominal minimum wages are related to local price level, a seemingly high minimum wage doesn't necessarily represent strong labor market interventions by local governments. As a result, the enforcing difficulties of minimum wage regulation have no direct connections with nominal minimum wage. In Table 2, Shanghai has the highest nominal monthly minimum wage and nominal hourly minimum wage. However,

if we adjust nominal minimum wage by spatial price indices (SPI), which is proposed by Brandt and Holz (2006), to calculate a minimum wage which is comparable among regions, then minimum wage in Shanghai is no longer the highest one (Table 10). In 2010, Shenyang and Wuhan have higher minimum wage than Shanghai, and as a result, the enforcement is more difficult and the coverage rate is lower.

Table 10 Minimum Wage Standard during the CULS Surveys (SPI Adjusted)

City	Monthly Minimum Wage (Yuan/Month)			Hourly Minimum Wage (Yuan/Hour)		
	2001	2005	2010	2001	2005	2010
Shanghai	490	665	952	4.00	5.78	7.65
Wuhan	346	560	959	-	6.09	9.59
Shenyang	501	572	1008	-	5.09	9.52
Fuzhou	466	545	825	-	5.27	8.77
Xi'an	420	626	821	-	-	8.21

Note: “Monthly minimum wage” applies to full-time workers, while “hourly minimum wage” applies to part-time workers. “-” indicates that there's no hourly minimum wage during the survey. The data in this table has been adjusted by spatial price indices (SPI) proposed by Brandt and Holz (2006), using Shanghai in 2001 as the base.

To better understand the enforcement of minimum wage, we also studied the relationship between minimum wage and labor disputes (Figure 6). In Figure 6, the horizontal axis is the log of comparable minimum wages (adjusted by SPI), and the vertical axis represents the percentage of labor disputes cases because of payment in total labor disputes. A higher minimum wage is generally related to a higher proportion of labor disputes cases because of payment, and a higher minimum wage implies greater enforcing difficulties.

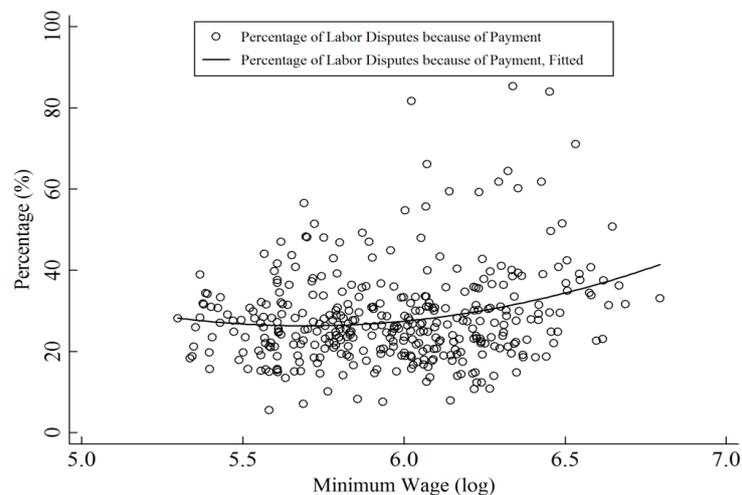


Figure 6 Minimum Wage and Labor Disputes

Source: Minimum wage data is from the China Minimum Wage Database; the minimum wage standard has been adjusted by SPI, using Beijing in 1995 as the base. The labor disputes data is from *China Labor Statistics Yearbook*.

Business services are generally high-end services, which include finance, information

technology and research, etc. As a result, minimum wage coverage in production services is generally better than manufacturing industries. Consumer services are generally labor-intensive industries, and minimum wage coverage is lower. Minimum wage coverage in private sector is better than public sector in 2001, but is worse than public sector since 2005. To further study the differences of minimum wage coverages by industry and ownership type, we also add in the regression the interaction terms of city, industry and ownership type. It is found that in 2001 and 2005, most city dummies are statistically significant, while in 2010 all coefficients are no longer significant. These differences indicate that the minimum wage enforcement is partially determined by regional factors in earlier years. However, as time goes on, once we control the industry and ownership type, the differences in local government enforcement no longer exist, which means the stage of economic development and industry structure are the main causes of diverse minimum wage coverages across provinces.

#### 4.4 Decomposition of Changes in Minimum Wages Enforcement

In this section, we decomposed the changes in minimum wage coverage using the Blinder-Oaxaca method (Blinder, 1973; Oaxaca, 1973). In Table 11, the minimum wage coverage decreased from 2001 to 2005, while the coverage increased from 2005 to 2010. We decompose these changes into three effects: the endowment effect, the return effect and the interaction effect. The endowment effect represents the changes in minimum wage coverage because of different sample characteristics in different years. The return effect represents the changes in minimum wage coverage because of changes in coefficients of sample characteristics in different years. The interaction effect is the changes in minimum wage coverage because of changes in both sample characteristics and their coefficients.

In Table 11, under all three specifications and in all three years, the endowment effects are all positive, while the return effects are all negative and the interaction effects are all very small. The positive endowment effects imply that better individual, household, regional and firm-level characteristics tend to increase minimum wage coverage. The negative return effects indicate that the wage return to individual, household, regional and firm-level characteristics is declining, and thus can decrease the minimum wage coverage. More specifically, from 2001 to 2005, the return effect was greater than the endowment effect, and as a result, minimum wage coverage decreased; from 2005 to 2010, the endowment effect was greater than return effect, and as a result, minimum wage coverage increased.

In the endowment effect, human capital has the largest contribution, while the contribution of household constraints and regional and firm-level characteristics are very small or even negative. In the return effect, although the net effect is negative, the return to human capital is still positive and increasing, and the negative return effect is mainly caused by the decrease of return to regional and firm-level characteristics, which indicates that the differences in wage level and minimum wage coverage caused by household registration, region, industry and ownership type tend to decrease.

Table 11 Decomposition of Changes in Minimum Wage Coverage

Decomposition	(1)		(2)		(3)	
	2001-2005	2005-2010	2001-2005	2005-2010	2001-2005	2005-2010
<b>Specification</b>						

City	Y	Y	N	N	Y	Y
Industry	Y	Y	N	N	Y	Y
Ownership	Y	Y	N	N	Y	Y
Interaction	N	N	Y	Y	Y	Y
<b>Total</b>						
Group 1	0.0925	0.1422	0.0915	0.1430	0.0925	0.1422
Group 2	0.1422	0.1139	0.1430	0.1144	0.1422	0.1139
Differences	-0.0497	0.0284	-0.0515	0.0287	-0.0497	0.0284
Endowment Effect	0.0414	0.0342	0.0250	0.0327	0.0270	0.0326
Return Effect	-0.0699	-0.0070	-0.0732	-0.0141	-0.0722	-0.0150
Interaction Effect	-0.0211	0.0012	-0.0033	0.0101	-0.0044	0.0108
<b>Endowment Effect</b>						
Human Capital	0.0469	0.0297	0.0422	0.0292	0.0428	0.0287
Household	0.0023	-0.0008	0.0027	-0.0010	0.0030	-0.0010
Region and Firm	-0.0079	0.0053	-0.0199	0.0045	-0.0188	0.0049
<b>Return Effect</b>						
Human Capital	0.0938	0.0935	0.0795	0.1049	0.0771	0.0829
Household	0.0436	-0.0410	0.0344	-0.0362	0.0356	-0.0407
Region and Firm	-0.2073	-0.0595	-0.1870	-0.0827	-0.1849	-0.0573
<b>Interaction Effect</b>						
Human Capital	-0.0264	-0.0001	-0.0217	-0.0012	-0.0214	-0.0003
Household	-0.0064	0.0007	-0.0067	0.0007	-0.0069	0.0007
Region and Firm	0.0117	0.0006	0.0251	0.0105	0.0238	0.0104

As described above, human capital tends to increase the coverage of minimum wage regulation, in terms of both endowment effect and return effect. As a result, by promoting education, training and medical services, workers can acquire more return from the labor market, and the pressure of enforcing the minimum wage regulation can also be eased.

## V. Conclusion

Taking advantage of various sources of data, this paper describes the evolution of minimum wage system in China and analyzes its enforcement. In 2010, 13% of workers in our sample earn wages below local minimum wages. This result is worse than most of developed countries but better than countries with about the same level of economic development as China.

Our analysis indicates that the effect of compliance in minimum wages is not only determined by the effort to enforcement, but correlated with many other factors. When the demand for labor is robust and labor supply has been more and more constrained by demographic transition, wages for unskilled workers have been growing rapidly. In this case, the difficulty of enforcement reduces due to the spontaneous forces in the labor market. In addition, more regulated labor market institutions, like the *Employment Contract Law*, facilitate to enforcement the minimum wage.

Using urban household survey data, this paper examines the coverage of minimum

wage. Both descriptive statistics and regression analysis indicate that some focused groups of workers ought to be targeted when implementing the minimum wages, including female and less educated workers. Meanwhile, the significant disparity in returns to human capital implies that in the long run improving job quality is the fundamental means to better enforcement.

The empirical analysis in this paper also indicates that the variation of enforcement might simply put in nutshell of different effort in enforcement among regions. Controlled for individual characteristics, we do find that in early period the coastal cities had better performance in compliance of minimum wage. But the most recent data also indicate that the regional disparity would disappear if the ownership and economic structure of the regions are controlled. This implies that the difference in economic structure and development could give rise to the compliance among regions.

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