Can Minimum Wage Policy Increase Personal Income? -Evidence from China

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Abstract

Purpose: As an important provision to protect the rights and interests of low-income groups, it is worth studying whether the minimum wage policy can improve the quality of life for people. **Research design, data and methodology:** Using data from the 2015 and 2017 China General Social Survey (CGSS), this paper employs the logit model to estimate the probability of an individual's annual income being higher than the per capita disposable income of their province. It also utilizes the DID model to analyze the impact of minimum wage increases on individuals' annual incomes. **Results:** The analysis reveals that an overall increase in the minimum wage raises the probability of an individual's annual income exceeding the per capita disposable income by 3%. Among them, the probability increased by 2.2% for males and by 3.2% for females. Furthermore, the impact of the minimum wage on annual income varies depending on the individual's income level. Notably, the most positive and significant impact is observed for individuals whose income level is close to the minimum wage standard. **Conclusions:** This provides evidence that the increase in the minimum wage has effectively improved the quality of life for the population.

Keywords : Minimum Wage Policy, Personal Income, China

JEL Classification Code : D31, I38, J38

1. Introduction

The minimum wage, also referred to as the base wage, represents the lowest legal remuneration an employer must pay to a laborer for normal work conducted within statutory working hours or the hours stipulated in a legally binding labor contract. Functioning as a social security policy, the minimum wage system guarantees a basic standard of living for laborers and their families while safeguarding their legal rights. It is often viewed as a means to enhance living standards and alleviate poverty.

Throughout the 20th century, the concept of the minimum wage has gained widespread global recognition. In contrast to the over 100-year development history of minimum wage systems in European and American countries, China's minimum wage system began later and has evolved within a relatively brief span. Since the introduction of the 'Minimum Wage Regulations for Enterprises' in 1993, China's minimum wage system has been in place for just over 20 years. The relatively brief duration of its implementation has led to ongoing academic debates regarding whether the minimum wage system can effectively enhance people's quality of life.

Numerous foreign studies have explored the impact of the minimum wage system on the social economy. However, China's unique national conditions, including factors like the household registration system, economic divisions, and political outlook, set it apart from other countries. Therefore, this paper analyzes the implementation of the minimum wage system in China based on the national conditions with Chinese characteristics.

As a developing country, China has experienced rapid economic growth but has also witnessed an increasing gap between the rich and the poor. China has the world's largest population, which means that policies related to minimum wage have a substantial impact on a vast number of individuals and households. Understanding the effects of minimum wage in such a populous country has implications for global labor market dynamics.

The establishment of China's minimum wage standards is rather unique, as there is no unified national standard; instead, it varies by region. Furthermore, minimum wage policies are directly related to issues of social inequality and poverty. This paper places significant emphasis on the income effect of the minimum wage. It concentrates on the influence of the minimum wage system on individuals' annual income. The answers to these questions not only aid economists in understanding the structural nuances of China's labor market but also facilitate a comprehensive assessment of the implementation impact of the minimum wage system within China.

2. Minimum Wage System in China

Following China's reform and opening up, the pace of industrialization has quickened, infusing vitality into the economic market. Given the global economic prosperity and development, China's pre-existing low-income system was in dire need of reform. Therefore, in 1993, China's Ministry of Labor and Social Security introduced the "Regulations on Minimum Wages for Enterprises," marking the inception of the minimum wage system in the country. In 1994, the Chinese government passed the "Labor Law of the People's Republic of China" to standardize and legalize the minimum wage system. In 2004, the Ministry of Labor and Social Security of China promulgated the "Minimum Wage Regulations". Since then, the minimum wage system has been formally extended from a small-scale pilot in China to a large-scale national coverage. This updated policy introduced a new stipulation that each region must adjust their minimum wages at least once every two years. At the end of 2004, China's 31 provinces, municipalities and autonomous regions all established minimum wage standards in accordance with the economic development of each province.

Appendix 1 displays the minimum wage and per capita disposable income for 31 Chinese provinces in 2009 and 2017. Per Capita Disposable Income refers to the average income that individuals in a specific region, country, or group have after deducting various taxes and social insurance fees. Per Capita Disposable Income is often used to measure the economic well-being and living standards of a region or a country. Generally, per capita disposable income is positively associated with the standard of living, meaning that as per capita disposable income increases, the standard of living also tends to rise. The use of the relative ratio of minimum wage to per capita disposable income reveals the extent to which the minimum wage standard deviates from per capita disposable income. By examining the differences in the last column, it is evident that over time, the deviation between the minimum wage standards and per capita disposable income decreased for most provinces in 2017 (values are positive). However, there are still some provinces where the deviation increased (values are negative). In the empirical analysis section in the fourth part, we will discuss whether the minimum wage has increased the probability of individual income exceeding per capita disposable income.

3. Literature Review

Regarding the impact of the implementation of the minimum wage system on income, the academic

community is still inconclusive. Some scholars believe that the minimum wage has a positive effect on income. An increase in the minimum wage can not only increase incomes, but also reduce poverty rates and reduce income disparities. Dube (2019) found that the minimum wage had a positive effect on the income of the bottom households. Addison and Blackburn (1999) found that in the 1990s, an increase in the minimum wage in the United States lowered the poverty rate by 9% for every 25% increase in the minimum wage. Among them, the minimum wage has the greatest impact on the low-income group. Research by Burkhauser and Finegan (1989) also shows that an increase in the minimum wage can reduce the poverty rate of low-income workers by 21%. Given China's unique socio-economic context, Chinese scholars have conducted extensive research on this topic. Xie and Chen (2017) found that the continuous adjustment of the minimum wage has significantly increased the income of the bottom workers, and young people and women in the low-income group benefited more from the increase in the minimum wage. Yang and Zhang (2020) found that the minimum wage significantly promotes the wage growth of low-skilled migrant workers in informal employment. Zhang and Han (2020) conducted a survey of migrant workers in Northeast China and found that the increase in the minimum wage promoted a significant and sustained increase in the incomes of low-skilled young male migrant workers. Di and Han (2015) found that for every 1% increase in the minimum wage, income increased by an average of 0.6%. The minimum wage is conducive to raising the income level of low-income earners, especially for the middle-aged and elderly low-skilled labor force. Zhang and Jia (2014) showed that a minimum wage increase would increase the income level of low-skilled labor in the short run. Li and Ma (2015) found that the minimum wage is beneficial to narrowing the gender income gap. Sun and Shu (2011) conducted a study on migrant workers in the Pearl River Delta region of China and found that the implementation of the minimum wage standard had a significant effect on the income growth of migrant workers.

However, a considerable number of scholars believe that the minimum wage will have a negative impact on income. Neumark et al. (2004) used a large number of micro survey data to find that with the increase of the minimum wage, both workers near the minimum wage and high-income workers will be affected, but for low-income workers, although their wages have increased, but because of the increase in working hours and unemployment, their incomes have actually fallen in the end. De-Fraja (1999) believes that the government raises the minimum wage standard, which makes enterprises provide employees with worse working conditions or increase the workload to

offset the increase in enterprise costs caused by the increase in the minimum wage standard. Chinese scholar Wang and Gunderson (2012) found that the minimum wage has no effect on the total income through the study of eastern China. Chinese scholar Xiang et al. (2016) analyzed the impact of minimum wages on employment and wages in both the formal and informal sectors, and found that minimum wages have a positive impact on informal sector employment and a negative impact on wages.

Will an increase in the minimum wage lead to higher individual income for the labor force? How does the minimum wage impact the earnings of individual workers? Exploring these questions cannot only deepen economists' comprehension of the structural features and operational dynamics of China's labor market but also enable a more comprehensive evaluation of the efficacy of the minimum wage system.

4. Methodology and Data

4.1. Data Selection

CGSS stands for China General Social Survey and is carried out by the Survey and Data Center of Renmin University of China. Since 2003, this survey has annually interviewed over 10,000 households across cities, towns, and villages in mainland China. It serves as a comprehensive academic endeavor, encompassing diverse aspects of society, community, family, and individual experiences at various levels and angles.

This study has chosen the 2016 adjustment of the minimum wage standard as the point of policy implementation for several reasons. Firstly, due to the influence of the COVID-19 pandemic, the CGSS database was updated only until 2017, making the selection of years around 2016 more temporally relevant. Additionally, among the 28 provinces in China covered by CGSS, a total of 8 provinces adjusted their minimum wage standards in 2016, affecting nearly half of the individuals in the dataset. The wide range of adjustments enhances the explanatory capacity of this study.

Moreover, CGSS provides micro-level data, which allows for more accurate estimation of the probability of personal income increases for each individual. In this study, data for individuals with military and no hukou status have been excluded, retaining only urban and non-urban hukou individuals. Hukou is a system of household registration used in mainland China. The population benefiting from the minimum wage guarantee does not include agricultural workers, resulting in the retention of data solely for

individuals engaged in non-agricultural occupations with non-zero annual incomes.

4.2. Model

4.2.1. Logit Model

Appendix 2 is the definition of variables, and Table 1 is descriptive statistics. We take the provinces that raised the minimum wage in 2016 as the treatment group. Provinces that did not raise minimum wages were used as the control group. It can be seen from Table 1 that compared with 2015, both the treatment group and the control group had generally improved education and health status in 2017, the gender ratio was more balanced, the urbanization process was accelerated, and the rate of signing labor contracts increased. But the marriage rate has fallen.

Table 1: Descriptive Statistics

individual	treatment group		control group	
	2015	2017	2015	2017
age	40.08	40.21	41.26	39.73
education (%)	39.33	53.06	25.64	40.54
health (%)	93.90	95.43	93.02	94.02
gender (%)	55.43	54.88	56.91	51.71
hukou (%)	63.41	70.98	51.63	59.53
marriage (%)	76.47	75.14	81.52	73.46
politics (%)	14.07	18.90	12.64	16.49
contract (%)	58.17	74.14	38.57	53.42
urban (%)	82.49	89.74	75.77	83.11
Obs	1279	1423	2121	1522

As one of the discrete choice models, the logit model is widely used when the explanatory variable is a categorical variable. Whether the individual income growth problem studied in this paper just meets the requirement that the explained variable is a categorical variable, that is, the individual income is higher than the per capita disposable income of the province where the individual is located in the year and the individual income is lower than the per capita disposable income of the province where the individual is located in the current year. The per capita disposable income is the sum of the residents' final consumption expenditure and savings, that is, the residents' discretionary income. It includes both cash income and in-kind income. Disposable income of residents is considered to be the most important determinant of consumer spending and is therefore often used to measure changes in a country's standard of living. More intuitively, if the individual income is higher than the per capita disposable income of the province in that year as the research object,

we can see whether the individual's living standard has improved. This research method is not the first of its kind. When Ye and Jiang (2020) studied the impact of China's minimum wage policy on the employment of low-income groups, they analyzed the probability of labor employment as an explained variable. Therefore, this paper uses the logit model to estimate the probability that the income is higher than the per capita disposable income one year before and after the implementation of the policy. By solving its marginal effect, the probability that the annual income of each individual is higher than the per capita disposable income can be obtained, which provides reliable data for the Difference-in-Difference model to judge the policy effect. The logit model is set as follows:

$$\text{Logit} = \ln\frac{P^1}{P^0} = \beta_0 + \beta_1 age + \beta_2 age^2 + \beta_3 education + \beta_4 health \\ + \beta_5 gender + \beta_6 hukou + \beta_7 marriage \\ + \beta_8 politics + \beta_9 contract + \beta_{10} urban + \epsilon \tag{1}$$

The probability that the individual's annual income is higher than the per capita disposable income of the province is $P(Y=1) = P^1$; the probability that the individual's annual income is lower than the per capita disposable income of the province is $P(Y=0) = 1 - P^1 = P^0$. After substituting the data of each variable in 2015 and 2016 into Stata17 for logit regression, the results are shown in Table 2.

Table 2: Logit Regression Results

Variable	2015	2017
age	0.093*** (0.024)	0.060*** (0.030)
age^2	-0.001*** (0.000)	-0.001*** (0.000)
education	1.102*** (0.124)	1.302*** (0.112)
health	0.548*** (0.154)	0.451** (0.182)
gender	0.906*** (0.085)	0.817*** (0.091)
hukou	0.095 (0.100)	0.416*** (0.105)
marriage	0.603*** (0.116)	0.415*** (0.120)
politics	0.715*** (0.175)	0.539*** (0.149)
contract	0.119 (0.092)	0.037 (0.095)
urban	0.231** (0.104)	0.037*** (0.127)
cons	-2.418*** (0.515)	-2.133*** (0.127)
Obs	3400	2945

Note: *** p<.01, ** p<.05, * p<.1

From the above logit regression results in 2015 and 2017, it can be seen that the results are relatively similar. Men are more likely than women to have an individual annual income higher than their per capita disposable income. Compared with the general public, the individual annual income of Communist Party members is more likely to be higher than the per capita disposable income. Education level has the most significant effect on the explained variable, and it can be seen that education is an important factor affecting the possibility of income growth. Although the regression analysis of the logit model can approximate the influence of each variable on the probability of an individual's annual income being higher than the average. However, it is not possible to directly judge the influence of each variable on the probability of annual income growth, so the probability of each individual can be obtained by calculating the marginal effect. Details are as follows:

Table 3: Marginal Effect

Variable	2015		2017	
	Marginal Effect	std. err.	Marginal Effect	std. err.
age	0.018	0.005	0.012	0.006
age^2	-0.000	0.000	-0.000	0.000
education	0.213	0.023	0.253	0.021
health	0.106	0.030	0.088	0.035
gender	0.175	0.016	0.159	0.018
hukou	0.018	0.019	0.081	0.020
marriage	0.117	0.023	0.081	0.023
politics	0.138	0.033	0.105	0.029
contract	0.023	0.018	0.007	0.019
urban	0.045	0.020	0.072	0.025

Through the marginal effect of each explanatory variable on the explained variable, it can be seen that in 2015, the probability that the labor force with a bachelor's degree or above had an annual income higher than the per capita disposable income was 21.3% higher than that of the labor force with low education. In 2017 it was 25.3%. Compared with the female labor force in 2015, the probability that the annual income of the male labor force is higher than the per capita disposable income is 17.5% higher than that of the female labor force. In 2017 it was 15.9%. In 2015, a healthy labor force was 10.6% more likely to have an annual income above the per capita disposable income than an unhealthy labor force. In 2017 it was 8.8%. In 2015, the labor force with non-agricultural hukou was 1.8% more likely to have an annual income higher than per capita disposable income compared with

the labor force with agricultural hukou, and it was 8.1% in 2017. In 2015, the married labor force was 11.7% more likely to have an annual income higher than the per capita disposable income compared with the unmarried labor force, and it was 8.1% in 2017. In 2015, compared with the labor force of the general public, the labor force who was a Communist Party member had a 13.8% higher probability of having an annual income higher than the per capita disposable income. In 2017, it was 10.5%. In 2015, regular workers had a 2.3% higher probability of having an annual income higher than per capita disposable income compared with casual workers, and it was 0.7% in 2017. In 2015, if the labor force was urban residents, the probability of its annual income being higher than per capita disposable income was 4.5% higher than that of rural residents. In 2017, it was 7.2%.

By combining the above estimated marginal effect with the individual characteristics of the labor force, this paper can calculate the probability that the individual labor force's annual income is higher than the per capita disposable income. From the marginal effect results of the logit model in 2015 and 2017, it can be found that the marginal effect of the explanatory variables in 2015 is mostly larger than that in 2017. Considering the reasons, we can guess that some event may have occurred during this period to improve the income situation of a part of the labor force. Or the emergence of a certain policy protects the interests of some low-income groups. Or the development of China's urbanization process has narrowed the income gap. Of course, it is also possible that the increase in the minimum wage standard increases the income of individual laborers and improves people's lives. Therefore, this paper conducts a further quantitative analysis of the double difference model through the probability that the annual income of the labor force is higher than the per capita disposable income calculated above. This further explains whether the increase in the minimum wage increases the individual's annual income.

4.2.2. DID Model

First, analysis using the DID model requires categorizing the data into treatment and control groups. We selected 2016 as the year in which the policy took place. The provinces with the minimum wage increase in 2016 are BeiJing, HeBei, JiangSu, LiaoNing, ShanDong, ShangHai, TianJin, ChongQing, a total of 8 provinces. None of the remaining 20 provinces raised their minimum wages in 2016. Therefore, we take the provinces that raised the minimum wage in 2016 as the treatment group, and believe that they have been affected by the increase in the minimum wage. Provinces that did not raise minimum wages were used as the control group. There are two necessary key conditions for establishing a DID model.

First, there must be an experimental group affected by the policy and a control group not affected by the policy; second, there must be a panel data set of at least two years. This paper can satisfy the model setting requirements. The model is as follows:

$$\text{Model 1:} Y_{it} = \alpha_0 + \alpha_1 treat + \alpha_2 post + \alpha_3 treat * post + \tau_i + \sigma_{it} \tag{2}$$

$$\text{Model 2:} Y_{it} = \beta_0 + \beta_1 treat + \beta_2 post + \beta_3 treat * post + \beta_{it} X_{it} + \phi_i + \mu_{it} \tag{3}$$

Among them, treat is a dummy variable for grouping. If individual i is affected by the increase in the minimum wage, then individual i belongs to the treatment group, and treat is 1. If individual i is not affected by the increase in the minimum wage, then individual i belongs to the control group, and treat is 0. post is a dummy variable for policy implementation. Before the policy is implemented (that is, before 2016), post is 0, and after the policy is implemented (that is, after 2016), post is 1. treat * post is the interaction item between the above two, define DID= treat * post . Y is the probability that the annual income of each individual in year t is higher than the per capita disposable income of the province where the individual is located. Model 1 does not contain the control variable group, and Model 2 adds the control variable group X_t . τ_i and φ_i is the individual effect control variable.

5. Empirical Results

The data of 6345 individuals in 28 provinces are substituted into Stata17 for estimation, and the results are as follows:

Table 4: Overall DID Estimation

Variable	Without controls	With controls
DID	0.017 (0.024)	0.030*** (0.006)
treat	0.003 (0.024)	-0.024*** (0.006)
post	-0.030* (0.015)	-0.066*** (0.004)
age		0.014*** (0.001)
age^2		-0.000*** (0.000)
education		0.211*** (0.005)
health		0.105*** (0.008)
gender		0.159*** (0.004)
hukou		0.050*** (0.005)
marriage		0.087*** (0.005)
politics		0.074*** (0.006)
contract		0.015*** (0.004)
urban		0.048*** (0.006)
cons	0.709*** (0.012)	0.148*** (0.024)
Obs	6345	6345

Note: *** p<.01, ** p<.05, * p<.1

According to the estimation results in the first column, it can be seen that the DID coefficient of the constructed policy effect statistic is 0.017, but the significance is not high. After adding the control variable group in the second column for estimation, the policy effect statistic DID is significant at the 0.1% significance level with a coefficient of 0.030. This shows that after the rise of the minimum wage, the probability of an individual's annual income being higher than the per capita disposable income has increased by 3%, indicating that the rise of the minimum wage has had a positive effect on the improvement of people's lives.

In the same way, the DID analysis method was used for men and women to study the effect of the increase of the minimum wage on the probability of annual income being higher than the per capita disposable income. The DID estimation results for gender are as follows:

Table 5: DID Estimation by Gender

Variable	Male		Female	
	Without controls	With controls	Without controls	With control
DID	0.023 (0.037)	0.022** (0.011)	0.030 (0.055)	0.032*** (0.010)
treat	0.005 (0.035)	-0.021** (0.010)	-0.024 (0.053)	-0.015 (0.010)
post	-0.032 (0.024)	-0.069*** (0.007)	-0.016 (0.032)	-0.059*** (0.006)
age		0.015*** (0.002)		0.013*** (0.002)
age^2		-0.000 (0.000)		-0.000 (0.000)
education		0.163*** (0.009)		0.264*** (0.008)
health		0.087*** (0.014)		0.107*** (0.012)
hukou		0.045*** (0.008)		0.061*** (0.010)
marriage		0.074*** (0.009)		0.106*** (0.008)
politics		0.076*** (0.009)		0.062*** (0.010)
contract		0.018*** (0.008)		0.017*** (0.006)
urban		0.049*** (0.009)		0.037*** (0.010)
cons	0.765*** (0.017)	0.319*** (0.040)	0.642*** (0.025)	0.124*** (0.041)
Obs	3484	3484	2861	2861

Note: *** p<.01, ** p<.05, * p<.1

As can be seen from the results in Table 5, the results are not significant in the absence of control variables after estimating the individual data of men. After adding the control variable group, the policy effect statistic DID is significant at the 0.5% significance level, and the DID statistic is positive. This means that a rise in the minimum wage increases the probability of men earning more than their per capita disposable income by 2.2%. Likewise, for women, the results were more significant when the control variable was added. Its DID is positive and significant at

the 0.1% significance level. This means that the increase in the minimum wage increases the probability of women earning more than the per capita disposable income by 3.2%. In contrast, a rise in the minimum wage did more to improve women's living standards. It can be seen that the minimum wage system protects the interests of vulnerable groups to a certain extent.

Table 6: DID Estimation by Income Level

Variable	income < MW-500		MW-500 ≤ income ≤ MW+500		income > MW+500	
	Without Controls	With Controls	Without Controls	With Controls	Without Controls	With Controls
DID	0.019 (0.031)	-0.002 (0.006)	-0.096 (0.130)	0.097** (0.034)	-0.012 (0.028)	0.029*** (0.009)
treat	-0.002 (0.019)	-0.008** (0.004)	-0.087 (0.146)	-0.005 (0.033)	0.034 (0.030)	-0.018* (0.009)
post	-0.058*** (0.019)	-0.070*** (0.004)	-0.133* (0.065)	-0.093*** (0.019)	0.004 (0.019)	-0.057*** (0.006)
age		0.015*** (0.001)		0.011 (0.007)		0.013*** (0.002)
age^2		-0.000 (0.000)		-0.000** (0.000)		-0.000 (0.000)
education		0.232*** (0.005)		0.254** (0.087)		0.208*** (0.007)
health		0.110*** (0.004)		0.137** (0.053)		0.089*** (0.013)
gender		0.188*** (0.003)		0.218*** (0.030)		0.147*** (0.005)
hukou		0.045*** (0.003)		0.061** (0.022)		0.040*** (0.007)
marriage		0.119*** (0.004)		0.180*** (0.035)		0.076*** (0.007)
politics		0.110*** (0.006)		0.204* (0.085)		0.070*** (0.007)
contract		0.025*** (0.003)		0.009 (0.022)		0.013** (0.006)
urban		0.062*** (0.003)		0.075*** (0.020)		0.042*** (0.009)
cons	0.568*** (0.010)	0.085*** (0.014)	0.690*** (0.055)	0.047 (0.150)	0.735*** (0.016)	0.198*** (0.036)
Obs	696	696	1178	1178	4471	4471

Note: *** p<.01, ** p<.05, * p<.1

In order to be more illustrative, this paper will divide the income range and conduct research and analysis on individuals at different income levels. If the monthly income of the individual is less than the minimum wage of the province where the individual is located minus 500RMB, then the individual is classified as a low-income class. If the monthly income of the individual is within the range of 500RMB people above and below the minimum wage standard in the province where the individual is located, then the individual is classified as a middle-income class. If the monthly income of the individual is greater than the minimum wage standard of the province

where the individual is located plus 500RMB, then the individual is classified as a high-income class.

As can be seen from Table 6, individuals whose incomes are near the minimum wage are more vulnerable to the increase in the minimum wage. And the effect is significantly positive. The increase in the minimum wage increases the probability of their annual income being higher than the per capita disposable income by 9.7%. For low-income class, the increase in the minimum wage has not had a significant impact on them. For the high-income class, the increase in the minimum wage increases the

probability that their annual income is higher than the per capita disposable income by 2.9%.

Table 7: DID Estimation by Labor Category

Variable	Workers with labor contracts		Workers without labor contracts	
	Without controls	With controls	Without controls	With control
DID	0.084** (0.044)	0.041*** (0.012)	-0.100** (0.060)	0.005 (0.017)
treat	-0.073* (0.044)	-0.025** (0.012)	-0.001 (0.048)	-0.014 (0.013)
post	-0.084** (0.034)	-0.064*** (0.009)	0.003 (0.030)	-0.069*** (0.008)
age		0.011*** (0.002)		0.015*** (0.002)
age^2		-0.000*** (0.000)		-0.000*** (0.000)
education		0.202*** (0.008)		0.232*** (0.013)
health		0.092*** (0.016)		0.115*** (0.017)
gender		0.133*** (0.007)		0.180*** (0.008)
hukou		0.046*** (0.009)		0.057*** (0.010)
marriage		0.077*** (0.009)		0.116*** (0.013)
politics		0.069*** (0.009)		0.088*** (0.016)
urban		0.051*** (0.014)		0.060*** (0.045)
cons	0.817*** (0.028)	0.258*** (0.054)	0.642*** (0.017)	0.069 (0.045)
Obs	3430	3430	2915	2915

Note: *** p<.01, ** p<.05, * p<.1

In order to examine the impact of the increase in minimum wage on the labor force with signed labor contracts and the labor force without signed labor contracts, this study employs a Differences-in-Differences (DID) estimation for these two groups. The findings, as presented in Table 7, suggest that the labor force with signed labor contracts is more susceptible to the positive effects of the rise in minimum wage, resulting in a 4.1% increase in the probability of their annual income surpassing the per capita disposable income. However, for the labor force without labor contracts, while the regression coefficient remains positive after controlling for various variables, its significance is not pronounced. Possibly due to factors such as inadequate government regulatory oversight, the impact of the minimum wage policy may not be distinctly discernible.

6. Results and Discussion

As a component of the labor and social security system, the minimum wage system shoulders a significant responsibility: to raise workers' income levels and ensure the basic living standards of those at the bottom of society. This underscores the importance of delving into the effects of minimum wage increases on annual income growth and the enhancement of people's quality of life. This paper uses CGSS micro data and uses the logit model to estimate the probability that an individual's annual income is higher than the per capita disposable income of the individual's province. Finally, the DID model is used to analyze the impact of the increase of the minimum wage on the improvement of individual living standards. This paper mainly draws the following three conclusions.

First, through the analysis of data from 2015 and 2017, it is concluded that the increase in the minimum wage level makes the individual's income higher than the per capita disposable income, that is, the probability of an individual's living standard improving by 3%. Other influencing factors, such as age, gender, health status, residence type, hukou, marital status, and education level, have increased the probability of an individual's annual income being higher than the per capita disposable income.

Secondly, the effect of the minimum wage increase on individual annual income exhibits gender and income stratification characteristics. Notably, the impact of the minimum wage raise is more pronounced on women's earnings than on men's. Moreover, the effects of the increased minimum wage level differ across low-income, middle-income, and high-income groups, with the most significant and positive impact observed among those in proximity to the minimum wage threshold.

Thirdly, the increase in the minimum wage standard exhibits a notable divergence in its impact on laborers based on whether they are under valid labor contracts. For laborers with legitimate labor contracts, the increase in the minimum wage has a significantly positive effect on their income level, whereas for those without signed labor contracts, the impact is not significant.

Although this paper draws the conclusion that the minimum wage system has a positive impact on individual income. However, the adjustment range and frequency of the minimum wage are lower than those of developed countries in Europe and the United States, indicating that there is a lot of room for improvement in the minimum wage standard in China.

7. Limitations

This paper relies on CGSS data for empirical research. However, it's important to note that, as of the time of writing, the most recent CGSS data available is only updated until 2017. This temporal limitation might potentially render the research conclusions of this paper

less representative and convincing, particularly in the context of the post-pandemic minimum wage system. Consequently, subsequent releases of CGSS data will be essential for conducting further related research, and this remains a focal point for future exploration in this paper.

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Appendixes

Appendix 1: Comparison of Minimum Wage and Per Capita Disposable Income in 31 Provinces of China in 2009 and 2017

Province	(1) MW_{2009} (unit: RMB)	(2) $PCDI_{2009}$ (unit: RMB)	(3) $\frac{MW_{2009}}{PCDI_{2009}}$	(4) MW_{2017} (unit: RMB)	(5) $PCDI_{2017}$ (unit: RMB)	(6) $\frac{MW_{2017}}{PCDI_{2017}}$	(6) -(3) Difference (unit: %p)
BeiJing	800	2217	36.08%	2000	4767	41.96%	5.88
TianJin	820	1786	45.91%	2050	3083	66.49%	20.58
HeBei	750	775	96.77%	1650	1792	92.08%	-4.69
ShanXi	720	742	97.04%	1700	1700	100%	-2.96

Province	(1) MW_{2009} (unit: RMB)	(2) $PCDI_{2009}$ (unit: RMB)	(3) $\dfrac{MW_{2009}}{PCDI_{2009}}$	(4) MW_{2017} (unit: RMB)	(5) $PCDI_{2017}$ (unit: RMB)	(6) $\dfrac{MW_{2017}}{PCDI_{2017}}$	(6) -(3) Difference (unit: %p)
Inner Mongolia	680	917	74.15%	1760	2183	80.62%	6.47
LiaoNing	700	1199	58.31%	1530	2317	66.03%	7.72
JiLin	650	1167	55.70%	1780	1783	99.83%	44.13
HeiLongJiang	680	1047	64.75%	1680	1767	95.08%	30.33
ShangHai	960	2403	39.95%	2300	4917	46.78%	6.83
JiangSu	850	1225	69.39%	1890	2917	64.79%	-4.6
ZheJiang	960	2051	46.81%	2010	3500	57.43%	10.62
AnHui	560	1174	47.70%	1520	1825	83.28%	35.58
FuJian	750	1631	45.98%	1700	2500	68.00%	22.02
JiangXi	580	1169	49.62%	1530	1833	83.47%	33.85
ShanDong	760	950	80.00%	1810	2242	80.73%	0.73
HeNan	650	1198	54.26%	1720	1683	102.20%	47.94
HuBei	700	1197	58.48%	1750	1983	88.25%	29.77
HuNan	650	1152	56.42%	1580	1923	82.16%	25.74
GuangDong	1000	1798	55.62%	1895	2750	68.91%	13.29
GuangXi	670	1288	52.02%	1400	1658	84.44%	32.42
HaiNan	630	1042	60.46%	1430	1883	75.94%	15.48
ChongQing	680	1433	47.45%	1500	2017	74.37%	26.92
SiChuan	650	1153	56.37%	1500	1717	87.36%	30.99
GuiZhou	650	1071	60.69%	1680	1392	120.69%	60
YunNan	680	1202	56.57%	1570	1525	102.95%	46.38
Tibet	730	483	151.14%	1400	1291	108.44%	-43
ShaanXi	600	1174	51.11%	1680	1717	97.85%	46.74
GanSu	620	918	67.54%	1620	1333	121.53%	53.99
QingHai	600	1621	37.01%	1500	1583	94.76%	57.75
NingXia	560	1169	47.90%	1660	1717	96.68%	48.78
XinJiang	800	985	81.22%	1670	950	175.79%	94.57

Note: Data from Ministry of Human Resources and Social Security of the People's Republic of China

Appendix 2: Variable Definition

Variable	Implication
age	The current age of the individual
age^2	Individual age squared
education	Education level (1 for college degree or above, 0 otherwise)
health	Health level (1 for general health or above, 0 otherwise)
gender	1 for males, 0 for females
hukou	Household registration type (1 for urban household registration, 0 otherwise)
marriage	Marital status (1 for married, 0 otherwise)
politics	Political status (1 for Communist Party members, 0 otherwise)
contract	1 for workers with legally effective labor contracts, 0 for workers without signed labor contracts)
urban	Individual living area type (1 for urban, 0 otherwise)