



Research on the Minimum Wage Policy of the Online-to-Offline Food Delivery Industry in China

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Abstract. With the rapid expansion of the online-to-offline food delivery industry in China, the treatment for deliverymen gradually comes into the view of the public as some of them are facing severe inequality in wages given their hardworking. To tackle this problem, this paper puts forward the minimum wage policy as a solution to raise the basic wage for the deliverymen and ensure their social welfare aligns with their workload. The basic research method is the investigation and field research in Shijiazhuang, the capital city of Hebei province in China. The interview of deliverymen in different areas in Shijiazhuang provided firsthand information and feedback for the analysis. By considering the working hours of deliverymen, the new minimum wage will fully compensate for their high workload. Results show that this minimum wage policy could raise deliverymen's welfare and alleviate the inequality in wage level.

Keywords: Deliveryman · Online-to-offline food delivery · Minimum wage · Supply-demand equilibrium

1 Introduction

The online-to-offline food delivery industry (or o2o) in China has always been considered having the largest food delivery scale and the most advanced food delivery service around the world. It has the most rapid growth in customers with a 22.4% increase in two years since 2016 [1]. However, along with its rapid expansion, deliverymen in this industry have been suffering from a huge workload and relatively low wages which do not match their hardworking [2]. Therefore, to tackle this problem, this paper proposes a new policy to set a new minimum wage standard for this industry in order to raise the wages for deliverymen. Then in the next few sections, this paper separately introduces the details of this social problem by giving an overview on the application of the new minimum wage, analyzing the influence the new minimum wage policy may cause to society, and providing suggestions on the policy implementation. This paper offers some thoughts on the solution of the inequality problems existing in the wage of deliverymen in China, hoping to arouse more public attention on this issue.

2 Background Information

In terms of the social problem of deliverymen, the two most typical phenomena that can present their arduous working conditions might be the ever-expanding demand for the labor in this market and the low wage level which does not match their hardworking. According to the report posted by the China Internet Network Information Center (CNNIC) in 2019 and Maimaiti (2018) [2][3], the customer number of o2o food delivery industry has gone through a dramatic increase from 343 million to 421 million since 2016 while, on the other hand, the number of deliverymen in mainland China has only increased by 2.7 million during this period. This results in the phenomenon of demand outstripping supply in the labor market and may also lead to a tougher working situation for deliverymen of approximately 13-h working per day. However, although they work extremely hard to meet customers' demands and stabilize the development of this market, their wages still do not match their efforts. According to Cao (2019) and Alice (2021) [4][5], deliverymen's wage in China might even continue to fall as different take-out online platforms compete each other for higher interests by cutting the cost of labor in recent years. Moreover, based on the data from Economic Research Institute and Cao (2019) [4][6], the salary of food deliverymen is being reduced relatively compared to that of taxi drivers, while the risk for deliverymen is increasing as they tend to ride fast in many situations in order to meet the unreasonable time limit of 30 min per order, which, according to Wang (2017) [7], may have contributed relatively more traffic accidents than that of taxi drivers. Therefore, it could be concluded that deliverymen's working condition is quite arduous and unsafe while their wages do not match their hardworking. Thus, a minimum wage standard is needed to stabilize their wage level and give insurance for their hardworking in this industry.

3 Impact Factors in Setting a Minimum Wage Standard

3.1 The Wage Structure

When it comes to the details on setting a real standard, the wage structure and the universal calculation are without doubt the two most important factors contributing to the effectiveness of the minimum wage policy. Firstly, in terms of the wage structure, according to Zhao (2021) [1], there are two parts that consist it: the basic wage and the bonus for each delivery order. To achieve the goal of raising wages for deliverymen in a more scientific way, the new minimum wage standard is supposed to be proposed from the basic wage part given the supply-demand relationship of takeout order in the goods market. According to Cao (2019) [4], the bonus for deliverymen shows a positive relationship with the amount of money the customers paid for delivery while the basic wage part is mainly from the profit earned by the o2o online platforms. Thus, the rise of the bonus could lead to a change in the supply for the takeout food as the cost of each delivery would rise.

As shown in Fig. 1, with the rise of the bonus, there could be a left shift on the supply curve, possibly resulting in the reduction of the overall quantity of deliveries. This may eventually lead to a decrease in the overall income for deliverymen. And this phenomenon, based on the field research in Shijiazhuang, could be seen in many

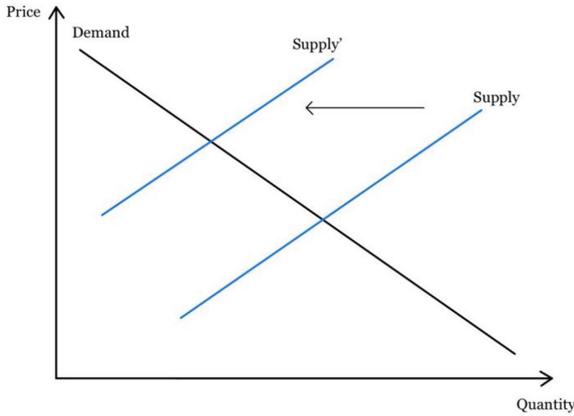


Fig. 1. Supply-Demand equilibrium.

restaurants with takeaway services, especially those upscale ones like Japanese sushi restaurants in Hebei province. Those restaurants experienced a decrease in orders after an increase in deliverymen’s bonus in 2018. Therefore, the minimum wage could be better influenced and adjusted from the level of the basic wage part.

3.2 The Universal Calculation

Secondly, the universal calculation method should also be considered when setting a minimum wage standard. Just as the application of different wage standards in some states of America, it would be much more applicable and scientific to avoid setting the same figure for each area given the relatively huge differences among the economic development of different provinces in China. The core idea is to compensate for the excessive workload deliverymen suffer from. More specifically, after a further investigation and an interview, it is suggested that though the labor market of o2o food delivery industry seems to be in equilibrium as the number of workers and salary are relatively stable each year reported by CNNIC (2019) [3], the labour in this industry are working much more than the required 8 working hours per day. Thus, this rise in the minimum wage would serve as a type of stable salary compensating for their hardworking in the time beyond requirement (as shown in Fig. 2).

The detailed calculation method would be to divide the average extra working time beyond the time requirement of 8 h by the average working hours per day to find out the percentage of the overload of each deliveryman in a day (also equals overload in a month or year). Then use this percentage to calculate the amount of salary deliverymen earn for their extra working time per month. Finally, by adding this percentage salary with the original basic salary part, the minimum wage standard of the basic wage for a province could be calculated (details are shown below).

$$\text{percentage of extra work (p)} = \frac{\text{working time beyond 8 hours (t')}}{\text{average working hours per day (8 + t')}} \quad (1)$$

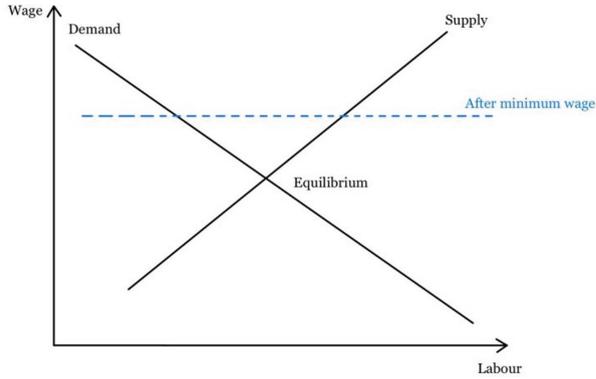


Fig. 2. Minimum wage.

$$\text{monthly salary for extra working hours}(s') = p \times \text{original monthly salary}(s) \quad (2)$$

$$\begin{aligned} \text{minimum wage standard for basic wage}(w) &= \text{monthly basic salary}(s_b) + s' \\ &= s_b + \frac{t'}{8 + t'} \times s \end{aligned} \quad (3)$$

And a detailed example is that, based on the interview and survey, in Hebei province's capital city Shijiazhuang, the average working hours for food deliverymen are around 9 h per day and the average salary they earn is around RMB 6500 per month with a basic wage of RMB 2000. So, their new minimum wage standard for basic wage part would be RMB 2722 instead of RMB 2000.

$$w = s_b + \frac{t'}{8 + t'} \times s = 2000 + \frac{1}{9} \times 6500 = 2722 \quad (4)$$

4 Possible Influences of the Rise of Minimum Wage on o2o Food Delivery Industry

However, the setting of this new policy would, without doubt, cause various possible influences on o2o food delivery industry and even the entire society, within which the welfare for food deliverymen and the employment situation might be the most affected sections that require further investigation.

4.1 An Improvement in Welfare

Firstly, the rise of the minimum wage could directly contribute to a rise in deliverymen's wages. And it could also indirectly lead to a possible decrease in their workload under the condition which the income effect exceeds the substitution effect. More simply, after the rise of wages, people may work less if their will of reducing workload beats their will of making more money.

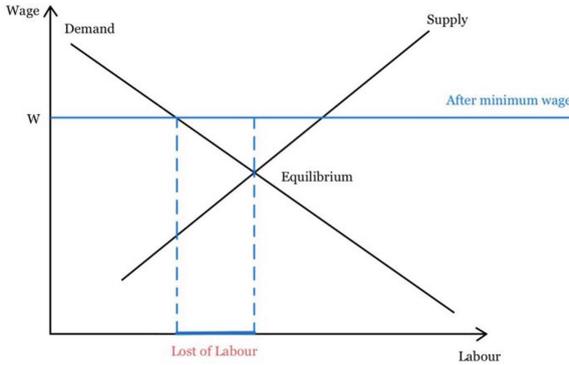


Fig. 3. Decrease in Employment.

4.2 A Decrease in Employment

Secondly, the rise of the minimum wage could lead to a shock in the labor market. According to Belman and Wolfson (2014) [8], the rise of minimum wage could possibly lead to a decrease in employment in the labor market as the supply-demand balance might be broken resulting in less quantity of labor (shown in Fig. 3). And examples could be found in Seattle that with the rise of the minimum wage, there was a decrease in the jobs especially those paying less than the new wage standard [9]. However, whether there will be a decrease in the number of labor remains uncertain as the continuous growth of the industry has created excessive demand for labor which may offset the influence caused by this policy.

Thus, this policy may contribute to the improvement of deliverymen's welfare and may result in a decrease in employment. But in any case, further investigation is still needed to evaluate the social value of this new policy more critically.

5 Suggestions

Beyond the design of the policy, complementary legal measures are also necessary during the implementation of it. According to the interview with Mr. Liu, the manager of all deliveryman teams in Shijiazhuang, some o2o food deliverymen in China are temporary workers or contract workers who cannot directly receive the benefits of the minimum wage policy. According to the interview, among these workers, some of them have other sources of incomes like being taxi drivers, white-collar workers, or even doing investments. These people choose to be deliverymen mainly to earn extra incomes, and their main incomes are based on other jobs, for which the wage level before or after the minimum wage policy does not significantly influence their well-being. However, the rest temporary workers still rely heavily on the o2o food delivery industry. They do not have other income sources while they also cannot directly receive the basic wage from o2o firms. This phenomenon results from that the companies have a tend to lower their costs by hiring more temporary workers. For example, the firm could pay less insurance and salary to make sure that the minimum wage policy applies to every worker who

faces overwhelming workloads that do not match their wage level in this industry. The corresponding legal measures are necessary to transform these temporary workers to formal workers.

Meanwhile, other legal measures are also necessary to ensure that the insurance and other implicit incomes for deliverymen will not decrease after the implementation of the minimum wage policy.

6 Conclusion

In conclusion, this paper reviews the living environment of China's o2o food deliverymen. Based on the literature, newspaper, and interviews with workers in Shijiazhuang, it is concluded that the o2o food deliverymen are facing extremely high workloads while earning a relatively low wage compared to their hardworking. This phenomenon emphasizes the importance of implementing a minimum wage policy on the purpose of alleviating their workloads and improve their well-being. Based on the structure of salary which contains a basic part and bonus, the minimum wage is set on the basic part to function as an insurance on deliverymen's well-being. The standard of minimum wage is according to the compensation for working hours beyond the average required 8 h per day.

With the implementation of this policy, there will be a significant rise in wages for deliverymen, which could improve their welfare. Meanwhile, if the income effects exceed substitution effects, the deliverymen would be willing to work less, which could further alleviate their workloads. However, this policy might also result in the decrease in employment as there will be a shock in the supply-demand equilibrium in the labor market.

In addition to the policy itself, other legal measures, such as the protection for temporary workers and contract workers, are also necessary to ensure the successful implementation of the policy. However, it should be noticed that any policy requires further practice tests in real society rather than theoretical deduction, and corresponding complementary measures like surveillance are needed to ensure the application of a policy. Moreover, based on the dataset such as the customer databases, more sampling and testing is needed to be done in the future to truly evaluate the social value of the implementation of this policy.

The data and feedback from deliverymen in this paper are mainly based on the interviews in Shijiazhuang. Although this ensures the authenticity and accuracy of the data, it is not comprehensive enough to analyze the situation of the entire country. More research on different areas in China is still needed to design corresponding minimum wage policies for each province. Meanwhile, the design of minimum wage policy also needs to take into consideration the possible impact on economy and industry. Therefore, it is important to further study the calculation of minimum wage to make sure that it could not only alleviate the workload and improve welfare for deliverymen, but also maintain the development of the industry and stabilize the employment.

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