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Worktime Regulation and Unemployment: Evidence from Eight Hours Worktime Reduction in China

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Abstract

This research uses China Health and Nutrition Survey to investigate the effects of the mandatory work hour reduction policy on labor market outcomes. Between 1994 and 1995, the Chinese government implemented a workweek reduction policy that requires institutions, organizations, and enterprises to reduce weekly work hours from 48 to 40 hours per week. Since the policy does not heavily influence self-employed workers, the study explores a difference-in-difference method to compare self-employed and not self-employed workers and obtain the policy's causal effects. This study further features the event study method to show that the policy takes time to reach its full effects. This research presents that the weekly work time has been successfully reduced by around seven hours per week. Moreover, compared to the control group, the employment of the treatment group drops about seven to eight percentage points after the policy, which can be potentially explained by the fact that employers need to dismiss workers when they can work less to cut down costs. Widespread wisdom thought that a workweek reduction policy could ease unemployment, because with each worker working less, more people may get to work. Our results suggest that the policy has played the opposite role.

Keywords: Working Hour Regulation, Unemployment, Difference-in-Difference

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Contents

1 Introduction

As our society develops, new technologies and innovations are put into rapid development. With an improved living condition, people are starting to improve their way of life as well. Today, leisure time is valued more than ever, and people pursue a balance between work and life. Globally, the weekly work time is in a decreasing trend, and the time workers have to spend at their work is being cut down. In some countries like France and Spain, mandatory working hour reduction policy is implemented, which reduces the weekly work hours for all the employers in most positions to pursue more free time off work. In China, the government issued a policy in the middle of the 1990s to reduce weekly working hours from 48 hours per week to 40 hours.

It is natural to think that when the weekly work hours have been reduced by eight hours while the amount of work stays the same, businesses and organizations may want to hire more workers to complete the workload. In this sense, the reduction of work hours is also called a "work-sharing-policy". The work-sharing policy has been used to alleviate the unemployment issues in many foreign countries like the United States, Germany, and France, and many of them have been successful in doing so. However, whether the policy can reach its effects on unemployment in China is a question still unanswered.

This research aims to investigate the effects of the Chinese working hour reduction from 48 to 40 hours on people's labor market outcomes, such as working hours, employment status, and wages. We use China's workweek reduction policy in 1994 and 1995, to investigate its effectiveness in alleviating unemployment. Before 1994 and 1995, the standard workweek was 48 hours per week. Since 1995, the weekly work hour has been reduced to 40 hours per week.

We use data around the policy period from China Nutrition and Health Survey (CHNS). CHNS provides an unique opportunity to investigate this research question, because it is one of the few data sources that have covered the waves right before and after the policy to observe policy changes. We specifically use data in 1989, 1991, 1993, 1997, and

2000 to investigate the impacts of the workweek reduction policy. The data includes rich demographic information and labor market outcomes such as work hours, employment status, and monthly wage. Furthermore, the CHNS data is a panel data, and it tracks individuals across times. In this way, we can include individual fixed effects to control the unobservable characteristics of each observation.

To estimate causal effects, we use the difference-in-difference method to analyze the data before and after the policy around 1995. Similar to the spirit of Ma and Shi (2020), we use self-employment status as the standard to divide the treatment and control group because we assume that self-employed workers do not get heavily influenced by the policy. The control group of this research includes people who are self-employed in 1993, and the treatment group includes people who are not self-employed in 1993. The research observes the change in the difference between the treatment and control groups. To observe the dynamic pattern of the changes, we use the event study method, to see how each outcome variable in different groups changes over time.

Concerning the weekly work hours, the treatment and control group are in a parallel trend before the policy implementation. After the policy, the treatment group drops significantly for about seven hours after the policy, while the control group is almost unaffected by the policy. This shows that the policy has directly impacted workers who work for others, and it effectively reduces the weekly work hour of employees. Consequently, observations of self-employed people in 1993 seem like a valid control group.

The employed or unemployed variable has a parallel trend before the policy, but both the control and treatment groups drop after the treatment in 1994 and 1995. Around seven percentage points have only widened the gap between the control and treatment group. This means that when the workweek reduction policy was implemented, instead of having higher employment, as we have expected, the treated group experienced a greater drop in employment. This is not the effect that we have expected, and it differs from widespread wisdom where reduction of workweek may ease unemployment. We think a probable reason for the drop in employment for each worker is that when employers cannot have

workers to work for them all day long, they need to lay off people to cut down costs.

Additionally, when we see the results of the event study for employment status, the gap between the control and treatment groups has actually been widened year by year. The gap in 1997, for example, is 4.3 percentage points, and increases to 10.9 percentage points in 2000. This shows that the effect of the policy is taking time to reach its full effects. This paper also investigates the effects of workweek reduction policy on income, and we discover that it is a positively related result, meaning that people's wage gets higher after the policy implementation. However, there is no parallel trend between the treatment and control groups before the policy around 1995, so the results on income may not reflect a causal connection, and should be cautiously interpreted.

This paper contributes to the literature investigating the effects of working hour reduction in two ways. Firstly, this is the first paper to study the effect of working hour reduction in China on unemployment. Previous works have been focused on the United States (Nemirow, 1984), France (Crépon and Kramarz, 2002; Goux, Maurin and Petrongolo, 2014), Germany (Wandner, 2008; Börsch-Supan, 2002), and Portugal (Raposo and Ours, 2012). The paper closest to us is written by Ma and Shi (2020), which uses the same policy in China around 1995 as an instrumental variable to investigate the substitution of labor supply between spouses. In contrast, my paper directly investigates the effect of the policy on focal observations' unemployment and income.

Many of these works have concluded that a workweek reduction policy can effectively reduce unemployment (Masui, 2020; Raposo and Ours, 2012), but some works have concluded that work week reduction policies have minimal effects on reducing unemployment (Börsch-Supan, 2002; Zwickl, Dißlbacher and Stagl, 2015; Estevao and Sa, 2008; Deakin, Malmberg and Sarkar, 2014), with some even potentially raising unemployment (Oaxaca, 2014; Hunt, 1998; Crépon and Kramarz, 2002). The results obtained by studies of foreign countries may not work in China's case, because every country's environment is unique.

The particular case of China is of special interest, because the reduction of weekly

work hours in China is eight hours, while previous works focused on the reduction of one hour (Crépon and Kramarz, 2002), two hours (Goux, Maurin and Petrongolo, 2014), and four hours (Estevao and Sa, 2008; Raposo and Ours, 2012). Previous works have various results regarding the impact of workweek reduction policy on unemployment. Regardless, the results obtained by cases with only one to four hours of reduction may not be generalized to this particular case in China, where there is an eight-hour reduction in weekly work hours, and the situation may be different.

The results of previous works regarding the impact of the policy around 1995 on labor market outcome are ambiguous. However, this paper concludes that unemployment has risen due to the policy, and more people are unemployed than before. It is probable that when employers cannot have workers work for them all day long, they need to lay off workers to cut down costs. This significant drop in employment may also be explained by the fact that beginning in 1993, there has been a layoff wave in China due to the reform of labor contract system in 1987 (Ge and Yang, 2010). As a result, workers start getting off works, which leads to an unexpected reduction in employment after the policy. So, this wave of layoffs, combined with the workweek reduction policy around 1995, lead to a sudden drop in employment. Without the layoff wave, the impact of the policy on unemployment probably might not be so great.

In section 2, we present the labor law and institutional context surrounding the 1994 and 1995 workweek reduction. Section 3 contains a description of the data we used in the study, and we explain the regression used in this study in section 4. In section 5, we present the regression and event study and analysis, and section 6 discusses the validity of our treatment and control group. Finally, we present a conclusion in section 7.

2 Background

In this section, we discuss the background of our research, namely the workweek reduction policy and its potential implications. We cover the details of the policy, and some

literature around its effectiveness.

Before 1994, the regular maximum workweek is specified to be 48 hours per week, working six days every week, and workers shall not work more than eight hours a day. With social development, the reduction of the workweek has become the trend in order to protect workers. China implemented workweek reduction policies in 1994 and 1995 to shorten the weekly work hours.

In February 1994, the State Council of People's Republic of China enacted a labor regulation. This labor law is the first official regulation of labor policies in Chinese history, and its significance is important. The regulation applies to state organizations, social organizations, enterprises, institutions and other organizations within the territory of the People's Republic of China. It specifies that workers should not work more than eight hours a day, and no more than 44 hours per week. Organizations and enterprises cannot extend weekly work hours privately, and they should follow national regulations if there are special cases and situations. Moreover, the official weekly rest days are specified. For state organizations and public institutions, Saturday and Sunday of the first week shall be the rest day, and Sunday of the second week shall be the rest day, and the cycle shall be continued. However, the regulation does not specify the rest days for private enterprises. These provisions shall enter into force as of March 1, 1994. If there are difficulties in its implementation on March 1 1994, it may be extended as appropriate, but no later than May 1, 1994. [1]

In March 1995, the State Council of People's Republic of China enacted an amendment of the labor law in 1994, and the new version was based on the 1994 labor law, with some changes. In the amendment, the maximum weekly work hour is reduced from 44 hours per week to 40 hours a week, and the daily working hour is kept at eight hours. Additionally, the official weekly rest days are amended. It is specified that for state organizations and public institutions, Saturday and Sunday are the weekly rest days. Enterprises

[1] Order of the State Council of the People's Republic of China (No. 146). Provisions of the State Council on Working Hours of Employees.

and private institutions may flexibly arrange weekly rest days in light of actual situations, if they cannot practice the uniform working hours. The provisions shall enter into force as of May 1, 1995. For enterprises and institutions that have difficulties in implementing the regulations on May 1, 1995, they may extend the period of implementation as appropriate. However, it shall come into force as of January 1, 1996 at the latest by the public institution and May 1, 1997 at the latest by private enterprises. [2]

Additionally, for work units that choose to employ workers beyond a regular work hour, they need to pay extra salaries of three classes based on different situations. For those who extend working hours in working days, the salary remuneration that pays is 150 percents of salary. When a worker is arranged to work on a rest day but cannot take compensatory time off, the remuneration paid shall be 200 percents of the salary. When companies arrange work on legal year holidays, they shall pay salary remuneration of 300 percents.

Combined, the policies the 1994 and 1995 together reduced the weekly work hour from 48 hours per week to 40 hours. Since people who are self-employed do not have to pay themselves remuneration for extra work, the working hour reduction and its potential penalty does not affect them. Consequently, people who are not self-employed constitute a natural control group. So, it seems that people who work for themselves do not necessarily have to follow the 40-hour workweek. [3]

We use the data in 1993 and 1997 from CHNS, and plot a graph that tells the distribution of working hour. As can be seen in Figure 1, most of the observations are centered around 48 hours in 1993, while the center moves to around 40 hours a week in 1997. It seems that the weekly work hour has indeed dropped from 48 to 40 hours per week after

[2]Order of the State Council of the People's Republic of China (No. 174). The Decision of the State Council on Amending the Provisions of the State Council on Working Hours of Employees.

[3]It is specified in the Regulations on Supervision of Labor Security that when an employing unit, in violation of laws, regulations or rules on Labor security, extends the working hours of workers, it shall be given a warning by the administrative department of Labour security, which shall order it to make corrections within a time limit and may impose a fine that is not less than RMB100 and no more than RMB500 per harmed worker. This gives the incentives for employing units including institutions, organizations, and enterprises to comply with the regulation, and reduce the weekly work hour for workers.

the policy implementation, which shows that the policy is effective in reducing the weekly work hour. We will further investigate the extent to which the policy impacts labor market outcome, using the difference-in-difference method.

3 Data

For this research, we use the panel data from the China Health and Nutrition Survey (CHNS), an international cooperative project between the Carolina Population Center and the National Institute for Nutrition and Health. Since the work time regulation was implemented between 1993 and 1997, we use data from surveys in 1989, 1991, 1993, 1997, and 2000 in order to observe the changes in working conditions, which provides precisely the "before" and "after" time frame for our analysis.

The survey is designed to see how social and economic transformation of Chinese society is changing people's nutrition and health conditions. In years when the survey is conducted, a sample of about 7,200 households with over 30,000 individuals in 15 provinces and municipal cities is drawn using a multistage, random cluster process. The survey is panel data, as it tracks an individual across years. This allows us to compare and contrast one's working status before and after the change in weekly work time.

In this research, we use the status of self-employment in 1993 as the standard for treatment and control group, as self-employed workers do not get directly influenced by the work hour regulation, while those who work for others do get impact. Based on the classification of control and treatment group, the paper presents the number of observations in both groups across years in Figure 2. Self-employed is the control group, because these people do not get affected by the working hour regulation. It can be seen that the number of observations in this group is consistently higher than the treatment group. In fact, the number of observations in the control group is near twice as much as that in the treatment group. Moreover, the trend in the change in the number of treatment and control groups is highly parallel to each other, and they drop uniformly after the

implementation of the work week reduction.

The information we use in our research include: gender, birth year, years of formal education received, monthly wage, work sector, and status of self-employment. For outcome variables, we use hours worked per week, employed or not, monthly wage, and self-employed in each year.

Referring to Table I, employed or not is a variable with 31002 observations, with the minimum, 0, being not employed, and maximum, 1, being employed. Out of 31002 observations, the mean value for employment status is 0.930, which means that most of the respondents are presently working.

There are 13276 observations that answer the question of working hours, and among them, the actual hours range from 11 to 99 hours per week. Overall, the mean for all the observations in slightly higher than 48, the standard requirement of working hours before the implementation of the reduction.

Monthly wage is only asked to employed people who have regular income. For those who receive piece rate wages, there is no information for monthly wage. So, the number of observations for monthly wage is significantly smaller, with only 7458 observations. Moreover, data for monthly wage is absent in 1989, so we only consider monthly wage in 1991, 1993, 1997, and 2000. The mean value of the monthly wage is about 300, with minimum being 2 and maximum being 9999 (which represents a more-than 10000 month wage). This is a variable with very large standard deviations, as the monthly wage for individuals varies quite significantly.

The self-employed variable, with 28613 observations, has zero for minimum, meaning not self-employed, and one for maximum, meaning self-employed. The mean value for this variable is 0.623, which shows that there are slightly more people who are self-employed than those who are not.

4 Methodology

We focus on four main outcome variables in this research, namely employment status (employed or not), hours worked per week, monthly wages, and self-employment status (self-employed or not), and assess how each is affected by the implementation of a reduction in weekly working hours. This would work via an effect on people who are not self-employed, because they are mostly likely to be influenced by a reduced workweek, compared to those who work for themselves.

We run the following regressions.

$$Y_{it} = \alpha_1 Treat_i + \alpha_2 Post_t \cdot Treat_i + \alpha_3 X_{it} + \gamma_t + \epsilon_{it}$$

Outcome variables are denoted by Y_{it}, which includes working hours, employed or not, monthly wage, and self-employed or not. We introduce two dummy variables. The $Post_t$ dummy refers to the years after the treatment (year 1997 and 2000). The $Treat_i$ refers to the treated group (not self-employed in 1993). Moreover, we include a demographic control term, X_{it}, a vector including gender, years of education received, and work sector. The term γ_t represents the year fixed effect, and the error term is represented by ϵ_{it}. In this regression, α_2 is the coefficient of the interaction term, which represents the policy effect. The paper is interested in this coefficient to see to what extent does the policy influence the outcome variables.

After the main regression above, the paper uses a more stringent regression, that incorporates individual fixed effects.

$$Y_{it} = \alpha_1 Treat_i + \alpha_2 Post_t \cdot Treat_i + X_{it} + \gamma_t + \eta_i + \epsilon_{it}$$

In this regression, the term η_i is the individual fixed effect. We run this regression that includes individual fixed effects to control for variables that do not change over time, in addition to observable variables. Thus, we are able to control unobservable variables

such as the personality and skills of respondents. Here, the study is also interested in the coefficient, α_2, as it gives us the impact of the workweek reduction on employment status working hours, self-employment status, and monthly wage.

With regressions on difference-in-difference, we get a sense of how the treatment and control group changed after the implementation of workweek reduction in 1995. However, this is only the change of "before" and "after", while we don't know how things change years after years. To understand the dynamic pattern of the policy effect, the paper further practices an event study analysis to see the yearly change rate.

We obtain the following regressions.

$$Y_{it} = \sum_{t=1989,1991,1997,2000} \alpha_t \cdot Year_t \cdot Treat_i + \alpha_1 Treat_i + +\alpha_2 X_{it} + \gamma_t + \epsilon_{it}$$

In this regression, $Year_t$ is a dummy variable that refers to each year (1989, 1991, 1997, 2000). The year 1993 is omitted because we use 1993 as the base year for the treatment and control group classification. In this way, we can observe the changes each year, and see how this dynamic develops. The coefficients of the interaction term between the year dummy and treatment dummy are what the study focuses on. We observe the changes in these coefficients to see how the outcome variables are affected by the policy in each available year, and how they change over time. Ideally, for a valid event study, α_{1989} and α_{1991} will be close to zero, as the difference between control and treatment group shall be very similar before the treatment. And α_{1997} and α_{2000} will be different and non-zero.

Additionally, we run another regression with individual fixed effect where η_i represents the individual fixed effect.

$$Y_{it} = \sum_{t=1989,1991,1997,2000} \alpha_t \cdot Year_t \cdot Treat_i + \alpha_1 Treat_i + +\alpha_2 X_{it} + \gamma_t + \eta_i + \epsilon_{it}$$

The coefficients of interaction terms are also the focus. We run this regression with indi-

vidual fixed effect in order to obtain a more stringent regression result that controls the unobservable variables like personalities and personal skills that may affect individual performance. In this way, the regression analysis becomes more valid and stringent.

5 Main Results

In this section, we discuss the results of regressions, including the difference-in-difference regressions and the event study regressions. We analyze results with respect to dependent variables, from working hour to employed, monthly wage, and self-employed. For each outcome variable, we show the original difference-in-difference graph, table, and the event study graph, table.

5.1 Working Hour

Figure 3 (a) plots the hours worked per week for all respondents, by treatment status. The solid line refers to control group (self-employed people), and the dash line refers to the treated group (not self-employed). Before the implementation of work time regulation, two group have a parallel trend: they are both roughly at the same level, around 48 to 49 hours per week, without any drastic changes. However, after the treatment in 1995, two groups diverge. The control group (self-employed) does not experience any big changes in working hours, and eventually falls back to a similar level to the time before the treatment. However, the treatment group drops significantly after the implementation of workweek reduction. It drops from about 49 hours to less than 43 hours per week. As a result, the gap between two groups gets widened to roughly seven hours a week, and the difference is obvious.

To get a precise estimate of the effect of the work week reduction policy, and observe the statistical significance for each result, we show the results of the difference-in-difference regression that are presented in Table II. This table has four columns, which shows the

results of four regressions. Column (1) is the original regression that does not include year fixed effect, nor the individual fixed effect. The second column adds in the demographic controls, which are gender, years of education, and public sector or not. Column (3) adds year fixed effect, while the last column incorporates individual fixed effect as well. Regardless of which regression we run, the coefficient for the regression term does not vary too much, and they are all around negative six to negative seven. Moreover, the statistical significance is at a one percent level.

Since the individual fixed effect is too demanding of the data, we use the third column to analyze. Looking at the third column, the regression with year fixed effect, the coefficient for the difference-in-difference regression with year fixed effect is -6.769. This means that the policy widens the difference between the two groups by nearly seven hours. This can potentially be explained by the fact that when working hour gets reduced, employers cannot make their employees work too long. Naturally, employers who work for others find themselves with a shorter workweek. Moreover, although we used different methods of regressions, with individual fixed effect added to the fourth regression, the results are quite similar to each other. This speaks to the fact that our regression is valid and reliable, because four regressions produced similar results.

In order to know the dynamic pattern of weekly work hours, we run the event study regression, and the results are presented in Table A.I and Figure 3 (b). When we look at Figure 3 (b), we see that the coefficients of the interaction terms in 1989 and 1991 are close to zero and statistically insignificant. The coefficients in the year 1997 and 2000, after the treatment, are negative. The point estimate of the interaction coefficient in 1997 is -7.841, and -5.453 in 2000. These coefficients are much larger in magnitude than the coefficients before the policy. Together, we conclude that there is a parallel trend before the policy, and the policy has had effects on the working hour variable.

When we look at A.I, there are three columns in the table, and each refers to a slightly different version of the event study regression analysis. The first column includes the year fixed effect, the second column adds in the demographic controls, including male, years

of education received, and public sector, and column (3) includes individual fixed effect, in addition to year fixed effect. We see that the results are pretty robust,

Taking both the difference-in-difference and event study results, it seems that the weekly work hour has indeed dropped after the policy to reduce working hours.

5.2 Employment Status

Figure 4 (a) plots the status of employment (employed or not) for all respondents, by treatment status. The solid line refers to the control group (self-employed people), and the dashed line refers to the treated group (not self-employed). Before the implementation of work time regulation, two groups have a parallel trend, and are very close to each other. After the treatment, however, they diverge when they decrease at the same time. The control group drops by about 10 to 15 percentage points, while the employed percentage drops about 20 to 25 percentage points. So, the gap between the control group and the treatment group is widened for about 8 percentage points. Our preferred possible explanation of the significant drop in employment is the effect of the policy, because when employers cannot have workers to work for them all day long, they need to lay off people to cut down costs. The development of the trend of both groups is very similar before the implementation, but the employment status of treated group falls way below the control group after the treatment.

To get a precise estimate of the effect of the work week reduction policy, and observe the statistical significance for each result, we show the results of the difference-in-difference regression in Table III, which is similar to the Table II of working hour. Regardless of which regression we run, the coefficient for the regression term does not vary too much, and they are all around -0.077, which is a very robust result. Moreover, the statistical significance is at a one percent level.

Looking at the third regression of Table III, we see that our focused coefficient, the coefficient for the interaction term, has a value of -0.077. This means that after the pol-

icy implementation, the employment gap between control and treatment widens by 7.7 percentage points. In other words, people who are not self-employed in 1993 experience a drop in employment 7.7 percentage points below people who are self-employed. This may be due to the fact that people who work for others are easily affected by the policy, while those who work for themselves tend not to be influenced by the reduction in workweek.

In order to know the dynamic pattern of the employed variable, we run the event study regression, and the results are presented in Table A.II. There are three columns in this table, and each refers to a lightly different version of the event study regression analysis. The first column includes the year fixed effect, and the second column adds in the demographic controls, including male, years of education received, and the public sector.

When we look at the second column, the coefficients of interaction terms are: α_{1989} = 0.018, α_{1991} = -0.014, α_{1997} = -0.043, and α_{2000} = -0.109. The coefficients in 1989 and 1991 are quite similar to each other, and close to zero. Both coefficient do not change drastically before the treatment. This means that before the policy implementation, the employment gap between the control and treatment group does not change much. After the treatment, however, the coefficient drops year after year, from zero in 1993 to about -0.043 percentage point in 1997, and finally to around -0.109 percentage point in 2000. This significant drop in the coefficient of interaction terms means that compared to the control group, the treated group is experiencing a higher percentage of job loss due to the policy. In fact, the gap between two groups in terms of employment is ever-widening after the policy. So, we can conclude that the reduction of working hours has led to more unemployment. The more visually-clear graph of the event study shows the same thing. The downward sloping trend is easily identifiable. So, the gap between the treatment and control group departs from the 1993 value more and more.

Although the coefficient in 1989 is statistical significant, it is in a positive direction, as opposed to 1997 and 2000. Additionally, although it is statistically significant, its

magnitude is much smaller than the coefficients of 1997 and 2000. So, even though the parallel trend does not hold accurately, it should not affect the intepretation of this variable a lot.

When we consider both the difference-in-difference and the event study regression analysis, we can conclude that the policy of workweek reduction between 1993 and 1997 leads to a drop in employment for people who work for others (the treatment group).

5.3 Monthly Wage

Figure 5 (a) shows the difference-in-difference regression figure. The solid line is the control group, and the dashed line refers to the treatment group. When we look at the graph, we do not see a good parallel trend. In fact, two groups are going in different directions and diverging. To test if it is so, we run an event study about monthly wage, and the results are presented in Table A.III. The coefficient of the interaction term in 1991 is not close to zero, which means that the gap between the control and treatment group before the policy varies a lot, and the two groups are not in a parallel trend. Moreover, we expect the coefficients of interaction terms are not significant, yet the coefficient in 1991 is very significant. This further shows that the monthly wage regression is not valid.

Although the difference-in-difference regression reports a positive coefficient, we must be cautious to interpret the result of monthly wage, since the parallel trend before the policy does not hold.

6 Discussion

6.1 Self-employment Status

In this research, we use the self-employment status in 1993 as the standard of grouping. People who are self-employed in 1993 are in the control group, and people who are not self-employed are in the treatment group. In years other than 1993, these people still

belong to the same group they belong to in 1993. However, this grouping has its potential problems.

First of all, people in the treatment group (those who are self-employed) may get influenced indirectly by the policy, therefore changing their working hours. When the policy is enacted, people who work for others may change their work behaviors, for example, going to work less often. Under such condition, people who are self-employed may change their working hours accordingly. For example, an ice-cream seller may reduce his working hours as people who work for others go to work less frequently because of the work time regulation. This potential problem can cause the actual work hours of the control group to be underestimated.

However, Figure 3 shows that when the work hour of treatment group drops quite obviously, the working hour of control group does not drop significantly after the treatment. In fact, it rises in 1997, and then drops back to approximately the same level as before. So, the effect of this problem is minimal, and we don't need to worry about this.

Secondly, there is a possibility for self-employed people to change to another group because of the policy. When people in the control group see that people who work for others can now work a shorter workweek, it is possible for them to move to the treatment group because of the shorter workweek. This is similar to the "intention to treat effect", where people in the treatment group may choose not to take the treatment, and become a member of the control group. In this situation, self-employed people in 1993 may choose to change into a not self-employed position, and start working for others because of the reduction of weekly work time. As a result, the difference between two groups may not be 100 percents due to the workweek reduction. In other words, some of the observations in control group are supposed to be in treatment group after the policy, and this intention to treat effect leads to attenuation bias, which produces conservative measurement.

To see the impact of this potential problem, we can refer to Figure 2. In 1993, there are nearly 5000 observations in the control group, and almost 3000 observations in the treatment group. We can see that after the policy, although the number of observations

in two groups changed, the variation is not significant. To see the degree of change, we refer to Figure 6 (a). The control group, in solid line, only experienced a reduction of its self-employment value by less than 10 percentage points. Overall, the changes in control and treatment group number is relatively insignificant. In other words, although there are fluctuations in the number of control and treatment group, the change is very low. As a result, the regression result is very close to the real result. So, this potential problem of getting influenced by the treatment group is minimal, and we don't need to worry about this problem too much. However, we suggest that this result of self-employment status shall be taken cautiously.

6.2 Robustness Check-Excluding Self-employed Rural Sample

In this research, we use samples from both urban areas and rural areas. To see the robustness of the regression analysis, we further exclude rural samples that are self-employed, and analyze the regression results.

Figure A.4 (a) plots the difference-in-difference regression results on a graph. Here, all rural samples in the control group are excluded, and we still see a valid trend. Before the policy, although there are greater variations across years, the control and treatment group are still in a relatively parallel trend. After the policy around 1995, the treatment group drops visibly, while the control group remains roughly at the same level as before. When we see the regression results directly in Table VI, the weekly work hour drops for around 4 to 5 hours after the workweek reduction policy. This further shows that the policy has had its effect in reducing weekly work hours, and the regression analysis of this research is robust.

Figure A.2 (a) plots the difference-in-difference regression results on a graph, and it is apparent in Figure A.2 that employment has dropped after the policy implementation around 1995. Since there is a highly parallel trend before the policy, we are able to say that this regression is reliable and valid. Table VII further suggests that employment drops for

around 4 percentage points due to the policy, which means that the workweek reduction has indeed led to a decrease in employment, as suggested by our research.

When we look at Figure A.3 (a), which plots the difference-in-difference regression results, excluding rural samples in treatment group, we see that the monthly wage for both the control and the treatment group raises after the implementation of workweek reduction policy. In fact, as can be seen from Table VIII, monthly wage increases for around 95 CNY after the policy implementation. However, there is no parallel trend between control and treatment group before the policy implementation. As a result, even though there is a positive growth in monthly wage after the policy, we suggest scholars to interpret the results of monthly wage cautiously.

Overall, we observe that the results obtained from the group without rural samples in treatment group are generally consistent with the grouping in this research. This shows that the regression and event study results of the paper are robust, and workers indeed experienced a drop in weekly work hours and a raise in unemployment due to the work-week reduction policy around 1995.

7 Conclusion

In this research, we use data from China Health and Nutrition Survey, to investigate the effects of mandatory work hour reduction policy in China on labor market outcome. For analysis purpose, the data fits very well for our research, because it has waves in 1989, 1991, 1993, 1997, and 2000, right before and after the policy of workweek reduction. We use difference-in-difference method to obtain causal effects between the policy and working hour, monthly wage, and employment status. To observe dynamic patterns of the changes in labor market outcome, we use event study method to see how each outcome variable in different groups changes over time.

After the regression analysis of the data, we obtain certain results. Firstly, the work-week reduction policy has achieved effect in reducing the weekly work hour for people

who work for others, because the control group does not experience a big change in its working hour after the policy, but the treatment group experienced a nearly 8-hour reduction in weekly work time after the policy implementation. However, this mandatory work hour reduction does not ease the unemployment problem, because instead of a dropping unemployment, unemployment in both the control and the treatment group is increasing. So, the policy does not work in solving the issue of unemployment. In fact, the drop in employment in treatment group is even greater than the control group, as can be seen in Figure 4. This shows that instead of helping people who are not self-employed, the policy has made it more likely for them to lose jobs. This is reasonable because with the policy, the organization has to pay employees extra wage if they are required to work in addition the weekly work hour. However, this reason is not proven, and is open to careful interpretation.

It is admitted that in this research, we are not able obtain a parallel trend between the treatment and control group on the monthly wage variable before the treatment. So, we highly recommend scholars to employ cautious interpretation regarding the monthly wage variable and its potential impacts. Furthermore, we don't know for sure the exact reasons that the employment has dropped significantly after the treatment in 1994 and 1995, and it is suggested that future research is able to answer and explain this fact.

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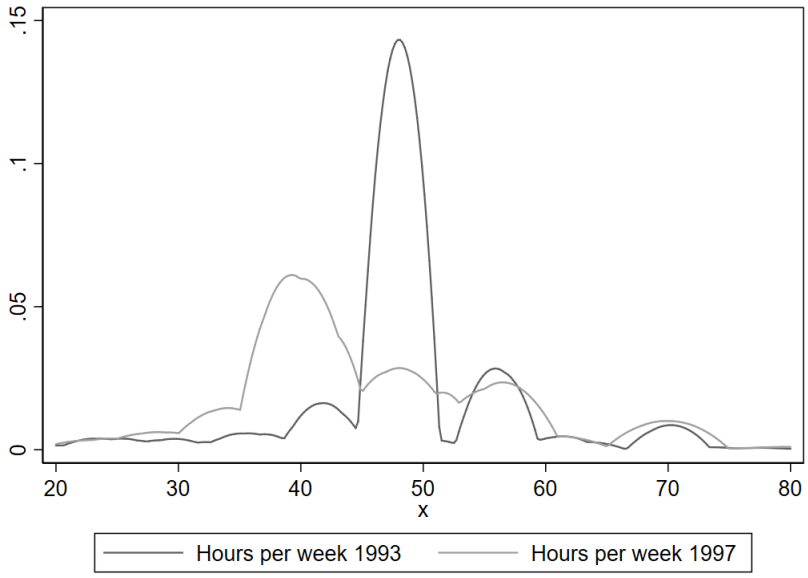
Figure 1: Distribution of hours worked per week in 1993 and 1997



Note: The graph plots the distribution of hours worked per week in 1993 and 1997 for all observations in the CHNS data. The dark-gray line refers to the distribution in 1993, and the light-gray line refers to the distribution in 1997.

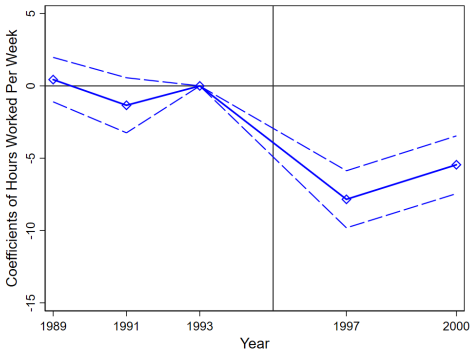
Figure 2: Number of observations in control and treatment group

Note: The graph plots the number of observations in control and treatment group across years. The dark line refers to the control group, and the light line refers to the treatment group. The policy that took place around 1995 is indicated with a vertical line.

Figure 3: Hours worked per week in difference-in-difference and event study

(a) Difference-in-difference

(b) Event study

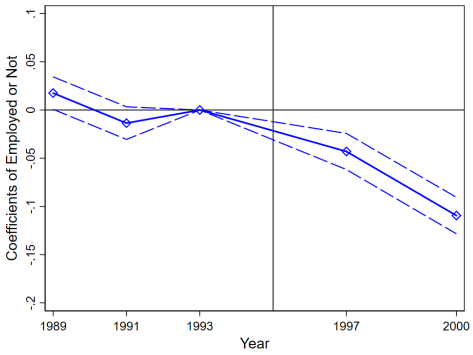


Note: The graphs plot difference-in-difference (panel (a)) and event-study (panel (b)) estimates of the effects on weekly work hours before the policy and after the policy. The policy that took place around 1995 is indicated with a vertical line. In panel (a), the dark line refers to the control group, and the light line refers to the treatment group. In panel (b), the gap between control and treatment group is indicated with the solid line, along with the corresponding 95% confidence intervals. The event study graph is drawn based on the regression that includes year fixed effect and demographic controls.

Figure 4: Employed or not in difference-in-difference and event study

(a) Difference-in-difference

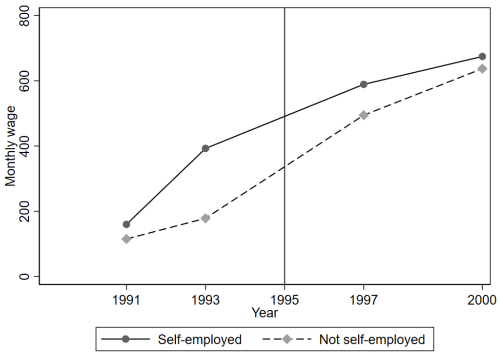
(b) Event study



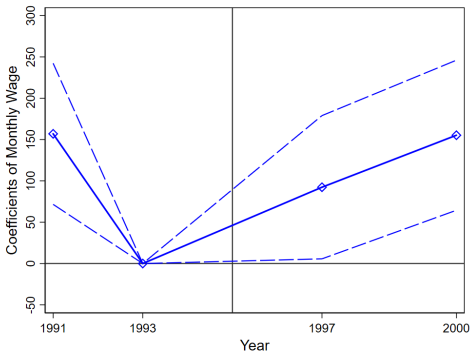
Note: The graphs plot difference-in-difference (panel (a)) and event-study (panel (b)) estimates of the effects on weekly work hours before the policy and after the policy. The policy that took place around 1995 is indicated with a vertical line. In panel (a), the dark line refers to the control group, and the light line refers to the treatment group. In panel (b), the gap between control and treatment group is indicated with the solid line, along with the corresponding 95% confidence intervals. The event study graph is drawn based on the regression that includes year fixed effect and demographic controls.

Figure 5: Monthly wage in difference-in-difference and event study

(a) Difference-in-difference



(b) Event study

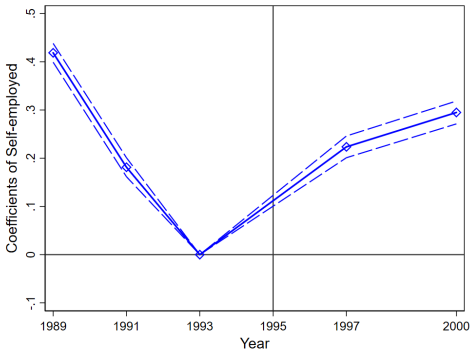


Note: The graphs plot difference-in-difference (panel (a)) and event-study (panel (b)) estimates of the effects on weekly work hours before the policy and after the policy. The policy that took place around 1995 is indicated with a vertical line. In panel (a), the dark line refers to the control group, and the light line refers to the treatment group. In panel (b), the gap between control and treatment group is indicated with the solid line, along with the corresponding 95% confidence intervals. The event study graph is drawn based on the regression that includes year fixed effect and demographic controls.

Figure 6: Self-employed or not in difference-in-difference and event study

(a) Difference-in-difference

(b) Event study



Note: The graphs plot difference-in-difference (panel (a)) and event-study (panel (b)) estimates of the effects on weekly work hours before the policy and after the policy. The policy that took place around 1995 is indicated with a vertical line. In panel (a), the dark line refers to the control group, and the light line refers to the treatment group. In panel (b), the gap between control and treatment group is indicated with the solid line, along with the corresponding 95% confidence intervals. The event study graph is drawn based on the regression that includes year fixed effect and demographic controls.

Table I: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Male	0.531	0.499	0	1	31429
Public sector	0.233	0.393	0	1	31429
Hours per week spent at primary occupation	48.083	11.71	11	99	13276
Presently employed	0.930	0.256	0	1	31002
Monthly wage last year	302.687	539.069	2	9999	7458
Self-employed in 1993	0.653	0.476	0	1	31429

Notes: This table provides the summary statistics of the observations used in the research. The samples and data are from China Health and Nutrition Survey (CNHS). The original CHNS data has 31429 samples. However, employment status is only asked to people over 16 years old, and monthly wage is asked to people with regular income who are not employed in fishing, livestock-raising, and fishing. Moreover, monthly wage does not include retirement salaries, pensions, or bonuses. Additionally, 9999 in monthly wage is self-coded in the CHNS data. Monthly wage over 9999 is reported as 9999 by CHNS. The sample size of monthly wage is smaller because people who are unemployed do not have monthly wage.

Table II: Hours worked per week: regression result

	(1)	(2)	(3)	(4)
Not self-employed in 1993 x After	-6.542***	-6.942***	-6.769***	-6.027***
	(0.557)	(0.554)	(0.568)	(0.630)
Not self-employed in 1993	0.165	2.421***	2.240***	
	(0.231)	(0.286)	(0.305)	
After treatment	1.815***	2.111***		
	(0.465)	(0.463)		
Male		0.968***	0.957***	
		(0.204)	(0.204)	
Years of formal education received		-0.333***	-0.340***	-0.260
		(0.096)	(0.096)	(0.221)
Public sector		-3.133***	-3.189***	-1.206***
		(0.267)	(0.268)	(0.410)
Year FE	No	No	Yes	Yes
Individual FE	No	No	No	Yes
Observations	13276	13276	13276	13276
R-Squared	0.021	0.035	0.036	0.674

Notes: The sample consists of working-age people, and each observation in every year is a sample. Ordinary least squares estimates for all columns. The self-employment status in 1993 is the standard for treatment and control group, and the sample of treatment and control group does not change over time. Standard errors are shown in parentheses. ***significant at 1 percent level, ** significant at 5 percent level, * significant at 10 percent level.

Table III: Employed or not: regression result

	(1)	(2)	(3)	(4)
Not self-employed in 1993 x After	-0.077***	-0.077***	-0.077***	-0.075***
	(0.006)	(0.006)	(0.006)	(0.007)
Not self-employed in 1993	0.001	-0.020***	-0.020***	
	(0.004)	(0.004)	(0.004)	
After treatment	-0.088***	-0.089***		
	(0.004)	(0.004)		
Male		0.029***	0.029***	
		(0.003)	(0.003)	
Years of formal education received		0.017***	0.017***	0.010***
		(0.001)	(0.001)	(0.003)
Year FE	No	No	Yes	Yes
Individual FE	No	No	No	Yes
Observations	31002	31002	31002	31002
R-Squared	0.048	0.057	0.069	0.377

Notes: The sample consists of working-age people, and each observation in every year is a sample. Ordinary least squares estimates for all columns. The self-employment status in 1993 is the standard for treatment and control group, and the sample of treatment and control group does not change over time. Standard errors are shown in parentheses. ***significant at 1 percent level, ** significant at 5 percent level, * significant at 10 percent level.

Table IV: Monthly wage: regression result

	(1)	(2)	(3)	(4)
Not self-employed in 1993 x After	37.704	19.537	33.018	8.106
	(31.156)	(31.109)	(31.016)	(54.453)
Not self-employed in 1993	-110.457***	-65.790***	-77.440***	
	(21.749)	(23.218)	(23.195)	
After treatment	367.428***	372.414***		
	(27.804)	(27.689)		
Male		64.872***	64.248***	
		(11.959)	(11.906)	
Years of formal education received		18.961***	17.967***	9.810
		(5.357)	(5.333)	(15.536)
Public sector		-81.838***	-78.964***	-18.801
		(13.946)	(13.887)	(29.568)
Year FE	No	No	Yes	Yes
Individual FE	No	No	No	Yes
Observations	7458	7458	7458	7458
R-Squared	0.135	0.143	0.151	0.565

Notes: The sample consists of working-age people, and each observation in every year is a sample. Ordinary least squares estimates for all columns. The self-employment status in 1993 is the standard for treatment and control group, and the sample of treatment and control group does not change over time. Standard errors are shown in parentheses. ***significant at 1 percent level, ** significant at 5 percent level, * significant at 10 percent level.

Table V: Self-employed or not: regression result

	(1)	(2)	(3)	(4)
Not self-employed in 1993 x After	0.121***	0.065***	0.062***	0.065***
	(0.009)	(0.008)	(0.008)	(0.009)
Not self-employed in 1993	-0.783***	-0.516***	-0.513***	
	(0.005)	(0.006)	(0.006)	
After treatment	0.032***	0.033***		
	(0.005)	(0.005)		
Male		0.000	0.001	
		(0.004)	(0.004)	
Years of formal education received		-0.015***	-0.016***	-0.005
		(0.002)	(0.002)	(0.004)
Public sector		-0.404***	-0.404***	-0.521***
		(0.006)	(0.006)	(0.010)
Year FE	No	No	Yes	Yes
Individual FE	No	No	No	Yes
Observations	28613	28613	28613	28613
R-Squared	0.556	0.622	0.642	0.763

Notes: The sample consists of working-age people, and each observation in every year is a sample. Ordinary least squares estimates for all columns. The self-employment status in 1993 is the standard for treatment and control group, and the sample of treatment and control group does not change over time. Standard errors are shown in parentheses. ***significant at 1 percent level, ** significant at 5 percent level, * significant at 10 percent level.

Table VI: Hours per week without rural sample: regression

	(1)	(2)	(3)	(4)
Not self-employed in 1993 x After	-3.073***	-3.624***	-3.787***	-4.996***
	(1.028)	(1.006)	(1.012)	(1.224)
Not self-employed in 1993	-0.851**	1.841***	1.987***	
	(0.381)	(0.398)	(0.409)	
After treatment	-1.970**	-1.576		
	(0.997)	(0.975)		
Male		0.791***	0.789***	
		(0.197)	(0.197)	
Years of formal education received		-0.402***	-0.398***	-0.221
		(0.086)	(0.086)	(0.193)
Public sector		-4.086***	-4.086***	-1.811***
		(0.236)	(0.236)	(0.372)
Year FE	No	No	Yes	Yes
Individual FE	No	No	No	Yes
Observations	8906	8906	8906	8906
R-Squared	0.046	0.088	0.088	0.605

Notes: The sample consists of working-age people, and each observation in every year is a sample. Ordinary least squares estimates for all columns. The self-employment status in 1993 is the standard for treatment and control group, and the sample of treatment and control group does not change over time. Standard errors are shown in parentheses. ***significant at 1 percent level, ** significant at 5 percent level, * significant at 10 percent level.

Table VII: Employment status without rural sample: regression

	(1)	(2)	(3)	(4)
Not self-employed in 1993 x After	-0.035***	-0.037***	-0.035***	-0.037***
	(0.012)	(0.012)	(0.012)	(0.012)
Not self-employed in 1993	0.006	-0.023***	-0.026***	
	(0.007)	(0.007)	(0.007)	
After treatment	-0.163***	-0.164***		
	(0.011)	(0.011)		
Male		0.034***	0.034***	
		(0.005)	(0.005)	
Years of formal education received		0.024***	0.024***	0.023***
		(0.002)	(0.002)	(0.005)
Year FE	No	No	Yes	Yes
Individual FE	No	No	No	Yes
Observations	12773	12773	12773	12773
R-Squared	0.090	0.103	0.127	0.427

Notes: The sample consists of working-age people, and each observation in every year is a sample. Ordinary least squares estimates for all columns. The self-employment status in 1993 is the standard for treatment and control group, and the sample of treatment and control group does not change over time. Standard errors are shown in parentheses. ***significant at 1 percent level, ** significant at 5 percent level, * significant at 10 percent level.

Table VIII: Monthly wage without rural sample: regression

	(1)	(2)	(3)	(4)
Not self-employed in 1993 x After	82.698	64.853	94.924	-155.484
	(61.917)	(61.700)	(61.358)	(109.694)
Not self-employed in 1993	-231.106***	-198.138***	-207.920***	
	(38.334)	(38.924)	(38.711)	
After treatment	317.814***	325.100***		
	(60.477)	(60.214)		
Male		61.947***	61.831***	
		(11.980)	(11.899)	
Years of formal education received		17.967***	16.527***	14.472
		(5.213)	(5.181)	(15.321)
Public sector		-74.710***	-73.035***	23.722
		(13.991)	(13.909)	(30.428)
Year FE	No	No	Yes	Yes
Individual FE	No	No	No	Yes
Observations	6283	6283	6283	6283
R-Squared	0.138	0.146	0.158	0.515

Notes: The sample consists of working-age people, and each observation in every year is a sample. Ordinary least squares estimates for all columns. The self-employment status in 1993 is the standard for treatment and control group, and the sample of treatment and control group does not change over time. Standard errors are shown in parentheses. ***significant at 1 percent level, ** significant at 5 percent level, * significant at 10 percent level.

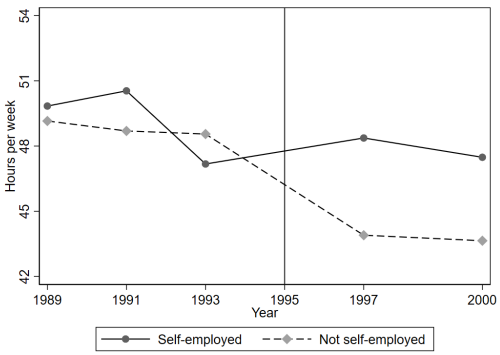
Table IX: Self-employment status without rural sample: regression

	(1)	(2)	(3)	(4)
Not self-employed in 1993 x After	-0.010	-0.019*	-0.019*	0.003
	(0.012)	(0.011)	(0.011)	(0.011)
Not self-employed in 1993	-0.821***	-0.712***	-0.712***	
	(0.006)	(0.007)	(0.007)	
After treatment	0.039***	0.036***		
	(0.010)	(0.010)		
Male		0.000	0.000	
		(0.004)	(0.004)	
Years of formal education received		-0.004**	-0.004**	-0.005
		(0.002)	(0.002)	(0.005)
Public sector		-0.164***	-0.164***	-0.273***
		(0.005)	(0.005)	(0.009)
Year FE	No	No	Yes	Yes
Individual FE	No	No	No	Yes
Observations	11558	11558	11558	11558
R-Squared	0.689	0.715	0.718	0.834

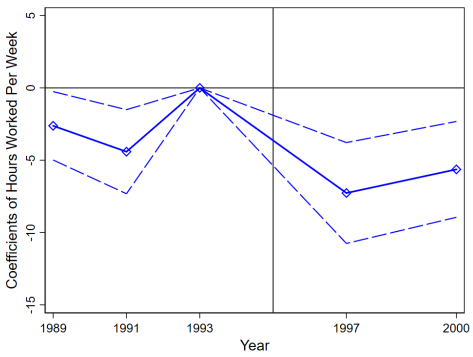
Notes: The sample consists of working-age people, and each observation in every year is a sample. Ordinary least squares estimates for all columns. The self-employment status in 1993 is the standard for treatment and control group, and the sample of treatment and control group does not change over time. Standard errors are shown in parentheses. ***significant at 1 percent level, ** significant at 5 percent level, * significant at 10 percent level.

Figure A.1: Hours worked per week: excluding self-employed rural samples

(a) Difference-in-difference



(b) Event study

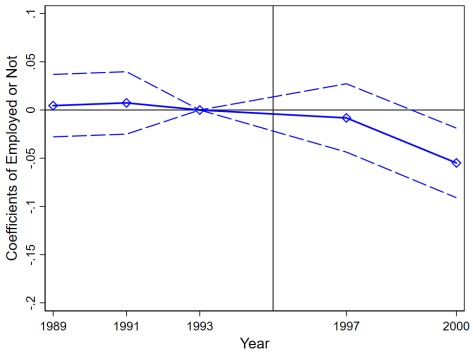


Note: The graphs plot difference-in-difference (panel (a)) and event-study (panel (b)) estimates of the effects on weekly work hours before the policy and after the policy. The policy that took place around 1995 is indicated with a vertical line. The graphs excluded rural samples that are self-employed. In panel (a), the dark line refers to the control group, and the light line refers to the treatment group. In panel (b), the gap between control and treatment group is indicated with the solid line, along with the corresponding 95% confidence intervals. The event study graph is drawn based on the regression that includes year fixed effect and demographic controls.

Figure A.2: Employment status: excluding self-employed rural samples

(a) Difference-in-difference

(b) Event study

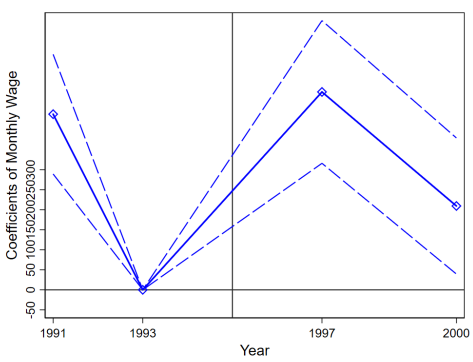


Note: The graphs plot difference-in-difference (panel (a)) and event-study (panel (b)) estimates of the effects on employment status before the policy and after the policy. The policy that took place around 1995 is indicated with a vertical line. The graphs excluded rural samples that are self-employed. In panel (a), the dark line refers to the control group, and the light line refers to the treatment group. In panel (b), the gap between control and treatment group is indicated with the solid line, along with the corresponding 95% confidence intervals. The event study graph is drawn based on the regression that includes year fixed effect and demographic controls.

Figure A.3: Monthly wage: excluding self-employed rural samples

(a) Difference-in-difference

(b) Event study

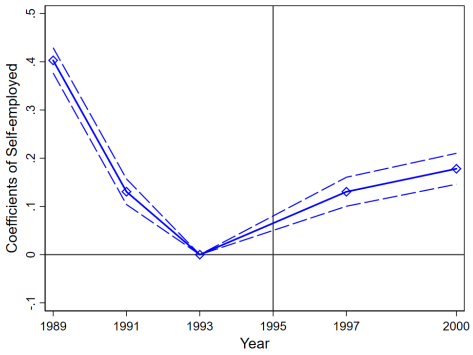


Note: The graphs plot difference-in-difference (panel (a)) and event-study (panel (b)) estimates of the effects on monthly wage before the policy and after the policy. The policy that took place around 1995 is indicated with a vertical line. The graphs excluded rural samples that are self-employed. In panel (a), the dark line refers to the control group, and the light line refers to the treatment group. In panel (b), the gap between control and treatment group is indicated with the solid line, along with the corresponding 95% confidence intervals. The event study graph is drawn based on the regression that includes year fixed effect and demographic controls.

Figure A.4: Self-enmployement status: excluding self-employed rural samples

(a) Difference-in-difference

(b) Event study



Note: The graphs plot difference-in-difference (panel (a)) and event-study (panel (b)) estimates of the effects on self-employment status before the policy and after the policy. The policy that took place around 1995 is indicated with a vertical line. The graphs excluded rural samples that are self-employed. In panel (a), the dark line refers to the control group, and the light line refers to the treatment group. In panel (b), the gap between control and treatment group is indicated with the solid line, along with the corresponding 95% confidence intervals. The event study graph is drawn based on the regression that includes year fixed effect and demographic controls.

Table A.I: Hours per week: event study

	(1)	(2)	(3)
Not self-employed in 1993 x year1989	1.025	0.436	1.426*
	(0.786)	(0.784)	(0.828)
Not self-employed in 1993 x year1991	-0.731	-1.339	-0.377
	(0.977)	(0.971)	(0.989)
Not self-employed in 1993 x year1997	-6.980***	-7.841***	-5.559***
	(1.012)	(1.007)	(1.065)
Not self-employed in 1993 x year2000	-4.847***	-5.453***	-4.671***
	(1.024)	(1.018)	(1.070)
Not self-employed in 1993	-0.481	2.159***	
	(0.721)	(0.740)	
Male		0.933***	
		(0.205)	
Years of formal education received		-0.356***	-0.260
		(0.097)	(0.221)
Public sector		-3.188***	-1.176***
		(0.269)	(0.411)
Year FE	Yes	Yes	Yes
Individual FE	No	No	Yes
Observations	13276	13276	13276
R-Squared	0.022	0.037	0.674

Notes: The sample consists of working-age people, and each observation in every year is a sample. Ordinary least squares estimates for all columns. The self-employment status in 1993 is the standard for treatment and control group, and the sample of treatment and control group does not change over time. Standard errors are shown in parentheses. ***significant at 1 percent level, ** significant at 5 percent level, * significant at 10 percent level.

Table A.II: Employed or not: event study

	(1)	(2)	(3)
Not self-employed in 1993 x year1989	0.017*	0.018**	0.020**
	(0.009)	(0.009)	(0.008)
Not self-employed in 1993 x year1991	-0.013	-0.014	-0.011
	(0.009)	(0.009)	(0.008)
Not self-employed in 1993 x year1997	-0.043***	-0.043***	-0.040***
	(0.010)	(0.010)	(0.009)
Not self-employed in 1993 x year2000	-0.109***	-0.109***	-0.106***
	(0.010)	(0.010)	(0.010)
Not self-employed in 1993	0.000	-0.021***	
	(0.006)	(0.006)	
Male		0.029***	
		(0.003)	
Years of formal education received		0.017***	0.010***
		(0.001)	(0.003)
Year FE	Yes	Yes	Yes
Individual FE	No	No	Yes
Observations	31002	31002	31002
R-Squared	0.062	0.071	0.379

Notes: The sample consists of working-age people, and each observation in every year is a sample. Ordinary least squares estimates for all columns. The self-employment status in 1993 is the standard for treatment and control group, and the sample of treatment and control group does not change over time. Standard errors are shown in parentheses. ***significant at 1 percent level, ** significant at 5 percent level, * significant at 10 percent level.

Table A.III: Monthly wage: event study

	(1)	(2)	(3)
Not self-employed in 1993 x year1991	171.287***	156.943***	266.249***
	(43.655)	(43.552)	(69.965)
Not self-employed in 1993 x year1997	119.241***	92.328**	117.837
	(44.221)	(44.212)	(73.373)
Not self-employed in 1993 x year2000	178.706***	155.235***	211.525***
	(46.364)	(46.320)	(76.132)
Not self-employed in 1993	-216.320***	-166.118***	
	(32.548)	(33.843)	
Male		64.454***	
		(11.897)	
Years of formal education received		17.552***	10.801
		(5.330)	(15.508)
Public sector		-76.159***	-9.540
		(13.899)	(29.600)
Year FE	Yes	Yes	Yes
Individual FE	No	No	Yes
Observations	7458	7458	7458
R-Squared	0.145	0.153	0.566

Notes: The sample consists of working-age people, and each observation in every year is a sample. Ordinary least squares estimates for all columns. The self-employment status in 1993 is the standard for treatment and control group, and the sample of treatment and control group does not change over time. Standard errors are shown in parentheses. ***significant at 1 percent level, ** significant at 5 percent level, * significant at 10 percent level.

Table A.IV: Self-employed or not: event study

	(1)	(2)	(3)
Not self-employed in 1993 x year1989	0.482***	0.419***	0.405***
	(0.011)	(0.010)	(0.010)
Not self-employed in 1993 x year1991	0.208***	0.181***	0.184***
	(0.011)	(0.010)	(0.010)
Not self-employed in 1993 x year1997	0.304***	0.224***	0.228***
	(0.012)	(0.011)	(0.012)
Not self-employed in 1993 x year2000	0.377***	0.295***	0.290***
	(0.013)	(0.012)	(0.012)
Not self-employed in 1993	-1.000***	-0.717***	
	(0.007)	(0.008)	
Male		0.001	
		(0.003)	
Years of formal education received		-0.017***	-0.001
		(0.002)	(0.004)
Public sector		-0.381***	-0.457***
		(0.006)	(0.009)
Year FE	Yes	Yes	Yes
Individual FE	No	No	Yes
Observations	28613	28613	28613
R-Squared	0.604	0.663	0.781

Notes: The sample consists of working-age people, and each observation in every year is a sample. Ordinary least squares estimates for all columns. The self-employment status in 1993 is the standard for treatment and control group, and the sample of treatment and control group does not change over time. Standard errors are shown in parentheses. ***significant at 1 percent level, ** significant at 5 percent level, * significant at 10 percent level.

Table A.V: Hours per week without rural sample: event study

	(1)	(2)	(3)
Not self-employed in 1993 x year1989	-1.931	-2.621**	-0.128
	(1.231)	(1.207)	(1.312)
Not self-employed in 1993 x year1991	-3.125**	-4.411***	-4.891***
	(1.514)	(1.483)	(1.496)
Not self-employed in 1993 x year1997	-5.792***	-7.268***	-6.376***
	(1.817)	(1.780)	(1.953)
Not self-employed in 1993 x year2000	-4.788***	-5.633***	-6.013***
	(1.727)	(1.690)	(1.839)
Not self-employed in 1993	1.280	4.592***	
	(1.141)	(1.128)	
Male		0.797***	
		(0.197)	
Years of formal education received		-0.395***	-0.225
		(0.086)	(0.192)
Public sector		-4.122***	-1.850***
		(0.236)	(0.372)
Year FE	Yes	Yes	Yes
Individual FE	No	No	Yes
Observations	8906	8906	8906
R-Squared	0.047	0.089	0.607

Notes: The sample consists of working-age people, and each observation in every year is a sample. Ordinary least squares estimates for all columns. The self-employment status in 1993 is the standard for treatment and control group, and the sample of treatment and control group does not change over time. Standard errors are shown in parentheses. ***significant at 1 percent level, ** significant at 5 percent level, * significant at 10 percent level.

Table A.VI: Employed or not without rural sample: event study

	(1)	(2)	(3)
Not self-employed in 1993 x year1989	0.003	0.005	0.017
	(0.017)	(0.017)	(0.016)
Not self-employed in 1993 x year1991	0.009	0.007	0.011
	(0.017)	(0.017)	(0.016)
Not self-employed in 1993 x year1997	-0.008	-0.008	-0.007
	(0.018)	(0.018)	(0.018)
Not self-employed in 1993 x year2000	-0.052***	-0.055***	-0.050***
	(0.019)	(0.018)	(0.018)
Not self-employed in 1993	-0.000	-0.030***	
	(0.012)	(0.012)	
Male		0.034***	
		(0.005)	
Years of formal education received		0.024***	0.023***
		(0.002)	(0.005)
Year FE	Yes	Yes	Yes
Individual FE	No	No	Yes
Observations	12773	12773	12773
R-Squared	0.113	0.127	0.427

Notes: The sample consists of working-age people, and each observation in every year is a sample. Ordinary least squares estimates for all columns. The self-employment status in 1993 is the standard for treatment and control group, and the sample of treatment and control group does not change over time. Standard errors are shown in parentheses. ***significant at 1 percent level, ** significant at 5 percent level, * significant at 10 percent level.

Table A.VII: Monthly wage without rural sample: event study

	(1)	(2)	(3)
Not self-employed in 1993 x year1991	461.105***	438.815***	623.251***
	(76.457)	(76.251)	(111.516)
Not self-employed in 1993 x year1997	529.512***	494.342***	364.011**
	(91.150)	(90.946)	(141.931)
Not self-employed in 1993 x year2000	233.593***	209.458**	33.546
	(86.958)	(86.710)	(143.468)
Not self-employed in 1993	-498.217***	-455.359***	
	(57.108)	(57.727)	
Male		60.883***	
		(11.862)	
Years of formal education received		16.316***	16.235
		(5.165)	(15.248)
Public sector		-68.245***	34.929
		(13.886)	(30.337)
Year FE	Yes	Yes	Yes
Individual FE	No	No	Yes
Observations	6283	6283	6283
R-Squared	0.156	0.163	0.520

Notes: The sample consists of working-age people, and each observation in every year is a sample. Ordinary least squares estimates for all columns. The self-employment status in 1993 is the standard for treatment and control group, and the sample of treatment and control group does not change over time. Standard errors are shown in parentheses. ***significant at 1 percent level, ** significant at 5 percent level, * significant at 10 percent level.

Table A.VIII: Self-employed or not without rural sample: event study

	(1)	(2)	(3)
Not self-employed in 1993 x year1989	0.429***	0.403***	0.381***
	(0.014)	(0.013)	(0.012)
Not self-employed in 1993 x year1991	0.134***	0.131***	0.121***
	(0.014)	(0.014)	(0.013)
Not self-employed in 1993 x year1997	0.151***	0.130***	0.145***
	(0.016)	(0.015)	(0.015)
Not self-employed in 1993 x year2000	0.192***	0.178***	0.186***
	(0.017)	(0.016)	(0.016)
Not self-employed in 1993	-1.000***	-0.888***	
	(0.010)	(0.010)	
Male		-0.000	
		(0.004)	
Years of formal education received		-0.005***	-0.001
		(0.002)	(0.004)
Public sector		-0.154***	-0.237***
		(0.005)	(0.008)
Year FE	Yes	Yes	Yes
Individual FE	No	No	Yes
Observations	11558	11558	11558
R-Squared	0.716	0.739	0.851

Notes: The sample consists of working-age people, and each observation in every year is a sample. Ordinary least squares estimates for all columns. The self-employment status in 1993 is the standard for treatment and control group, and the sample of treatment and control group does not change over time. Standard errors are shown in parentheses. ***significant at 1 percent level, ** significant at 5 percent level, * significant at 10 percent level.