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Consumption response to minimum wages: evidence from Chinese households

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Abstract

The paper evaluates the impact of the Chinese minimum wage policy on consumption of low-wage households for the period 2002-2009. Using a representative household panel, we find that the consumption response to minimum wage income shock is increasing in the minimum wage share of household income and that poorer households fully consume their additional income. The large marginal propensity to consume is driven by households with at least one child, while childless poor households save two thirds of a minimum wage hike. The expenditure increase is concentrated in health care and education with potentially long-lasting benefits to household welfare.

JEL Classification: E24, J38, C26

Keywords: Minimum wages; labor income; transfer income; household consumption;

1 Non Technical Summary

In this paper we seek to understand how a rise in minimum wages influence household consumption behavior. China's minimum wage policy sets more than 2,000 county-level wage floors in the world's largest labor market of close to 800 million workers. Minimum wages affect at least one household member in approximately 18% of all urban households. For the period 2002-2009, we identify more than 13,874 minimum wage changes across China's 2,183 counties, and match them to the urban household survey (UHS) which covers 73,164 urban household-year observations.

We summarize the four key findings as follows:

1. Minimum wage increases in China are a very effective policy tool for increasing income and consumption levels of households dependant on the minimum wage. Our estimates show that low-wage households spend the entire additional income stemming from a higher minimum wage. Our results yield a much stronger consumption responses to minimum wage hikes than commonly found in U.S. data. Only for the 6.5% of households without a child do we find an economically large saving effect. These households save two thirds of the income increase explained by the minimum wage hike.

2. More than 30% of the minimum wage income shock is consumed as health and educational expenditure. This is likely to improve the long-run income of the family since these categories of expenditures are akin to investments. Households earning more than half of their disposable income from minimum wages spend between 0.26-0.32% of the income increase on food consumption.

3. We find no evidence for economically significant dis-employment effects. While the weekly hours worked decrease by approximately 18.5 minutes for a 10% increase in the minimum wage, we cannot find any evidence for a loss in employment status even for most exposed category of migrant workers.

Some aspects of China's economic situation deserve to be highlighted and can help the reader to better interpret our findings. Our results yield a much stronger consumption responses to minimum wage hikes than commonly found in U.S. data. In the 1990s, the real minimum wage in China was still close to the international poverty line of one U.S. dollar per day and remains comparatively low during our sample period 2002-2009. Urgent consumption needs imply a large consumption response and marginal propensities of consumption are in general larger at the lower end of the income distribution.

This is further accentuated by a high propensity to consume on health and education expenditures—probably a consequence of a relatively underdeveloped health and costly education systems in China as suggested by Chamon and Prasad (2010). Health insurance coverage in China was only 29.7% in 2003, Meng et al. (2012). At the same time in the U.S., an estimated 84.8% of the population had health insurance coverage according to the U.S. Current Population Survey, Mills and Bhandari (2003).

We can rationalize the absence of dis-employment effects by the low levels of minimum wages relative to the median wage—unlike minimum wages in developed countries. This might explain why we do not find any economically and statistically significant dis-employment effect of minimum wages even for the least protected individuals such as urban migrants. Low unemployment risk strengthens the marginal propensity of consumption and reduces the motive for precautionary savings.

2 Introduction

China's minimum wage policy sets more than 2,000 county-level wage floors in the world's largest labor market of close to 800 million workers. Minimum wages affect at least one household member in approximately 18% of all urban households.[1] We seek to understand how exogenous income variation driven by minimum wage changes influence household consumption behavior. Our main focus is on household consumption since it provides a particularly relevant metric of welfare and is often better measured and less volatile than income, Deaton (1997), Deaton and Grosh (2000). Moreover, in the development economics literature, consumption is the standard metric used to assess the relative poverty of households, Ravallion et al. (2009). Yet the existing literature on minimum wages in developing countries has not documented their effect on consumption.[2] Just like in Western societies, minimum wage policies are controversial in emerging countries for fears of unemployment effects, threats to industrial competitiveness, and employment substitution into the informal labour market, Rama (2001), Comola and De Mello (2011), Fang and Lin (2015). These concerns also relate to skepticism about the positive consumption effect of minimum wage increases. First, higher minimum wages may simply substitute for other social transfers so that the effective disposable income increase is considerably attenuated; as shown for example in U.S. data by Dube (2017). Second, the disposable income effect of higher minimum wages may be perceived as transitory—particularly in emerging countries with higher price inflation. Consumption smoothing may then result only in a modest consumption increase with limited welfare benefits. Third, higher minimum wages can increase household unemployment risk, trigger precautionary savings, and attenuate the consumption effect. Finally, a higher frequency of unemployment can potentially make some households much worse off than in the absence of a minimum wage. Our analysis seeks to address each of these concerns for the Chinese labour market.

China provides a particularly rich and unique institutional setting for research on the consumption effect of minimum wages. The Chinese minimum wage is set at the county-level and is frequently adjusted to keep pace with price inflation and raising standards of living in a high growth environment. For the period 2002-2009, we identify more than 13,874 changes of minimum wages across China's 2,183 counties and match them to the Chinese Urban Household Survey (UHS). No other labour

[1] Source: International Labour Organization, ILOSTAT database, using World Bank population estimates. Labor data retrieved in March 2017 https://data.worldbank.org/indicator/SL.TLF.TOTL.IN?locations=CN. This means that an estimated 82.5 million households are concerned by minimum wage legislation or approximately 265 million household members; see for instance the National Bureau of Statistics NBS (2013), China Statistical Yearbook 2013, Beijing: China Statistics Press. Available at: http://www.stats.gov.cn/tjsj/ndsj/2013/indexeh.htm

[2] The literature has focused more on the impact of minimum wages on income distribution. Using labor survey data from Indonesia, Rama (2001) finds that wages above the minimum wage increased between 5-15%. Bosch and Manacorda (2010) find that inequality of income earnings in Mexico is associated with the decline of the minimum wage. Engbom and Moser (2016) conclude that minimum wages help reduce earnings inequality in formal sectors of the Brazilian economy.

market in the world can rival China's in the frequency, heterogeneity, and magnitude of minimum wage variation. The UHS gives a detailed breakdown of household income and consumption along several household characteristics and it reports all household transfers stemming from income relief and other social policies. This allows us to disentangle the confounding effect of social transfer policies from the impact of the minimum wages and study the interactions between the two. Importantly, the UHS provides additional data on the employment status of each household member and the monthly average hours worked. This enables us to study dis-employment effects.[3]

We perform two-stage least square estimations (2SLS), which use the minimum wage increase as an instrument for household income shocks.[4] We estimate the consumption responses to income changes without conditioning on employment status; i.e. we retain all workers in the sample independently of whether they keep or lose their job after a minimum wage hike.

We summarize the four key findings as follows:

1. Minimum wage increases in China are a very effective policy tool for increasing income and consumption levels of households dependant on the minimum wage. Our estimates show a marginal propensity to consume out of a minimum wage income shock of one. In other words, low-wage households spend the entire additional income stemming from a higher minimum wage. Only for the 6.5% of households without a child do we find an economically large saving effect. These households save two thirds of the income increase explained by the minimum wage hike.

2. More than 30% of the minimum wage income shock is consumed as health and educational expenditure. This is likely to improve the long-run income of the family since these categories of expenditures are akin to investments as shown by Attanasio et al. (2007) and Blundell et al. (2008). Households earning more than half of their disposable income from minimum wages spend between 0.26-0.32% of the income increase on food consumption.

3. Some of the evidence suggests that liquidity constraints contribute to the strong consumption response as in Zeldes (1989) and Jappelli and Pistaferri (2010). For example, financially less constrained low-wage households with property income show a marginal propensity to consume which is 36% lower than for households without property income. Yet, the marginal propensity of consumption remains high even for these households in light of China's low aggregate

[3] A shortcoming of the UHS is that household consumption is not broken down by household member, which implies that we cannot infer an individual's marginal propensity to consume, but instead rely on aggregate household estimates.

[4] Previous work on consumption responses to income shocks in developing countries has relied on weather induced shocks to income. Wolpin (1982) uses weather shocks in India to estimate an income elasticity of consumption in the range 0.91-1.02 depending on the definition of consumption. Related work by Paxson (1992) studies weather shocks in Thailand to estimate the saving propensity to weather related income shocks greater than zero, but small. Kan et al. (2017) exploit variation in the 2009 Taiwan Shopping Voucher Program to find a marginal propensity to consume of one quarter.

consumption to income ratio.

4. We find no evidence for economically significant dis-employment effects. While the weekly hours worked decrease by approximately 18.5 minutes for a 10% increase in the minimum wage, we cannot find any evidence for a loss in employment status even for most exposed category of migrant workers.

Some aspects of China's economic situation deserve to be highlighted and can help the reader to better interpret our findings. Our results yield a much stronger consumption responses to minimum wage hikes than commonly found in U.S. data.[5] In the 1990s, the real minimum wage in China was still close to the international poverty line of one U.S. dollar per day and remains comparatively low during our sample period 2002-2009. Urgent consumption needs imply a large consumption response and marginal propensities of consumption are in general larger at the lower end of the income distribution. This is further accentuated by a high propensity to consume on health and education expenditures—probably a consequence of a relatively underdeveloped health and costly education systems in China as suggested by Chamon and Prasad (2010). Health insurance coverage in China was only 29.7% in 2003, Meng et al. (2012). At the same time in the U.S., an estimated 84.8% of the population had health insurance coverage according to the U.S. Current Population Survey, Mills and Bhandari (2003).

We can rationalize the absence of dis-employment effects by the low levels of minimum wages relative to the median wage—unlike minimum wages in developed countries. This might explain why we do not find any economically and statistically significant dis-employment effect of minimum wages even for the least protected individuals such as urban migrants. Low unemployment risk strengthens the marginal propensity of consumption and reduces the motive for precautionary savings.[6]

We find a positive relationship between minimum wages and transfer income: a RMB 1 increase in minimum wages comes on average with a simultaneous increase in transfer income by RMB 0.49 per household member. This contrasts with the U.S. where eligibility thresholds for transfers imply that the latter decrease when minimum wages go up.[7] The positive correlation between China's minimum wage increases and upward revision in social transfers is consistent with the evidence on social transfer

[5] Aaronson et al. (2012) estimate a positive expenditure effect for minimum wage dependent U.S. households with an elasticity lower than one, and conclude that most of the consumption effect can be traced to durable expenditures such as debt financed vehicle purchases. Alonso (2016) employs aggregate county-level U.S. sales data to find that a 10% increase in minimum wages increases non-durable consumption by 1% in the aggregate, and finds that this aggregate effect is larger in poorer counties.

[6] For the effects of minimum wages on employment in the U.S. see for example the contributions of Krueger and Card (1995) and Card and Krueger (2000) juxtaposed to Neumark and Wascher (1992) and the recent evidence of Dube et al. (2010), Allegretto et al. (2011), Neumark et al. (2014a), Neumark et al. (2014b), Allegretto et al. (2016).

[7] For the U.S., Dube (2017) documents that a reduction in public assistance partly offsets minimum wage income gains. The latter are on average 25% lower when accompanied with tax credits and non-cash transfers.

policies for disadvantaged households, Leung (2006), Hao et al. (2009), Meng (2012) and Qu and Zhao (2017). After 2000, the Chinese central and local (province, city or county level) governments implemented various social (transfer) programs for urban households. Their implementation often coincided with minimum wage increases during our sample period. Fortunately, the UHS reports all transfer payments so that we can correctly estimate the consumption propensity of both marginal minimum wage income and marginal transfer income.

The paper is organized as follows. Section 3 presents the China's minimum wage regulation and the urban household survey. Section 4 discusses the research design. Section 5 presents the main results on the impact of the minimum wage level on total household consumption. Here we also highlight the role of minimum wages in affecting household's health and education expenditure, and present estimates for non-durable and durable consumption propensities. The role of household heterogeneity for consumption behavior is discussed in Section 6 with a focus on financial constraints and household structure. Section 7 investigates dis-employment effects of minimum wage increases. In Section 8, we explore robustness issues and Section 9 concludes.

3 Household Consumption and Minimum Wages in China

3.1 China's Urban Household Survey

China's Urban Households Survey (UHS) represents a comprehensive and representative survey of urban workers and households managed by the Chinese National Bureau of Statistics (NBS). The UHS is conducted via stratified randomization sampling. It records a wide range of demographic and socioeconomic conditions of Chinese urban households, including detailed information on different income sources, wages and granular consumption items for households on an annual basis. In this paper, we restrict the analysis to eight consecutive years of the UHS from 2002 to 2009. Prior to 2002, the survey does not provide a panel structure and we exclude the earlier years from the econometric analysis. We merge the urban household survey with the minimum wage data for China's 2,183 counties and 285 cities. In Section 3.2.1 we provides a discussion of the minimum wage data with detailed descriptive statistics of the combined UHS and minimum wage data reported in Appendix B.

To analyze the impact of minimum wages on household consumption, we distinguish household groups in terms of their reliance on wage income near the county minimum wage. Following Aaronson et al. (2012), we define by S the share of total non-property income earned by the two best-paid household members from wages near the minimum wage. Labor income of any household member is considered to be near the county minimum wage and counted towards the nominator of S if it falls

within the range 50%-150% of the county minimum wage.[8] Formally, let $E_{m,h,c}$ denote the annual labor income and $w_{m,h,c}$ the wage of the two best paid household members $m = 1, 2$ in household h in county c. For a dummy variable $D[.] = 1$ indicating a wage in the range 50%-150% of county minimum wage MW_c, we define minimum wage income share as

$$S_{h,c} = \frac{1}{Total\ Income_{h,c}} \sum_{m=1,2} E_{m,h,c} \times D\left[0.5MW_c \leq w_{m,h,c} \leq 1.5MW_c\right] \tag{1}$$

where $Total\ Income_{h,c}$ in the denominator represents the sum of the total disposable income of the two top earners in the household.[9] By definition, the minimum wage income share S_{hc} is between 0 and 1. A higher share implies that the household tends to be poorer and her income more subject to any variation in the minimum wage policy. In the case where both the household head and spouse work at the minimum wage, the share S approaches one.[10] Figure I plots the distribution of the share S across the sample: the majority of households do not earn any wage from the minimum wage, for the minimum wage dependent households the distribution is bimodal with the highest peak being households with $S > 0.9$. Throughout the analysis, we consider households without any minimum wage income ($S = 0$), the complementary set of households with at least some income related to the minimum wage ($S > 0$), households with at least half of their income from wages near the minimum wage ($S > 0.5$), and households very dependent on the minimum wage for their subsistence ($S > 0.75$). The last two groups are the main focus of interest and we can expect the consumption response to minimum wage changes to be most pronounced for this group.

To address endogeneity concerns related to self-selection, we calculate the share S for the first year a household enters the survey and keep the initial S constant for all consecutive years a household features in the survey. For example, if a minimum wage hikes generate job losses and a household's minimum wage income drops, we still track this household by its original S. In other words, we track a constant sample of households without conditioning on their (potentially endogenous) wage evolution.[11] In addition, from the regression sample we exclude the first year a household is sampled,

[8] The upper bound of 150% is consistent with the findings of spillover/ripple effects of minimum wages on the wage distribution whereby workers earning just above the minimum wage tend to have an upgrade when the minimum wage is increased, Krueger and Card (1995). The lower bound of 50% is applied to include workers in firms that do not comply fully with the minimum wage policy. The results are robust to other thresholds for minimum wage ripple effect (we experimented with 0.5-1.2 and 0.5-1.3).

[9] Disposable income is composed by the sum of labor income, property income, operating income and transfer income. We observe all of these sub-categories of income in the household survey.

[10] If all members of the household are unemployed in the first year the household enters the panel, the sum of the best two earners results in a zero labor income and consequently $S = 0$. We eliminate these households from the data set (i.e. only 166 observations or 0.2% of the overall sample) to avoid any confounding effects with households earning labor income above the minimum wage.

[11] The results are nevertheless robust to an alternative definitions of treatment exposure. Table B-III shows that the proportion of households within different categories of S does not change significantly if S is measured with alternative definitions of treated worker.

and for which S is determined, to eliminate the mechanical correlation between S and wages which may bias the results. All our estimates of consumption are unconditional on employment status, i.e. we keep in the sample both workers who retain their jobs and workers who lose their jobs.

It is instructive to compare household characteristics across the four different household groups ($S = 0$, $S > 0$, $S > 0.5$ and $S > 0.75$) with increasing dependence on minimum wage income. In Appendix B, Table B-I, we report differences in the structure of household income and spending, and in Table B-II we illustrates the differences in demographic structure. Households with $S > 0.5$ ($S > 0.75$) account for 6% (5%) of all observations, but earn only 2.6% (2.4%) of all labor income, whereas households without minimum wage income represent 72% of the sample and earn 81.9% of all labor income. In terms of demographic characteristics, minimum wage households tend to be only slightly larger with 3.3 members compared to 3.1 for the household $S = 0$. This suggests that the one child policy was implemented consistently across income groups. Unsurprisingly, minimum wage household show lower house ownership rates and their migration to the urban area is typically more recent. We also highlight that minimum wage dependent households are much less likely to work for state-owned enterprise (SOE). The latter tend to pay higher wages than the private sector. Finally, the educational level and work experience of the head of household tends to be lower for minimum wage dependent families.

An distinct advantage of the China's urban household survey data is that it records all transfer income and sub-components of transfer income such as social assistance income, unemployment benefit, dismissal compensation, indemnity insurance income, subsistence allowance, etc. As expected, poorer households (with $S > 0.5$ or $S > 0.75$) feature a lower share of disposable income earned from labor income and rely more on social transfer income from the authorities. Almost 20% of their disposable income comes from social transfers. Moreover, minimum wage dependent households tend to consume 82% of their disposable income compared to only 70% for households with $S = 0$.[12]

3.2 The Minimum Wage in China

Chinese minimum wage legislation was first promulgated in 1994 following a wave of economic liberalization policies and the transition from predominantly state-owned production to a mixed economy with a growing private sector. However, the first implementation was ineffective since it lacked provisions and rules for the adjustment to price inflation and county economic conditions. It also suffered from lax enforcement and extensive non-compliance. Rawski (2003), Du and Wang (2008), Sun and

[12] In Table B-I and throughout the analysis, consumption is defined as expenditure on: food, clothes, household services, medical care, education, transportation and living. This is consumption *net of* purchasing property, transfer expenditures, social contributions and personal social expenditure. It is also *net of* investments; the latter is be confounded with savings.

Shu (2011), Ye et al. (2015).

China's access to the World Trade Organization and the related boom of the manufacturing sector generated political pressure for a more efficient minimum wage regulation. In December 2003, the central government opted for a reform of minimum wage regulation, and in March 2004, the Ministry of Labor and Social Security introduced the new Minimum Wage Regulations (MWR) into Chinese Labor Law. The most significant provisions required indexation of the minimum wage to the cost of living and a minimum wage level sufficient to support basic daily needs of employees. County and provincial authorities were required to review the minimum wage at least every two year in light of changed economic conditions and propose a revised minimum wage to the provincial authorities. Moreover, implementation of the new MWR was strengthened by increased control at the county administrative level and firm level in pursuit of better compliance. Penalties for non-compliance increased from 20-100% of the statutory minimum wage to 100-500%.

China's administrative and political process of setting minimum wages is not subject to an open public debate. The law only stipulates the requirement of regular review of the minimum wage level, not a mandatory change or wage level. When the decision of a higher nominal minimum wage is taken upon proposal by the county government and approval by the provincial authorities, implementation follows swiftly with a delay of only two months after a county government announcement. Following the public announcement, the information is spread via local government websites, radio and TV channels. This decision process implies that little public information is generated that would allow households to anticipate well in advance minimum wage changes and modify their consumption behavior accordingly, Du and Jia (2016).

Figure II illustrates the proportion of counties that increase their nominal annual minimum wage between 1996 and 2012. In line with the reformation of the MWR, trade liberalization and the large productivity growth of the booming manufacturing sector, real minimum wage growth in China was higher after the reform. Real minimum wage grew at 5.08% in the period 1996-2003 and accelerated to 8.57% in the period 2004-2012. In monetary terms, the average annual real minimum wage was only RMB 1,259 ($441 under PPP) in 1996, but increased to RMB 4,610 ($1,309 under PPP) in 2012.[13] In other terms, China's average real minimum wage started slightly above the international poverty line set at $1 per day in 1996, and increased to $3.55 per day over the next 16 years.

Minimum wage regulation is only effective under general compliance, which we document based

[13] Effective annual *nominal* minimum wage increased from RMB 2,628 ($921 under PPP) in 1996 to RMB 13,224 ($3,756 under PPP) in 2012. In the same period, the annual real growth rate of Chinese labor productivity was 8.9%, while real GDP oscillated around 9.7%. Purchasing power parity conversion factors are from the World Bank's International Comparison Program Database; data on growth are from the World Bank World Development Indicators; productivity data are from the OECD Productivity Archives, see http://stats.oecd.org/Index.aspx?DataSetCode=PDB_LV.

on two different measures. First, we determine the share of workers with a wage below the minimum wage in their county. Second, we calculate an average deviation of non-compliant wages from the county minimum wage for all worker paid below the minimum wage.[14] Figure III shows both measure for each sample year. An average 5% of workers are paid a wage below the minimum wage throughout the sample period. This proportion is comparable with the European average as documented in Goraus-Tańska and Lewandowski (2016). In addition, it is considerably lower than the 15% violation headcount in Chile, the 50% non-compliance in Argentina and other Latin American countries, or a 70% non-compliance rate in higher skilled occupations in urban areas in Kenya, see Lemos (2009) and Bhorat et al. (2019). The annual average percentage deviation of non-compliant wage from the statutory minimum wage is around 19%, which is lower than the corresponding number for Central and East European countries at 32.3%, see Goraus-Tańska and Lewandowski (2016), and also lower than the 23.2% reported for Chile, see Bhorat et al. (2019).

3.2.1 Minimum Wage Data

The minimum wage data used in this study are collected by the Chinese Ministry of Human Resources and report the hourly county minimum wage in 2,183 *counties* representing 285 *cities* for the period 1994-2012.[15] The workers are subject to heterogeneous minimum wage changes across counties: in a given year, those working in counties with a minimum wage hike constitute the treatment group and those working in counties with no change in minimum wages the control group.[16]

We aggregate the observed hourly minimum wages to a yearly minimum wage in order to match it to the annual reporting of the household survey data. The UHS reports separately income stemming from bonuses or overtime working hours. This means that a worker's basic labor income is not confounded by extra working hours which is observed separately as income arising from bonuses. In line with Chinese labor law, we assume a 40 hours working week for each full-time worker. Note that this aggregation rule is consistent with Article 36 of the labor code establishing that "The State shall practise a working hour system wherein labourers shall work for no more than eight hours a day and no more than 44 hours a week on average".[17]

To check whether the assumption of a 40 hour work week (or 160 hours per month) is innocuous for

[14] The second measure corresponds to the violation index from the minimum wage literature, see Foster et al. (1984) and Bhorat et al. (2013)

[15] The province is the highest administrative division in China, followed by cities and counties. There are 34 provinces in the Chinese administrative subdivision as of April 2015, 333 prefecture-level cities and a total of 2,862 county-level divisions in China.

[16] For their uncertain treatment and control group status, and as described in Appendix B, we ignore self-employed individuals; retired household members; retired and then re-employed household members, incapacitated persons, home-workers, soldiers, social volunteers, students and other household members undergoing training.

[17] Details on Chinese Labor Law can be consulted at: Labour Law of the People's Republic of China

our inference, we compare in Table I the reported monthly hours worked by full-time workers (available for a subset of workers in the period 2002-2006) to the benchmark number of 160 monthly hours for both counties with and without a minimum wage hike. The reported average monthly working hours tend to be slightly above 160 working hours for the sample of full-time workers as shown in Panels A for all households and in Panel B for minimum wage household with $S > 0$. Generally, there is no statistically significant difference in hours worked across treated and non treated counties. Only the year 2002 records a statistical weak difference in the labor supply among minimum wage households between counties with and without a minimum wage increase.

Table I, Panel C, reports the evolution of the minimum wage bite (i.e., the ratio of the Chinese minimum wage relative to the county median income) in our sample. Chinese minimum wages are generally set at a very low level relative to the median wage. The average ratio of the minimum wage relative to the median wage fluctuates around 20% in the period 2002-2006 and then declines to 17.6% in 2009. The minimum wage bite never approaches the much higher levels observed in most developed countries, where the minimum wage bite ranges from around 30% in the U.S. to 60% in France and Sweden, Dickens (2015). Therefore, the labor income conditions of minimum wage workers in China are much worse in relative terms compared to minimum wage workers in high income economies. In absolute terms, the Chinese *real* minimum wage income is close to the international poverty line (see Section 3.2). It follows that any policy measure that increases the consumption level of these extremely poor households represents a reduction of extreme poverty. At the same time, the low bite of the minimum wage suggests that adverse labor demand effects might not be a very salient concern. Section 7 explores the impact of the minimum wage on employment in more detail.

For the benefit of our inference, minimum wages in China are set at county level with extensive geographical and intertemporal variation. Our empirical analysis focuses on the years 2002-2009 for which the UHS data is available as a stratified panel and can be matched with county-level minimum wage data. During this period, 79.5% of all county-year events increased their minimum wage in a given year, which translates into a total of 13,874 minimum wage increases. Figure II presents a diagram with the annual *share* of counties that change the *nominal* minimum wage in the range of 0-10% or 10-20% or more than 20%. During the period almost one quarter of China's 2,183 counties in the sample raises the nominal minimum wage by more than 20%. While none of the counties featured a decrease in the nominal wage, inflation combined with a constant minimum wage can decrease the *real* wage if the nominal wage stays constant. From 2002 to 2009, an average of 20.5% (3590) county-year events show a constant nominal minimum wage—implying a worsening of purchasing power for a worker employed at the minimum wage. Yet, most county authorities appear attentive to the erosion

of the minimum wage by inflation and tend to adjust the minimum wage by more than the rise in consumer prices: of the 13,874 county-year events with a minimum wage increase, only 1,235 had minimum wage increases below the inflation rate in the county. In real terms, approximately half of county-year observation feature a *real* minimum wage change in the range 0-10%, one-third in the range 10-20%, and only a tenth above 20%.

4 Research Design

We design a difference-in-difference specification which compares household consumption across counties subject to minimum wage hikes (treatment group) and not (control group). The household sample is segmented into groups according to their share S of total income received from minimum wage labor as defined in Equation 1. Households without any minimum wage related income ($S = 0$) represent a placebo or control group relative to those household with $S > 0.5$ ($S > 0.75$) which earn more than 50% (75%) of their total income from minimum wages. The absence of consumption effects for the control group would confirm that consumption and minimum wages do not share any spurious relationship conditional on a set of control variables.

A structural approach relates household consumption to household income by using the minimum wage change as an instrument to explain variation in household income. The advantage of the 2SLS approach, besides its greater robustness to measurement error and omitted variable bias, is that it accounts explicitly for the channel through which minimum wages affect consumption. In order for the 2SLS to have a clear causal interpretation, two assumptions need to be satisfied. Firstly, the instrument should be correlated with the instrumented variable. China's frequent and large minimum wage changes guarantees that the explanatory power of the first-stage regression is sufficient as shown in Section 5.1. Second, the minimum wage change needs to be uncorrelated with other determinants of the dependent variable, see Angrist and Pischke (2008). A particular concern is that minimum wage hikes may result from good economic performance in a county which simultaneously influences low-wage consumption. Appendix A shows that minimum wage changes are not predicted by standard county-level macroeconomic determinants. Tables A-I, A-II and A-III confirm for a wide range of regression specifications that minimum wage hikes are not predicted by standard county-level socio-economic or political determinants. This also implies households cannot easily predict whether in a particular year the minimum wage changes in their county or not.

Formally, we explains household labor income in a first-stage regression:

$$Income_{h,c,t} = \alpha + \beta^{FS}\ MW_{c,t} + \boldsymbol{X}_{m,h,t}\boldsymbol{\Lambda} + \boldsymbol{X}_{h,t}\Theta + \boldsymbol{X}_{city,t}\Xi + \phi_c \cdot t + \eta_h + \delta_{p,t} + \varepsilon_{h,c,t}, \qquad (2)$$

where $Income_{h,c,t}$ is household labor income for household h in county c in year t. The second stage relates the predicted income $\widehat{Income}_{h,c,t}$ induced by minimum wage variation to household consumption, therefore

$$C_{h,c,t} = \alpha + \beta^{2SLS}\ \widehat{Income}_{h,c,t} + \boldsymbol{X}_{m,h,t}\boldsymbol{\Lambda} + \boldsymbol{X}_{h,t}\Theta + \boldsymbol{X}_{city,t}\Xi + \phi_c \cdot t + \eta_h + \delta_{p,t} + \varepsilon_{h,c,t}. \quad (3)$$

The household survey data provide a rich set of demographic and socio-economic characteristics ($\boldsymbol{X}_{m,h,t}$) for the two main labor income earners ($m = 1, 2$) in the households. For the purpose of the analysis, we use as controls their age and age squared, gender, years of work experience, and work experience squared, years since migration to the city and its squared value. Additional categorical covariates include marital status, level of education, occupation and industry of occupation.

The observed household characteristics ($\boldsymbol{X}_{h,t}$) include household size measured by the number of household members, and a house ownership dummy. One of the advantages of China's urban household survey is that we observe directly transfer income to households and its sub-components. We exploit this data richness to identify the consumption response to minimum wage changes by controlling for transfer income and studying interrelations between the two. In addition to transfer income, we also observe and control for household net operating income from business, household income from lending activity and income from property.

At the city-level, we dispose of a variety of macroeconomic variables that we use as controls in some specifications ($\boldsymbol{X}_{city,t}$): population size, city real GDP, city real average wage and city unemployment rate. These variables are not available at the more granular county-level. To overcome this restriction, we allow for different growth trends at the county-level by including the interaction of a county dummy and a time trend $\phi_c \cdot t$ in the regression. The inclusion of county-level time trends is important also to control for diverging county level consumption trends in a difference-in-difference setting. Unless we allow for such heterogeneous consumption trend growth, the real minimum wage level $MW_{c,t}$ becomes the only county-level regressor, and could subsume county-level heterogeneity and bias the inference.

Our specification also includes household fixed effects η_h and province-year fixed effects $\delta_{p,t}$ to control for macroeconomic time-variant factors. All monetary variables, including the minimum wage, are defined in real terms using the province-level consumer price index as the deflator.

Before proceeding with the exposition of main results of the paper, it is straightforward to illustrate this specification issue by comparing first-stage income regressions with and without county-level time trends and province-year fixed effects; the results are shown in the Appendix C. In the standard two-way specification with only time fixed effects, but without county time trends and interacted province-year fixed effects, the regression coefficient in Equation 2 of the real minimum wage is highly

significant even for the placebo household group not earning any minimum wage income ($S = 0$), see Table C-I, Column (1). By contrast, after including county trends and province-year fixed effects in Columns (5)-(8), which capture unobserved heterogeneity across counties and provinces, any spurious consumption response of high income households is eliminated. Hence, we include both linear county trends and province-time fixed effects in all of our consecutive specifications.

5 Main Results

5.1 First-Stage Income Regressions

Table II presents first-stage regression estimates for different definitions of household income. We distinguish among labor income in Columns (1)-(3), transfer income in Columns (4)-(6), and the sum of labor and transfer income in Columns (7)-(9) as the dependent variables. Households are grouped into those that receive at least 25% ($S > 0.25$), at least 50% ($S > 0.5$), or at least 75% ($S > 0.75$) of their total income from minimum wages, respectively. All specifications include county trends and province-year fixed effects to account for unobserved heterogeneity. Standard errors are clustered at the county level, i.e. the level of the policy change.[18]

Columns (1)-(3) documents the positive effect of minimum wages on labor income for households with significant minimum wage dependency, i.e. $S > 0.5$ and $S > 0.75$; but not for households earning higher wages than the minimum wage ($S > 0$). The coefficient of 1.529 in Column (3) suggests a labor income response larger than one for minimum wage dependent households. However, we have to highlight the frequent presence of multiple minimum wage earners in the same household as shown in Figure I. For a standard error of 0.692, this implies statistical significance at the conventional 5% level.[19]

As the UHS collects wage information at the worker level, we also run the labor income regression at the individual worker level (conditional on employment status) rather than at the household level. The results reported in Table F-I of the Appendix are quantitatively very similar. For the $S > 0.75$ group, Table F-I, Column (8), reports an estimate of 0.645 for individual household members. This corresponds to the point estimate of 1.529 in Table II, Column (3), for the household income, where we note that for the $S > 0.75$ household we have an average of 3.35 family members (see Appendix Table B-II) and 84.4% of them are minimum wage workers.

[18] All our estimates are robust to two-way clustered standard errors at county and city-year level and two-way clustered standard errors at county and province-year level, see Appendix H.

[19] Note further that a single instrument 2SLS is median-unbiased and hence less prone to weak instrument critique, Angrist and Pischke (2008). A more formal test of the validity and relevance of first stage instruments is from Kleibergen and Paap (2006) and is provided in the 2SLS regressions in Table IV

Minimum wage increases can crowd-out transfer income if the latter is subject to eligibility requirements that depend on the labor income, as shown by Dube (2017) for U.S. households. The literature on Chinese social policies suggest a very different relationship due to the particular nature of the policy process, Leung (2006), Hao et al. (2009), Meng (2012) and Qu and Zhao (2017). Political decisions on minimum wage increases and on the upward revision of social transfer payments (i.e. income relief programs, unemployment benefits, minimum living standard subsidies etc.) are often taken jointly as part of a more comprehensive social security policy, Qu and Zhao (2017). This implies that minimum wage increases generally coincide with more generous social transfer payments.[20] The complementarity of labor and transfer income shocks helps us in better identifying the combined household consumption response.

Table II, Columns (4)-(6), document the positive relationship between county minimum wages and the household transfer income.[21] A positive coefficient of 0.984 in Column (6) for households with more than 75% of their disposable income stemming from minimum wages implies that each additional RMB in annual minimum wages comes with an equally large social transfers to this group of households. It follows that the total household income effect of minimum wages is roughly 2.25 times the increase in the annual minimum wage for households with $S > 0.75$. For a county clustered standard error of 0.823, the t-statistic approaches the value of 3 and the F-statistics is close to 10. This further implies that we dispose of a better instrument if we focus on the sum of labor and transfer incomes. Accordingly, the consumption response is more precisely estimated as shown for the respective 2SLS estimates in Section 5.3. Again, we see that there is no corresponding overall income effect for households without minimum wage income as shown in Column (7).

The increasing generosity of social transfers benefits almost exclusively minimum wage earning households residing in counties with a minimum wage change. Table B-IV of the Appendix shows that $S > 0.75$ households also face a relatively high risk of unemployment of 19% among the two best earners in the household. Accordingly, improved basic income assistance and unemployment benefits tend to improve the income of those households significantly.

5.2 Reduced Form Regressions

In this section we present the reduced form estimates for the relationship between the real minimum wage and consumption. The reduced form estimates are not associated with any particular channel of

[20] In our sample this simultaneous increase translates in higher levels of social transfers is 23.5% (i.e. RMB 690) higher for $S > 0.5$ households living in minimum wage treated counties with respect to the same category of households living in counties where minimum wage was not increased. This corresponds to 4.3% of overall disposable income of the households in the control group.

[21] Transfers are measured net of pension or retirement benefits, but include social assistance income, dismissal compensation, income insurance, income from donations and other transfer income.

transmission - unlike the 2SLS estimates discussed in the next section, which capture only consumption changes responding to variation of household labor income induced by a hike of the county minimum wage. Comparing the respective magnitudes is insightful and a check on the conjectured transmission channel.

The reduced form regression for household consumption takes on the following form:

$$C_{h,c,t} = \alpha + \beta^{RF} MW_{c,t} + \boldsymbol{X}_{m,h,t}\boldsymbol{\Lambda} + \boldsymbol{X}_{h,t}\Theta + \boldsymbol{X}_{city,t}\Xi + \phi_c \cdot t + \eta_h + \delta_{p,t} + \varepsilon_{h,c,t}, \tag{4}$$

where the controls $\boldsymbol{X}_{m,h,t}$, $\boldsymbol{X}_{h,t}$, and $\boldsymbol{X}_{city,t}$ represent the household member, household, and city-level characteristics discussed in Section 4. We also includes county-specific time trends $\phi_c \cdot t$, household fixed effects η_h, and interacted province-time fixed effects $\delta_{p,t}$.

Table III presents the results with two different variations. First, Columns (1)-(4) use a specification adopted in the minimum wage literature which controls for *all* non-labor income sources, used for example in Aaronson et al. (2012), Allegretto et al. (2011) and Neumark et al. (2014a). Second, Columns (5)-(8) exclude transfer income from the list of covariates and therefore allow the effect of transfer income on consumption to be captured by the minimum wage change itself. Here the estimated coefficient is inflated since the minimum wage estimate captures the additional effect of (correlated) net transfers. Again, the point estimates in Columns (5)-(8) increase noticeably only for households with $S > 0.5$ because net transfers significantly contribute to income and consumption only for higher minimum wage dependent households in treated counties. This is consistent with the descriptive statistics shown in Table B-I of the Appendix B: for highly minimum wage dependent households, the relative incidence of net transfers on consumption is substantial given that net transfers (net of pensions) constitute around 20% (8%) of household disposable income

Both specifications of Table III show higher real minimum wage effects on household consumption as we consider a higher minimum wage share S of household income. For the households most dependent on minimum wage income ($S > 0.75$), if we control separately for transfer income in Column (4) the coefficient of interest becomes 1.91 (with a standard error of 0.91); the point estimate increases to 2.32 (with a standard error of 1.02) in Column (8) if we allow minimum wages to simultaneously capture transfer income and its consumption effect.

Forming sub-samples conditional on the initial minimum wage dependence of household implies that fixed effect and controls are fitted relative to each sub-sample. Alternatively, we can preserve the sample size interacting the minimum wage with dummy variables for each specific household group. Table G-I in Appendix G, reports estimates based on group-specific interaction terms. The specification controls for transfer income similar to Table III, Columns (1)-(4). The point estimates

on the interaction terms are qualitatively similar to the estimates in Table III, albeit slightly lower. We note that the point estimate of the reference group with $S = 0$ tends to be negative in a range of -0.66 to -0.91, but is statistically insignificant because of its large standard error. This suggests that the consumption effect for the reference group $S = 0$, i.e. households without minimum wage income, is not precisely estimated; which is not surprising in the absence of any systematic income effect arising from minimum wage changes.

We do not report the pooled specification with interaction terms throughout the paper because of three reasons. First, using sub-samples of household is rather intuitive and simpler to present than a table with many interaction terms. Second, the control variables and fixed effects in sub-sample regressions are estimated specifically for that sub-sample rather than the entire household sample, which is useful under heterogeneity of the respective effects. Third, the point estimate for the minimum wage effect in group $S = 0$ is very imprecise because the null hypothesis that there is no minimum wage effect in high income households is presumably correct. However, interaction terms estimate marginal economic effect relative to this (imprecisely estimated) reference value, which influences the estimate of the marginal effects for household groups with $S > 0$.

5.3 Two-Stage Least Square Estimates

The 2SLS estimator uses the variation in household labor income induced by the minimum wage to infer the marginal propensity to consume. As in the previous sections, we operate with different definitions of household minimum wage dependency. Note that in the 2SLS specifications we measure both labor income and consumption at the household level and no adjustment or scaling for the number of household members is needed. Table IV presents the 2SLS estimates of household consumption as a function of real labor income in Columns (1)-(4) and as a function of the sum of labor and transfer income in Columns (5)-(8). Standard errors are clustered at the county level. The Appendix H reports additional results for two-way clustered at county and city-year level and two-way clustered at county and province-year level in Table H-I.[22]

We note that the marginal propensity to consume is more precisely estimated as the minimum wage share S increases, this is a consequence of the improved quality of the instrument as S increases. For households earning more than 75% of their disposable income from minimum wages a RMB 1000 rise in income increases consumption by RMB 1301 as shown in Column (4). Estimating the consumption response as a function of the sum of labor and transfer incomes in Columns (7) and (8) yields marginal propensities of consumption closer to unity and considerably smaller standard errors. For minimum

[22] All estimates presented in the paper are robust to alternative clustering and results are available from the authors.

wage dependent households with $S > 0.75$ in Column (8), the point estimate is 1.065 with a robust standard error of 0.409. The lower standard errors in Columns (5)-(8) result from higher explanatory power of the minimum wage instrument if we use a more comprehensive definition of income which includes social transfers.

In both sets of specifications, we reject the null hypothesis of irrelevant or weak instrument using the Kleibergen and Paap (2006) test for households earning more than half of their disposable income from minimum wage labor. Moreover, p-values of the weak instrument test are generally lower in Columns (5)-(8) of Table IV when the minimum wage instrument is used to fit labor and transfer income simultaneously. This confirms that the minimum wage is a stronger instrument when both labor and transfer income are fitted in the first stage. Because the minimum wage is a very weak instrument for households with $S < 0.5$, we need to interpret coefficient estimates in Columns (1)-(2) and (5)-(6) with great caution. For these households, minimum wages represent a zero or small proportion of disposable income, and no economically significant consumption effects is expected.

It is also instructive to compare the 2SLS estimates of the marginal propensity of consumption to minimum wage with the corresponding OLS estimates of the marginal propensity of consumption from labor income. The OLS estimates reported in Table D-I in the Appendix D show considerably smaller correlations between labor income and consumption: they fall within a range between 0.33 and 0.44. What can explain this large difference between the 2SLS and OLS estimates? First, labor income changes that do not originate from minimum wage variation could be more transitory and therefore subject to more consumption smoothing. Second, reporting and measurement errors with respect to household income itself can attenuate the OLS estimate. At the same time, such measurement errors are likely to be orthogonal to the minimum wage variation, making the 2SLS estimate asymptotically consistent.

Overall, we infer from the 2SLS estimates that minimum wage dependent households in China fully spend the labor and transfer income changes related to exogenous minimum wage increase. Since the minimum wage income increases show unanticipated and persistent behavior (see Table A-II and Appendix A), we can also interpret these results as consistent with the permanent income hypothesis, Jappelli and Pistaferri (2010).

5.4 Health and Education, Non-Durable and Durable Expenditures

An extensive economic literature has documented a positive relationship between health and education on the one hand and productivity and long-run income on the other, Mincer (1958), Bloom and Canning (2000). The household survey data allow us to examine these consumption items separately

and document their relationship to the minimum wage level. From a public policy perspective, higher consumption of both health and educational expenditure of low-wage households in China is particularly desirable given the relative weakness of China's public health system and often costly access to quality education as documented for instance by Chamon and Prasad (2010).

As shown by Attanasio et al. (2007) and Blundell et al. (2008), education and health expenditures are characterize by a more durable nature and their positive feedback effect on future income assimilates them to investment and saving activities. Decomposing health and education expenditures into durable and non-durable items is not a straight forward exercise. In principle, both types of expenditure have the vocation of improving long-run utility, but may also fall short of achieving this goal. For simplicity, we retain health and education as a separate expenditure item and examine its relationship with minimum wage changes in Table V, Columns (1)-(3), along with non-durables in Columns (4)-(6), and (other) durables in Columns (7)-(9). The Appendix E provides a still more granular analysis at the level of each reporting items.

For households with the highest minimum wage dependence ($S > 0.75$), we find that a RMB 1,000 higher annual minimum wage is associated with a higher health and education expenditure of RMB 313, suggesting that more than 30% of any minimum wage increase is spent either on health or education. The standard error is only 0.159 and the point estimate is statistically significant at the 5% level. Interestingly, the 30% expenditure share for a *marginal* minimum wage income hike is twice as large as the 15% *average* expenditure share of health and educational spending combined, see Table B-I in Appendix B. Moreover, as shown in a more detailed breakdown in Appendix E, the majority of the expenditures in these two categories stems from drugs and medicines (44.4% of the overall health and education increase), see Table E-I. Educational courses, computer and software expenditures, books and textbooks also show relatively large coefficients albeit not always significant in Table E-II.

In Table V, Columns (4)-(6), we report the consumption propensity estimates for the aggregated non-durables category. Minimum wage dependent households with $S > 0.5$ ($S > 0.75$) spend 0.41% (0.34%) of their marginal minimum wage income on non-durables; both estimates are statistically significant at the 5% level. Appendix Table E-III documents a still more detailed breakdown for non-durables. For example, the consumption propensity for food is only 0.32% (0.26%). This makes the food consumption propensity a relatively a poor proxy for the overall marginal propensity to consume.

The marginal propensities to consume durable goods reported in Table V, Columns (8)-(9), are at 0.32% (0.34%) similar to those for non-durables among household with $S > 0.5$ ($S > 0.75$), but feature a higher standard error indicating greater (idiosyncratic) variation across households. Interestingly,

approximately 10% of the minimum wage increase is spent on television sets as revealed in Appendix Table E-IV. The evidence on durables expenditure contrasts the finding for the U.S., where Aaronson et al. (2012) estimate that low-wage households spend almost the entire marginal minimum wage increase on durables and incur debt to finance vehicle purchases.

Our evidence on the high consumption propensities of Chinese household for health and education expenditure is consistent with work by Chamon and Prasad (2010) which relates costly education and poor public health provisioning with the high saving rates of Chinese households. Both are indicative of a strong inter-generational bequest motive and an appreciation of human capital. Educational spending is regarded as an investment into a higher future household income by the next generation. In the context of the one-child-policy, parental aspirations typically focus on a single child and educational investment in this child also serves as a retirement insurance for parents, see Cai et al. (2006).

6 Household Heterogeneity

6.1 Liquidity Constraints

The large consumption effects of incremental disposable income documented in Section 5 could be the result of borrowing constraints, Zeldes (1989), Jappelli and Pistaferri (2010). In a high income growth environment like China, households may expect a life-time income which justifies a desired consumption level larger than current disposable income. A higher minimum wage alleviates these expenditure constraints and this may explain the high consumption propensity. Indeed, minimum wage households could be liquidity constrained due to their low proceeds from labor and a lack of collateral to pledge against a loan. It is therefore possible that the findings in the previous section are driven by the inability to smooth consumption over time.

If financial constraints contribute to higher consumption propensities, we expect financially unconstrained households to feature lower consumption propensities of minimum wage income. We identify three variables as proxies for financially unconstrained households. First, we define a dummy indicating that the household has property income. Property serves as collateral in credit relationships and may be used to guarantee a loan. In the sample, roughly 14% of households with $S > 0.5$ dispose of property income and may therefore be less likely to face borrowing constraints. Among households with some income from property, the mean income from property is RMB 2,957 per year, and the median is RMB 630. We define a property dummy as equal to one if household income from property is above the median of RMB 630 per year and zero otherwise. Second, we identify households with interest, dividend or insurance income. The respective dummy variable takes on the value one for

7% of all households with $S > 0.5$. Third, we define outright home ownership households as those who own a house and do not have to make mortgage payments. Contrary to non-owners or owners with mortgage debt, outright home owners can pledge their property as collateral to obtain loans and smooth consumption behavior over the life-cycle. Yet, ownership rates are extremely high at 76% even among relatively poor minimum wage households ($S > 0.5$) but the house value may often be very low so that even outright ownership does not necessarily imply access to credit.

Table VI reports how the three proxies for credit access interact with the consumption propensity in the 2SLS setting. When interacted with the property income dummy in Columns (1)-(3), the consumption response to minimum wage changes is generally lower than in the baseline 2SLS coefficient of Table IV. Minimum wage households ($S > 0.5$ or $S > 075$) with property income above the median consume roughly 30% less of any minimum wage related income variation compared to households without property income, which represents both an economically and statistically significant difference. The two other proxies for the absence of financial constraints also produce evidence for a more moderate consumption response, although the measured differential effects are more modest. Ownership of financial assets in Columns (6) shows a 11% lower consumption response and so does outright home ownership in examined in Columns (9) for the most minimum wage dependent households $S > 0.75$. But statistical significance is weak in both cases.

Overall, we find some empirical support for the hypothesis that liquidity constraints contribute to the high consumption propensities found in Section 5. But marginal propensity to consume out of a higher minimum wage remains large even among less liquidity constrained households.

6.2 Household Structure

The large household propensity to spend a higher minimum wage income on education suggests that household structure matters for the consumption behavior. The one-child policy implies a predominance of single child households: the majority of households in the UHS sample have one child (77%), households with two children represent 14.5%, childless households are 6.5%, and only 2% of household have more than two children.[23]

China's one-child policy is often blamed for an unbalanced gender ratio between girls and boys because abortions are practiced more frequently if the fetus is female. Some authors claim that this gender imbalance has consequences for the marriage market in which competition for brides requires young unmarried men to demonstrate wealth and real estate ownership. The marriage motive predicts

[23] Besides simple non-compliance, a series of exceptions to the one-child policy can be highlighted and are documented for China. For instance a time distance of four to six years between two births may provide a justification for two children, rural families can have two children if the first baby is a girl, and further exemptions exist based on ethnic and economic considerations, Gu et al. (2007).

higher savings rates among households with a male child and in particular with a male child of adult age, Wei and Zhang (2011), Rosenzweig and Zhang (2014). Alternatively, male children could also motivate larger educational expenditure with a negative effect on household savings.

Table VII reports the marginal propensity to consume when the fitted labor and transfer income is interacted with a dummy for households with children, in Column (1)-(3); with a dummy for a male child in Columns (4)-(6); and with a dummy identifying households with an adult male child of at least 24 years of age in Columns (7)-(9) . Childless families with a high minimum wage dependency ($S > 0.75$) show a low point estimate of only 35% for the marginal propensity to consume in Column (3), Row (1). Only the interaction term (*Labor and transfer income* $\times$ *children dummy*) in Row (2) captures a large 80% incremental propensity of consumption for households with children. This means that the high consumption propensity of Chinese households for minimum wage increases is contingent on children in the household. [24] Furthermore, the male gender of the child relates to a slightly larger - although statistically insignificant - effect on household consumption. The same finding applies to male children above the age of 24 when a boy's education is usually terminated and a specific male bequest motive should be detectable in the data. But the positive interaction terms in Columns (8)-(9), Row (4), do not support such a gender specific bequest motive related to marriage—at least among relatively poor minimum wage household.[25]

Our identification strategy does not allow us to generalize these finding to non minimum wage dependent households for which minimum wages do not matter. As aggregate saving rates depend mostly on the saving behavior of middle and high income families, we need to be careful not to extrapolate the findings for low-wage families to the Chinese aggregate macroeconomic saving behavior as a whole.

7 Minimum Wages and Employment

The UHS collects consumption information only at the household level. However, hours worked by household members, their employment status, occupation, and industry of employment is reported at the individual level. We exploit this more granular data structure to estimate the impact of minimum wages on the intensive margin of employment in Section 6.1 and on worker's employment status in Section 6.2.

[24] Replacing the generic dummy for children in the household with a more specific one-child dummy shows similar results. Moreover, we also compare the one-child households with households of multiple children; yet we do not find significantly different consumption responses across these two household groups.

[25] Other dimensions of household heterogeneity do not yield economically or statistically significant difference either: for example interaction terms marking urban immigrant households, household with one or two members working for a state-owned enterprise (SOE), households with above median debt, female headed households or measures for the educational level of the head of the household.

7.1 Hours Worked by Household Members

Higher minimum wages can affect the intensive margin labor demand and supply at the worker level multiple ways: employers may demand more or less hours from their employees or workers may wish to switch from full-time to part-time employment or vice versa. In order to estimate the impact of the minimum wage on labor supply we regress the *monthly* hours worked on the natural logarithm of the minimum wage using a linear model similar to Equation 4. As before, we retain in the sample both employed and unemployed individuals since labor supply may be affected by minimum wage induced employment loss. Switching in and out of employment is a case of (extreme) variation in hours worked. Table VIII reports the estimates for the full sample of employed and unemployed individuals. Columns (1)-(4) consider only the two best earners in each household, while Columns (5)-(8) provide estimates for the labor supply of all household members.

We find no evidence for any statistically significant adjustment in labor supply around minimum wage hikes. At the same time we observe an economically small decrease in hours worked by workers in minimum wage households. For example, a 10% increase in the minimum wage reduces weekly work by approximately 0.309 (= -12.349 x 0.095/4) hours (or 18.5 minutes) for workers in households with S>0.5 considered in Column (3).[26] By contrast, households without minimum wage income slightly increase their labor supply albeit the effect is not significant. Income effects related to minimum wage changes or a reduced labor supply may account for the observed pattern between minimum wage and non-minimum wage households.

7.2 Employment Status

Loss of employment has plausibly more dramatic welfare consequences for households than any (modest) labor supply adjustment at the intensive margin. While the average income and consumption of minimum wage dependent households clearly increases under the Chinese minimum wage policy as shown in the previous sections, concerns about households suffering unemployment spells are nevertheless pertinent.[27]

Table IX reports regressions for which the dependent variable is an employment dummy equal to one for employed household members, whereas a zero dummy value identifies workers within the labor force declaring to be unemployed at the time of the survey. A zero dummy value marks all

[26] From the linear-log model transformation: $-12.349 \times log(110/100) = -12.349 \times .095 = -1.17$ per month. In order to put this estimate further into Chinese labor market perspective it should be recalled that the average annual increase of real minimum wages is approximately 7.35% (see Table I).

[27] Previous research on China has related higher minimum wages to more instances of lay-off based on firm survey data, Huang et al. (2014). But unlike our household survey data, firm based surveys do not track individual workers and therefore cannot address the questions if workers just switched employers or suffer from a prolonged unemployment spells. Welfare implications are very different in the two cases.

adult household members who do not earn any income, but excludes those in training (for example university students) and homeworkers. The independent variable is the logarithm of a county's real minimum wage. Column (1) considers members from households not depending on minimum wage income (placebo group), while Columns (2)-(4) focus on members living in households with various degrees of minimum wage dependency. Columns (5)-(8) focus on the population of migrant workers. The latter groups can be described as more vulnerable, and exposed to minimum wage increases, Orrenius and Zavodny (2008). All specifications include worker and province-year fixed effects and we add additional county-level trends and city-level macroeconomic controls.

Column (1) shows a statistically and economically weak positive relationship between the minimum wage level and employment for households not earning a minimum wage. However, the economic magnitude is modest: for a 10% increase in minimum wages employment increases by 0.25 percentage points.[28] Columns (2)-(4) show increasingly negative point estimates for the real minimum wage for more minimum wage dependent households. Households with the highest minimum wage dependency in Column (4) feature a coefficient of -0.016: a 10% real minimum wage hike decreases the likelihood of employment by only 0.15 percentage points. The coefficient is economically and statistically insignificant. The standard error on the coefficient is nevertheless precisely estimated at 0.037, which implies that we can exclude large adverse effects of minimum wages on the unemployment risk of a worker.

The employment regressions for migrant workers in Columns (5)-(8) yield a more negative point estimate for the minimum wage variable—albeit still statistically insignificant. For minimum wage dependent migrant households with $S > 0.75$ in Column (8), a 10% larger minimum wage hike increases the risk of unemployment by 0.26 percentage points. However, we still cannot reject the null hypothesis that the total unemployment effect is zero.[29]

One interpretation of these findings is that the level of minimum wages in China, set at around 20% of the median wage, is low by international standards and has little bite. The low bite of the minimum wage coupled with the evidence on the absence of unemployment effects suggests that the minimum wage level in China does generally not exceed the marginal productivity even of the least qualified workers. The absence of unemployment effects may also reinforce the propensity to consume since precautionary savings motive due to unemployment risk are less salient.

[28] In the linear-log model this is obtained by multiplying the coefficient with the log(1.1), i.e. $0.027 \times \log(1.1) \times 100$.

[29] We note that binary dependent variable models are problematic in our application because of a large number of fixed effects applied. Their goodness of fit (with either county or household-level fixed effects) is considerably lower while the point estimates have similar magnitudes. We also experiment with county-level aggregate regressions using sample based unemployment rates and obtain a point estimate of -0.064 with a standard error of 0.087 for the household group with $S > 0.75$. We also test for statistically significant unemployment effects in a younger population of teenagers, namely teenagers with age greater than fifteen but lower than twenty, or alternatively up to twenty-four years of age. All those regression do not yield negative employment effect significant at conventional confidence levels of 5%.

8 Robustness

8.1 Policy Anticipation

Anticipation of minimum wage changes or a delayed household response can compromise the quality our inference. In China, the secretive nature of policy process that determines minimum wage changes leaves limited scope for the anticipation of such measures. Implementation follows the announcement with a very short time lag of generally less than three months.

Notwithstanding this favorable institutional setting, we also propose a statistical test of the research design. In particular, we nest the household consumption response in a more general specification, which allows for asynchronous consumption effects in a two year window around the implementation of the minimum wage change. Formally, we estimate the augmented reduced form

$$C_{h,c,t} = \alpha + \sum_{k=-2}^{+2} \beta_k^{RF} MW_{c,t+k} + \boldsymbol{X}_{m,h,t}\boldsymbol{\Lambda} + \boldsymbol{X}_{h,t}\Theta + \boldsymbol{X}_{city,t}\Xi + \phi_c \cdot t + \eta_h + \delta_{p,t} + \varepsilon_{h,c,t}, \quad (5)$$

where the parameter of interest β_k^{RF} takes on different time subscripts to capture a persistent or anticipated consumption response relative to the date of minimum wage changes. Time lags of $k = -1, -2$ years or time leads of $k = +1, +2$ years correspond to a placebo events for which we expect $\beta_k^{RF} = 0$ for $k \neq 0$. The lead coefficients are robustness tests for the parallel trend assumption and should show a zero consumption response. The lag terms estimate persistent effects on consumption. By including county linear time trends in the regression, $\phi_c \cdot t$, our specification accommodates different consumption growth trends across households in different counties.

Table X reports the augmented reduced form specification by household group. The consumption response to the contemporaneous minimum wage is positive and statistically significant for all minimum wage dependent households (i.e. $S > 0.25, S > 0.5, S > 0.75$). Its stronger consumption response for more minimum wage dependent households is quantitatively similar to the reduced form results in Section 5.2, Table III, Columns (1)-(4). By contrast, the first lag and lead of the minimum wage have a negative sign and are statistically insignificant; nor do the second lag or lead matter from a statistical point of view. Generally, we find no evidence for that minimum wage hikes are anticipated or that household adjust their consumption level with delays. Only the first lag for the household category $S > 0.5$ shows a marginally significant negative effect - suggestive of a (partial) reversal of the previous year consumption spike. However, this is not robust across different categories of S.

8.2 Sampling Issues

The Chinese national Bureau of Statistics conducts the UHS based on a multi-stage probabilistic sample with a stratified design. Generally, a third of all household in the sample are replace by randomly selected households.[30] Household know that they are supposed to participate for three consecutive years, but may fail to comply with the reporting requirements. Such early attrition from the sample can bias the estimation if non-participation is related to the policy shocks. For example, workers might more often cease to participate in the survey if they are better off after a minimum wage increase.

To examine such concerns, we define a dummy variable for attrition, i.e. early sample exit, if a worker is sampled for only one or two years. As our panel starts in 2002 and terminates in 2009, we cannot establish three-year participation for household that exit in 2002 or 2003, and therefore drop those households. The same applies for new vintages of household entering the UHS in the 2008 and 2009. The resulting subsample then allows us to mark all households characterized by early sample exit. Table XI relates the attrition dummy (as dependent variable) to the natural logarithm of the minimum wage using the previous control variables. We find not evidence that the attrition characteristics correlates with the minimum wage level. This finding is confirmed for all groups of minimum wage dependency, and holds in both the sample of household composed only by the best two earners in Columns (1)-(4) and the full sample of household members in Columns (5)-(8).

9 Conclusions

This study provides evidence on the income effect and consumption response of Chinese households to the large cross-sectional and intertemporal variation of China's minimum wage. For the period 2002-2009, we identify more than 13,874 minimum wage changes across China's 2,183 counties, and match them to the urban household survey (UHS) which covers 73,164 urban household-year observations.

Our analysis shows that higher household incomes due to a minimum wage hike are fully spent by minimum wage dependent households. The magnitude of the estimates is consistent with the estimates in the literature on income shocks in developing countries, see Wolpin (1982) and Paxson (1992).

We also highlight a number of new insights. We find that the propensity to consume is largest in households with two minimum wage earners and the effect is driven by households with children, whereas households without children feature higher saving rates. Our study also finds that more than

[30] As pointed out by Feng et al. (2017) and Ding and He (2018), the triannual rotation design has not always been strictly maintained resulting in a lower rotation ratio than was originally planned. For instance, some provinces have delayed replacing the first-stage sample at the end of the three-year period for funding reasons.

30% of additional minimum wage income is invested in health care and educational spending with potential long-term benefits for household welfare.

We test if the high consumption propensity associated with minimum wage hikes is driven by borrowing constraints. In fact, any excess sensitivity of consumption to incremental disposable income could be the result of the inability to smooth consumption over the life cycle. We find some evidence that household owning property feature a lower consumption propensity; although the point estimate remains large at around 0.72% of the minimum wage increase.

An important feature of the Chinese policy setting is the simultaneity of minimum wages changes and the revision of other social transfers. Minimum wage increases in China are generally part of a more comprehensive social policy towards low-wage households. Any inference on Chinese household behavior has to account for this to arrive at unbiased estimates for the consumption effects of income shocks.

The large consumption propensity is indicative of substantial welfare effects for poor households. We also find not evidence of economically significant dis-employment effects—possibly due to very low levels at which minimum wages are set in China. Our overall assessment of China's minimum wage policy is unambiguously positive.

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Figure I: Distribution of the Share S of Minimum Wage Income of Household

The graph plots the distribution of the share S of household income coming from minimum wages as defined in Section 3.1 for N=73,164 households-years. The LHS plot features data for all the households, including those without minimum wage income $S = 0$ for which we have N=53,054. The RHS plots the distribution of S conditional on $S > 0$, that is N=20,110

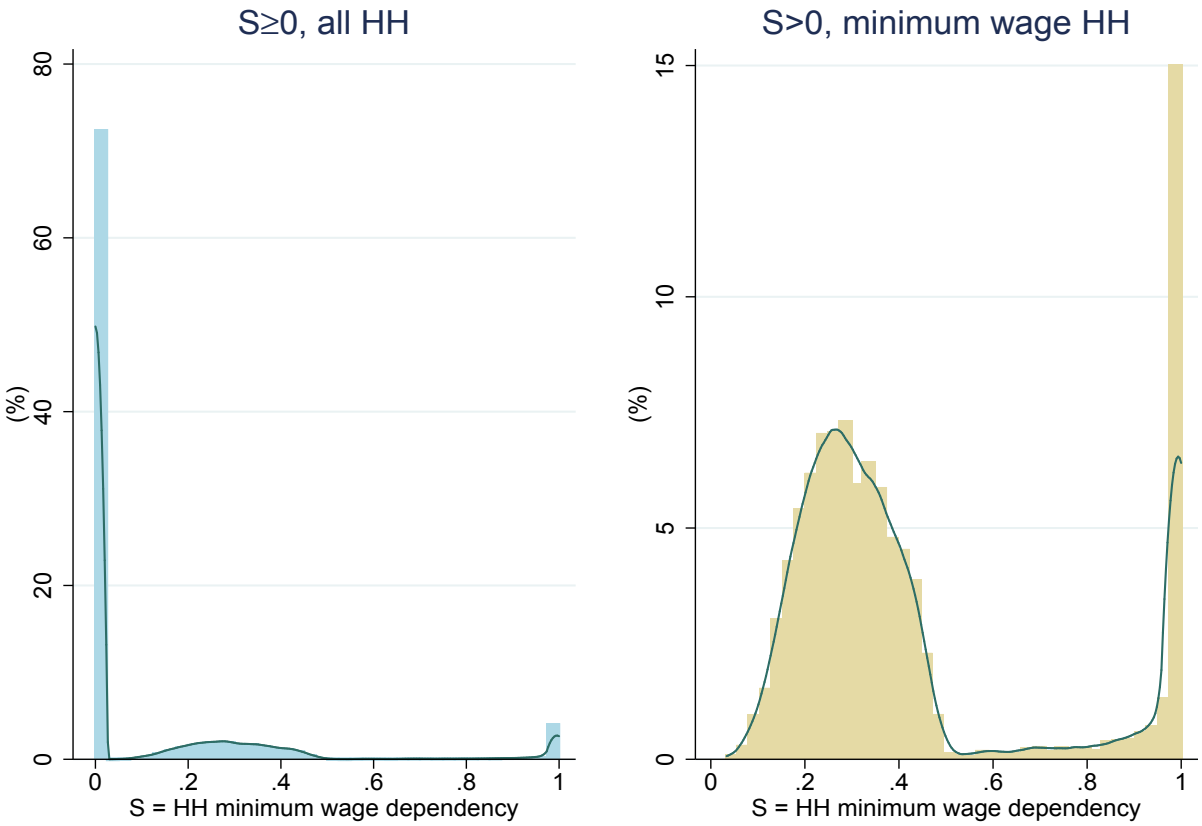

Figure II: Minimum Wage Variation

Proportion of counties increasing their nominal minimum wage in China, 1996-2012. We plot by year the percentage of China's 2,183 counties in our sample with a strictly positive minimum wage change between 0 and 10%, between 10% and 20%, and above 20%, respectively. The column height represents the combined share of counties experiencing an increase of their nominal minimum wage in a given year.

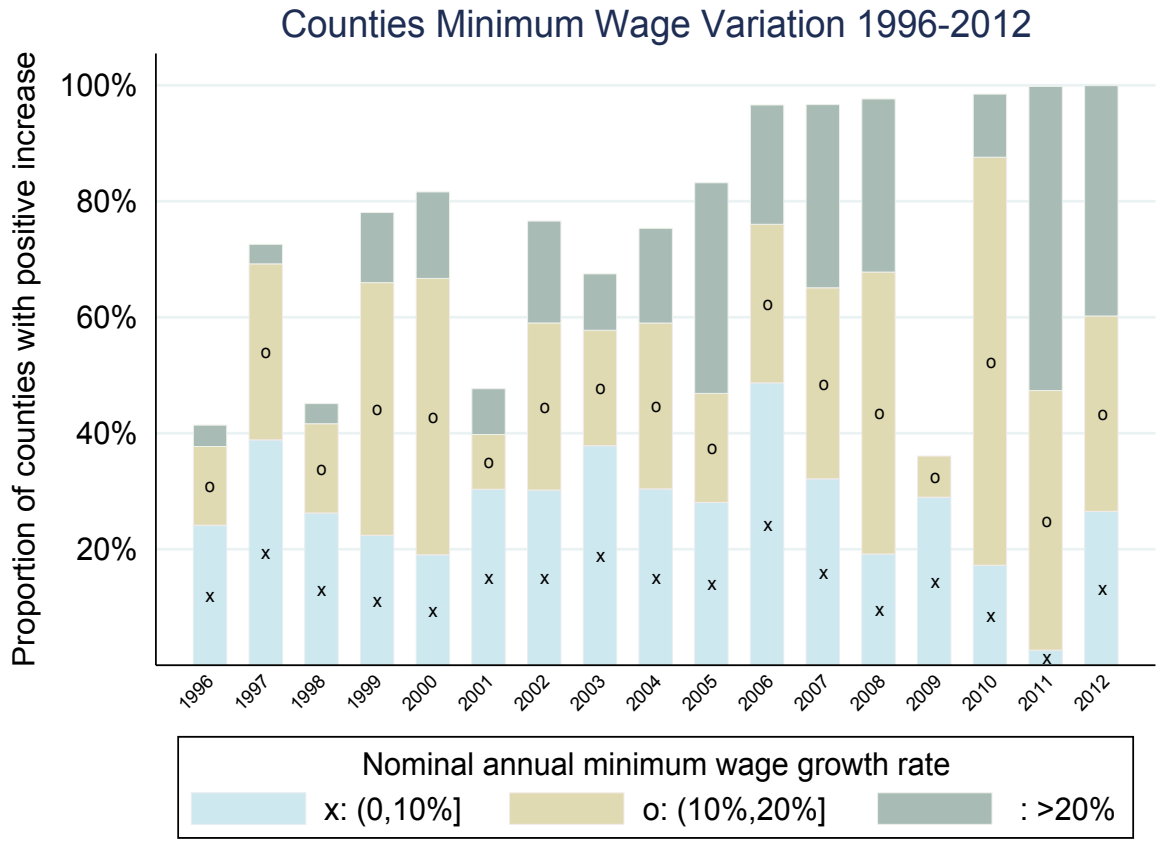

Figure III: Non-Compliance with the Minimum Wage Regulation in China 2002-2009

We report two measures of non-compliance with minimum wage regulation by year. The left-hand scale measures the share of workers with a wage below the minimum wage in their county. The right-hand scale documents the average deviation of non-compliant wages from the county minimum wage for all worker paid below the minimum wage. We exclude from the sample part-time workers and some other worker groups as described in Appendix B.

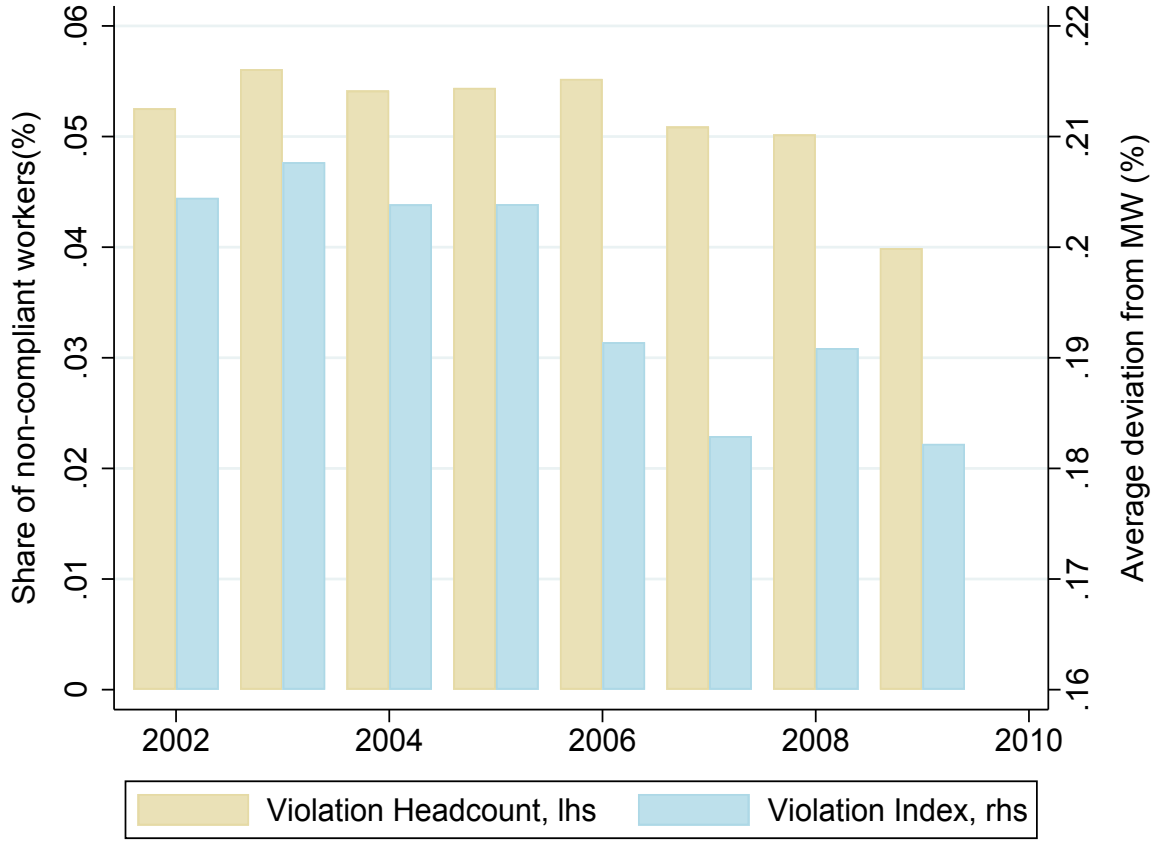

Table I: Labor Supply and Minimum Wage Bite

We report in Panel A the monthly working hours for the entire sample of urban full-time workers and in Panel B corresponding numbers for the subset of workers in minimum wage households. For both samples, the monthly hours worked are reported for counties that have an increase in the nominal minimum wage ($\Delta MW > 0$) compared with counties without a minimum wage increase ($\Delta MW = 0$). We also report t-statistics for the difference of means between these two groups accounting for clustered standard errors at the county-level. The data on monthly hours worked are not available for the years 2007-2009. Panel C documents average minimum wage bite by year and the annual growth rate of the real minimum wage. The minimum wage bite is computed as the ratio of the minimum wage (MW) to the median wage in each county and then averaged across counties. Standard errors are provided in parentheses. *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

Year	2002	2003	2004	2005	2006	2007	2008	2009
Panel A: Workers in All Households ($S \geq 0$)								
Monthly hours worked if $\Delta MW > 0$	167.2	166.0	164.3	167.7	168.2	–	–	–
	(54.48)	(58.62)	(58.19)	(57.14)	(56.38)			
Monthly hours worked if $\Delta MW = 0$	164.3	163.7	167.8	165.1	177.8	–	–	–
	(58.16)	(56.78)	(56.21)	(60.34)	(69.02)			
T-test for difference in mean	2.99	2.33	−3.48	2.61	−9.59	–	–	–
	(2.35)	(2.04)	(1.99)	(2.40)	(6.12)			
Observations	31657	41654	43808	44027	38910	–	–	–
Panel B: Workers in Minimum Wage Households (S>0)								
Monthly hours worked if $\Delta MW > 0$	162.1	160.7	160.0	163.8	164.1	–	–	–
	(63.11)	(68.41)	(66.04)	(65.41)	(64.94)			
Monthly hours worked if $\Delta MW = 0$	156.5	160.3	162.4	159.2	174.5	–	–	–
	(68.33)	(62.72)	(64.27)	(73.56)	(76.96)			
T-test for difference in mean	5.60	0.46	−2.45	4.61	−10.37	–	–	–
	(2.57)*	(2.49)	(2.51)	(4.31)	(7.51)			
Observations	8065	10406	10705	10828	9240	–	–	–
Panel C: Minimum Wage Bite and Real Minimum Wage Growth								
Minimum wage relative to median wage	0.202	0.201	0.197	0.198	0.201	0.185	0.189	0.176
	(0.042)	(0.043)	(0.046)	(0.045)	(0.045)	(0.045)	(0.053)	(0.045)
Real minimum wage growth (p.p.)	10.42	4.65	5.55	10.29	7.51	8.65	8.80	2.93
	(8.55)	(6.71)	(8.96)	(8.08)	(6.86)	(8.11)	(6.20)	(4.09)

Table II: Household Labor and Transfer Income and the Minimum Wage

We regress the levels of household real annual labor income in Columns (1)-(3), transfer income in Columns (4)-(6), and their sum in Column (7)-(9), on the county effective real minimum wage level. The samples consist of all households for which the labor income share S from minimum wages is zero ($S = 0$), or more than 50% ($S > 0.5$), or more than 75% ($S > 0.75$) of household disposable income. All regressions include household, county, and interacted province-year fixed effects; city-level controls, and county time-trends as specified in Equation 2. Standard errors are clustered at county-level, and *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

Dep. variable:	Household Labor Income			Household Transfer Income			HH Labor & Transfer Income		
MW dependency:	$S = 0$	$S > 0.5$	$S > 0.75$	$S = 0$	$S > 0.5$	$S > 0.75$	$S = 0$	$S > 0.5$	$S > 0.75$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Minimum wage	-0.022	1.378	1.529	-0.071	0.733	0.984	-0.110	1.904	2.247
	(0.574)	(0.632)**	(0.692)**	(0.222)	(0.512)	(0.521)*	(0.623)	(0.811)**	(0.823)***
City-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	44288	3699	3374	44288	3699	3374	44288	3699	3374
N clusters	625	346	335	625	346	335	625	346	335
N households	20450	1785	1627	20450	1785	1627	20450	1785	1627
Adjusted R^2	0.256	0.700	0.705	0.064	0.244	0.247	0.226	0.672	0.681

Table III: Household Consumption and the Minimum Wage

Reduced form specifications regress the annual real household consumption in RMB on the real county minimum wage level where Columns (1)-(4) control for all non-labor income and Columns (5)-(8) for non-labor income without transfer income. The samples consist of all households for which the labor income share S from minimum wages is zero ($S = 0$), more than 25% ($S > 0.25$), more than 50% ($S > 0.5$), or more than 75% ($S > 0.75$) of household disposable income. All regressions include household, county, and interacted province-year fixed effects; city-level controls and county time-trends as specified in Equation 4. Standard errors are clustered at county-level, and *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

Dep. variable:	Household Consumption							
MW dependency:	$S = 0$	$S > 0.25$	$S > 0.5$	$S > 0.75$	$S = 0$	$S > 0.25$	$S > 0.5$	$S > 0.75$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Minimum wage	-1.039	1.224	1.605	1.914	-1.090	1.325	1.861	2.317
	(0.631)	(0.564)**	(0.798)**	(0.912)**	(0.640)*	(0.575)**	(0.892)**	(1.017)**
Controls:								
All non-labor income	Yes	Yes	Yes	Yes	No	No	No	No
Non-labor income excluding transfers	No	No	No	No	Yes	Yes	Yes	Yes
City-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	44375	12072	3700	3375	44375	12072	3700	3375
N clusters	626	491	346	335	626	491	346	335
N households	20530	5686	1785	1627	20530	5686	1785	1627
Adjusted R^2	0.229	0.429	0.553	0.583	0.223	0.417	0.567	0.604

Table IV: Household Consumption under Labor Income Shocks

We report 2SLS level regressions in which real annual household consumption is alternatively regressed on the household's annual real labor income level in Columns (1)-(4), or the annual real labor income plus transfers level in Columns (5)-(8). The samples consist of all households for which the labor income share S from minimum wages is zero ($S = 0$), more than 50% ($S > 0.5$), or more than 75% ($S > 0.75$) of household disposable income. All regressions include city-level controls, household fixed effects, interacted province-year fixed effects, and county time-trends as specified in Equation 3. The p-values in the last line refer to a test under the null hypothesis of weak instruments (Kleibergen and Paap, 2006). Standard errors are clustered at the county-level, and *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

Dep. variable:	Household Consumption							
MW dependency:	$S = 0$ (1)	$S > 0.25$ (2)	$S > 0.5$ (3)	$S > 0.75$ (4)	$S = 0$ (5)	$S > 0.25$ (6)	$S > 0.5$ (7)	$S > 0.75$ (8)
Labor income	61.461	3.314	1.217	1.301				
	(1986.224)	(4.232)	(0.574)**	(0.648)**				
Labor and transfer income					9.258	2.271	1.053	1.065
					(45.461)	(1.990)	(0.405)***	(0.409)***
City-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	41709	11309	3442	3137	41709	11309	3442	3137
N clusters	597	469	323	314	597	469	323	314
N households	17871	4927	1528	1390	17871	4927	1528	1390
H_0 : Weak instruments (p-value)	0.975	0.529	0.031	0.026	0.845	0.396	0.019	0.009

Table V: Household Health & Education, Non-Durables and Durables Expenditure

We relicate the 2SLS regressions of Table IV using sub-components of household consumption as dependent variable. Expenditure on health and education is use in Columns (1)-(3), non-durable goods in Columns (4)-(6) and expenditure on durable goods in Columns (7)-(9). All regressions include city-level controls, household fixed effects, interacted province-year fixed effects, and county time-trends as specified in Equation 3. The samples consist of all households for which the labor income share S from minimum wages is zero ($S = 0$), more than 50% ($S > 0.5$), or more than 75% ($S > 0.75$) of household disposable income. The last row shows the p-value of the Kleibergen and Paap (2006) test under the null of weak instrument. Standard errors are clustered at county-level, and *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

Dep. variable:	Health & Education Exp.			Non-Durables Exp.			Durables Exp.		
	$S = 0$	$S > 0.5$	$S > 0.75$	$S = 0$	$S > 0.5$	$S > 0.75$	$S = 0$	$S > 0.5$	$S > 0.75$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Labor and transfer income	2.110	0.228	0.313	2.034	0.413	0.344	0.164	0.316	0.336
	(4.749)	(0.165)	(0.159)**	(9.677)	(0.189)**	(0.175)**	(1.363)	(0.232)	(0.236)
City-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	36624	3055	2779	41709	3442	3137	36624	3055	2779
N clusters	290	228	224	597	323	314	290	228	224
N households	15821	1361	1236	17871	1528	1390	15821	1361	1236
H_0 : Weak instruments (p-value)	0.661	0.044	0.022	0.845	0.019	0.009	0.661	0.044	0.022

Table VI: Household Consumption, Minimum Wage Income Shock and Liquidity Constraints

We report 2SLS level regressions as Table IV. Here real annual household consumption is regressed on the household's annual real labor and transfer income and on additional interaction terms identifying liquidity constrained households. The interaction terms are property income dummy in Columns (1)-(3), a capital income dummy for interest, dividends and insurance income in Columns (4)-(6), and a dummy for (debt-free) house ownership in Columns (7)-(9). The samples consist of all households for which the labor income share S from minimum wages is zero ($S = 0$), more than 50% ($S > 0.5$), or more than 75% ($S > 0.75$) of household disposable income. All regressions include city-level controls, household fixed effects, interacted province-year fixed effects, and county time-trends as specified in Equation 3. Standard errors are clustered at county-level, and *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively. The p-values in the last line refer to a test under the null of weak instruments (Kleibergen and Paap, 2006).

Dep. variable:	Household Consumption								
MW dependency:	$S = 0$	$S > 0.5$	$S > 0.75$	$S = 0$	$S > 0.5$	$S > 0.75$	$S = 0$	$S > 0.5$	$S > 0.75$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Labor and transfer income	5.989	1.070	1.068	6.615	0.907	0.956	8.552	1.082	1.153
	(17.128)	(0.380)***	(0.383)***	(24.340)	(0.416)**	(0.435)**	(41.467)	(0.497)**	(0.506)**
Labor and transfer income × property dum.	-0.480	-0.356	-0.356						
	(1.648)	(0.178)**	(0.194)*						
Labor and transfer income × capital income dum.				-0.204	-0.101	-0.110			
				(0.902)	(0.072)	(0.078)			
Labor and transfer income × house ownership dum.							0.825	-0.036	-0.110
							(3.800)	(0.189)	(0.195)
City-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	41709	3442	3137	41709	3442	3137	41709	3442	3137
N clusters	597	323	314	597	323	314	597	323	314
N households	17871	1528	1390	17871	1528	1390	17871	1528	1390
H_0 : Weak instruments (p-value)	0.741	0.022	0.011	0.797	0.024	0.014	0.843	0.018	0.009

Table VII: Household Consumption and Household Structure

We report 2SLS level regressions as in Table IV. Here real annual household consumption is regressed on the household's annual real labor and transfer income and on additional interaction terms identifying household structure. The interaction terms are a dummy for one or more children in the household in Columns (1)-(3), an additional dummy for one or more male children in the household in Columns (4)-(6), or an additional dummy for one or more male children older than 24 years in Columns (7)-(9). The samples consist of all households for which the labor income share S from minimum wages is zero ($S = 0$), more than 50% ($S > 0.5$), or more than 75% ($S > 0.75$) of household disposable income. All regressions include city-level controls, household fixed effects, interacted province-year fixed effects, and county time-trends as specified in Equation 3. Standard errors are clustered at the county-level, and *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively. The p-values in the last line refer to a test under the null of weak instruments (Kleibergen and Paap, 2006).

Dep. variable:	Household Consumption								
MW dependency:	$S = 0$	$S > 0.5$	$S > 0.75$	$S = 0$	$S > 0.5$	$S > 0.75$	$S = 0$	$S > 0.5$	$S > 0.75$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Labor and transfer income	11.722	0.463	0.349	10.460	0.431	0.309	34.987	0.447	0.325
	(56.254)	(0.550)	(0.498)	(44.459)	(0.509)	(0.452)	(505.309)	(0.547)	(0.493)
Labor and transfer income × children dum.	-3.084	0.655	0.798	-2.893	0.619	0.743	-11.590	0.639	0.784
	(16.180)	(0.386)*	(0.315)**	(13.583)	(0.397)	(0.333)**	(171.106)	(0.374)*	(0.301)***
Labor and transfer income × male child dum.				0.290	0.064	0.090			
				(1.418)	(0.129)	(0.147)			
Labor and transfer income × adult male child dum.							9.741	0.048	0.052
							(140.027)	(0.123)	(0.148)
City-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	41709	3442	3137	41709	3442	3137	41709	3442	3137
N clusters	597	323	314	597	323	314	597	323	314
N households	17871	1528	1390	17871	1528	1390	17871	1528	1390
H_0 : Weak instruments (p-value)	0.837	0.021	0.011	0.816	0.018	0.009	0.945	0.020	0.009

Table VIII: Minimum Wages and Hours Worked

We regress a worker's monthly work hours on the natural logarithm of the minimum wage. We retain in the sample both employed and unemployed individuals since hours worked may be reduced due to loss of employment at higher minimum wages. Regressions in Columns (1)-(4) include the best two earners in the household and those in Columns (5)-(8) include all workers. Standard errors clustered at county-level are shown in parentheses. All regressions include individual fixed effects, province-year fixed effects, and a linear county time trend. We include time varying worker characteristics for family size, outright house ownership, age, age squared, a gender dummy, years of education, years of education squared, years of work experience, work experience squared, years since migrating to urban area, years since migrating to urban are squared, categorical dummies for industry, occupation and marital status. City-level controls are city population, city real GDP, city real average wage and city unemployment rate. *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

Dep. variable:	Hours Worked Per Month							
	Best Two Earners				All Household Members			
MW dependency:	$S = 0$	$S > 0.25$	$S > 0.5$	$S > 0.75$	$S = 0$	$S > 0.25$	$S > 0.5$	$S > 0.75$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln(Minimum wage)	3.308	-2.890	-12.349	-4.622	2.804	-0.476	-12.500	-5.854
	(3.851)	(4.495)	(8.605)	(7.967)	(3.837)	(3.899)	(7.414)	(6.643)
City-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Worker FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	112979	23840	7653	6936	116979	25177	8198	7459
N clusters	293	284	248	247	293	284	248	247
N individuals	54028	11598	3820	3477	55389	12040	3999	3648
Adjusted R^2	0.459	0.446	0.568	0.570	0.498	0.508	0.610	0.616

Table IX: Minimum Wages and Employment

We regress a worker's employment status (0/1) on the natural logarithm of the minimum wage and report the point estimates. Regressions in Columns (1)-(4) include the sample of the best two earners in the household and those in Columns (5)-(8) the sub-set of migrant workers. The table reports the employment rate for each category of workers, the elasticity can be computed by dividing the coefficient by the relevant employment rate. Standard errors clustered at county-level are shown in parentheses. All regressions include individual fixed effects, province-year fixed effects, and a linear county time trend. We include time varying worker characteristics for family size, outright house ownership, age, age squared, a gender dummy, years of education, years of education squared, years of work experience, work experience squared, years since migrating to urban area, years since migrating to urban are squared, categorical dummies for industry, occupation and marital status. City-level controls are city population, city real GDP, city real average wage and city unemployment rate. *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

Dep. variable:	Employment (1/0)							
	All Household Members				Urban Migrant Sub-Sample			
MW dependency:	$S = 0$	$S > 0.25$	$S > 0.5$	$S > 0.75$	$S = 0$	$S > 0.25$	$S > 0.5$	$S > 0.75$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln(Minimum wage)	0.027	-0.011	-0.013	-0.016	0.028	-0.031	0.002	-0.023
	(0.016)*	(0.020)	(0.037)	(0.037)	(0.025)	(0.034)	(0.102)	(0.115)
City-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Worker FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Employment rate	0.953	0.945	0.888	0.895	0.948	0.948	0.896	0.894
Observations	137225	27550	8810	8021	58366	9183	2756	2558
N clusters	671	551	405	398	629	428	277	268
N individuals	64543	13238	4340	3962	28308	4570	1390	1290
Adjusted R^2	0.088	0.112	0.204	0.204	0.084	0.233	0.371	0.407

Table X: Policy Anticipation and Persistence of the Minimum Wage Effect

Reduced form specifications regress the annual real household consumption on the contemporaneous real county minimum wage level including lags and leads for one and two years. The samples consist of all households for which the labor income share S from minimum wages is zero ($S = 0$), more than 25% ($S > 0.25$), more than 50% ($S > 0.5$), or more than 75% ($S > 0.75$) of household disposable income. All regressions include household, county and interacted province-year fixed effects. We control for all other type of income including transfers, we add city-level controls, and county time trends as specified in Equation 5. Standard errors are clustered at county-level, and *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

Dep. variable:	Household Consumption			
MW dependency:	$S = 0$	$S > 0.25$	$S > 0.5$	$S > 0.75$
	(1)	(2)	(3)	(4)
Minimum wage$_t$	-0.818	1.412	1.769	2.056
	(0.672)	(0.774)*	(1.044)*	(1.192)*
Minimum wage$_{t-1}$	0.341	-0.481	-1.865	-1.778
	(0.719)	(0.612)	(1.111)*	(1.131)
Minimum wage$_{t-2}$	0.983	0.860	0.579	0.526
	(0.908)	(0.731)	(1.568)	(1.648)
Minimum wage$_{t+1}$	-0.815	-0.100	-0.934	-0.941
	(0.504)	(0.490)	(0.892)	(0.989)
Minimum wage$_{t+2}$	-0.192	-0.142	0.017	0.098
	(0.392)	(0.322)	(0.457)	(0.580)
City-level controls	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes
Province × year FE	Yes	Yes	Yes	Yes
County trends	Yes	Yes	Yes	Yes
Observations	43621	12086	3685	3315
N clusters	626	491	346	335
N households	20530	5686	1785	1627
Adjusted R^2	0.241	0.442	0.563	0.588

Table XI: Panel Attrition

We define a dummy variable for households which exit the UHS panel early (before the three reporting years) and relate such attrition to the the natural logarithm of the minimum wage. The attrition dummy is coded by one if the worker stays in the panel only one or two years and zero otherwise. Standard errors clustered at county-level are shown in parentheses. All regressions include province-year fixed effects, and a linear county time trend. We include time varying worker characteristics for family size, outright house ownership, age, age squared, a gender dummy, years of education, years of education squared, years of work experience, work experience squared, years since migrating to urban area, years since migrating to urban are squared, categorical dummies for industry, occupation and marital status. City-level controls are city population, city real GDP, city real average wage and city unemployment rate. *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

Dep. variable:	Attrition Dummy (1/0)							
	Best Two Earners				All Household Members			
MW dependency:	$S = 0$	$S > 0.25$	$S > 0.5$	$S > 0.75$	$S = 0$	$S > 0.25$	$S > 0.5$	$S > 0.75$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln(Minimum wage)	-0.056	0.069	-0.024	-0.102	-0.052	0.040	-0.038	-0.106
	(0.091)	(0.108)	(0.158)	(0.169)	(0.094)	(0.108)	(0.153)	(0.160)
City-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	89657	17861	6184	5562	93393	19057	6659	6016
N clusters	312	289	240	237	312	290	241	238
Adjusted R^2	0.300	0.311	0.357	0.361	0.296	0.307	0.350	0.354

A Predicting Minimum Wage Change

In this section we show that the timing of minimum wage changes is unpredictable conditional on rich information sets of socio-economic and political data typically beyond the reach of individual households.

First, we use county-level socio-economic data to explore the predictability of minimum wage changes. Second, we aggregate the Urban Household Survey (UHS) data and examine whether these alternative county-level aggregates show any predictability for the minimum wage change. Third, we use biographical data on the two most important political decision makers in Chinese counties, namely the mayor and party secretary, to predict minimum wage changes. Throughout this exercise, we code any nominal minimum wage change in a county as a binary (0/1) decision. Nevertheless, all the results are robust if the (level) change of the minimum wage becomes the dependent variable or if we use the natural logarithm of the new to the old minimum wage. [31]

A.1 Predictability Based on County-Level Data

Table A-I presents OLS regression based on county-level socio-economic data to examine the predictability of minimum wage changes codes as binary outcomes (0/1). The socio-economic data are sourced from the Prefecture Statistical Annual Yearbooks, the Fiscal Statistics for Prefectures, Municipalities and Counties and the National Demographic Yearbook. We note that these county-level data have an imperfect overlap with the sample of counties in our main data and so we do not use them in the analysis on household consumption. Yet they are still a useful data source for a test of predictability of the minimum wage change.

Columns (1)-(3) include the listed covariates as contemporaneous changes and Columns (4)-(6) as lagged changes. All variables are expressed in real terms using a province-level consumer price deflator. We find that none of the county variables robustly predicts (either as contemporaneous or lagged changes) minimum wage across specifications. In Column (3) only the average salary in the county shows weak negative relation with the decision to change the minimum wage. But this marginal significance disappears when we use two-way clustering at the county and province-year levels (not shown). Overall, we conclude that the results indicate no systematic relationship between county-level socio-economic variables and minimum wage changes.

A.2 Predictability Based on Aggregates of Household Survey Data

Table A-II explores the predictability of minimum wage changes based on county-level aggregates of the Urban Household Survey (UHS) used throughout the paper. The set of counties covered differs from Table A-I and the time span is restricted to the period 2002-2009. The county-level aggregates of the UHS data are complimented by city-level variables drawn from the China City Statistical Yearbooks in the Chinese Statistical Yearbook Database (CNKI). Again, no statistically significant relationship appears between the various covariates and the minimum wage change. The results also hold if we consider level change in minimum wages as an alternative dependent variable.

A.3 Predictability Based on Biographical Data of Local Political Leaders

In democratic societies, important political decisions like minimum wage changes are subject to open political debate and depend on the parliamentary strength of competing political parties. Chinese

[31] These results are available from the authors upon request.

Table A-I: County-Level Determinants of Minimum Wage Changes, 1997-2010

The minimum wage change as the dependent variable is coded as a binary decision outcome (1/0) with one representing a change and regressed on various county-level socio-economic variables. Columns (1)-(3) use covariates in first differences contemporaneous with the minimum wage change; Columns (4)-(6) use covariates in first differences lagged by one year relative to the minimum wage change. *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

Dep. variable:	Minimum Wage Change Dummy (1/0)					
	Covariates in Δ_t			Covariates in Δ_{t-1}		
	(1)	(2)	(3)	(4)	(5)	(6)
Ln(County real GDP)	-0.042	-0.191	-0.005	-0.076	-0.097	-0.012
	(0.035)	(0.045)***	(0.010)	(0.028)***	(0.049)**	(0.009)
Ln(County population)	-0.077	-0.240	0.005	0.165	0.176	0.012
	(0.103)	(0.128)*	(0.009)	(0.101)	(0.153)	(0.010)
Ln(County total employment)	-0.014	-0.011	-0.001	0.004	0.007	-0.000
	(0.014)	(0.016)	(0.001)	(0.016)	(0.023)	(0.001)
County government balance/GDP	-0.001	-0.001	-0.000	-0.000	-0.000	0.000
	(0.001)**	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)
Ln(County salary per capita)	0.016	0.002	-0.020	0.021	0.006	0.002
	(0.013)	(0.013)	(0.011)*	(0.007)***	(0.007)	(0.001)
Ln(County employment in agriculture)	-0.021	-0.016	0.000	0.026	0.030	0.001
	(0.009)**	(0.010)	(0.001)	(0.009)***	(0.012)**	(0.001)
Ln(Real county savings)	-0.002	-0.007	-0.002	0.014	0.005	0.001
	(0.015)	(0.016)	(0.002)	(0.013)	(0.019)	(0.001)
County FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes			Yes		
County trends		Yes	Yes		Yes	Yes
Province × year FE			Yes			Yes
Observations	8716	8716	8714	7139	7139	7137
N clusters	1651	1651	1651	1647	1647	1647
Adjusted R^2	0.591	0.697	0.990	0.625	0.686	0.992

Table A-II: Constructed County-Level Determinants of Minimum Wage Changes, 2002-2009

The minimum wage change as the dependent variable is coded as a binary decision outcome (1/0). We construct county-level aggregates from the UHS data and add city-level variables. Columns (1)-(2) present estimates with standard errors clustered at the county-level; Columns (3)-(4) report standard errors clustered two ways at the county and province-year level. *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

Dep. variable:	Minimum Wage Change Dummy (0/1)			
Standard error clustering:	County		Two-way	
	(1)	(2)	(3)	(4)
County-level controls:				
Δ_t HH Consumption	-0.008	0.047	-0.008	0.047
	(0.108)	(0.057)	(0.111)	(0.079)
Δ_t HH Tot. Expenditure	0.001	-0.028	0.001	-0.028
	(0.092)	(1.441)	(0.105)	(0.593)
Δ_t HH Savings	-0.002	-0.006	-0.002	-0.006
	(0.019)	(4.331)	(0.018)	(1.040)
Share of County SOE workers	-0.183	0.089	-0.183	0.089
	(0.148)	(2.079)	(0.178)	(1.651)
City-level controls:				
Δ_t GDP	0.484**	0.070	0.484	0.070
	(0.211)	(2.061)	(0.451)	(1.358)
Δ_t Population	-0.130	0.090	-0.130	0.090
	(0.084)	(1.524)	(0.144)	(1.025)
Δ_t Unemployment	0.208	-0.065	0.208	-0.065
	(0.273)	(2.788)	(0.336)	(1.528)
Δ_t Employment	0.167	-0.130	0.167	-0.130
	(0.199)	(2.245)	(0.331)	(1.268)
Δ_t Empl/Pop.	-0.624	0.357	-0.624	0.357
	(1.121)	(2.713)	(1.580)	(1.614)
County FE	yes	yes	yes	yes
Year FE	yes		yes	
County trends		yes		yes
Province × year FE		yes		yes
Observations	1602	1295	1296	1295
N clusters	591	285	98	97
Adjusted R^2	0.353	0.958	0.487	0.958

politics represents an entirely different political setting, important policy issues can be contingent on the preferences of the key local decision makers, Yao and Zhang (2015). Minimum wage changes in China originate in an administrative and political process that is not subject to an open debate that involves the public at large. This implies that little public information is generated that would allow households to anticipate minimum wage changes. Moreover, the law only stipulates the requirement of regular review, not a mandatory change. While individual policy preferences are hard to observe, such preferences and policy outcomes could nevertheless be related to personal political career paths and curricula or to demographic characteristics of local leaders.

The two main political actors in Chinese local politics are the mayor, appointed by the city communist party assembly, and the city party secretary, appointed by personal office of the central party administration. Their biographical data are available in the Chinese Bureaucracies and Leaders Database, which is constructed and maintained by the National Chengchi University.[32] We use biographical information about their respective tenure, their first year in office, the their year of promotion and retirement, as well as their age and experience. Table A-III presents the regression results with seven biographical variables for the city party secretary and an equal number for the city mayor. Yet none of these biographical variables has any predictive value for minimum wage change. Similar results are obtained if we define the dependent variable as first difference in minimum wage levels.

Overall, we conclude from Tables A-I, A-II and A-III that minimum wage changes in China are not predictable based on county-level socio-economic data or even biographical data on the two most powerful city politicians.

[32]See http://ics.nccu.edu.tw/chinaleaders/. The data are documented in Shih et al. (2010), Yao and Zhang (2015) and Zhou (2016).

Table A-III: Political Characteristics and Minimum Wage Changes, 1997-2010

The minimum wage change as the dependent variable is coded as a binary decision outcome (1/0) with 1 representing a change. It is regressed on the characteristics of the city party secretary and the mayor. Columns (1)-(2) present estimates with standard errors clustered at the county-level; Columns (3)-(4) report standard errors clustered two ways at the county and province-year level. *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

Dep. variable:	Minimum Wage Change Dummy (1/0)			
Standard error clustering	County		Two–way	
	(1)	(2)	(3)	(4)
Party secretary characteristics:				
First year in office dummy	0.018	0.004	0.018	0.004
	(0.009)*	(0.004)	(0.009)*	(0.004)
Promotion year dummy	0.049	-0.005	0.049	-0.005
	(0.026)*	(0.007)	(0.026)*	(0.010)
Retirement year dummy	0.079	0.028	0.079	0.028
	(0.034)**	(0.013)**	(0.034)**	(0.017)
Age	0.047	0.018	0.047	0.018
	(0.057)	(0.016)	(0.055)	(0.028)
Age^2	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.000)	(0.001)	(0.000)
Province experience dummy	-0.016	0.005	-0.016	0.005
	(0.030)	(0.009)	(0.030)	(0.009)
City tenure length (years)	0.007	0.004	0.007	0.004
	(0.007)	(0.003)	(0.007)	(0.003)
Mayor characteristics:				
First year in office dummy	0.090	-0.008	0.090	-0.008
	(0.091)	(0.026)	(0.085)	(0.026)
Promotion year dummy	0.030	-0.001	0.030	-0.001
	(0.023)	(0.005)	(0.025)	(0.007)
Retirement year dummy	-0.016	-0.001	-0.016	-0.001
	(0.043)	(0.013)	(0.043)	(0.018)
Age	-0.003	0.006	-0.003	0.006
	(0.052)	(0.017)	(0.063)	(0.018)
Age^2	0.000	-0.000	0.000	-0.000
	(0.001)	(0.000)	(0.001)	(0.000)
Province experience dummy	0.024	0.003	0.024	0.003
	(0.023)	(0.006)	(0.026)	(0.008)
City tenure length (years)	0.090	-0.007	0.090	-0.007
	(0.091)	(0.025)	(0.084)	(0.025)
County FE	Yes	Yes	Yes	Yes
Year FE	Yes		Yes	
County trends		Yes		Yes
Province × year FE		Yes		Yes
Observations	14548	14544	14548	14544
N clusters	258	257	232	228
Adjusted R^2	0.383	0.964	0.383	0.964

A.4 Persistence of the Minimum Wage Hike

Another issue concerns the intertemporal persistence of *real* minimum wage changes. Even if nominal minimum wage change are not likely to be reversed, price inflation can induce the mean reversion of the real minimum wage. If, on the other hand, *real* minimum wages feature a high degree of persistence, then the increase can be perceived as a non transitory income shock by the households. To explore the intertemporal persistence of real minimum wage increases, we run the regression

$$\Delta MW_{c,t} = \alpha_0 + \rho MW_{c,t-1} + a_1 t + \delta_{p,t} + \gamma_c + \varepsilon_{c,t}, \tag{6}$$

where a coefficient $\rho < 0$ captures mean reversion to a time trend t of the real minimum wage MW; δ_{pt} denotes a province-year fixed effect and γ_c a county fixed effect.

Table A-IV reports the regression results for the period 1992-2012 and for the shorter sample period 2002-2009 corresponding to the time frame of our analysis. We progressively augment the specification with county fixed effects and county trends to mitigate the impact of cross-sectional dependence. The coefficient of interest ρ is negative in most specifications and statistically significant. Yet, the magnitude of the mean reversion is economically weak. For instance, the coefficient in Column (4) implies a half-life of 5.47 years for the real minimum wage.[33]

We also use a unit root test (adapted to panel data) to test for real minimum wage persistence in a narrow statistical sense, Harris and Tzavalis (1999). Under the null hypothesis of a unit root (i.e. the real minimum wage increase is persistent) such tests provide a critical value for ρ below which the unit root cannot be rejected. The H-T test confirms the persistence of the minimum wage when we do not demean the real minimum wage to take into account cross-county dependence. However, when we compute in each time period the mean of the minimum wage across counties and subtract this mean from the series, the test rejects the null.[34]

[33] Half-life is computed adjusting the standard formula to take into account that we are using the first difference of the minimum wage as dependent variable: $ln(0.5)/ln(-0.119 + 1) = 5.471$. Using the coefficient in Column (8) implies a half-life of 2.31 years.

[34] To corroborate these findings, we also undertake the Im et al. (2003) test, which relaxes the assumption about the common autoregressive coefficient and runs the test for each cross-section under the null that *all* panels have unit roots, against the alternative that *some* panels are stationary. This test fails to reject the null hypothesis except when we include a time trend and demean the series to reduce the influence of cross-section dependence.

Table A-IV: Persistence of Real Minimum Wage Shock

We regress changes in the real minimum wage (ΔMW_{ct}) on the lagged real minimum wages (MW_{ct-1}) controlling for trend growth. The regressions add county or province-year fixed effects as specified in Equation 6 to limit the influence of cross-county spatial dependence. A significant negative coefficient implies reversion of the minimum wage shocks to trend growth. Standard errors clustered at county-level are shown in parentheses. *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

Dep. variable:	Real Minimum Wage Change, $\Delta MW_{c,t}$							
	Period 1992-2012				Period 2002-2009			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$MW_{c,t-1}$	-0.005	0.022	-0.118	-0.119	-0.031	0.023	-0.259	-0.260
	(0.003)	(0.003)***	(0.008)***	(0.009)***	(0.005)***	(0.003)***	(0.011)***	(0.012)***
Time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Prov.× year FE		Yes	Yes	Yes		Yes	Yes	Yes
County FE			Yes				Yes	
County trends				Yes				Yes
Observations	37320	37320	37320	37320	17464	17464	17464	17464
N clusters	2183	2183	2183	2183	2183	2183	2183	2183
R^2	0.310	0.862	0.871	0.876	0.011	0.810	0.842	0.852

B Sample Construction

B.1 Household Data Selection

China's Urban Household Survey (UHS) has two components. At the household level, we dispose of data on various consumption items and household income. At the level of household members, additional data captures household member income, income type, employment status, years of education, years of work experience, etc. We merge the household survey data with the minimum wage data at county and city-level from the Chinese Ministry of Human Resources and add additional macroeconomic variables at the county and city-level. All monetary variables are converted in real terms using the province-level urban CPI index with the base year 2002. The raw data constitutes a panel of 201,795 household-year observations and 773,330 household-member-year cells for the period 2002-2009. The following data filters are applied to the household data:

1. We only retain households that are observed at least twice in the panel (i.e. we drop 68,779 household-year observations).

2. We retain only households reporting in their first year of sampling at least two wage earning household members (i.e. we drop 59,624 household-year observations). Wage-earning household members are those who are potentially affected by minimum wage changes.

3. We eliminate households that provide contradictory information about the household head and for which we cannot compute the share S (228 household-year observations).

The final data set comprises 73,164 household-year observations. Descriptive statistics of the main variables and household demographics are shown in Tables B-I and B-II respectively.

B.2 Identifying the Two Highest Wage Earners within the Household

For minimum wages changes to matter for household income, a household needs to earn a positive share of its total household income from labor income near or at the minimum wage. Within each household, we identify the two highest wage earners conditioning on the first year the individual is observed in the panel. The selection of wage earners within each household follows these principles:

1. We ignore self-employed individuals (30,971 member-year observations); retired household members (124,901); retired and then re-employed household members (11,396), incapacitated persons (8,396), homeworkers (61,343), soldiers, social volunteers or part-time employed workers (17,879), students (56,737) and other household members undergoing training (251).

2. We ignore household members outside the labor force: below 16 years of age (75,317) and above 59 for males (2,566) and above 54 for females (2,363).

3. We ignore household members with inconsistent records where they are reported as unemployed and nevertheless receive a positive labor income (6363).

4. We ignore members with incomplete reporting on labor income (6,694) and workers with an annual real wage lower than 50% of the annual real minimum wage (12,293).

5. We ignore workers with abnormally high increases in their real wage (above 1000%) between the first and last year of observation in the panel (187).

6. We ignore household members with inconsistent age records that increase by more than one from one year to another or decrease (6,553) and household members who are not relatives (210).

The two highest wage earners within the household are in most cases (80.5%) the head of the household and the spouse. We retain for the household-level regressions their wage income, age, gender, level of education and years of work experience, years since migration to the city, marital status, industry and occupation.

B.3 Minimum Wage Dependency of a Household

Finally, we define the share S of household income coming from the wage income (of the two highest wage earners) at or near the minimum wage. We consider a wage earner to earn a minimum wage if her salary ranges between 50% and 150% of the real minimum wage of their county of residence in the first year the individual is observed in the panel. Conditioning on the first year of household observation assures that the treated household group remains unchanged over time.

Among the two highest wage earners of all retained households, we identify 32,580 (18.72%) treated (minimum wage) and 141,442 (81.3%) non-treated worker-year observations. We also undertake extensive robustness checks with respect to a narrower salary range from 50% to 120% of the county minimum wage, which results in 18,721 (10.76%) and 155,301 (89.24%) non-treated worker-year observations, respectively.

Table B-I reports summary statistics on the households income and expenditure components for household groups sorted by their minimum wage income share S. Column (1) includes all households, Column (2) with $S = 0$ all households without wage income at or near the minimum wage, whereas Columns (3)-(5) show household groups of increasing minimum wage dependency.

Table B-I: Incomes and Expenditures Share of Disposable Income

The table summarize the household income and expenditure components as a share of disposable income by different household types sorted by their share S of minimum wage income in total household disposable income. Data are from the Urban Household Survey (UHS) and cover the period from 2002 to 2009. Reported are average values for the entire period and standard errors are in parentheses below.

MW dependency:	All Households	$S = 0$	$S > 0$	$S > 0.5$	$S > 0.75$
	(1)	(2)	(3)	(4)	(5)
Income components:					
Labor income	0.902	0.917	0.862	0.779	0.792
	(0.158)	(0.140)	(0.192)	(0.243)	(0.242)
Transfer income	0.083	0.069	0.120	0.195	0.185
	(0.146)	(0.128)	(0.181)	(0.234)	(0.233)
Transfer income net of pension	0.041	0.035	0.055	0.082	0.068
	(0.081)	(0.071)	(0.100)	(0.124)	(0.106)
Expenditure components:					
Consumption	0.724	0.705	0.773	0.820	0.817
	(0.311)	(0.310)	(0.308)	(0.359)	(0.364)
Education expenditure	0.107	0.107	0.107	0.100	0.098
	(0.122)	(0.116)	(0.137)	(0.152)	(0.153)
Health expenditure	0.043	0.041	0.048	0.054	0.053
	(0.084)	(0.075)	(0.105)	(0.116)	(0.117)
Non-durables expenditure	0.383	0.367	0.427	0.465	0.464
	(0.144)	(0.138)	(0.150)	(0.164)	(0.161)
Durables expenditure	0.105	0.109	0.0947	0.0871	0.0874
	(0.144)	(0.151)	(0.123)	(0.179)	
Housing expenditure	0.055	0.060	0.040	0.035	0.031
	(0.491)	(0.502)	(0.458)	(0.441)	(0.420)
Savings	0.240	0.264	0.179	0.143	0.146
	(0.309)	(0.324)	(0.254)	(0.228)	(0.232)
Observations	73164	53054	20110	4365	3990
Share of observations in sample		0.72	0.27	0.06	0.05
Share of total labor income		0.819	0.181	0.026	0.024

Table B-II: Household Demographics

The table summarize the household demographics by household type sorted on the share S of minimum wage earnings in total household disposable income. Data are from the Urban Household Survey (UHS) and cover the period 2002-2009. Reported are average values for the entire period and standard errors are in parentheses below. Household head refers to the household member with the highest labor income; SOE stands for State Owned Enterprise; education is a categorical variable with a total of nine categories: no schooling, basic literacy classes, primary school, junior high school, senior middle school, secondary, college enrolment, bachelor completed, graduated.

MW dependency:	All Households	$S = 0$	$S > 0$	$S > 0.5$	$S > 0.75$
	(1)	(2)	(3)	(4)	(5)
Household size	3.145	3.118	3.215	3.345	3.355
	(0.724)	(0.703)	(0.773)	(0.862)	(0.869)
House ownership	0.870	0.890	0.818	0.778	0.776
	(0.336)	(0.313)	(0.386)	(0.415)	(0.417)
Years since migrating	8.047	8.429	7.040	6.047	6.149
	(11.10)	(11.15)	(10.91)	(10.63)	(10.69)
SOE employee share	0.735	0.778	0.620	0.436	0.441
	(0.441)	(0.415)	(0.485)	(0.496)	(0.497)
Female Head	0.270	0.292	0.211	0.318	0.316
	(0.444)	(0.455)	(0.408)	(0.466)	(0.465)
Age of the household head	41.38	41.29	41.62	40.58	40.47
	(7.842)	(7.742)	(8.095)	(8.686)	(8.754)
Household head education	5.914	6.127	5.351	4.929	4.941
	(1.441)	(1.419)	(1.345)	(1.172)	(1.174)
Head work experience (years)	20.87	20.84	20.95	19.35	19.23
	(8.703)	(8.590)	(8.995)	(9.804)	(9.859)
Observations	73164	53054	20110	4365	3990

Table B-III: Different Definitions of Treated Worker

The table summarize the share of minimum wage workers by the share S, and change of the composition of this share in the sample when the workers are defined as minimum wage treated across different definitions. The first row defines treated households in the first year of observation and keeps them fixed over the panel. The second row defines treatment status each year the household is observed independently of her treatment status in the first year. The third row shows household are assigned to treatment only if they are treated in all the years they are observed in the panel, i.e. if at least for one year the earn both more than the minimum wage then the household is not treated in this case. Standard errors are reported in parenthesis.

MW dependency:	$S = 0$	$S > 0$	$S > 0.25$	$S > 0.5$	$S > 0.75$
	(1)	(2)	(3)	(4)	(5)
MW treated HH in the first year	0.718	0.282	0.239	0.064	0.058
	(0.450)	(0.450)	(0.426)	(0.245)	(0.234)
MW treated HH by year	0.730	0.270	0.229	0.071	0.066
	(0.444)	(0.444)	(0.420)	(0.257)	(0.249)
MW treated HH in each year	0.836	0.164	0.138	0.037	0.031
	(0.370)	(0.370)	(0.345)	(0.188)	(0.172)

Table B-IV: Unemployment at the Worker Level

The table summarize the level of unemployment at worker level for the best two earners within the households. The share of unemployed members for different groups of minimum wage income in total disposable income are reported. Standard errors ar ereported in parenthesis.

MW dependency:	All Households	S=0	$S > 0$	$S > 0.25$	$S > 0.5$	$S > 0.75$
	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment	0.042	0.036	0.060	0.078	0.189	0.191
	(0.120)	(0.186)	(0.238)	(0.269)	(0.392)	(0.393)
Observations	208607	160635	47972	34869	12764	11861

C Specification Issues: The Role of County Trends and Province-Year Fixed Effects

Table C-I: First-Stage Regressions without County Trends and Province × Year FE

Household annual real labor income is regressed on the annual real minimum wage for households sorted by the share S of household minimum wage income in total disposable income under two alternative specifications. Columns (1)-(4) do not include linear county time trends and province-year fixed effects in the specification, while Columns (5)-(8) control for linear county time trends and province-year fixed effects. All regressions include controls for the two highest labor income earners in the household, namely age and age squared, a gender dummy, years of work experience and work experience squared, years since migration to the city and squared, household size as measured by the number of household members and a house ownership dummy. Additional categorical control variables characterize the level of education, marital status, industry and occupation. City-level variation is accounted for by city population, city real GDP, city real average wage and city unemployment rate. Standard errors clustered at county-level are shown in parentheses. *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

Dep. variable:	Household Real Labor Income							
	Only Household FE and Year FE				County Trends and Province × Year FE			
MW dependency:	$S = 0$	$S > 0$	$S > 0.5$	$S > 0.75$	$S = 0$	$S > 0$	$S > 0.5$	$S > 0.75$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Minimum wage	0.972	1.653	1.464	1.296	-0.022	0.364	1.378	1.529
	(0.300)***	(0.443)***	(0.534)***	(0.562)**	(0.574)	(0.561)	(0.632)**	(0.692)**
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes				
County trends					Yes	Yes	Yes	Yes
Province × year FE					Yes	Yes	Yes	Yes
Observations	44288	12066	3699	3374	44288	12066	3699	3374
N clusters	625	491	346	335	625	491	346	335
N households	20450	5684	1785	1627	20450	5684	1785	1627
Adjusted R^2	0.202	0.395	0.512	0.522	0.256	0.515	0.700	0.705

D Marginal Propensity of Consumption from Labor and Transfer Income

Table D-I: Estimates of the Marginal Propensity of Consumption from Labor and Transfer Income

The OLS regressions in Columns (1)-(4) estimate the change in household real consumption after a change of household real labor income. In Columns (5)-(6) we use the sum of labor and transfer incomes as the main regressor of interest. All regressions include controls for the two highest labor income earners in the household, namely age and age squared, a gender dummy, years of work experience and work experience squared, years since migration to the city and squared, household size as measured by the number of household members and a house ownership dummy. Additional categorical control variables characterize the level of education, marital status, industry and occupation. City-level variation is accounted for by city population, city real GDP, city real average wage and city unemployment rate. Standard errors clustered at county-level are shown in parentheses. *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

Dep. variable:	Household Consumption							
MW dependency:	$S = 0$	$S > 0.25$	$S > 0.5$	$S > 0.75$	$S = 0$	$S > 0.25$	$S > 0.5$	$S > 0.75$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Labor income	0.325	0.432	0.377	0.349				
	(0.030)***	(0.018)***	(0.098)***	(0.093)***				
Labor and transfer income					0.329	0.433	0.343	0.305
					(0.026)***	(0.025)***	(0.097)***	(0.097)***
City-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	44288	12066	3699	3374	44288	12066	3699	3374
N clusters	625	491	346	335	625	491	346	335
N households	20450	5684	1785	1627	20450	5684	1785	1627
Adjusted R^2	0.259	0.508	0.607	0.631	0.262	0.514	0.622	0.649

E Consumption Propensities for Various Expenditure Components

Table E-I: Health Expenditure Components

We replicate the 2SLS regressions of Table IV for sub-components of expenditures in health's goods and services. Estimates for expenditure on drugs is shown in Columns (1)-(2), for health related medical treatments are reported in Columns (3)-(4), for appliances (medical equipment) expenditure in Columns (5)-(6) and other health expenditure in Columns (7)-(8). All regressions include city-level controls, household fixed effects, interacted province-year fixed effects, and county time-trends as specified in Equation 3. The samples consist of all households for which the labor income share S stemming from minimum wage is more than 50% ($S > 0.5$), or more than 75% ($S > 0.75$) of household disposable income. The last row shows the p-value of the Kleibergen and Paap (2006) test under the null of weak instruments. Standard errors clustered at county-level are shown in parentheses. *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

	Drugs and Medicines		Medical Treatment		Appliances		Other	
MW dependency:	$S > 0.5$ (1)	$S > 0.75$ (2)	$S > 0.5$ (3)	$S > 0.75$ (4)	$S > 0.5$ (5)	$S > 0.75$ (6)	$S > 0.5$ (7)	$S > 0.75$ (8)
Labor and transfer income	0.132 (0.085)	0.139 (0.082)*	0.023 (0.059)	0.023 (0.062)	0.000 (0.009)	0.002 (0.006)	-0.010 (0.016)	-0.004 (0.016)
City-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3442	3137	3442	3137	3442	3137	3442	3137
N clusters	323	314	323	314	323	314	323	314
N households	1528	1390	1528	1390	1528	1390	1528	1390
H_0 : Weak instruments (p-value)	0.019	0.009	0.019	0.009	0.019	0.009	0.019	0.009

Table E-II: Education Expenditure Components

We replicate the 2SLS regressions in Table IV for sub-components of expenditures in health's goods and services. Estimates for expenditure on CPU and software is shown in Columns (1)-(2), for educational goods (textbooks, books, stationery, magazines, dictionaries) are reported in Columns (3)-(4), for educational courses (tuition fees, tutorials, school accommodation) expenditure in Columns (5)-(6) and educational services (cultural and recreational services) in Columns (7)-(8). All regressions include city-level controls, household fixed effects, interacted province-year fixed effects, and county time-trends as specified in Equation 3. The samples consist of all households for which the labor income share S stemming from minimum wage is more than 50% ($S > 0.5$), or more than 75% ($S > 0.75$) of household disposable income. The last row shows the p-value of the Kleibergen and Paap (2006) test under the null of weak instrument. Standard errors clustered at county-level are shown in parentheses. *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

	CPU and Software		Educ. Goods		Courses		Educ. Services	
MW dependency:	$S > 0.5$	$S > 0.75$	$S > 0.5$	$S > 0.75$	$S > 0.5$	$S > 0.75$	$S > 0.5$	$S > 0.75$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Labor and transfer income	0.048	0.051	0.031	0.028	0.073	0.099	-0.004	0.001
	(0.040)	(0.034)	(0.016)*	(0.014)**	(0.085)	(0.080)	(0.035)	(0.033)
City-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3442	3137	3442	3137	3442	3137	3442	3137
N clusters	323	314	323	314	323	314	323	314
N households	1528	1390	1528	1390	1528	1390	1528	1390
H_0 : Weak instruments (p-value)	0.019	0.009	0.019	0.009	0.019	0.009	0.019	0.009

Table E-III: Non-Durables Expenditure Components

We replicate the 2SLS regressions of Table IV for sub-components of expenditures in health goods and services. Estimates for food expenditure is shown in Columns (1)-(2), for household services (vehicle fuel and maintenance, transportation, hairdresser etc.) are reported in Columns (3)-(4), for clothing expenditure in Columns (5)-(6) and for sundry goods (jewels, watch, cosmetics, beauty appliances etc.) in Columns (7)-(8). All regressions include city-level controls, household fixed effects, interacted province-year fixed effects, and county time-trends as specified in Equation 3. The samples consist of all households for which the labor income share S stemming from minimum wage is more than 50% ($S > 0.5$), or more than 75% ($S > 0.75$) of household disposable income. The last row shows the p-value of the Kleibergen and Paap (2006) test under the null of weak instruments. Standard errors clustered at county-level are shown in parentheses. *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

	Food		Services		Clothing		Sundry Goods	
MW dependency:	$S > 0.5$ (1)	$S > 0.75$ (2)	$S > 0.5$ (3)	$S > 0.75$ (4)	$S > 0.5$ (5)	$S > 0.75$ (6)	$S > 0.5$ (7)	$S > 0.75$ (8)
Labor and transfer income	0.322 (0.148)**	0.257 (0.138)*	0.088 (0.050)*	0.090 (0.047)*	0.032 (0.059)	0.026 (0.043)	0.002 (0.021)	-0.002 (0.019)
City-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3442	3137	3442	3137	3442	3137	3442	3137
N clusters	323	314	323	314	323	314	323	314
N households	1528	1390	1528	1390	1528	1390	1528	1390
H_0 : Weak instruments (p-value)	0.019	0.009	0.019	0.009	0.019	0.009	0.019	0.009

Table E-IV: Durables Expenditure Components

We replicate the 2SLS regressions of Table IV for sub-components of expenditures in various durable goods. Estimates for TV expenditure is shown in Columns (1)-(2), for other electronics (cameras and video cameras, DVD players, smartphones, stereo, voice recorder etc.) are reported in Columns (3)-(4), for durable transportation expenditure (cars, motorcycles, electric bicycles, bicycles and other) in Columns (5)-(6), for household equipment (furniture and home appliances, washing machine, refrigerator etc.) in Columns (7)-(8) and for housing expenditure (purchasing or building a house) in Columns (9)-(10). All regressions include city-level controls, household fixed effects, interacted province-year fixed effects, and county time-trends as specified in Equation 3. The samples consist of all households for which the labor income share S stemming from minimum wage is more than 50% ($S > 0.5$), or more than 75% ($S > 0.75$) of household disposable income. Weak instrument row shows the p-value of the Kleibergen and Paap (2006) test under the null of weak instrument. Standard errors clustered at county-level are shown in parentheses. *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

	Television		Other Electronics		Transportation		HH Equipment		Housing	
MW dependency:	$S > 0.5$	$S > 0.75$	$S > 0.5$	$S > 0.75$	$S > 0.5$	$S > 0.75$	$S > 0.5$	$S > 0.75$	$S > 0.5$	$S > 0.75$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Labor and transfer income	0.109	0.102	0.020	0.016	-0.049	-0.005	0.047	0.046	-0.160	-0.171
	(0.066)*	(0.062)*	(0.022)	(0.020)	(0.180)	(0.183)	(0.071)	(0.066)	(0.463)	(0.426)
City-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3442	3137	3055	2779	3442	3137	3442	3137	3442	3137
N clusters	323	314	228	224	323	314	323	314	323	314
N households	1528	1390	1361	1236	1528	1390	1528	1390	1528	1390
H_0 : Weak instruments (p-value)	0.019	0.009	0.044	0.022	0.019	0.009	0.019	0.009	0.019	0.009

F Wage Regressions

Table F-I: Worker Wages and the Minimum Wage

The wage regressions in Columns (1)-(4) include the sample of the best two earners in the household and those in Columns (5)-(8) run the regression on all household members reporting wages. All regressions include individual fixed effects, province-year fixed effects, and a linear county time trend. We include time varying worker characteristics for employment status, family size, outright house ownership, age, age squared, a gender dummy, years of education, years of education squared, years of work experience, work experience squared, years since migrating to urban area, years since migrating to urban are squared, categorical dummies for industry, occupation and marital status. City-level controls are city population, city real GDP, city real average wage and city unemployment rate. Standard errors clustered at county-level are shown in parentheses. *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively.

Dep. variable:	Worker Wage (in RMB)							
	Best Two Earners				All Household Members			
MW dependency:	$S=0$ (1)	$S>0.25$ (2)	$S>0.5$ (3)	$S>0.75$ (4)	$S=0$ (5)	$S>0.25$ (6)	$S>0.5$ (7)	$S>0.75$ (8)
Minimum wage	-0.070	0.340	0.541	0.580	-0.057	0.387	0.608	0.645
	(0.235)	(0.243)	(0.300)*	(0.327)*	(0.229)	(0.232)*	(0.295)**	(0.318)**
City-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Worker FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	137227	27550	8810	8021	141647	28985	9392	8581
N clusters	671	551	405	398	671	551	405	398
N individuals	64543	13238	4340	3962	65946	13682	4516	4130
Adjusted R^2	0.172	0.377	0.560	0.565	0.172	0.375	0.557	0.564

G Combining Household Categories

Table G-I: Regressions with Interacted Household Categories

We present reduced form specifications where we regress the annual real household consumption in RMB on the minimum wage and interaction terms of the minimum wage (MW) and a Dummy($x_1 < S < x_2$) marking all households in the stated range of minimum wage dependence. All the regressions use as the reference group the households for which the labor income share S from minimum wages is zero ($S = 0$). Standard errors clustered at county-level are shown in parentheses.

Dep. variable:	Household Consumption					
	(1)	(2)	(3)	(4)	(5)	(6)
Minimum Wage	-0.661	-0.661	-0.651	-0.749	-0.904	-0.910
	(0.475)	(0.476)	(0.476)	(0.544)	(0.602)	(0.605)
MW × Dummy($0 < S < 0.25$)	0.796					
	(0.613)					
MW × Dummy($0.25 < S < 0.75$)	0.765					
	(0.475)					
MW × Dummy($S > 0.75$)	1.732					
	(0.801)**					
MW × Dummy($0 < S < 0.5$)		0.824				
		(0.349)**				
MW × Dummy($S > 0.5$)		1.451				
		(0.724)**				
MW × Dummy($S > 0$)			0.945			
			(0.378)**			
MW × Dummy($S > 0.25$)				1.032		
				(0.526)*		
MW × Dummy($S > 0.5$)					1.489	
					(0.744)**	
MW × Dummy($S > 0.75$)						1.758
						(0.818)**
City-level controls	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes
Province × year FE	Yes	Yes	Yes	Yes	Yes	Yes
County trends	Yes	Yes	Yes	Yes	Yes	Yes
Observations	61257	61527	61257	56354	47987	47662
N clusters	648	648	648	642	635	633
N households	28422	28422	28422	26134	22235	22077
Adjusted R^2	0.233	0.233	0.233	0.236	0.232	0.233

H Robustness to Two-Way Clustering

Table H-I: Household Consumption under Labor Income Shocks with Two-Way Clustering

We replicate the 2SLS regressions in in Table IV in which real annual household consumption is alternatively regressed on the household's fitted annual real labor income level in Columns (1)-(4), or the fitted annual real labor income plus transfers level in Columns (5)-(8). To allow for arbitrary correlation of residuals due to city/province-wide shocks we cluster the standard errors at the county and province-year level [in squared brackets], and alternatively at the county and city-year levels {in curly brackets}. The samples consist of all households for which the labor income share S from wages is zero ($S = 0$), more than 50% ($S > 0.5$), or more than 75% ($S > 0.75$) of household labor income. All regressions include city-level controls, household fixed effects, interacted province-year fixed effects, and county time-trends as specified, control variables are as specified in Equation 3. Standard errors clustered at county-level in parentheses. *, **, *** denotes statistical significance at the 10%, 5%, 1% level, respectively. The p-values in the last line refer to a test under the null hypothesis of weak instruments (Kleibergen and Paap, 2006).

Dep. variable:	Household Consumption							
MW dependency:	$S = 0$ (1)	$S > 0.25$ (2)	$S > 0.5$ (3)	$S > 0.75$ (4)	$S = 0$ (5)	$S > 0.25$ (6)	$S > 0.5$ (7)	$S > 0.75$ (8)
Labor income	61.461	3.314	1.217	1.301				
	[1938.376]	[4.368]	[0.518]**	[0.585]**				
	{1900.739}	{4.242}	{0.568}**	{0.643}**				
Labor and transfer income					9.258	2.271	1.053	1.065
					[44.008]	[1.979]	[0.356]***	[0.356]***
					{43.206}	{1.986}	{0.398}***	{0.404}***
City-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	41709	11309	3442	3137	41709	11309	3442	3137
N clusters	597	469	323	314	597	469	323	314
N households	17871	4927	1528	1390	17871	4927	1528	1390
H_0 : Weak instruments (p-value)	0.975	0.529	0.031	0.026	0.845	0.396	0.019	0.009

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