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Minimum Wage Disparities and Internal Migration: Evidence From China *

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Abstract

This paper examines whether, and to what extent, inter-provincial migration in China responds to real minimum wage disparities. To conceptualize this relationship, we extend the Harris-Todaro framework by incorporating minimum wages in both rural and urban areas. For the empirical analysis, we utilize an origin-destination matrix constructed from Hukou-linked migration data (2000-2020) and match it with inter-provincial minimum wage differentials. To address endogeneity concerns, we estimate a gravity-type model with fixed effects and apply an instrumental variable strategy. The baseline results indicate that a 1% increase in real minimum wage disparity leads to a 1.05% increase in inter-provincial migration. IV estimates suggest that simple OLS correlations may understate this positive effect. We also find significant heterogeneity: migrants from less developed provinces are more responsive to wage differentials, particularly when moving toward more urbanized regions. These findings highlight the role of minimum wage policy in shaping internal labor mobility within a developing and regionally diverse economy.

Keywords: Minimum wage; Internal migration; China; Regional wage disparities; Instrumental variable strategy

JEL Classification: J38 ; J61 ; R23

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1 Introduction

Despite the mobility restrictions imposed by China's household registration (Hukou) system, internal migration has remained a dynamic and transformative phenomenon (Cai and Wang, 2003; Fan, 2007; Bosker et al., 2012; Gardner, 2017; Kroeber, 2020). Inter-provincial migration, often referred to as the *inter-provincial floating population* defined by the National Bureau of Statistics of China (NBSC), has grown substantially over the past two decades.[1] According to the *Seventh National Population Census*, the number of inter-provincial migrants reached over 124.84 million in 2020, representing approximately one-third of the national floating population (NBSC, 2021). This marks a notable increase from 42.4 million in 2000 and 85.9 million in 2010.

Parallel to these demographic shifts, the development of minimum wage legislation in China has undergone significant evolution. Most provinces implemented minimum wage standards around 1995, guided by the *Minimum Wage Regulations for Enterprise* issued in late 1993. A major revision of the *Minimum Wage Regulations* in 2004 strengthened the enforcement and regulatory frameworks, underpinning China's minimum wage system nowadays (Fang and Lin, 2015; Du and Jia, 2020). The nominal minimum wages increased significantly between 2005 and 2013, rising from 487.18 RMB to 1259.60 RMB, with an average annual growth rate exceeding 13%.

Moreover, a prima facie positive relationship seems to exist between the geographical distribution of minimum wages and internal migration patterns. Specifically, individuals from provinces with lower minimum wages, typically located in the less developed central and western regions, appear to migrate toward provinces with higher minimum wages, concentrated in the more urbanized eastern region. This aligns with Hicks's observation that "differences in net economic advantages, primarily differences in wages, are the main drivers of migration" (Hicks, 1963, p. 76), as variations in minimum wages contribute to wage disparities.

Surprisingly, despite this intuitive correlation, relatively few studies have explicitly examined the impact of minimum wages on labor mobility, and those that have yielded mixed results. For instance, Cushing (2003), Boffy-Ramirez (2013) and Giulietti (2014) suggest that higher minimum wages attract low-skilled migrants/immigrants in the United States. Similar evidence is provided by Hamaguchi and Kondo (2022) and Feld (2024) in the Japanese and European contexts. However, studies by Cadena (2014), Martin and Termos (2015), and Monras (2019) show that low-skilled workers are more likely to move away from regions with higher minimum wages.

In this paper, we examine whether, and to what extent, real minimum wage disparities affect internal migration in China. Specifically, we utilize an origin-destination (Hukou-residence) matrix dataset of inter-provincial migration for the years 2000, 2005, 2010, 2015, and 2020, combined with data on minimum wage disparities. We start by introducing a

[1] In this paper, We use the terms "internal migration", "inter-provincial migrants", and "inter-provincial floating population" interchangeably to refer to individuals who live in provinces other than their household registration (Hukou) provinces in mainland China.

theoretical framework based on the Harris-Todaro model, which illustrates the relationship between minimum wage disparities and rural-urban migration with minimum wages in both areas. To investigate the causal impact of real minimum wage disparities on migration, we employ a log-linear gravity-type model with fixed effects (FE) and use an instrumental variable (IV) approach to address endogeneity concerns.

Our empirical findings are threefold. First, the baseline results reveal a statistically significant positive impact: The FE estimator indicates that, on average, a 1% increase in the real minimum wage disparity is associated with a 1.05% increase in inter-provincial migration. Second, using the initial real minimum wage disparity in 1995 as an instrument, our IV elasticity (with FE) is 3.244 and remains statistically significant at the 1% level, indicating that the simple OLS correlation potentially underestimates the positive effect substantially. Third, we provide compelling evidence that the migrants' sensitivity to real minimum wage disparities varies with intra- and inter-regional heterogeneities. Specifically, migrants with hukou in less developed provinces are more responsive to minimum wage disparities when moving toward more urbanized regions.

Our study contributes to the extensive literature on the impact of minimum wages on labor market outcomes (Card and Krueger, 1994; Stewart, 2004; Neumark and Wascher, 2008; Belman and Wolfson, 2014; Meer and West, 2016; Kawaguchi and Mori, 2021), with particular emphasis on the growing body of research focused on the Chinese context (Du and Pan, 2009; Wang and Gunderson, 2011; Huang et al., 2014; Fang and Lin, 2015; Yang and Gunderson, 2020; Sun et al., 2020). Taking regional labor mobility into account, our study also adds to the emerging literature investigating the effect of minimum wages on migration, which produces inconsistent results (Giulietti, 2014; Monras, 2019; Hamaguchi and Kondo, 2022; Minton and Wheaton, 2023; Moog, 2024; Ma et al., 2024).

Additionally, our study also contributes to the broader migration literature exploring how regional disparities shape migration decisions in emerging economies (Cai and Wang, 2003; Poncet, 2006; Fan, 2007; Liu and Shen, 2014; Xia and Lu, 2015; Gries et al., 2016; Liu et al., 2022). Our analysis contributes both theoretically, by introducing a Harris-Todaro framework grounded in the canonical model of rural-urban migration (Todaro, 1969; Harris and Todaro, 1970), and empirically, by highlighting the regional heterogeneous effects of minimum wage disparities on migration, which vary both within and across regions.

The rest of this paper is organized as follows. Section 2 reviews the literature and presents correlation inference. Section 3 outlines the theoretical framework, empirical specifications, and data. Section 4 presents the empirical results. Finally, Section 5 offers conclusions and discussion.

2 Literature Review and Correlation Analysis

In Section 2.1, we briefly review the relevant literature on the impact of minimum wages on labor mobility. Section 2.2 then presents a preliminary observation of the correlation between regional minimum wage disparities and internal migration.

2.1 Impact of Minimum Wages on Labor Mobility

There is a large body of literature debating the effects of the minimum wage on labor market outcomes, as reviewed exhaustively by Neumark and Wascher (2008), Belman and Wolfson (2014), Card and Krueger (2016), and Dube and Lindner (2024). The employment effect, for instance, economic theory indicates that setting a minimum wage above the market-clearing level tends to increase unemployment in a competitive labor market (Boeri and Ours, 2014), while empirical studies point to "the elusive employment effect" (Manning, 2021), that is, both positive and negative effects of the minimum wage on employment (Card and Krueger, 1994; Stewart, 2004; Du and Pan, 2009; Huang et al., 2014; Fang and Lin, 2015; Kawaguchi and Mori, 2021).

In parallel, the topic of the determinants of migration has also been widely explored in the literature, as reviewed in detail by Greenwood (1997), Etzo (2008), and de Haas (2011). Generally, empirical studies have examined determinants of migration, focusing on gravity factors, economic and labor market conditions, and environmental and cultural factors in developed economies (Crozet, 2004; Hooghe et al., 2008; Kim and Cohen, 2010; Docquier et al., 2014). As for China, since the national-level internal migration data since 1987 has become available, a growing number of studies have examined the determinants of inter-provincial migration flow over the past three decades (Poncet, 2006; Liu and Shen, 2014; Xia and Lu, 2015; Gries et al., 2016; Liu et al., 2022).

Thus, a key question arises: Does the minimum wage policy affect migration? More specifically, does increasing a region's minimum wage attract or deter migration to that area? From a theoretical perspective, the pioneering work by Harris and Todaro (1970) links minimum wages to labor mobility. In their two-sector internal trade model with unemployment, rural-urban migration continues until the expected urban minimum wage equals the agricultural real wage. Basu (1995) extends this framework to account for free international migration in the presence of unemployment induced by minimum wage policies. More recently, studies incorporating minimum wages into new economic geography models have explored the geographical distribution effect of minimum wage policies, emphasizing factors such as labor substitutability (Méjean and Patureau, 2010), local labor demand elasticity (Monras, 2019), firm heterogeneity (Egger et al., 2012; Bai et al., 2021), goods market distortions (Pan and Zeng, 2024), and transport costs (Pflüger, 2004).

Only a small number of empirical studies have explicitly examined the impact of minimum wages on geographical labor mobility, yielding mixed results. For instance, in the United States, early studies by Boffy-Ramirez (2013) and Giulietti (2014) suggest that minimum wage increases appear to be a magnet for low-skilled immigrants, whereas Cadena (2014) and Martin and Termos (2015) find that such policies can push low-skilled workers to migrate away. Recent work by Monras (2019) shows a decline in the in-migration rate of low-skilled workers but little effect on out-migration, while Minton and Wheaton (2023) highlights that higher minimum wages may encourage low-earning workers to stay within their states rather than to relocate. In other countries, Hamaguchi and Kondo (2022) finds that Japan's minimum wage gaps motivate new high school graduates to search for jobs outside their home prefectures but emphasize the crucial role of urban amenity and non-wage factors. In Germany, Moog (2024) reports that a uniform minimum wage induces out-migration among low-skilled workers with migrant backgrounds while not affecting in-migration or the mobility of low-skilled native workers. In the European context, Feld (2024) shows that higher minimum wages attract low-skilled migrants.

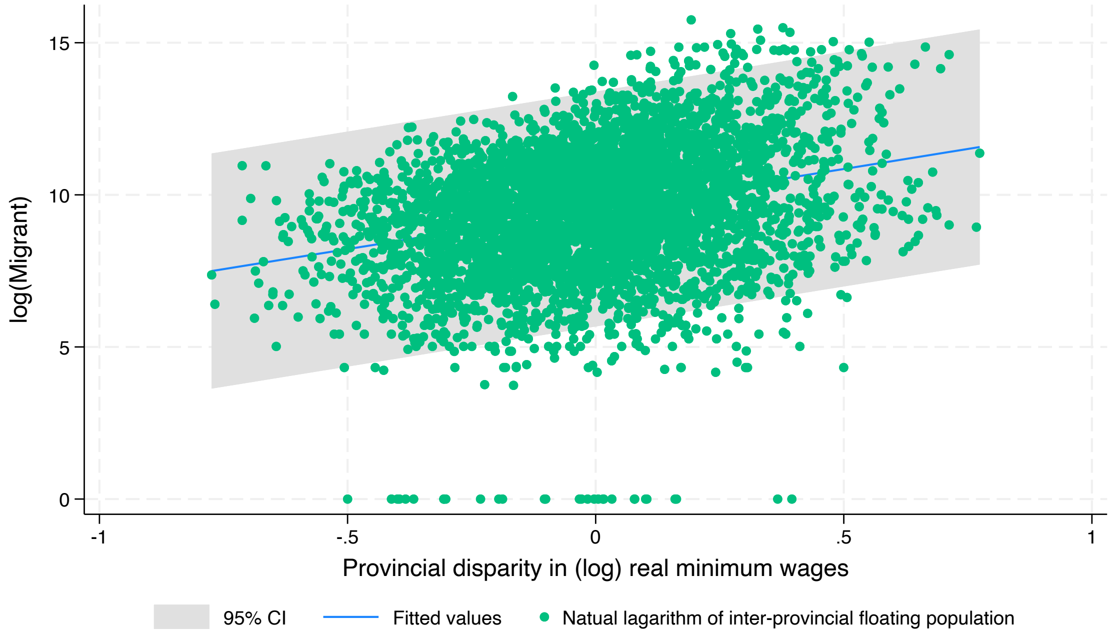
As for China, the latest study by Ma et al. (2024) examines whether individuals leave their Hukou hometowns in response to higher local minimum wages, using individual-level migration data within 262 counties in 2013 and 2015, derived from the China Household Finance Survey (CHFS). Their baseline results, based on a fixed effects model, show that local minimum wage hikes reduce out-migration, suggesting that migrants are more likely to stay in their hometowns when the local minimum wage increases. In this paper, we advance the discussion by utilizing an origin-destination matrix dataset of inter-provincial migration. We employ a fixed effects model and an instrumental variable approach to explore the causal impact of minimum wage disparities on migration. Our study provides new insights into how labor market institutions shape labor mobility in a developing economy like China, characterized by unique Hukou constraints, and contributes to the minimum wage literature and broader debates on labor mobility by highlighting the regional heterogeneous effects of minimum wage disparities on internal migration.

2.2 Correlation Between Minimum Wage Disparities and Migration Patterns

There appears to be a prima facie positive relationship between minimum wage disparities and internal migration patterns in China. Figure 1 plots the natural logarithms of provincial disparities in real minimum wages against inter-provincial migrant stocks for the years 2000, 2010, 2015, and 2020. The upward slope suggests that migrants tend to prefer regions offering higher minimum wages.

Building on this, Figure 2 illustrates the distribution of nominal and real minimum wages alongside internal migration patterns across Chinese provinces in 2020. Panels (a) and (b) show that provinces with the highest real and nominal minimum wages – Shanghai, Guangdong, Tianjin, Beijing, Zhejiang, and Jiangsu – are located in the highly urbanized eastern region. Conversely, provinces with the lowest real minimum wages, such as Qinghai, Gansu, Anhui, Yunnan, Ningxia, Hunan, and Sichuan, are concentrated in the less developed western and central regions.

Migration patterns appear to mirror these wage disparities. Panels (c) and (d) of Figure 2 show that provinces such as Guangdong, Zhejiang, Shanghai, and Jiangsu, which rank among the highest in minimum wage levels, each recorded more than 10 million inflow migrants, with Beijing following closely at 8.4 million. Together, these regions account for approximately 60% of the country's inter-provincial migration inflows. On the other hand, provinces with more than 10 million outflow migrants include Henan, Anhui, and Sichuan, with Guizhou, Guangxi, and Hunan also exceeding 8 million. These provinces are located in the less economically developed central and western regions and contribute to half of the



Notes: The x-axis shows the natural logarithm of provincial disparities in real minimum wages, defined as the difference in the (log) real monthly minimum wages between the residing province and the Hukou province, with real rates adjusted by the province-level CPI (1995=100, 1997=100 for Tibet). The y-axis represents the natural logarithm of inter-provincial migrant stocks in 2000, 2010, 2015, and 2020. Out of 4,650 potential observations ($31 \times 30 \times 5$ province-pair-year combinations), 30 are missing, 24 of which involve Tibet as either the origin (Hukou) or destination (residing) province. The missing values are replaced with a placeholder value of 1 to maintain analytical consistency. Further details on data sources and adjustments are provided in Section 3.3.

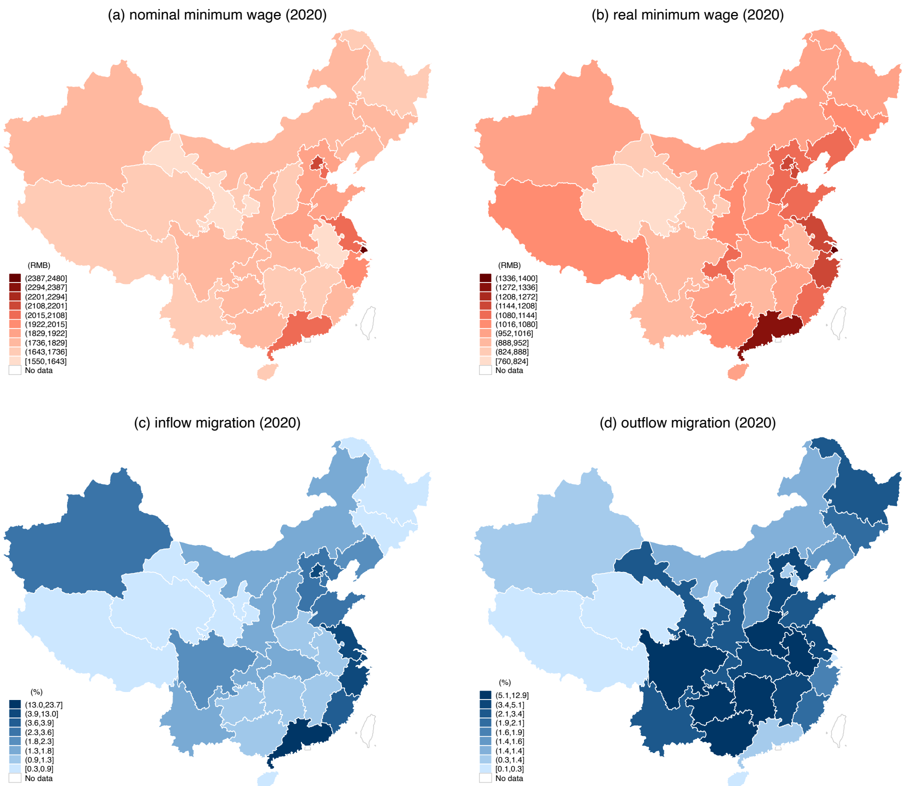
Figure 1: Real minimum wage disparities and inter-provincial migration

country's inter-provincial migration outflows.

Taken as a whole, the observations presented in Figure 2, along with the similar patterns in Figure A.1 for 2010, suggests a potential correlation between the spatial distribution of internal migration and regional minimum wage disparities. While this preliminary analysis offers valuable insights, it does not establish causality. To address this limitation, the following sections introduce a theoretical framework and conduct econometric analysis to examine whether, and to what extent, regional minimum wage disparities affect internal migration flows.

3 Methodology and Data

Section 3.1 develops a theoretical framework based on the Harris-Todaro model to conceptualize the relationship between minimum wage disparities and rural-urban migration. Section 3.2 presents the econometric specifications, including the fixed effects model and the instrumental variable approach, to address potential endogeneity concerns. Section 3.3 provides an overview of the data sources, adjustments, and descriptive statistics.



Notes: Panel (a) presents the distribution of nominal monthly minimum wages calculated with the time-weighted average method. Panel (b) presents the distribution of real monthly minimum wages adjusted by province-level CPI (1995=100, 1997=100 for Tibet). Panel (c) presents the distribution of inter-provincial inflow migration, defined as the inflow ratio = (population residing in a particular province with Hukou in other 30 provinces) / (national inter-provincial floating population in 2020). Panel (d) presents the distribution of inter-provincial outflow migration, defined as the outflow ratio = (population holding a particular province's Hukou while residing in other 30 provinces) / (national inter-provincial floating population in 2020).

Figure 2: Geographical distribution of minimum wages and internal migration in 2020

3.1 Theoretical Framework: Harris-Todaro Model

We analyze a model where rural workers can migrate to urban areas. We use a framework similar to that of the Harris-Todaro model, a canonical model of rural-urban migration developed by Todaro (1969) and Harris and Todaro (1970), following Zenou (2009, Appendix C).

In the standard Harris-Todaro model, the urban is considered as the non-agricultural employment area where workers receive an institutional minimum wage set above the market-clearing level. In contrast, the rural labor market is assumed to be competitive. The urban-rural wage gap induces rural-urban migration, but the high institutional wage keeps urban unemployment lower than optimal. Thus, there is chronic unemployment in urban areas. An equilibrium will be reached when the expected wage, calculated from the product of the institutional wage and the probability of obtaining employment, equals the rural wage.

Here, we allow the rural area to set a minimum wage. The rural area only differs from the urban area in a lower minimum wage. Let N^C, L^C, U^C, N^R, L^R, and U^R respectively denote urban population, urban employment, urban unemployment, rural population, rural employment, and rural unemployment. We have:

$$\begin{aligned} N^C &= L^C + U^C \\ N^R &= L^R + U^R \end{aligned} \tag{1}$$

and

$$N = N^C + N^R \tag{2}$$

where N is the total population.

When wages in urban and rural areas are denoted as w^C and w^R, the equilibrium migration condition is given by

$$w^C \frac{L^C}{L^C + U^C} = w^R \frac{L^R}{L^R + L^U} \tag{3}$$

Figure 3 shows a free-market equilibrium at the point E, where the labor market in both urban and rural areas are cleared at $w^C = w^R = w^*$ and $U^C = U^R = 0$.

Now, let the urban area choose a minimum wage at $\underline{w}^C$ and the rural area at $\underline{w}^R$, where $\underline{w}^C > w^*$, $\underline{w}^R > w^*$, and $\underline{w}^C > \underline{w}^R$. The equilibrium given by Equation (3) is depicted in Figure 4. We obtain an equilibrium under $\underline{w}^C$ and $\underline{w}^R$ at E'. By inspection, both L^C and L^R are smaller than the free-market equilibrium, and we have $U^C > 0$ and $U^R > 0$. The left-ward movement of E to E' implies the migration from rural to urban.

It is straightforward to see the impact of the minimum wage hike in the urban area, which can be depicted as the upper-ward shift of $\underline{w}^C \frac{L^C}{L^C+U^C}$ line. The equilibrium E' dislocate to upper-left on the $\underline{w}^R \frac{L^R}{L^R+U^R}$ line. The urban minimum wage will not change L^R until the $\underline{w}^C \frac{L^C}{L^C+U^C}$ line crosses point R. Combined with the upper-right movement of point C on the urban labor demand curve, the urban minimum wage hike induces migration from rural

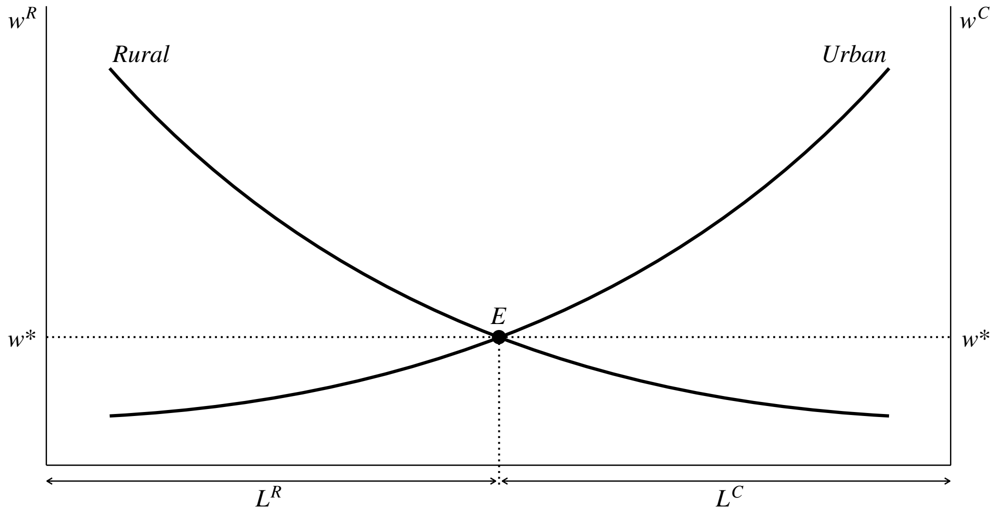


Figure 3: A free-market equilibrium

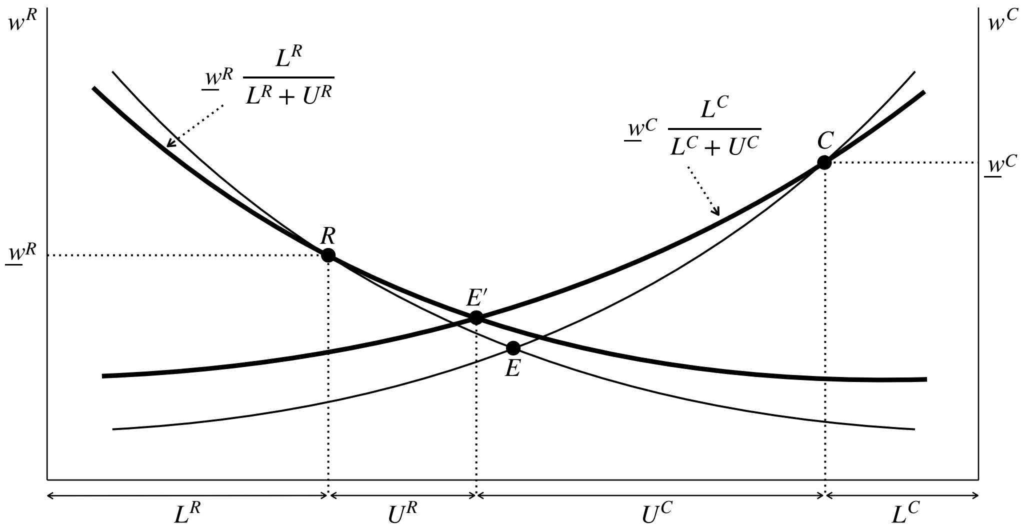


Figure 4: Equilibrium with urban and rural minimum wages

to urban areas, with more urban unemployment (U^C) and less urban employment (L^C) and rural unemployment (U^R).

Next, consider the effect of agglomeration while keeping $\underline{w}^C$ and $\underline{w}^R$ unchanged. Based on Figure 4, when the urban labor demand curve shifts up-left and the rural labor demand curve down-left, the corresponding shifts in the $\underline{w}^C \frac{L^C}{L^C+U^C}$ and $\underline{w}^R \frac{L^R}{L^R+U^R}$ curves move E' leftward, indicating that the population moves from rural to urban areas. Note that rural-urban migration increases even if there is no change in the minimum wage gap.

3.2 Econometric Specification

To examine the relationship between minimum wages and internal migration in China, we employ methodologies commonly used in studies of developed countries (Boffy-Ramirez, 2013; Cadena, 2014; Giulietti, 2014; Martin and Termos, 2015; Hamaguchi and Kondo, 2022; Feld, 2024), including a fixed effects (FE) model and an instrumental variable (IV) strategy to address potential endogeneity issues.

3.2.1 Fixed effects model

In the baseline specification, we estimate a fixed effects model that takes the following log-linear gravity-type form:

$$\begin{gathered}\ln \text{Migrant}_{i\to j,t} = \alpha + \beta \Delta \ln \text{RealMW}_{ij,t-1} + \gamma \Delta \ln \mathbf{X}_{ij,t-1} + \phi_{or(i),t} + \phi_{dr(j),t} + \eta_t + \epsilon_{ij,t} \\ i,j = \{1,2,\cdots,31\}\,,\ i \neq j,\ t = \{2000, 2005, 2010, 2015, 2020\}\end{gathered} \tag{4}$$

where the dependent variable, $\ln \text{Migrant}_{i\to j,t}$, is the natural logarithm of the population residing in province j with their household registration in another province i at the end of year t. It is important to note that $\text{Migrant}_{i\to j,t}$ represents an aggregated stock of migrants, rather than a flow variable. The main variable of interest in the specification is $\Delta \ln \text{RealMW}_{ij,t-1} = \ln \text{RealMW}_{j,t-1} - \ln \text{RealMW}_{i,t-1}$, which denotes the inter-provincial disparity in real minimum wages (in logarithmic forms) between Hukou province i and residing province j in year $t-1$. One-year lagged values are used, reflecting the rationale that minimum wage changes precede migration responses, while also mitigating potential endogeneity concerns. $\Delta \ln \mathbf{X}_{ij,t-1} = \ln \mathbf{X}_{j,t-1} - \ln \mathbf{X}_{i,t-1}$ is a vector of control variables, accounting for other factors influencing migration decisions, such as geographical cost, economic development disparities, labor market conditions, infrastructure, and public services. All covariates are similarly expressed in logarithmic terms and lagged by one year.

Furthermore, the model includes three fixed effects: $\phi_{or(i),t}$ for origin region-year fixed effects, $\phi_{dr(j),t}$ for destination region-year fixed effects, and η_t for time fixed effects. These fixed effects account for time-varying factors specific to origin and destination regions, such as regional policies or certain amenities, as well as general time-specific factors reflecting common shocks to the national economy. $\epsilon_{ij,t}$ is the error term. The baseline fixed-effects model in Equation (4) is regressed with the ordinary least squares (OLS) estimation method. The key parameter to estimate is β, which measures the elasticity strength of migration incentives for the inter-provincial percentage disparity in real minimum wages.

3.2.2 Instrumental variable strategy

Although the FE model effectively mitigates some endogeneity concerns, we further employ an IV approach to address these issues more rigorously. As highlighted in the literature, endogeneity arises from at least two primary sources (Boffy-Ramirez, 2013; Giulietti, 2014; Feld, 2024). The first is reverse causality. While migrants may respond to minimum wage disparities across provinces, migration itself can alter labor market conditions, potentially influencing how local governments set minimum wages.[2] The second source is omitted variable bias, where unobserved factors correlated with the minimum wage gap may also drive migration flows. For example, provincial productivity shocks can simultaneously lead to higher minimum wages and attract migrants, introducing bias if such shocks are not explicitly accounted for. Taken together, these factors render $\Delta \ln \text{RealMW}_{ij,t-1}$ an endogenous variable that requires careful handling in the analysis.

To address this, we adopt an instrumental variable (IV) approach as the identification strategy. Specifically, we instrument the provincial disparity in real minimum wages, $\Delta \ln \text{RealMW}_{ij,t-1}$, using $\Delta \ln \text{RealMW}_{ij,1995}$ – the initial gap in (log) real minimum wages observed in 1995, when most provinces established minimum wage standards following the 1993 *Minimum Wage Regulations for Enterprises*. The use of lagged values as instruments is a common practice in the literature, such as Mayneris et al. (2018), Bai et al. (2021) and Ma et al. (2024). Our approach relies on two key identifying assumptions: (i) $\Delta \ln \text{RealMW}_{ij,1995}$ is significantly correlated with the minimum wage gap in subsequent years, ensuring relevance, and (ii) it is also uncorrelated with the error term, satisfying the exogeneity condition. It is reasonable to assume that the minimum wage gap in 1995, which occurred five to twenty-five years prior to our sample period (1995–2020), is unlikely to substantially affect current migration flows, particularly given the frequent adjustments to minimum wages over time. Additionally, we apply the two-stage least squares (2SLS) method to estimate the IV estimators.

3.3 Data

We combine three primary datasets in our analysis. Table 1 provides a summary of the variable definitions, with detailed descriptions and discussions to follow. First, for the dependent variable, $\ln \text{Migrant}_{i \to j,t}$, we use migration stock data derived from the 2000, 2010, and 2020 *China Population Censuses* and the 2005 and 2015 *One-Percent Population Surveys*.[3] These datasets provide aggregated data for migrants who reside in a province different from their permanent household registration, aligning with the *inter-provincial*

[2] For instance, Strobl and Walsh (2016) finds that exogenous increases in migration in Thailand lead to higher compliance with minimum wage laws. Similarly, Edo and Rapoport (2019) shows that immigration harms native labor market outcomes in the United States, but higher minimum wages help alleviate these negative effects.

[3] To ensure consistency across the five years, we adjusted the migrant data in 2005 and 2015, which have sampling rates of 1.325% and 1.55%, respectively. This adjustment scales the data to account for the survey's sampling proportions, ensuring balanced samples across all years.

floating population defined by the NBSC. This allows us to construct an origin-destination matrix of migration at the provincial level, where the origin is the Hukou province i and the destination is the province j of residence.

Although informative, this dataset has two main limitations. First, it does not allow for precise identification of when migration occurred. Second, it includes all types and ages of migrants, rather than specifically targeting the migrant workforce. Nevertheless, based on the limited available public data, it is estimated that approximately 70% of migrants have moved to seek jobs or business purposes over the past two decades. Regarding the ages of migrants, for example, in 2000, over 85% of the inter-provincial floating population was aged 15-64.

Table 1: Definition of variables

Variable	Definition of variable
Dependent variable	
$\ln \text{Migrant}_{i \to j,t}$	Natural logarithm of the population residing in province j with their Hukou registered in another province i at the end of year t
Endogenous variable	
$\Delta \ln \text{RealMW}_{ij,t-1}$	$\ln \text{RealMW}_{j,t-1} - \ln \text{RealMW}_{i,t-1}$ Provincial gap in the natural logarithm of real monthly minimum wages
Control variables	
$\ln \text{Distance}_{ij,t-1}$	Natural logarithm of the geographical distance between provincial capital cities
$\Delta \ln \text{Population}_{ij,t-1}$	Provincial gap in the natural logarithm of population sizes
$\Delta \ln \text{Unemployment}_{ij,t-1}$	Provincial gap in the natural logarithm of unemployment rates in the urban area
$\Delta \ln \text{RealWage}_{ij,t-1}$	Provincial gap in the natural logarithm of average wages of urban employees
$\Delta \ln \text{RealHousePrice}_{ij,t-1}$	Provincial gap in the natural logarithm of average selling prices of commercialized buildings
$\Delta \ln \text{Road}_{ij,t-1}$	Provincial gap in the natural logarithm of paved road areas per capita
$\Delta \ln \text{Medical}_{ij,t-1}$	Provincial gap in the natural logarithm of numbers of medical technical personnel per 10,000 persons
Instrumental variable	
$\Delta \ln \text{RealMW}_{ij,1995}$	$\ln \text{RealMW}_{j,1995} - \ln \text{RealMW}_{i,1995}$ Provincial gap in the natural logarithm of real monthly minimum wages in 1995

Notes: For the vector of control variables regarding provincial disparities, $\Delta \ln \Psi_{ij,t-1} = \ln \Psi_{j,t-1} - \ln \Psi_{i,t-1}$, where $\Psi = \{\text{Population}, \text{Unemployment}, \text{RealWage}, \text{RealHousePrice}, \text{Road}, \text{Medical}\}$. All socioeconomic indicators used in the control variables are derived from the NBSC (`https://www.stats.gov.cn/english/`). All monetary variables are deflated by the province-level consumer price index (1995=100, 1997=100 for Tibet).

Second, for the endogenous variable of interest, $\Delta \ln \text{RealMW}_{ij,t-1}$, we calculate the disparities in (log) real monthly minimum wages between the residing province j and the Hukou province i. Specifically, we use the province-level nominal monthly minimum wage data from our unique hand-collected minimum wage database. These nominal wages are adjusted for regional cost of living differences using the province-level consumer price index (CPI), with 1995 as the base year (1997 for Tibet).

Third, for the control variables, $\Delta \ln \mathbf{X}_{ij,t-1}$, we include several proxies commonly used in migration studies across China (Cai and Wang, 2003; Poncet, 2006; Liu and Shen, 2014;

Gries et al., 2016; Ma et al., 2024). These variables reflect disparities in economic opportunities, labor market conditions, public services, and the costs associated with moving. Notably, these socioeconomic variables not only potentially influence migration decisions but also largely align with the factors explicitly outlined in the official minimum wage regulations of 1993 and 2004, which guide provinces in adjusting minimum wage levels.

Specifically, $\ln \text{Distance}_{ij,t-1}$ is a proxy for transportation, psychological, and informational costs, measured by the geographical distance between provincial capital cities. Labor market conditions are captured by differences in population size and urban unemployment rates, denoted as $\Delta \ln \text{Population}_{ij,t-1}$ and $\Delta \ln \text{Unemployment}_{ij,t-1}$, respectively. Economic development gaps are captured by provincial disparities in average wages of urban employees, $\Delta \ln \text{RealWage}_{ij,t-1}$, and the average selling price of commercialized buildings, $\Delta \ln \text{RealHousePrice}_{ij,t-1}$, both adjusted to real terms using the province-level CPI. $\Delta \ln \text{Road}_{ij,t-1}$ captures infrastructure disparities by measuring the paved road area per capita, while $\Delta \ln \text{Medical}_{ij,t-1}$ is the provincial difference in the number of medical technical personnel per 10,000 persons, indicating disparities in public services.

Descriptive statistics are presented in Table 2. Since our independent variables are constructed within province pairs and are naturally expected to exhibit symmetry, we report the descriptive statistics of their absolute values rather than the raw values. For example, the maximum value of $|\Delta \ln \text{RealMW}_{ij}|$ corresponds to the largest disparity in (log) real minimum wages observed between Qinghai and Guangdong in 2003, representing two symmetric observations within the total sample.[4] Additionally, Table A.1 provides descriptive statistics for the original province-level and province-pair disparity variables for reference.

Table 2: Descriptive statistics

Variable	N	Mean	SD	Min	Max
$\ln \text{Migrant}_{i \to j}$	4,650	9.49	2.10	0.00	15.75
$\|\Delta \ln \text{RealMW}_{ij}\|$	23,526	0.19	0.15	0.00	0.84
Distance_{ij}	24,180	7.09	0.63	4.60	8.18
$\|\Delta \ln \text{Population}_{ij}\|$	24,060	0.97	0.78	0.00	3.85
$\|\Delta \ln \text{Unemployment}_{ij}\|$	23,406	0.26	0.30	0.00	2.92
$\|\Delta \ln \text{RealWage}_{ij}\|$	23,944	0.25	0.23	0.00	1.07
$\|\Delta \ln \text{RealHousePrice}_{ij}\|$	20,460	0.45	0.40	0.00	1.95
$\|\Delta \ln \text{Road}_{ij}\|$	23,190	0.35	0.30	0.00	1.84
$\|\Delta \ln \text{Medical}_{ij}\|$	24,060	0.27	0.24	0.00	1.46

Notes: The dependent variable, $\ln \text{Migrant}_{i \to j}$, includes 4,650 potential observations ($31 \times 30 \times 5$ province-pair-year combinations) across five specific years (1995, 2000, 2005, 2010, 2015, and 2020). Other variables include 24,180 potential observations ($31 \times 30 \times 26$ province-pair-year combinations) from 1995 to 2020. $|\Delta \ln \Phi_{ij}|$ means the absolute value, where $\Phi = \{\text{RealMW, Population, Unemployment, RealWage, RealHousePrice, Road, Medical}\}$.

[4] There are 30 missing data among 4,650 potential observations for migration matrices. Of these, 24 involve Tibet, either as the origin (Hukou) or destination (residing) province. The missing values are replaced with a placeholder value of 1 to maintain analytical consistency, resulting in a minimum value of 0.00 for $\ln \text{Migrant}_{i \to j}$. Besides, the minimum values for the endogenous and control variables are nearly 0.00, primarily due to rounding to decimal places.

4 Empirical Results

4.1 Baseline Result

Table 3 presents the baseline results. Column (1) starts with a pooled regression without any control variables, while Column (2) incorporates controls for geographical distance and other socioeconomic disparities. The estimated coefficients for the disparity in (log) real minimum wages are 2.578 and 1.000, both significant at the 1% level. These results reaffirm the positive relationship between minimum wage disparities and internal migration identified in our causal analysis in Section 2.2. Moreover, the coefficients for the control variables are broadly consistent with the findings of previous studies (e.g., Poncet, 2006; Cheng et al., 2014; Xia and Lu, 2015; Gries et al., 2016), indicating that migrants are more likely to move to regions that are geographically closer, offer better employment and economic opportunities, and provide richer public amenities.

In Column (3), we further include origin region-year fixed effects, destination region-year fixed effects, and time fixed effects to account for time-varying factors specific to origin and destination regions, as well as general time-specific factors. We consider the results in Column (3) as our preferred OLS baseline. The estimated elasticity is consistent with the pooled results in Column (2) and remains statistically significant at the 1% level. On average, a 1% increase in the real minimum wage disparity is associated with a 1.05% increase in inter-provincial migration.

To further address endogeneity concerns, we use the initial minimum wage disparity in 1995 as an IV for identification. The second-stage 2SLS estimates are presented in Columns (4) and (5), without and with fixed effects, respectively.[5] The positive impact remains unchanged, with the magnitude doubling or tripling, both statistically significant at the 1% level. Our IV results suggest that, on average, a 1% increase in the real minimum wage disparity induces a 2.64% to 3.24% increase in inter-provincial migration. Given that the total inter-provincial floating population in China exceeded 120 million in 2020, we may conclude that, without rigorously addressing the endogeneity issue, the simple OLS correlation analysis likely underestimates, to a large extent, the causal effect of real minimum wage disparities on inter-provincial migration.

This underestimation indicates the likely existence of unobserved factors that may be positively correlated with minimum wage disparities and negatively correlated with migration, or vice versa. For instance, regions with a higher concentration of productive firms may offer higher minimum wages and invest in robotics technology (see evidence in Fan et al., 2021), which potentially reduces labor demand and discourages migration.

In addition, our finding of a positive but underestimated effect differs from the study of Hamaguchi and Kondo (2022), which indicates a positive but overestimated effect in Japan. Specifically, they find that spatial gaps in real minimum wages motivate high school graduates to seek jobs outside their resident prefectures, although the effect is overestimated

[5] In the weak identification test, both the Cragg-Donald Wald F-statistic and the Kleibergen-Paap Wald F-statistic are substantially greater than the critical values, as well as the robust first-stage F-statistic in the IV regressions, all of which indicate that there are no significant concerns regarding instrument weakness.

Table 3: Real minimum wage disparities and internal migration: Baseline result

	Dependent variable: $\ln \text{Migrant}_{i\to j,t}$				
	Pooled	Pooled	FE	IV	IV
	(1)	(2)	(3)	(4)	(5)
$\Delta \ln \text{RealMW}_{ij,t-1}$	2.578***	1.000***	1.054***	2.636***	3.244***
	(0.134)	(0.186)	(0.169)	(0.751)	(0.743)
$\ln \text{Distance}_{ij,t-1}$		-1.410***	-1.293***	-1.215***	-1.087***
		(0.043)	(0.040)	(0.042)	(0.041)
$\Delta \ln \text{Population}_{ij,t-1}$		-0.189***	-0.164***	-0.322***	-0.279***
		(0.026)	(0.025)	(0.044)	(0.040)
$\Delta \ln \text{Unemployment}_{ij,t-1}$		-0.172**	-0.260***	-0.363***	-0.491***
		(0.072)	(0.065)	(0.110)	(0.103)
$\Delta \ln \text{RealWage}_{ij,t-1}$		0.336	0.209	0.549**	0.075
		(0.217)	(0.208)	(0.245)	(0.244)
$\Delta \ln \text{RealHousePrice}_{ij,t-1}$		0.594***	0.341***	0.033	-0.059
		(0.097)	(0.108)	(0.177)	(0.157)
$\Delta \ln \text{Road}_{ij,t-1}$		0.130**	0.019	-0.101	-0.179**
		(0.058)	(0.062)	(0.108)	(0.085)
$\Delta \ln \text{Medical}_{ij,t-1}$		0.453***	0.550***	0.129	0.293***
		(0.099)	(0.090)	(0.109)	(0.092)
Year FE			yes		yes
Origin region×year FE			yes		yes
Destination region×year FE			yes		yes
Observations	4,590	4,590	4,590	3,780	3,780
R-squared	0.088	0.343	0.488		
First-stage outcome (Dependent variable: $\Delta \ln \text{RealMW}_{ij,t-1}$)					
$\Delta \ln \text{RealMW}_{ij,1995}$				0.249***	0.216***
				(0.015)	(0.015)

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

with the IV approach and the counterfactual evaluation. This inconsistency may stem from the varying factors driving labor mobility in different economic contexts. In developed economies such as Japan, urban amenities and non-wage factors play a significant role, whereas in developing economies like China, pecuniary incentives, particularly minimum wage disparities, have a more pronounced impact on shaping migration decisions.

4.2 Regional Heterogeneous Effect

This subsection investigates the heterogeneous effects of minimum wage disparities on inter-provincial migration across three economic regions, utilizing our origin-destination matrices dataset. We begin by conducting regressions based on origin and destination regions. Table 4 presents how the impact of real minimum wage disparities on migration varies across the eastern, central, and western regions in Panels A, B, and C, respectively.

In Columns (1) and (2) of Table 4, where each region serves as the origin (Hukou), all estimators in the pooled and fixed-effects models are positive and statistically significant at the 1% level. However, for the IV estimators in Column (3), only the central region

Table 4: Regional heterogeneous effect: By origin and destination region

	Dependent variable: $\ln \text{Migrant}_{i\to j,t}$					
Panel A	As origin region			As destination region		
Eastern region	Pooled	FE	IV	Pooled	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{RealMW}_{ij,t-1}$	1.909***	1.147***	-0.613	0.053	0.848***	6.502***
	(0.293)	(0.265)	(0.910)	(0.299)	(0.268)	(1.150)
Observations	1,639	1,639	1,485	1,639	1,639	1,485
R-squared	0.475	0.600		0.445	0.569	
Panel B	As origin region			As destination region		
Central region	Pooled	FE	IV	Pooled	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{RealMW}_{ij,t-1}$	1.290***	1.215***	16.721***	0.664**	0.443*	-5.948***
	(0.287)	(0.259)	(2.983)	(0.266)	(0.241)	(1.732)
Observations	1,192	1,192	1,080	1,192	1,192	1,080
R-squared	0.497	0.645		0.493	0.641	
Panel C	As origin region			As destination region		
Western region	Pooled	FE	IV	Pooled	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{RealMW}_{ij,t-1}$	0.896***	1.020***	5.646	1.355***	1.265***	3.392
	(0.312)	(0.286)	(3.755)	(0.307)	(0.280)	(3.275)
Observations	1,759	1,759	1,215	1,759	1,759	1,215
R-squared	0.279	0.414		0.186	0.335	
(For all panels)						
Controls	yes	yes	yes	yes	yes	yes
Year FE		yes	yes		yes	yes
Destination region×year FE		yes	yes			
Origin region×year FE					yes	yes

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

remains statistically significant, with a substantially high elasticity of 16.721, suggesting that migrants with hukou in the central provinces are most responsive to minimum wage disparities. In Columns (4) and (5), where each region serves as the destination (residence), the results generally show significantly positive effects, with higher estimates for the western region. Nevertheless, the IV results in Column (6) show that minimum wage disparities significantly incentivize migration toward the eastern region.

To elaborate further, we conduct regression analysis by origin-destination region pairs, with the results presented in Table 5. The eastern, central, and western regions serve as the origin in Panels A, B, and C, respectively, and as the destination in Columns (1)–(3), (4)–(6), and (7)–(9), respectively. Our results provide compelling evidence that the sensitivity of migrants' response to real minimum wage disparities varies with intra- and inter-regional heterogeneities. These effects are particularly pronounced in our IV estimators with fixed effects, as shown in Columns (3), (6), and (9).

First, focusing on intra-region pairs, the coefficients for the eastern-eastern and central-central pairs are insignificant (Column (3) of Panel A and Column (6) of Panel B). However,

Table 5: Regional heterogeneous effect: By region-pair

	Dependent variable: $\ln \text{Migrant}_{i\to j,t}$								
Panel A	(Destination)								
(Origin)	Eastern region			Central region			Western region		
Eastern region	Pooled	FE	IV	Pooled	FE	IV	Pooled	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$\Delta \ln \text{RealMW}_{ij,t-1}$	0.769*	0.769*	1.540	1.241***	0.175	-4.522***	2.510***	1.346***	0.446
	(0.461)	(0.401)	(2.022)	(0.346)	(0.297)	(1.069)	(0.528)	(0.462)	(2.301)
Observations	550	550	550	440	440	440	649	649	495
R-squared	0.538	0.656		0.636	0.762		0.321	0.502	
Panel B	(Destination)								
(Origin)	Eastern region			Central region			Western region		
Central region	Pooled	FE	IV	Pooled	FE	IV	Pooled	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$\Delta \ln \text{RealMW}_{ij,t-1}$	1.189**	2.299***	15.026***	0.774	0.774*	-89.970	0.343	0.123	-5.119**
	(0.473)	(0.446)	(2.228)	(0.647)	(0.457)	(549.349)	(0.469)	(0.422)	(2.248)
Observations	440	440	440	280	280	280	472	472	360
R-squared	0.485	0.590		0.571	0.789		0.370	0.504	
Panel C	(Destination)								
(Origin)	Eastern region			Central region			Western region		
Western region	Pooled	FE	IV	Pooled	FE	IV	Pooled	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$\Delta \ln \text{RealMW}_{ij,t-1}$	-0.626	0.682	7.900***	1.254**	1.464***	4.304	1.568***	1.568***	3.248*
	(0.513)	(0.451)	(3.039)	(0.520)	(0.428)	(2.620)	(0.510)	(0.481)	(1.661)
Observations	649	649	495	472	472	360	638	638	360
R-squared	0.381	0.542		0.427	0.582		0.154	0.256	
(For all panels)									
Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year FE		yes	yes		yes	yes		yes	yes

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

the elasticity for the western-western pair is 3.248, significant at the 10% level. This result is plausible, as provinces in the western region exhibit greater heterogeneity, with more urbanized provinces like Sichuan and Chongqing, and less developed provinces like Gansu and Qinghai.

Second, turning to inter-region pairs, migration from less developed regions to more urbanized ones exhibits a clear positive response to minimum wage disparities. The IV estimators are all positive and significant at the 1% level, with elasticities of 15.026 for the central-eastern pair, 7.900 for the western-eastern pair, and 1.464 for the western-central pair. In contrast, migration in the opposite direction shows either insignificant or negatively significant results. For example, the coefficient in Column (6) of Panel A shows that a 1% increase in the real minimum wage in the central provinces is associated with a 4.52% reduction in migration from individuals with hukou in the eastern provinces. The fixed effects estimators generally support these trends.

In sum, the findings in Table 5 provide clearer evidence of regional heterogeneous effects, suggesting that migrants are more sensitive to real minimum wage disparities in regions with substantial heterogeneity, particularly between more urbanized and less developed areas.

4.3 Robustness Check

In this subsection, we conduct additional analyses to check the robustness of our results. First, we use migration flow data, $\ln \text{Migrant}^{flow}_{i\to j,t}$, as an alternative dependent variable, which measures the population residing in a different province than five years earlier. Specifically, we construct an origin-destination migration flow matrix, where the origin is the residence province at the end of year $t-5$, and the destination is the residence province at the end of year t. The results are presented in Tables A.2, A.3, and A.4, corresponding to the baseline, regional heterogeneity by origin and destination regions, and region pairs, respectively.

Second, for the endogenous variable and all control variables except $\ln \text{Distance}$, we use the three-year average of provincial disparities in log values, defined as:

$$\overline{\Delta \ln} \Phi_{ij,(t-3,t-1)} = \frac{1}{3}\sum_{t-3}^{t-1} \Delta \ln \Phi_{ij,t} \tag{5}$$

where $\Phi = \{\text{RealMW, Population, Unemployment, RealWage, RealHousePrice, Road, Medical}\}$. For the instrument variable, we calculate the average provincial disparity in the (log) real monthly minimum wages for 1995 and 1996, enabling us to incorporate more samples. The results are presented in Tables A.5, A.6 and A.7.

The baseline results in Tables A.2 and A.5 show consistently positive and statistically significant estimates for real minimum wage disparities across all columns, reinforcing the positive (and potentially underestimated) impact of minimum wage disparities on migration, as discussed in Section 4.1. Likewise, regional heterogeneous effects persist, with migrants from less developed provinces exhibiting a stronger response to minimum wage disparities when moving to more urbanized ones. Furthermore, our key findings remain highly robust across alternative robustness checks, including the exclusion of Tibet from the sample.

5 Conclusion

In this paper, we explored whether, and to what extent, inter-provincial migration in China responds to real minimum wage disparities. We conceptualized the relationship between minimum wage disparities and rural-urban migration by introducing a theoretical framework based on the canonical Harris-Todaro model, allowing for the presence of minimum wages in both areas.

For the empirical analysis, we constructed an origin-destination (Hukou-residence) matrix dataset by combining inter-provincial migration data from 2000 to 2020 (at five-year intervals) with minimum wage disparity data, utilizing the unique long-term minimum wage database. To address endogeneity concerns, we employed FE and IV approaches as identification strategies. Our main results indicated a statistically significant positive impact of minimum wage disparities on internal migration in China, which may be potentially underestimated, with distinct heterogeneous effects across the country's three primary economic regions. Migrants were more responsive to minimum wage disparities when moving across provinces with greater economic heterogeneity, such as central-eastern, western-eastern, western-central, and intra-western migration patterns.

Our findings highlight the critical role of minimum wage disparities in shaping migration patterns in a developing economy like China, characterized by unique Hukou constraints. The empirical results suggest that local authorities should take these positive and regionally heterogeneous effects into account when setting minimum wage standards, as higher minimum wages in urbanized regions may attract individuals from less-developed ones, while increased minimum wages in less-developed regions may discourage migration from urbanized areas.

Despite the contributions of this study, several limitations should be acknowledged. Due to data constraints, we treated all types and age groups of migrants collectively, without focusing specifically on rural-urban labor migrants, who are more likely to be exposed to wage floors. Certain migrants included in our sample, such as older individuals moving to care for grandchildren, children accompanying their parents, or senior executives relocating, are assumed to be less affected by minimum wage disparities compared to labor migrants. Moreover, access to individual-level migration data would allow for more rigorous analysis, including the use of a nested logit model with individual controls and province-pair-year fixed effects. Such an approach would help provide more robust empirical evidence on the causal relationship between minimum wage disparities and migration. Finally, our analysis did not account for intra-provincial migration, which represents two-thirds of China's floating population, reaching over 250.98 million in 2020 – twice the number of inter-provincial migrants (NBSC, 2021). Since minimum wage standards also vary considerably within provinces, future research on the impact of these disparities on intra-provincial migration could yield valuable insights.

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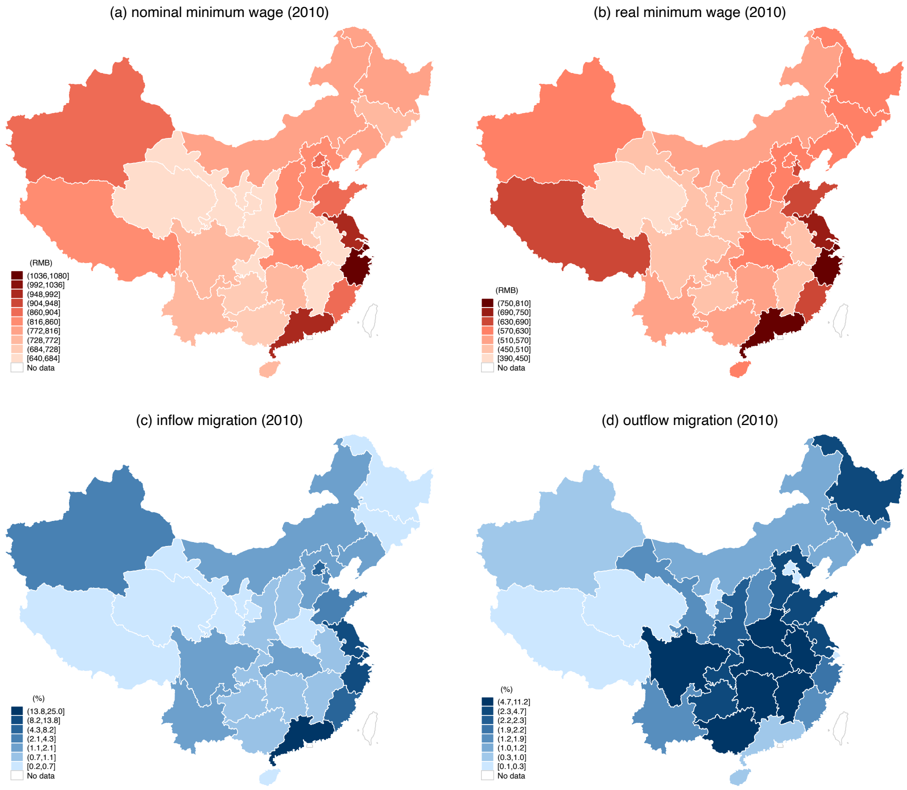
Appendix



Notes: Panel (a) presents the distribution of nominal monthly minimum wages calculated with the time-weighted average method. Panel (b) presents the distribution of real monthly minimum wages adjusted by province-level CPI (1995=100, 1997=100 for Tibet). Panel (c) presents the distribution of inter-provincial inflow migration, defined as the inflow ratio = (population residing in a particular province with Hukou in other 30 provinces) / (national inter-provincial floating population in 2010). Panel (d) presents the distribution of inter-provincial outflow migration, defined as the outflow ratio = (population holding a particular province's Hukou while residing in other 30 provinces) / (national inter-provincial floating population in 2010).

Figure A.1: Geographical distribution of minimum wages and internal migration in 2010

Table A.1: Descriptive statistics for original province-level and disparity variables

Variable	N	Mean	SD	Min	Max
Migration variables					
$\text{Migrant}_{i\to j}$	4,650	86,087.28	315,287.03	1.00	6,930,342.00
$\ln \text{Migrant}_{i\to j}$	4,650	9.49	2.10	0.00	15.75
Province-level variables					
RealMW_i	795	573.62	315.37	153.85	1,408.65
Population_i	804	4,250.71	2,750.57	240.00	12,624.00
Unemployment_i	793	3.43	0.85	0.40	7.40
RealWage_i	802	23,973.00	16,939.78	4,134.00	97,214.11
RealHousePrice_i	682	3,457.63	2,733.98	744.71	20,550.06
Road_i	774	12.39	5.01	3.90	31.80
Medical_i	804	48.33	17.43	19.65	126.13
Province-pair disparity variables					
$\lvert\Delta\text{RealMW}_{ij}\rvert$	23,526	100.29	92.44	0.00	715.98
Distance_{ij}	24,180	1,412.82	742.15	99.74	3,553.99
$\left\lvert\Delta\text{Population}_{ij}\right\rvert$	24,060	3,170.74	2,342.73	0.00	12,258.00
$\left\lvert\Delta\text{Unemployment}_{ij}\right\rvert$	23,406	0.81	0.79	0.00	7.00
$\left\lvert\Delta\text{RealWage}_{ij}\right\rvert$	23,944	6,303.47	8,548.85	0.21	57,900.17
$\lvert\Delta\text{RealHousePrice}_{ij}\rvert$	20,460	1,880.91	2,699.61	0.11	17,407.60
$\lvert\Delta\text{Road}_{ij}\rvert$	23,190	4.10	3.56	0.00	25.80
$\lvert\Delta\text{Medical}_{ij}\rvert$	24,060	12.67	12.50	0.00	72.83

Notes: Migration variables include 4,650 potential observations ($31 \times 30 \times 5$ province-pair-year combinations) across five specific years (1995, 2000, 2005, 2010, 2015, and 2020). The province-level variables include 806 potential observations (31×26 province-year combinations) covering the period from 1995 to 2020. The province-pair disparity variables include 24,180 potential observations ($31 \times 30 \times 26$ province-pair-year combinations) spanning the period from 1995 to 2020. $|\Delta\Phi_{ij}| = |\Phi_j - \Phi_i|$ means the absolute value, where $\Phi = \{$ RealMW, Population, Unemployment, RealWage, RealHousePrice, Road, Medical$\}$. Among the province-pair disparity variables, five minimum values are nearly 0.00, primarily due to rounding to decimal places.

Table A.2: Robustness check (1): Baseline result

	Dependent variable: $\ln \text{Migrant}^{flow}_{i \to j,t}$				
	Pooled	Pooled	FE	IV	IV
	(1)	(2)	(3)	(4)	(5)
$\Delta \ln \text{RealMW}_{ij,t-1}$	1.836***	0.554***	0.473***	2.411***	2.775***
	(0.123)	(0.169)	(0.157)	(0.706)	(0.734)
$\ln \text{Distance}_{ij,t-1}$		-1.313***	-1.176***	-1.151***	-1.002***
		(0.039)	(0.036)	(0.038)	(0.037)
$\Delta \ln \text{Population}_{ij,t-1}$		-0.059**	-0.044*	-0.209***	-0.179***
		(0.024)	(0.023)	(0.041)	(0.038)
$\Delta \ln \text{Unemployment}_{ij,t-1}$		-0.046	-0.055	-0.258**	-0.298***
		(0.064)	(0.060)	(0.103)	(0.101)
$\Delta \ln \text{RealWage}_{ij,t-1}$		0.280	0.142	0.538**	0.207
		(0.197)	(0.194)	(0.221)	(0.232)
$\Delta \ln \text{RealHousePrice}_{ij,t-1}$		0.482***	0.378***	-0.157	-0.109
		(0.086)	(0.099)	(0.165)	(0.151)
$\Delta \ln \text{Road}_{ij,t-1}$		0.214***	0.089	0.012	-0.022
		(0.052)	(0.057)	(0.099)	(0.082)
$\Delta \ln \text{Medical}_{ij,t-1}$		0.282***	0.290***	-0.055	0.029
		(0.090)	(0.085)	(0.100)	(0.088)
Year FE			yes		yes
Origin region×year FE			yes		yes
Destination region×year FE			yes		yes
Observations	4,590	4,590	4,590	3,780	3,780
R-squared	0.059	0.305	0.428		
First-stage outcome (Dependent variable: $\Delta \ln \text{RealMW}_{ij,t-1}$)					
$\Delta \ln \text{RealMW}_{ij,1995}$				0.249***	0.216***
				(0.015)	(0.015)

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.
Notes: For the dependent variable, $\ln \text{Migrant}^{flow}_{i \to j,t}$, we use migration flow data, where the origin is the residence province i at the end of year $t-5$ and the destination is the residence province j at the end of year t.

Table A.3: Robustness check (1): By origin and destination region

	Dependent variable: $\ln \text{Migrant}^{flow}_{i \to j,t}$					
Panel A	As origin region			As destination region		
Eastern region	Pooled	FE	IV	Pooled	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{RealMW}_{ij,t-1}$	1.214***	0.569**	-1.080	0.017	0.607**	6.597***
	(0.281)	(0.260)	(0.933)	(0.257)	(0.239)	(1.124)
Observations	1,639	1,639	1,485	1,639	1,639	1,485
R-squared	0.422	0.521		0.448	0.522	
Panel B	As origin region			As destination region		
Central region	Pooled	FE	IV	Pooled	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{RealMW}_{ij,t-1}$	0.986***	0.815***	14.477***	-0.284	-0.443**	-6.829***
	(0.255)	(0.247)	(2.647)	(0.208)	(0.196)	(1.634)
Observations	1,192	1,192	1,080	1,192	1,192	1,080
R-squared	0.544	0.635		0.522	0.618	
Panel C	As origin region			As destination region		
Western region	Pooled	FE	IV	Pooled	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{RealMW}_{ij,t-1}$	0.471*	0.431*	6.185*	0.956***	0.904***	3.194
	(0.273)	(0.258)	(3.657)	(0.289)	(0.269)	(3.404)
Observations	1,759	1,759	1,215	1,759	1,759	1,215
R-squared	0.235	0.325		0.154	0.275	
(For all panels)						
Controls	yes	yes	yes	yes	yes	yes
Year FE		yes	yes		yes	yes
Destination region×year FE		yes	yes			
Origin region×year FE					yes	yes

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Notes: For the dependent variable, $\ln \text{Migrant}^{flow}_{i \to j,t}$, we use migration flow data, where the origin is the residence province i at the end of year $t-5$ and the destination is the residence province j at the end of year t.

Table A.4: Robustness check (1): By region-pair

	Dependent variable: $\ln \mathrm{Migrant}^{flow}_{i \to j,t}$								
Panel A	(Destination)								
(Origin)	Eastern region			Central region			Western region		
Eastern region	Pooled	FE	IV	Pooled	FE	IV	Pooled	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$\Delta \ln \mathrm{RealMW}_{ij,t-1}$	0.477	0.477	3.824*	-0.321	-1.213***	-7.240***	2.210***	1.107**	-0.558
	(0.410)	(0.371)	(2.203)	(0.327)	(0.312)	(1.299)	(0.505)	(0.448)	(2.363)
Observations	550	550	550	440	440	440	649	649	495
R-squared	0.517	0.592		0.583	0.672		0.286	0.461	
Panel B	(Destination)								
(Origin)	Eastern region			Central region			Western region		
Central region	Pooled	FE	IV	Pooled	FE	IV	Pooled	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$\Delta \ln \mathrm{RealMW}_{ij,t-1}$	1.368***	2.009***	13.012***	0.234	0.234	-77.127	-0.027	-0.294	-5.091**
	(0.401)	(0.399)	(1.981)	(0.538)	(0.392)	(469.706)	(0.422)	(0.392)	(2.115)
Observations	440	440	440	280	280	280	472	472	360
R-squared	0.537	0.592		0.608	0.770		0.392	0.490	
Panel C	(Destination)								
(Origin)	Eastern region			Central region			Western region		
Western region	Pooled	FE	IV	Pooled	FE	IV	Pooled	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$\Delta \ln \mathrm{RealMW}_{ij,t-1}$	-0.468	0.375	7.238**	0.246	0.343	2.056	0.974**	0.974**	2.060
	(0.436)	(0.398)	(2.922)	(0.377)	(0.340)	(1.667)	(0.475)	(0.454)	(1.730)
Observations	649	649	495	472	472	360	638	638	360
R-squared	0.352	0.454		0.448	0.537		0.125	0.194	
(For all panels)									
Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year FE		yes	yes		yes	yes		yes	yes

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Notes: For the dependent variable, $\ln \mathrm{Migrant}^{flow}_{i \to j,t}$, we use migration flow data, where the origin is the residence province i at the end of year $t-5$ and the destination is the residence province j at the end of year t.

Table A.5: Robustness check (2): Baseline result

	Dependent variable: $\ln \text{Migrant}_{i \to j,t}$				
	Pooled	Pooled	FE	IV	IV
	(1)	(2)	(3)	(4)	(5)
$\overline{\Delta \ln}\text{RealMW}_{ij,(t-3,t-1)}$	2.581***	1.068***	1.169***	2.569***	3.218***
	(0.135)	(0.193)	(0.181)	(0.435)	(0.435)
$\ln \text{Distance}_{ij,(t-3,t-1)}$		-1.410***	-1.293***	-1.196***	-1.103***
		(0.043)	(0.040)	(0.039)	(0.037)
$\overline{\Delta \ln}\text{Population}_{ij,(t-3,t-1)}$		-0.200***	-0.171***	-0.318***	-0.283***
		(0.027)	(0.025)	(0.033)	(0.031)
$\overline{\Delta \ln}\text{Unemployment}_{ij,(t-3,t-1)}$		-0.134*	-0.281***	-0.251***	-0.469***
		(0.076)	(0.070)	(0.084)	(0.081)
$\overline{\Delta \ln}\text{RealWage}_{ij,(t-3,t-1)}$		0.348	0.245	0.448**	0.158
		(0.221)	(0.213)	(0.194)	(0.191)
$\overline{\Delta \ln}\text{RealHousePrice}_{ij,(t-3,t-1)}$		0.571***	0.289**	0.090	-0.162
		(0.105)	(0.113)	(0.123)	(0.130)
$\overline{\Delta \ln}\text{Road}_{ij,(t-3,t-1)}$		0.122**	0.014	-0.051	-0.105
		(0.059)	(0.062)	(0.077)	(0.065)
$\overline{\Delta \ln}\text{Medical}_{ij,(t-3,t-1)}$		0.460***	0.560***	0.278***	0.479***
		(0.093)	(0.086)	(0.090)	(0.078)
Year FE			yes		yes
Origin region×year FE			yes		yes
Destination region×year FE			yes		yes
Observations	4,590	4,590	4,590	4,350	4,350
R-squared	0.087	0.344	0.489		

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.
Notes: For the endogenous variable and all control variables except ln Distance, we use the average provincial disparities in the (log) values over the previous three years. Specifically, $\overline{\Delta \ln}\Phi_{ij,(t-3,t-1)} = \frac{1}{3}\sum_{t-3}^{t-1} \Delta \ln \Phi_{ij,t}$, where $\Phi = \{\text{RealMW, Population, Unemployment, RealWage, RealHousePrice, Road, Medical}\}$. For the instrument variable, we calculate the average provincial disparity in the (log) real monthly minimum wages in 1995 and 1996.

Table A.6: Robustness check (2): By origin and destination region

	Dependent variable: $\ln \text{Migrant}_{i \to j,t}$					
Panel A	As origin region			As destination region		
Eastern region	Pooled	FE	IV	Pooled	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)
$\overline{\Delta \ln}\text{RealMW}_{ij,(t-3,t-1)}$	2.294***	1.394***	0.536	-0.378	0.572**	3.969***
	(0.290)	(0.259)	(0.520)	(0.291)	(0.263)	(0.656)
Observations	1,639	1,639	1,595	1,639	1,639	1,595
R-squared	0.484	0.611		0.452	0.575	
Panel B	As origin region			As destination region		
Central region	Pooled	FE	IV	Pooled	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)
$\overline{\Delta \ln}\text{RealMW}_{ij,(t-3,t-1)}$	1.465***	1.392***	11.800***	0.524*	0.253	-4.713***
	(0.302)	(0.278)	(1.314)	(0.280)	(0.264)	(0.849)
Observations	1,192	1,192	1,160	1,192	1,192	1,160
R-squared	0.501	0.644		0.495	0.642	
Panel C	As origin region			As destination region		
Western region	Pooled	FE	IV	Pooled	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)
$\overline{\Delta \ln}\text{RealMW}_{ij,(t-3,t-1)}$	0.748**	0.996***	4.272***	1.851***	1.718***	4.750***
	(0.337)	(0.317)	(1.039)	(0.327)	(0.305)	(0.882)
Observations	1,759	1,759	1,595	1,759	1,759	1,595
R-squared	0.287	0.416		0.201	0.347	
(For all panels)						
Controls	yes	yes	yes	yes	yes	yes
Year FE		yes	yes		yes	yes
Destination region×year FE		yes	yes			
Origin region×year FE					yes	yes

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Notes: For details on the independent variables and the instrumental variable used in the robustness check, refer to the notes in Table A.5.

Table A.7: Robustness check (2): By region-pair

	Dependent variable: $\ln \text{Migrant}_{i \to j,t}$								
Panel A	(Destination)								
(Origin)	Eastern region			Central region			Western region		
Eastern region	Pooled	FE	IV	Pooled	FE	IV	Pooled	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$\overline{\Delta \ln \text{RealMW}}_{ij,(t-3,t-1)}$	0.691	0.691*	0.624	1.412***	0.281	-3.451***	3.182***	1.745***	1.914*
	(0.441)	(0.377)	(0.915)	(0.339)	(0.304)	(0.728)	(0.526)	(0.460)	(1.110)
Observations	550	550	550	440	440	440	649	649	605
R-squared	0.538	0.655		0.639	0.763		0.355	0.531	
Panel B	(Destination)								
(Origin)	Eastern region			Central region			Western region		
Central region	Pooled	FE	IV	Pooled	FE	IV	Pooled	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$\overline{\Delta \ln \text{RealMW}}_{ij,(t-3,t-1)}$	0.853*	2.049***	11.225***	0.356	0.356	41.609	0.645	0.539	110.529
	(0.478)	(0.457)	(1.386)	(0.649)	(0.470)	(107.045)	(0.522)	(0.467)	(143.110)
Observations	440	440	440	280	280	280	472	472	440
R-squared	0.479	0.583		0.563	0.782		0.397	0.517	
Panel C	(Destination)								
(Origin)	Eastern region			Central region			Western region		
Western region	Pooled	FE	IV	Pooled	FE	IV	Pooled	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$\overline{\Delta \ln \text{RealMW}}_{ij,(t-3,t-1)}$	-1.259**	0.581	5.728***	1.322**	1.424***	-51.200	1.944***	1.944***	10.941***
	(0.497)	(0.465)	(1.520)	(0.632)	(0.521)	(70.951)	(0.563)	(0.542)	(3.737)
Observations	649	649	605	472	472	440	638	638	550
R-squared	0.408	0.562		0.442	0.590		0.162	0.263	
(For all panels)									
Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year FE		yes	yes		yes	yes		yes	yes

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Notes: For details on the independent variables and the instrumental variable used in the robustness check, refer to the notes in Table A.5.