Determinants of Internal Migration in Mainland China: Income Differentials or Policy Regulations?

Yinan Sheng[1], Menghan Zhao[2]

Abstract The influence of regulations or policies on migration has long been discussed in international migration literature. However, policy impacts on internal migration remain less studied. This paper focuses on the decline of permanent settlement intention of migrant workers in Beijing and discusses how recent regulations that lead to fewer labor market opportunities and raise risks and uncertainty in migration shape their settlement intention. Using representative data collected in 2012, 2014 and 2017, we find that the income differential still largely determines migrant workers' settlement intention, while its negative impact on their leaving or uncertainty intention has weakened over time. Further, the change in the influence of income differential is most pronounced among the migrant workers in traditional industries, who are the target group of recent migration regulations, rather than those in high-tech industries.

RISKS, REGULATIONS AND MIGRANTS' SETTLEMENT INTENTION

In early studies, the expected income differentials were considered as the most important determinants in the model of labor migration (Todaro, 1969). Nevertheless, the expected-income maximization per se is not the only motive of migration decision. The theory of new economics of labor migration proposed by Stark and his colleagues (1986; 1982) points to the risks and uncertainty in migration. For rural migrants in less developed countries, migration, on the one hand, can be viewed as a process of innovation adoption that minimizes risks and maximizes the household income. On the other hand, given the uncertainty of urban employment, migration itself is risky behavior and needs other family members staying in the rural area to spread the risks. Sociologists, instead, emphasize more on the social contexts and tend to understand the migration behavior in terms of the specific meaning attached to the attributes of the jobs taken by migrants. The dual/segmented labor market theory proposes that the urban labor market in industrial society is persistently divided between primary market, which requires advanced skills and pays better wages, and secondary market that consists of labor-intensive jobs and pays low wages (Reich et al., 1973). Migrants who are usually less educated and unskilled are most likely to hold the secondary jobs which local residents are unwilling to take because of the few prospects for mobility and the temporary nature that labor-intensive workers are the first to be laid off when the market demand is low (Piore, 1979).

Except for the uncertainty brought by taking jobs in the secondary labor markets, immigrants also face the risks and uncertainty imposed from changing government migration regulations. Despite of the growth of global cities and integration of capital markets, governments persistently set restrictions on the integration of labor markets that might challenge sovereignty and citizenship (Legrain, 2007; Sassen, 2006). Although no consensus has been reached about the effectiveness of these restrictions on regulating immigration

[1] Institute of Population and Economics, Capital University of Economics and Business, Beijing
[2] Corresponding author, Center for Population and Development Studies, Renmin University of China, Beijing

flows, these regulations or policies raise the risks and uncertainty of migration (Kossoudji and Cobb−Clark, 2002; Massey and Pren, 2012). The employment and welfare benefits of refugees in Britain are also largely affected by the policies, and the immigration status is overwhelmingly important in determining their settlement (Bloch, 2000). For Latin American immigrants in the United States, restrictive policies increasingly limit their potential for adaption to the host country (Takei et al., 2009). In the post-IRCA period, the limited access to formal employment opportunities might also lead to increased crime committed by Hispanic people as a substitute for formal work (Freedman et al., 2018).

RESEARCH CONTEXT AND HYPOTHESES

Concurrent with the economic reform since the late 1970s, the government control on internal migration has weakened in mainland China. According to the census data, the size of internal migrants has increased dramatically from 6.6 million to 221 million between 1982 and 2010 (Liang et al., 2014). Nevertheless, the household registration (*hukou*) system starting in 1958 has been maintained, limiting rural migrants' access to various entitlements in cities, including public services such as social security, employment opportunities and subsidized housing, even if they have lived and worked in urban areas for years.

Since 1989, the central government has implemented a series of *hukou* system reforms. In 2014, a new round of *hukou* reform – the National New-type Urbanization Plan (hereafter Plan) – started, encouraging urban settlement of rural migrants. According to the Plan, local governments can set up their own regulations on migrants' enrollment in local *hukou* systems to gradually convert the *hukou* status of rural migrants (Gu et al., 2014). Migrants will be granted full access to the local *hukou* registration in cities with populations less than 3 million in urban areas. The restrictions on *hukou* registration will be loosened in bigger cities with populations less than 5 million in urban areas, while the mega cities having more than 5 million residents (e.g. Beijing) should set restrictions on *hukou* conversion. In a similar vein with international migration, government regulations on the geographic mobility of people largely affect the settlement intention of internal migrants in China.

Migrants and migration regulations in Beijing

Beijing, the capital city of China, has been one of the main receiving cities of internal migrants because of more job opportunities, higher income and standard of living. In 2000, the per capita disposable income and consumption expenditure of Beijing residents was 10,349 and 8,493 *yuan*, respectively, 1.6 times the national average. In 2017, per capita disposable income of Beijing increased to 62,406 *yuan*, 2.2 times the national average. Similarly, the per capita consumption expenditure grew to 52,912 *yuan*, 2.3 times of the national consumption level. Over time, the income differentials between residents in Beijing and those in most other cities have been widening. These growing income differences attract large inflows of migrants who further introduce relatives and friends from hometown to Beijing, forming urban villages (Ma and Xiang, 1998; Zheng et al., 2009). Based on previous literature on the importance of income differentials in the migration decision-making process and Beijing context, we propose the first hypothesis

> *H1: migrants who earn higher income in Beijing than their potential income in hometown (i.e. larger income differentials) are less likely to show uncertain settlement*

intention or intention of leaving.

The rapid growth of migrants, on the other hand, also exacerbates urban diseases such as traffic congestion and environmental pollution, challenges urban infrastructure and public resources, and leads to unfair competition (Zhang 2002). Consequently, as mentioned, the governments in mega-cities (e.g. Beijing) tend to control the sizes of migrants. According to the Beijing Overall Planning (2016-2035), Beijing government sets a limit to the number of the total population - 23 million by 2020. Since 2012, the government has implemented several regulations to slow down the rapid inflow of migrants. Under the guidance of neoclassical theories that migration results from a rational cost-benefit analysis, these regulations aim to raise migration costs and reduce its benefits, including relocating companies hiring migrants to other provinces, starting residential permit system and adopting points-based *hukou* policy. Migrants are qualified for local *hukou* and welfare benefits available to local urbanities if they can get enough 'points', which depend on education, skills, years of work, social-insurance payment and other criteria. Besides, the quota of points-based *hukou* system for converting migrants to Beijing *hukou* was set at 6,000 per year, which decreases the chances of having access to local public services, and thus increases their uncertain settlement intention or even the intention of leaving Beijing. Thus, we propose the second hypothesis about migrants in Beijing

H2: the negative impacts of larger income differentials on migrants' intention of leaving or uncertain settlement intention have weakened in recent years.

At the meantime, local reforms in mega cities aim to maintain desired (e.g. highly educated or skilled) migrants while excluding others by setting up a high threshold for registering in local *hukou*. According to the regulations, migrants are eligible for Beijing *hukou* if they are under age 55 for women or 60 for men, have paid for social insurance for at least seven consecutive years, and most importantly, obtain enough points. For migrants who work in high-tech companies, win innovative and entrepreneurial awards or have higher education, it is much easier to collect enough points and get Beijing *hukou*. In addition, the Beijing government also tends to realize the selection of migrants through making changes to fundamental organization of the economy, such as industrial restructuring and relocation. As predicted by the conventional dual labor market theory, migrants mainly take secondary jobs, which are usually unskilled, temporary and pay low wages (Zhang and Wu 2017). With the traditional industries (e.g manufacturing) relocated to nearby cities in its neighboring Hebei province, fewer employment opportunities have been left in low-skilled jobs which are mainly taken by migrants. Because the industrial restructuring is also taken as a measure to regulate the migrants' inflow, we will also test the second hypothesis separately on migrants in traditional industries and high-tech industries.

DATA AND ANALYTICAL APPROACH

Data

To test the hypotheses, we use the data from the China Migrants Dynamic Survey (CMDS) – a cross-sectional survey. The survey was commissioned by National Health Commission of China based on stratified three-stage sampling design, covering 31 provinces, provincial-level

autonomous regions and municipalities. In this study, we only focus on working-age respondents (15-59 years old at the time of the survey) without Beijing *hukou* but have lived in Beijing for more than one month. The data collected in the years 2012, 2014 and 2017 are pooled to test the trend of migrants' settlement intentions in recent years. The original sample size is 5994, 7998 and 6999, respectively. Because we test on the impacts of income gaps between actual income in Beijing and potential income in hometown on migrants' settlement intention, we only focus on employed migrants reporting income. The final analytical sample size is 4470, 7034 and 4508 for each wave of the survey.

Analytical approach

The dependent variable is the settlement intention of migrant workers. It has three categories: permanent settlement (reference group), leaving Beijing or uncertain. Because the uncertainty results from the lack of tacit knowledge about the changing work opportunities under recent regulations and reflects migrants' hesitation in staying, we kept this category, which was different from previous studies (Cao et al., 2015; Fan, 2011). Almost 25% of the respondents chose "uncertain" on average.

Because the dependent variable has three categories, we adopted multinomial logistic regression models and conducted our analyses in progressive stages. The chi-square tests do not reject the assumption of independence of irrelevant alternatives (IIA) inherent in multinomial logit models.

A vector of control variables is also included in the statistical models. Respondents' demographic variables include age measured in years, gender (women as the reference group), marital status, educational attainment and *hukou* status (agriculture, non-agriculture as the reference group). Respondents' migration histories and characteristics - family migration, migration duration, migration distance are also controlled. We compute a family migration coefficient for each migrant as the number of unemployed family members accompanying migrants in Beijing. Migration duration at the destination is measured in years and defined as the length of time that migrant workers stay in cities, which might be positively associated with migrants' assimilation and higher settlement intention in the receiving cities (Su, 2017). Migration distance is measured by the great circle distance, which has been widely used in previous studies (Noulas et al., 2012; Porcu et al., 2016), between the provincial capital of migrants' home provinces and Beijing.

To test the **first hypothesis**, the main independent variable is the income differentials (in 10,000 *yuan*) between migrant workers' potential income in their hometown and their actual earnings in Beijing. The gap is computed as the difference between the per capita disposable income of residents living in migrants' original places where their *hukou* is registered and their actual income earned in Beijing. The per capita disposable income of residents in migrants' original places is considered as the "potential income" of migrants, which is the income that migrants might earn if they did not move to Beijing. For migrants who hold agricultural *hukou*, the potential income is the per capita disposable income in rural areas of their original provinces. For migrants with non-agricultural *hukou*, the potential income is the per capita disposable income of urban residents in their original provinces. To test the **second hypothesis** about the decreasing size of the negative impact of income differentials on the intention of leaving Beijing or uncertain intention over time, the survey year is also an independent variable of interest with the year 2012 as the reference category.

SUMMARY OF PRELIMINARY RESULTS

Settlement intention of migrants in Beijing

As shown in Table 1, the proportion of migrants having permanent settlement intention dropped substantially between 2012 and 2017, declining from more than 70% to around 55%, while those of who wanted to leave Beijing or showed uncertain intention increased, in correspondence with the drop of migrants in Beijing from 8.23 million in 2015 to 7.94 million in 2017. As suggested in the literature review section, this might result from the regulations on migration implemented during these years, leading to growing risks and uncertainties in the social and labor market conditions for migrants.

Table 1 Settlement intention of migrants in Beijing

Year	Permanent settlement	Leaving Beijing	Uncertain	N
2012	3299 (73.80%)	446 (9.98%)	725 (16.22%)	4470
2014	4308 (61.25%)	818 (11.63%)	1908 (27.13%)	7034
2017	2503 (55.52%)	741 (16.44%)	1264 (28.04%)	4508

Note: Chi-square (4) =377.58; p=0.000

To test the hypotheses, we conducted multinomial logistic models (Table 2). As shown, the settlement intention of migrants is significantly affected by the income gap between migrants' actual income in Beijing and potential income in hometown provinces. A larger income gap is negatively associated with the intention of leaving Beijing or uncertain intention, which is consistent with previous studies (Fan, 2011), **supporting the first hypothesis**. Further, compared to 2012, the relative risks of having uncertain or leaving intentions have increased significantly in 2014 and 2017 for migrants in Beijing, which is consistent with our descriptive analysis.

Table 2 Multinomial logistic regression: migrants' settlement intention

	Leaving Beijing		Uncertain	
	Coefficients	S.E	Coefficients	S.E
Income differential	-0.068***	0.009	-0.067***	0.007
Industry (Ref: High-tech industry)				
Traditional industry	0.302***	0.077	0.286***	0.059
Age	-0.001	0.003	-0.013***	0.003
Gender (Ref: Women)				
Men	0.199***	0.054	0.089***	0.042
Marital status (Ref: Unmarried)				
Married	-0.202**	0.072	-0.386***	0.056
Education level (Ref: Primary school or lower)				
Middle school	-0.062	0.099	-0.087	0.081
College or above	-0.329**	0.122	-0.497**	0.098
Hukou status (Ref: Non-agriculture)				
Agriculture	0.668***	0.075	0.453***	0.056
Family migration coefficient	-0.374***	0.038	-0.279***	0.028
Migration duration	-0.113***	0.006	-0.083***	0.004

Migration distance	0.033***	0.006	0.016***	0.005
Year (Ref: 2012)				
2014	0.558***	0.066	0.915***	0.053
2017	1.437***	0.074	1.502***	0.061
Constant	-2.509***	0.203	-1.115***	0.160
N	16012			
Log likelihood	-12865			

Notes: $^{+}$P<0.1, * P<0.05, ** P<0.01, *** P<0.001. Reference group in the multinomial logistic regression is permanent settlement.

The settlement intention is also significantly different between migrants in high-tech industries and those in traditional industries. Specifically, migrant workers in traditional industries are model likely to have uncertain settlement intention or intention of leaving Beijing. This might be related to the restructuring of industries in Beijing in recent years. That is, some traditional industries have been relocated to the neighboring provinces, leading to fewer employment opportunities and higher risks of losing jobs for migrants in Beijing.

Weakened influence of income differentials on settlement intention

To test the second hypothesis, we further added the interaction terms between income gap and year variables (Table 3). The positive coefficients of interaction terms[3] indicate that the negative influence of larger income differentials on migrants' leaving or uncertain intention has weakened over time, **supporting our second hypothesis**. In other words, given the same income difference between actual income in Beijing and potential income in hometown provinces, migrants are more likely to show the intention of leaving Beijing or uncertain settlement intention in more recent years.

Table 3 Multinomial logistic regression: Interaction effect of income gap and year on settlement intention

	Leaving Beijing		Uncertain	
	Coefficients	S.E.	Coefficients	S.E.
Income differential	-0.128***	0.028	-0.119***	0.022
Year (Ref: 2012)				
2014	0.653***	0.092	1.031**	0.071
2017	1.553***	0.094	1.603***	0.076
Year * Income differential				
2014 * Income differential	0.037	0.031	0.058*	0.024
2017 * Income differential	0.086**	0.030	0.059*	0.023
Industry (Ref: High-tech industry)				
Traditional industry	0.302***	0.077	0.287***	0.059
Control variables	Yes		Yes	
N	16012			
Log likelihood	-12855			

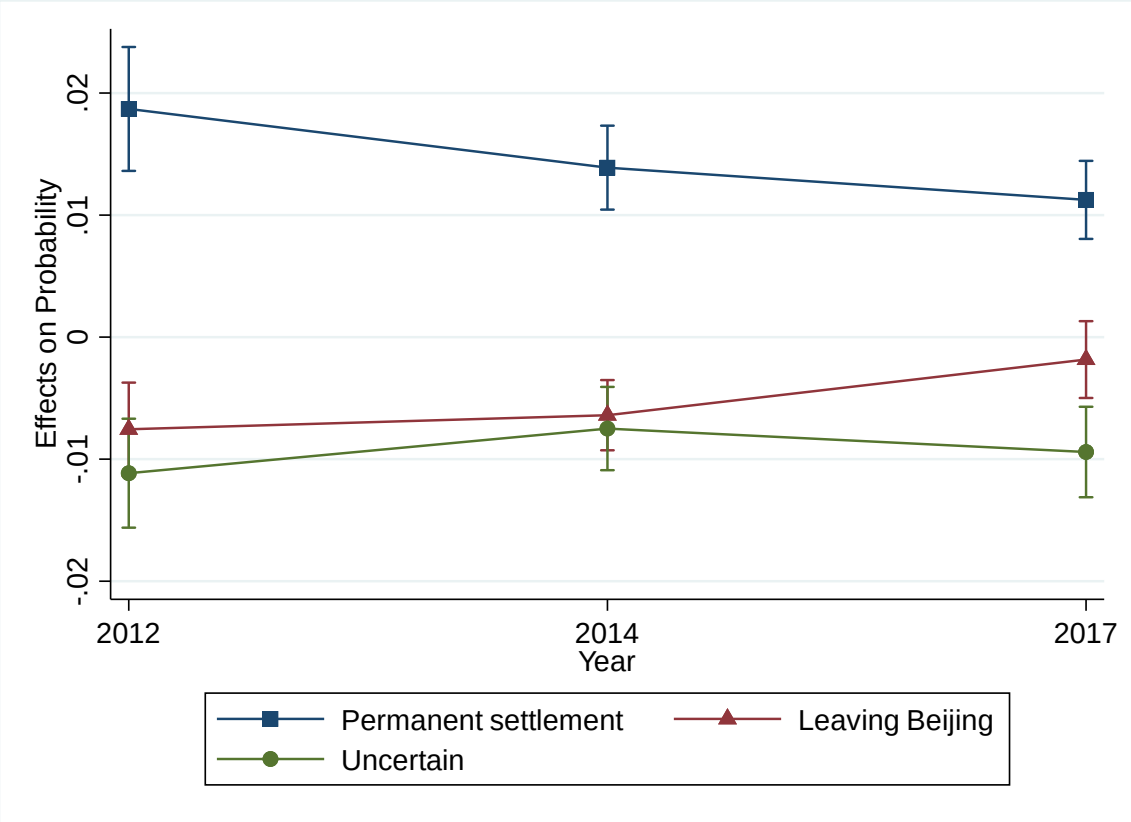
Notes: $^{+}$P<0.1, * P<0.05, ** P<0.01, *** P<0.001. Control variables are the same as those shown in Table 2.

To facilitate interpretation, Figure 1 displays the changes in marginal effects of the income differentials on migrants' probabilities of three categories of settlement intention in

[3] The likelihood ratio test also suggests that the inclusion of interaction term significantly improves the model fit.

different years. As shown, for one-unit increase in the income gap (i.e. 10,000 *yuan*), the probability of permanent settlement intention increased by 1.9 percentage points in 2012, while it only increased about 1.4 percentage points in 2014 and 1.1 percentage points in 2017. For one-unit increase in the income gap in 2012, the probabilities of having uncertain settlement and leaving intention dropped about 1.1 and 0.8 percentage points for migrants in Beijing, respectively. Though the marginal effect of income gap on uncertain settlement intention fluctuated in 2014 and 2017, its impact on leaving intention is almost negligible in 2017. That is, for one-unit increase in the income gap in 2017, the probability of having intention to leave drops only 0.2 percentage points.

Figure 1 Marginal effects of income differential on settlement intention



We then test the second hypothesis separately on migrant workers in traditional and high-tech industries. Results of the models estimated for migrant workers in traditional industries (Table 4, Panel A) indicate that a larger income gap significantly decreases their leaving intention or uncertain settlement intention in 2012. Specifically, the relative risk of having leaving intention than permanent settlement intention was 13.24% (1-exp(-0.142)) lower for 10,000 *yuan* increase in the income gap. However, for the same income gap, the relative risk was only 4.97% lower in 2017. Similarly, for 10,000 *yuan* increase in the income gap, the relative risk of having uncertain settlement intention rather than permanent settlement intention was 11.49% lower in 2012, which dropped to 6.20% and 6.57% in 2014 and 2017, respectively. The results support the second hypothesis for migrant workers in traditional industries. In contrast, as shown in Panel B of Table 4, for migrant workers in high-tech industries, no significant impact of income differential or its interaction terms with year on their settlement intention was found.

Table 4 Multinomial logistic regression: settlement intention of migrants in traditional industries

	Panel A: Traditional industries				Panel B: High-tech industries			
	Leaving Beijing		Uncertain		Leaving Beijing		Uncertain	
	Coefficients	S.E.	Coefficients	S.E.	Coefficients	S.E.	Coefficients	S.E.
Income differential	-0.142***	0.03	-0.122***	0.023	-0.050	0.068	-0.108	0.059
Year (Ref:2012)								
2014	0.700***	0.101	0.999***	0.077	0.386+	0.228	1.193***	0.231
2017	1.557***	0.105	1.641***	0.083	1.491***	0.232	1.461***	0.201
Year * Income differential								
2014*Income differential	0.050	0.035	0.058*	0.026	-0.023	0.073	0.042	0.061
2017*Income differential	0.091**	0.033	0.054*	0.026	0.019	0.070	0.073	0.061
Control variables	Yes		Yes		Yes		Yes	
N	12474				3538			
Log likelihood	-10471				-2362			

Note: $^{+}$P<0.1, * P<0.05, ** P<0.01, *** P<0.001. For migrant workers in traditional industries, the log likelihood of the model without interaction term is -10478. For migrant workers in high-tech industries, the log likelihood of the models without interaction term is -2363. Control variables are the same as those shown in Table 2.