

The Arrival of Immigrants: The Impacts of Immigration and Migration Policies on China's Urban Labor Market

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Abstract

In China, the uneven regional development and surplus rural labor forces have led to the largest wave of rural-to-urban migration in the world history. The dilemma—whether the presence of rural immigrant labors threatens the jobs opportunities of urban labors—increasingly confronts governments in China. In recent years, especially from 1994 to 2000, due to economic slowdown and large-scale lay-offs of urban-registered workers in China, state government and many large cities have collaboratively enacted anti-migration policies aimed at excluding inter-provincial migrants from many sectors of urban employment. Based on the natural experimental environment created by such policies, this study compares the roles that intra- and inter-provincial immigrants respectively played in Chinese urban labor market. The finding of this research shows both the demand-side and supply-side effects exist in China's labor market. Both intra- and inter- migrant inflows would enlarge urban labor market, but with the blocking of inter-provincial immigrants to access sectors with skilled jobs, more less educated inter-provincial immigrants have been squeezed into less-skilled sectors than it would have been without policy interventions. Consequently, a disproportional increase of inter-provincial immigrants in less-skilled sectors is resulted and it has reached to an extent to compete out a certain amount of job opportunities of urban workers in these sectors. Another peculiar pattern observed from this research is that due to occupational hindrances that blocked inter-provincial immigrants from high skilled sectors, the average education attainment within this group was significantly lower in comparison to their intra-provincial counterparts, as opposed to what the conventional wisdom holds.

Keywords: migration policy, internal migration in China, occupational barrier

1. Introduction

The impact of large wave of immigrant workers on local economy is central to the debates over migration policies and to a growing body of migration research. According to Heckscher-Ohlin model, in an open economy, the consequences of migration in response to economic inequality are regional convergence and improvement of the market efficiency at both the migrant sending and accepting regions. However, such spontaneous population movement is often limited by various degrees of restriction imposed by governments in the accepting regions, involving implicit measures such as inaccessibility to social services and direct border control (Massey, 2003). Such policy interventions are justified because they protect the interests of local people. Indigenous residents have legitimate concerns about the competition for public services stemming from the flock of immigrants (these includes access to health care, education, public housing, and other public amenities) as well as competition for work opportunities. In reality, the evidence for the adverse effects of immigration on public service provision is relatively easy to identify and can be derived from governments' accounting records (Borjas, 1999). The impact of immigration on labor market, on the other hand, is a more subtle issue and is often characterized by contradicting evidences and mixed conclusions (Orrenius & Zavodny, 2006). Consequently, in many developed countries, the debate over whether immigrants harm or improve the employment opportunities of local workers has lasted for decades.

However, developed countries are not alone in dealing with the consequences of the insurgence of immigrants. In China, the uneven regional development and a great deal of surplus rural labor forces set free from farming (Huang et.al., 2003) have led to the largest wave of rural-to-urban migration in the world history (Massey, 1994; Fan, 1995). The same puzzle—whether the

presence of rural immigrant labors threatens the jobs positions of urban labors— increasingly confronts city governments in China. The complex feedbacks from immigration to urban unemployment, job creation and wage structure, however, have not yet been explored in the unique institutional settings of contemporary China, especially in the context of heavy policy interventions. Particularly, during 1994, the myriad lay-offs of urban workers during the restructuring of State-Owned Enterprises (SOEs) led governments of large cities to rein their control over migration. However, many scholars pointed out that the rationale of the formation of these policies mainly arose from political and social considerations (Zhao, 2005; Cai, 2000). No research has yet provided a thorough investigation of the subsequent economic influences on labor market after the implementation of such policies. Whether governments' "firm hands" on rural-to-urban migration has obstructed or improved the efficiency of urban labor market remains an important, unsolved question.

To provide insights to this question, this article focuses on the most controversial migration policy—the anti-inter-provincial migration policy titled "Temporary provision on the recruitment of rural inter-provincial migrants" (Ministry of Human Resources and Social Security of the People's Republic of China [MOLSS])—in effect since 1994. Under the regulation, inter-provincial immigrants are banned from accessing many skilled sectors. This occupational barrier against inter-provincial immigrants creates an ideal natural experimental setting, where the unaffected, intra-provincial immigrant cohort can be taken as a control group. Using the labor market composition as a proxy of the immigrants' labor market impacts, this study examines the consequences of the policy's manipulation of labor allocation and estimates the sole effect of immigration on urban labor market without the policy interference. The results of this study

suggest that the occupational restrictions imposed on inter-provincial immigrants had forced them into less-skilled sectors; and the regulation itself did not shield less-skilled urban workers from immigrants, but rather compelled them to face more competition from immigrant workers.

2. Theories on the Effects of Immigration

The predicted impacts of immigrants on urban labor markets commonly fall into the following three possibilities: ① the employment situation of urban inhabitants is independent from the existence and size of migrant workers in the city; ② Immigrants weaken the labor market position of local urban residents, also known as the *supply-side theories*; ③ Immigrants complement the labor market activities of local urban residents, known as the *demand-side theories*.

The supply-side schools of thought conceptualize migration as one individual's response to structural changes (Massey, 1993) and economic disequilibrium (Todaro, 1969). Typically, this set of theories emerges from the assumption of constant capital stock and constant returns to scale (Friedberg & Hunt, 1995). The magnitude of urban labor market impacts of immigration inflow relies on the degree of skill substitution between immigrant and urban workers as well as the volume of immigration inflow. Substitution is most likely to occur in industries that require less skill, where employees are interchangeable and training costs are lower than industries with skilled workers (Orrenius & Zavodny, 2007). By contrast, some skilled professions, such as lawyers, involve licensing requirement, thereby limiting the replacement.

In addition to the notion of substitution, another schools of thought, the demand-side argument, postulate that the arrival of immigrants complements the urban labor market. As a seminal work in this regard, neoclassical theory indicates that the consumption and employment of immigrant workers creates a virtuous feedback to urban employment for both immigrants and urban workers. Specifically, if imported goods do not dominate the market, the consumption of new immigrants will increase the need for both skilled and less-skilled labors. At last, immigration will affect not only the quantities of immigrant-concentrated jobs, but also all the jobs on the market as a whole. Therefore, Light and Rosenstein (1995) proposed that immigration exerts specific demand effects in which labor demand for immigrant workers is expanded.

Moreover, not only does immigration create more labor demands in cities, it also fills the job sectors that the locals discard. As pointed out by segmented labor market theory (Piore, 1978), instead of crowding the immigrants out of urban labor market, the labor market duality in the receiving regions creates the demands for migration. Piore (1978) indicated that jobs at the acceptance regions are divided into primary sectors and secondary sectors. Featured by low income, unsecured jobs and the lack of career advancement, the secondary sector is despised by most well-educated, indigenous residents. Since it is indispensable to support the production of primary sectors, the secondary sector creates a niche for immigrant workers in urban labor markets and lead to a structural demand for immigrant workers (Massey, 2003). Despite the fact that most immigrants are less-skilled and less competitive than the majority of urban residents in the primary sector, this theory fails to account for the possibility of competitions in the secondary sectors.

Even though theories have provided plural explanations and inquiry approaches to the questions under discussion, none of them would outbalance the rest; and these theories, more often than not, make unambiguous and deterministic predictions (Pischke & Velling, 1997). Not only theories are in conflict with each other, most empirical observations on migration's effects are also inconclusive, even in the same time period and location, such as the ones of the United States (Altonji & Card, 1991; Butcher & Card, 1991; Borjas, 2003; NRC 1997). A case-by-case investigation is therefore still necessary.

3. Migration policies in China

Despite that dominant migration theories provide reasonable explanations and predictions of the possible consequences of immigration on the receiving labor markets, they were generalized and attested only in the situations of international migration; whether the same set of theories can lend themselves well to internal migration, like the case of China, is still unknown. Some rudimental description of China's internal migration reveals similar characteristics as international migration (Roberts, 1997), particularly with regulatory settings of similar purpose existing between rural and urban sectors (Cai, 2001; Meng & Zhang, 2001). The most prominent and well-known example is Household Registration System (HRS, also known as *hukou* system), designed to curb massive migration from rural sectors to urban sectors by the same token as border controls and visa issuing in international migration.

However, *hukou* system is not always protective and favorable to urban residents. Unlike the native-born in other countries, urban citizens in China cannot avoid potential competitions from rural immigrants by eschewing. Under HRS, not only rural labor's mobility is limited, urban

residents' is also restricted—urban residents are not allowed to move to rural areas or another city. Hence, even hukou system is in place, urban labor market has limited ways to self-adjust in view of sudden, unexpected shocks; additional policy interventions concerning regional and occupational restrictions on urban employment become viable options.

With the control over the recruitment of nonlocal workers in many sectors, the magnitude of the labor flows is regionally limited in China. According to 2005 1% population survey (State Bureau of Statistical [SSB], 2006), a large proportion of rural-to-urban migration is intra-provincial. Similar barriers can be observed among different occupations. Many restrained measures, as discussed below, were carried out deliberately to impede certain groups of immigrants (especially migrants who are not native to the province) from accessing specific occupations. In general, these regulatory policies are more severe than they are in most countries.

Such regional and occupational hurdles reach its extreme during the period from 1994 through 2000. Starting in the early 1990s, with a series of share-holding reforms undertaken by state-owned enterprises and the resulting efforts on shaking off social-service burdens, urban labor market faced unprecedented crisis with mass lay-offs and severe unemployment problem. Out of political and social considerations, central government began to tighten their controls over migration by carrying out “Temporary provision on the recruitment of rural inter-provincial migrants.” (MOLSS, 1994). This provision, explicitly targeting at inter-provincial migrants, required employers not to recruit inter-provincial immigrant workers unless local labor forces cannot meet labor demands. Even when hiring inter-provincial workers becomes necessary, the regulation demanded that employers should only recruit through certain channels (such as

employment agencies or local governments in other provinces) and follow given procedures. The direct employment of non-local workers on-site was particularly banned. For those who had to employ migrants from outside provinces, an additional cost was incurred to obtain a permit approved by local governments. Given the urban labor market of that moment, the hidden meaning between the lines is inter-provincial immigrants were only allowed to do certain types of non-agricultural work that urban lay-offs never chose to do.

Following this provision, many municipalities and provinces have issued more specific and stricter regulations aimed at limiting inter-provincial immigration. For example, in 1996, there were recruitment restrictions on 16 sectors in Beijing forbidding hiring of nonlocal workers. Toward the end of 1999, the restriction list still included 8 sectors and 103 occupations (See Table 1). Most of these prohibited jobs are skilled positions like managerial, technical and service, leaving less-skilled jobs (particularly the ones that discarded by urban dwellers) such as trash collectors and corpse porters, to inter-provincial migrants (Bureau of Labor and Social Security of Beijing Municipality, 1996). Likewise, inter-provincial migrants in most cities and provinces experienced similar treatments. This bundle of regulations was not abolished until the year of 2002 when the unemployment situation was eased.

4. Research Design

4.1 The analytical framework: a natural experiment approach.

The fundamental method for evaluating the effect of a certain policy is to identify a scenario free from policy influence and to compare it with the other case with the policy treatment. A conventional way to achieve this is through time series analysis; that is, choosing a time period before the implementation of the policy (or after the policy is annulled) as a control group.

However, a major problem with such comparative approaches is that it is usually difficult to rule out a great many of other changes that occur in the same time period of the policy change and may confound the analysis. For example, the iron control of migration is usually accompanied by economic downturn, while the loosening of migratory policies is commonly in parallel with economic booms. As such, it is difficult to isolate and eliminate the effect of macro-economic changes on urban labor market.

To avoid potential spurious results, this research adopts a cross-sectional method to assess the consequence of the regulation carried out in 1994 against inter-provincial immigration. This anti-migration policy by nature provides an ideal natural experiment basis for comparison, as it discriminates against inter-provincial migration, but spares a mercy for intra-provincial migration. By assuming without any policy intervention, the intra-provincial and inter-provincial labor immigrants (the population of labor immigrants mainly refers to the portion of immigrants whose primary purpose for migration is working) are similar in most ways, the effects of intra-provincial immigration on labor market should be similar to that of inter-provincial immigration.

This assumption is justified by a significant body of literature in the realm of internal migration, where inter- and intra- provincial immigrants are often treated equally. Moreover, studies of stage migration (Herrick, 1965; Morse, 1971) indicate that a substantial number of intra-provincial immigrants will sooner or later become inter-provincial immigrants. The only challenge that may endanger the validity of natural experiment is the fact that inter-provincial immigrants usually attain more schooling than intra-provincial immigrants do (Levy & Wadycki,

1974; Mitra & Murayama, 2008). However, with the presence of policy manipulation, this characteristics has been overthrown in China (See “the Impacts of the Migration Policy on Occupational Distributions” Section). Hence, in the natural experimental setting, if the cohort of intra-provincial immigrants is used as the control group that is exempted from the policy regulation, then the differences between these two groups of immigrants' labor market effects can be identified as the effect of the migration policy and further the pure effect of immigration can be determined as well.

4.2 Occupational distribution of immigrants as the dependent variable.

The concept of labor market impacts is usually translated into resulting labor market performance with given amounts of migrant inflows. As immigration's labor market impact can be reflected in various ways, there have been a handful of indicators to capture labor market performance: some studies used urban wages (Borjas, 2003; Borjas et.al, 1992; Jaeger, 1996); others looked at the rate of employment (Altonji & Card, 1991; Friedberg, 2001; Pischke & Velling, 1997), while yet the rest focused on occupational distribution of urban labors (Altonji & Card, 1991; Linton, 2002).

For the purpose of this research, occupational distribution is employed as a proxy of immigration impacts; and this study, it refers to how immigrant and urban labor forces distribute in two major job sectors—the skilled sectors versus less-skilled sectors, given the regularity that immigrants commonly present in less-skilled sectors and are near absence in skilled sectors. Basically, the adoption of occupational distribution can identify not only the sole impact of immigration, but also the degree to which the regulation have influenced urban labor market. Unlike other developed countries, the distorted wage system in China and protective policies targeting at

stabilizing urban unemployment make it difficult to disentangle the effects of immigration from the influences of continuous government intervention on variations (or invariance) in wages and unemployment rates. As a former centrally planned economy, the urban wage level in many occupations in China, especially the one that are heavily subsidized by governments (for example, employees of State-Owned or Collective-Owned enterprises) have not yet fully reflected market power (Knight & Song, 2003; Appleton et.al, 2004). Under such circumstances, the negative impact of immigration on urban wages is offset by the government's efforts to raise the average wage. Similarly, for unemployment rate, before the immigration begins to take effect, local government may already draft regulations to protect urban employment, which will greatly dampen the real impact from market-driven immigration. Therefore, the outcome of such studies will inevitably end up evaluating the combined effects of both immigration and governments' policies.

On the other hand, even though the government's intervention also extends to immigrants' occupational distribution, but these discriminatory rules are more in favor of one group of labor forces—local labors—than the other—ones from outside provinces. Thus, the job entry barrier for intra-provincial immigrants is lower than that for inter-provincial immigrants. Because of distinct occupational barriers faced by inter- and intra- provincial immigrants, the comparison between these two groups in their job distributions can just isolated the impact of migration policies.

4.3 The area comparison method and independent variables.

To explore the relation between the densities of immigrants (the key independent variable) and their occupational distribution (the dependent variable), a cross-sectional area comparison

approach is used. The underlying notion of this approach is to examine how a cross section of regions with varying immigration densities would contribute to migrants' shares in certain job sectors. Everything else being equal, the greater shares of migrant workers in certain sectors in high-immigration regions indicate immigrants are successful in competing with urban workers for job positions in the sectors. Even if the relationship of immigration rate and immigrants' share in given industries is suggestive, cautions must be taken in their interpretation. Three effects (Friedberg & Hunt 1995) may lead to spurious causation and harm the validity of this research. The following details these methodological defects and this research's solutions to circumvent these problems.

(1) The equalization effect

In an open economy, there is a strong tendency to equalize economic conditions across cities and regions; and over the long haul, immigration's impacts on local labor market cannot be observed. Any initial shocks are diffused throughout regions as a result of the out-migration of native workers, capital inflows to high-immigration cities, or intercity trade (Friedberg, 2001). Lastly, the comparison of the labor distribution between immigrants and local workers in different cities tends to have little or no disparities because immigration affects every city, not only the ones that accommodate immigrants (Borjas, 2003). Therefore, with the force of equalization, the correlation between immigration and labor market outcome tends to bias toward zero.

However, since the domestic economy of China is still far from an open economy, the equalization effect may not hold. With the prevalence of local protection and trade barriers (Huang, 2003; Poncet, 2005), the equalization effect exerting through inter-region trade is

dampened. Additionally, as indicated earlier, the enforcement of HRS has also constrained urban residents from moving out to dodge the competition with immigrant labors. Therefore, in China's context, it may take an even longer time for the fragmented regional labor market to arrive at an equilibrium status.

(2) The self-selection effect

The self-selection problem arises when immigrants are not randomly distributed across labor markets. If immigrants tend to move to regions whose demand shocks will lead to increasing immigrants' share in less-skilled job specializations, then the causal relations between immigration and unemployment can be established in either direction (Altonji & Card, 1991; Friedberg & Hunt, 1995). For instance, the negative correlation between the magnitude of immigration flows and large share of immigrants in less-skilled occupations is either because increasing immigrants shares attract multitudes of immigrants, or because the arrival of great many immigrants alters immigrants' proportion. In this research, note that the expected share of immigrants in a occupation foreseen by potential migrants merely motivates incoming immigrants instead of existing immigrants; therefore, to eliminate the self-selection effect, this research only looks at the effect of immigrant stocks other than flows.

(3) Region-specific problem

Another factor that would pose a destructive threat to the correlation between the geographical variations in immigration density and labor market condition is various region-specific variables. For example, the high-migration regions are usually characterized by higher levels of income and literacy, which will lead to the same occupational effect independent of the high presence of

immigrants. Moreover, immigrant's individual characteristics also play a role; for example, immigrants from the same origins tend to cluster. Given this, all the factors that may cause geographical variations in the immigrants' distribution in one occupations are considered and controlled for; such factors include urban labor pools, the demands for labors, urban labors' and immigrant labors' education attainments.

5. Data Collection

The data of this research is largely drawn from the year of 2000 province-level census and economic statistical data (SSB, 2000). The sample size of the analysis is thirty-one, corresponding to the thirty-one provinces in China. The peculiar definition and classification of migration in China raise the question as to which category of immigrants should this study concern. Legal migrants in China are differentiated between two categories with respect to their hukou status, namely, permanent migrants and temporary migrants. Temporary migrants, consisting the largest knowing migration population, have no permission of changing their residency grant by the government; and their stay at cities is under the constant monitoring of the governments. Beside such legal migrants, the migrant population also comprises an unknown share of illegal or unregistered migrants. All the legal and illegal migrants combined are known as "the floating population." (Fan, 2002) Instead of using the figures from the total floating population, the numbers of hukou migration are used due to the unavailability of the floating population from the census. However, hukou migration can better reflect the degree to which the government loosens or strengthens the control over migration, as it is more responsive to policy interventions. Conversely, the flexible and unregulated informal sectors are almost independent of the labor policy climate (Meng, 2001).

The comprehensive census carried out in the year of 2000 squarely fits this study. From 1994 to 2000, the growth of China's economy experienced a slowdown. Moreover, this period is also known for an increasing rate of rural-to-urban immigrants (Figure 2) and growing urban unemployment rates fluctuating around 3% (Figure 1). Against this backdrop, the potential conflict between urban labors and immigrant labors for scant job opportunities was more salient. Moreover, this time is also characterized by consistent migratory policies; and the restriction of inter-provincial immigrant workers from entering some certain occupations issued in 1994 was not repealed until 2002. In addition, the reform of HRS—allowing greater mobility among rural surplus labors—occurred in 2001.

5.The Impacts of the Migration Policy on Occupational Distributions

5.1 The occupational distributions of intra- vs. inter- provincial migration.

The study efforts to unravel the difference in job distributions (in skilled and less-skilled sectors) between intra- and inter- provincial immigrants, by virtue of the discriminatory restrictions. The 2000 Population Census crudely divides occupations into seven occupational categories—state, local governments and Communist party; technical and administrative support; managerial and specialty professional; commercial and service; operators, fabricators and laborers; farming, forestry and fishing; unclassified occupants—and the borderline separating skilled jobs and less-skilled jobs is still yet to be defined.

First, to encapsulate urban jobs, only five industry categories are selected (farming, forestry and fishing and unclassified occupants are excluded). Second, these job sectors are further grouped

into two sectors—skilled industries and less-skilled industries that roughly track the occupational hindrances erected by discriminatory migration policy of 1994 (since no single occupation-restriction list exist throughout the country, the skilled-and-less-skilled dichotomy defined here is only an approximation). Specifically, typical labor-intensive occupations such as the commercial/service and operators/fabricators/laborers are chosen into the less-skilled group; while others like state/ local governments and Communist party, technical/administrative support, managerial and specialty are included in the skilled group. Using the census data, the quantities and ratios of intra- and inter- provincial immigrants in skilled and unskilled sectors are respectively plotted in Figures 3 and 4.

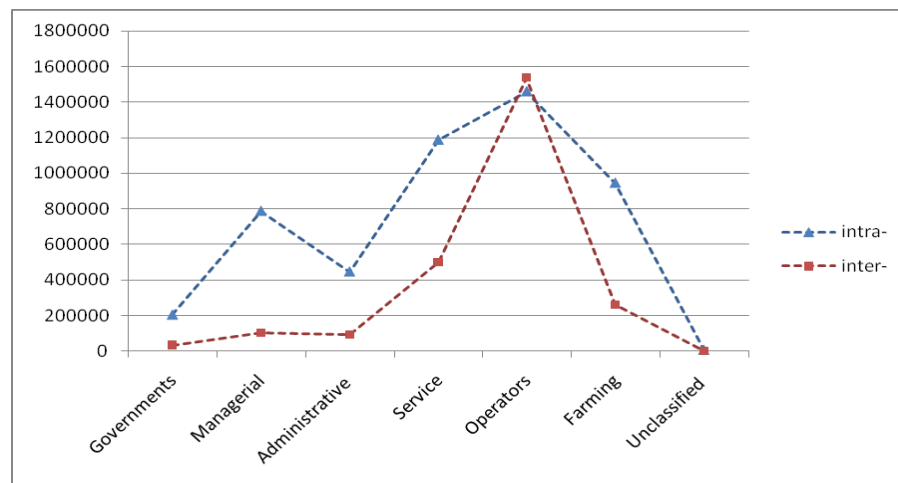


Figure 3. Total intra- and inter- provincial immigrant population in seven occupational categories (t-test: sig.=0.02)

Source: China's 2000 Population Census, Supplemental tables

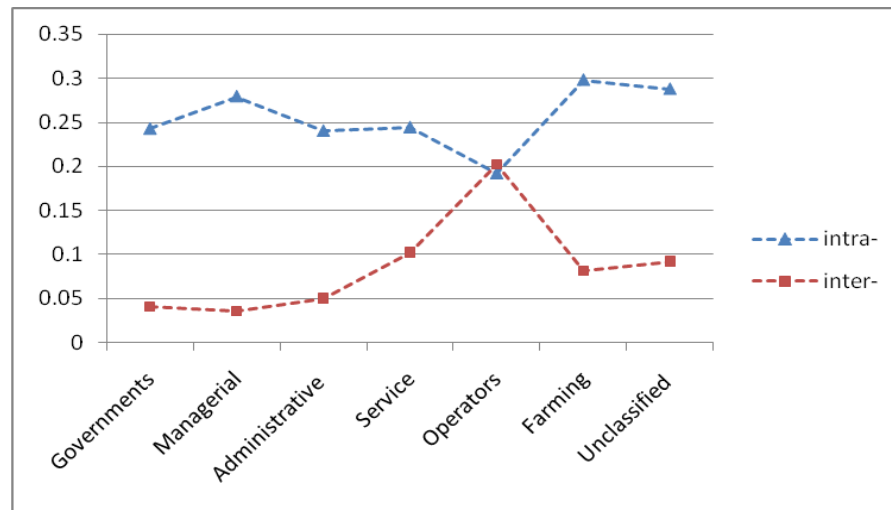


Figure 4. The ratios of intra- and inter- provincial immigrants in seven occupational categories. (t-test: sig.=0.002)

Source: China's 2000 Population Census, Supplemental tables

Compared with inter-provincial immigrants, intra-provincial migrants were common source of labor forces in the urban labor market; and this tendency is revealed in both skilled and less-skilled sectors with the ratio of intra-provincial migrants in each sector leveling around 20%. By contrast, inter-provincial migrants were rare in skilled sectors; however, they constitute an equivalent ratio as intra-provincial migrants in the less-skilled sectors. The paired t-test also confirms that this disparity between the two types of migrants is significant (sig.=0.002). Such independent job distributions of intra- and inter- provincial migrants primarily emerged from the policy under discussion. Specifically, large numbers of inter-provincial workers poured into less-skilled sectors, producing a stark contrast to its paucity presence in skilled sectors. Intra-provincial immigrants, with much less obstructions of choosing jobs, have relatively consistent shares in both skilled and less-skilled sectors.

Such a duality in job distribution between intra- and inter- provincial immigrant workers also translates to different education attainments between the two groups. By adding up the population who received education no higher than junior high school, the education attainments of the two groups of labors are calculated and graphed in Figure 4. In theory, the well-educated acquire wider social networks and greater access to information; and are therefore less deterred by migrating to farther places. This theoretical speculation has been verified by a set of empirical observations in developing countries, where migrants received higher education tend to travel over a longer distance (Levy & Wadycki, 1974; Mitra & Murayama, 2008).

Interestingly to note, countering to both theories and empirical observations, long-distance travelers—inter-provincial immigrants in China are characterized by even lower education attainment than their intra-provincial counterparts are. As solid evidence, Figure 5 demonstrates that intra-provincial immigrants have higher literacy throughout the provinces, without an exception. This finding also tallies with a handful of sampled surveys conducted over different parts of China at the same time (Zhao, 1999; MOLSS & SSB, 2000), all of which construct a similar picture that rural workers who choose local non-agricultural jobs attain more schooling than those who relocate across provincial borders. Even so, these studies interpret these patterns as a collective outcome from individual migrant's calculation that well-educated migrants are reluctant to face the loss of their social status that is inevitably associated with migration (Zhao, 1999). Nevertheless, the effects of external, institutional and socioeconomic forces imposed on individual migrants, such as the regulation under study, have never been considered.

5.2 Modeling the impacts of immigration and migration policy on occupational distribution.

To quantify the compositions of urban labor forces in less-skilled and skilled sectors respectively, the share of urban labors in less-skilled (or skilled) sectors is expressed by the ratio of less-skilled, urban labors to the total size of employment in less-skilled (or skilled) sectors.

$$unskillshare_i = \text{unskilled urban labors}_i / (\text{unskilled immigrants}_i + \text{unskilled urban}_i)$$

$$skillshare_i = \text{skilled urban labors}_i / (\text{skilled immigrants}_i + \text{skilled urban}_i)$$

where i denotes each province.

Noticing the absolute size of immigrant population in a given province is therefore not a proper indicator to reflect the extent to which immigrants have saturated in the receiving region. Given this, the size of immigrant population in a receiving province is expressed as a proportion of the natural log of the total population:

$$immigrate_i = \text{immigrant population}_i / \ln(\text{total population}_i)$$

where i denotes each province.

Overall, the above variables—the shares of urban labors in skilled and less-skilled sectors and inter- and intra- provincial immigrant rates are calculated and mapped respectively in Figures 6, 7, 8 and 9. According to the framework outlined in Section 3, the specification of this cross-sectional model deploys the OLS form and is formulated as below:

$$unskillshare_i = a + b \cdot immigrate_i + c \cdot X_i + \varepsilon_i$$

$$skillshare_i = a + b \cdot immigrate_i + c \cdot X_i + \varepsilon_i$$

where i denotes each province. X_i is a vector of region-specific factors.

The region-specific factors in this model include the size of urban labor pools, local labor demands, and urban labors' and immigrant labors' education attainments. These are the determinants in which small variations can change the relative compositions of urban, skilled and less-skilled labor forces throughout the labor markets. For example, if the destination province is featured by a large labor pool, its abundant, indigenous labor supply will result in fiercer competition between local labors and immigrant workers. The natural log of urban population with ages between 15 and 65 is used to denote local labor supplies. However, a plentiful labor supply does not necessarily deprive urban workers of job opportunities, as employment also hinges on the demand for labors. Expressed in the form of gross regional production (GRP), the factor labor demand is added to counterbalance the effect of labor supplies. Finally, the education attainments of both urban and immigrant labors also play an important role in shaping labor market compositions of immigrants and urban workers. As implied by segmented labor market theory, if immigrants' and urban workers' education (or skill) endowments perfectly complement each other, the immigrant presences in the destination region are expected to be higher than the otherwise.

Based on the model specification and data gathered, the distinctions between the impacts of intra- and inter- provincial immigrant labors on the skilled and less-skilled sectors of urban labor markets are derived. More specifically, the above model specification is applied to the control group of intra-provincial migrants (listed in Table 2 & 4) and the observation group of inter-provincial migrants (Table 3 & Table 5).

5.3 Results.

In less-skilled sectors (Tables 2 and 3), while inter-provincial immigration rates and education attainments could account for most geographical variances in urban labors' share, a set of intra-provincial immigration rates and the others variables scarcely reproduces a similar effect in the intra-provincial immigration case. Most importantly, there is a noteworthy, negative correlation between the number of inter-provincial workers and the share of urban workers in less-skilled sectors; that is, the more the inter-provincial migrants filled in less-skilled jobs, the less the urban workers would be found herein—whereas such a correlation cannot be established for the intra-provincial immigration case (i.e., the control group without the policy's influence). Although the coefficients of inter-provincial immigration rates become smaller as more explanatory variables are added to the regression model, immigrant density remains the most influential determinant affecting how urban labors and migrant labors constitute urban labor markets. In contrast, the role of the control group—intra-provincial immigrants—played in the less-skilled sectors was much trivial; no empirical evidence suggests high concentration of intra-provincial immigrants in these sectors would either crowded out or draw urban workers. Generally, the results from the flocks of less-skilled, inter-provincial immigrants seeking jobs in urban labor markets are in line with the competition notion laid out by the supply-side of argument.

Table 2.

The effect of intra-provincial immigrants on the share of urban labors in less-skilled jobs in each province (n=31)

Variables	Model 1	Model 2	Model 3	Model 4
Immigrate	-0.1258 (0.5001)	-0.3532 (0.3473)	-0.1913 (0.2741)	-0.1158 (0.7597)
Urban_labors		0.2636 (0.4966)		0.0080 (0.9857)
GRP		-0.3924 (0.0540)		-0.6634** (0.0013)
Immigrants_edu			-0.7662 (0.0085)	-0.5597 (0.0825)

Urban_edu			0.5532 (0.0528)	-0.0139 (0.9702)
Constant	0.6206 *** (0.0000)	0.7702 *** (0.0000)	-0.0429 (0.9334)	1.4393 (0.0522)
Adjusted R ²	-0.0181	0.1573	0.1605	0.4148
F	0.4664	2.8661	2.9124	5.2536

Notes: Statistical significance is shown in parentheses.

* $p < .05$. ** $p < .01$. *** $p < .001$

Table 3.

The effect of inter-provincial immigrants on the share of urban labors in less-skilled jobs in each province (n=31)

Variable	Model 1	Model 2	Model 3	Model 4
Immigrate	-0.61031 *** (0.0002)	-0.64206 *** (0.0024)	-0.51836 *** (0.0005)	-0.5147 ** (0.0031)
Urban_labors		0.237812 (0.1814)		0.2581 (0.0891)
GRP		-0.08529 (0.6553)		-0.3525 (0.0441)
Immigrants_edu			-0.4112 ** (0.0048)	-0.2901 * (0.0280)
Urban_edu			-0.1615 (0.2245)	-0.4667 ** (0.0041)
Constant	0.63533 *** (3.12E-24)	0.627116 *** (1.28E-07)	1.3627 *** (0.0004)	2.1278 *** (0.0000)
Adjusted R ²	0.350837	0.682968	0.5111	0.6284
F	17.21334	22.54258	11.4552	11.1459

Notes: Statistical significance is shown in parentheses.

* $p < .05$. ** $p < .01$. *** $p < .001$

As opposed to the competition in less-skilled sectors, the skilled division provided relatively a safe zone for urban workers. As revealed by Tables 4 and 5, a considerable share of intra-provincial migrants along with a paucity of inter-provincial migrants was not adequate to change the percentage of urban workers in skilled sectors. Rather, education attainments of urban workers and intra-provincial immigrants and the local demand for labors (as embodied in GRP) seem to affect labor composition noticeably. Typically, the more rapid the region grows, the fewer ratios of urban workers were needed to perform in skilled sectors. Furthermore, as

indicated by Tables 4 and 5, higher schooling of the intra-provincial cohorts and lower schooling of native urban cohorts seems to account for the smaller shares of urban workers, a well-established relationship generalized by the segmented labor market theory.

Table 4

The effect of intra-provincial immigrants on the share of urban labors in skilled jobs in each province (n=31)

Variable	Model 1	Model 2	Model 3	Model 4
Immigrate	0.1108 (0.5530)	0.4126 (0.2937)	0.1086 (0.5273)	0.5654 (0.0637)
Urban_labors		-0.3515 (0.3863)		0.710693* (0.021934)
GRP		-0.4628* (0.0310)		-0.8763*** (0.0000)
Immigrants_edu			0.5850* (0.0372)	0.5401* (0.0340)
Urban_edu			0.1182 (0.6651)	-0.3361 (0.2525)
Constant	0.6493*** (0.0000)	0.7656*** (0.0000)	0.8038* (0.0150)	1.6911*** (0.0000)
Adjusted R ²	-0.0218	0.0823	0.1786	0.6456
F	0.3603	1.8965	3.1750	11.9295

Notes: Statistical significance is shown in parentheses.

* $p < .05$. ** $p < .01$. *** $p < .001$

Table 5

The effect of inter-provincial immigrants on the share of urban labors in skilled jobs in each province (n=31)

Variable	Model 1	Model 2	Model 3	Model 4
Immigrate	-0.2832 (0.1226)	-0.2053 (0.3915)	-0.2840 (0.1175)	-0.1775 (0.2935)
Urban_labors		0.1253 (0.5614)		0.3237* (0.0449)
GRP		-0.2388 (0.3130)		-0.7252*** (0.0003)
Immigrants_edu			0.2178 (0.2186)	0.0313 (0.8126)
Urban_edu			-0.3685* (0.0370)	-0.9008*** (0.0000)
Constant	0.6734*** (0.0000)	0.7140*** (0.0000)	-0.35889 (0.093923)	-1.10058** (0.002717)
Adjusted R ²	0.0485	0.0694	0.1828	0.5897
F	2.5287	1.7462	3.2365	9.6222

Notes: Statistical significance is shown in parentheses.

* $p < .05$. ** $p < .01$. *** $p < .001$

Important to note that the institutional obstacle that hampered inter-provincial immigrants from getting skilled job positions in turn weakened the less-skilled section of the labor market. This regulation together with inter-provincial immigration diverted from skilled sectors to the less-skilled sectors eventually led to a disproportional loss of native urban workers in less-skilled sectors. Although results yielded from the above models favor the supply-side explanation, the effects of inter- and intra- immigrants on urban labor market are, by no means, limited to this scope. A growing share of immigrants in less-skilled sectors will adversely shock urban labor market, if and only if the size of less-skilled sectors shrinks or remains stagnant. On the other hand, if the region's employment of less-skilled workers is larger as measured indirectly by low unemployment rate or directly by expanded sizes of less-skilled sectors, threatens from increasing densities of immigrants on job opportunities of urban natives could be palliated. This is the especially the case if the needs for employment is expanded just because of the arrival of immigrants. In this sense, to gain a thorough analysis of immigrants' impact, we examine whether the presences of immigrants will enlarge labor demands in the intra- and inter-provincial migration cases.

We start out by examining immigrants' effects on unemployment rate by looking at the relationship between immigration rates and unemployment rates across all the provinces through fitting a simple regression model as below:

$$unemployment_i = a + b \cdot immigrate_i + \varepsilon_i$$

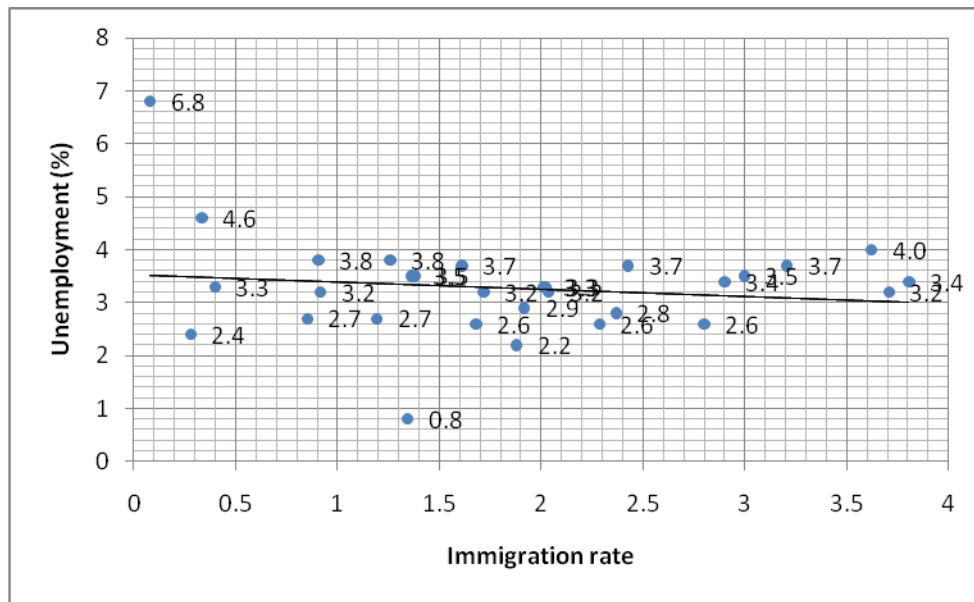


Figure 10. The relationship between intra-provincial immigration rate and urban unemployment rate (slope= -0.139, R²=0.022)

Source: China's 2000 Population Census, China Statistical Yearbook of 2000

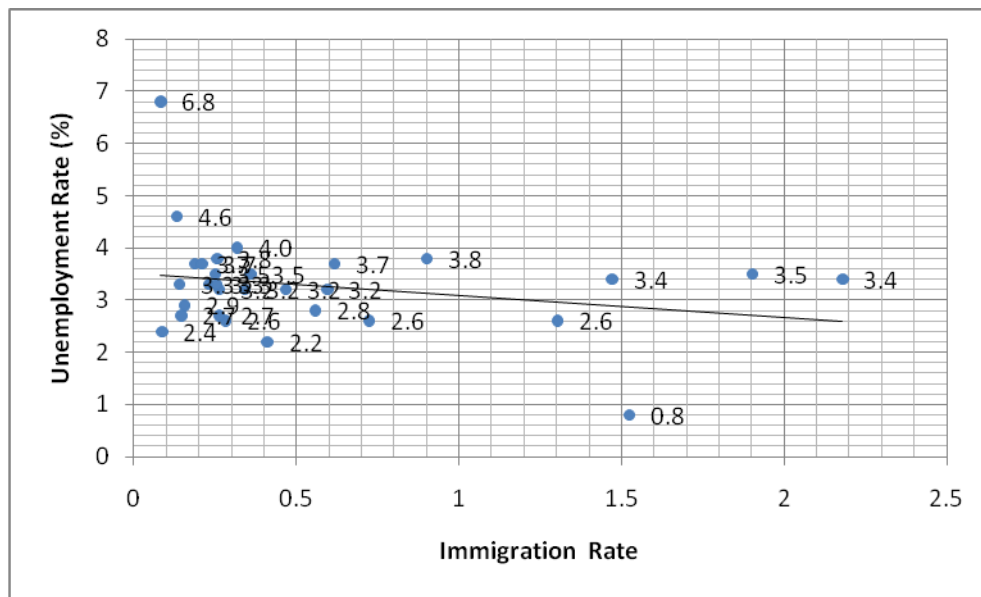


Figure 11. The relationship between inter-provincial immigration rate and urban unemployment rate (slope= -0.421, R²=0.061)

Source: China's 2000 Population Census, China Statistical Yearbook of 2000

As illustrated by Figures 10 and 11, there is a sign, though not significant, that higher-immigration regions have less unfavorable employment environment. This is an encouraging finding, especially given that the grim urban unemployment confronted most parts of the country. Specifically, such a tendency is more salient in the highly restricted intra-provincial migration case. Even in the control group case, the one without the policy interventions, no evidence can ascertain that high migrant density would worsen labor market by making jobs less available. In addition to a competitive role as concluded in the first model, this finding bolsters the demand-side argument; that is, regardless of the policy interventions, the arrival of inter- and intra-immigrants could in some ways improve the employment conditions in the receiving regions.

Since a low unemployment rate aggregated from all industries cannot guarantee that unemployment problems will not imperil unskilled sectors, we subsequently refined the above model by regressing the size of less-skilled sectors and immigration rates:

$$\text{lessskilled}_i = a + b \cdot \text{immigrate}_i + \varepsilon_i$$

$$\text{lessskilled} = \text{lessskilledpop}_i / \text{totalpop}_i$$

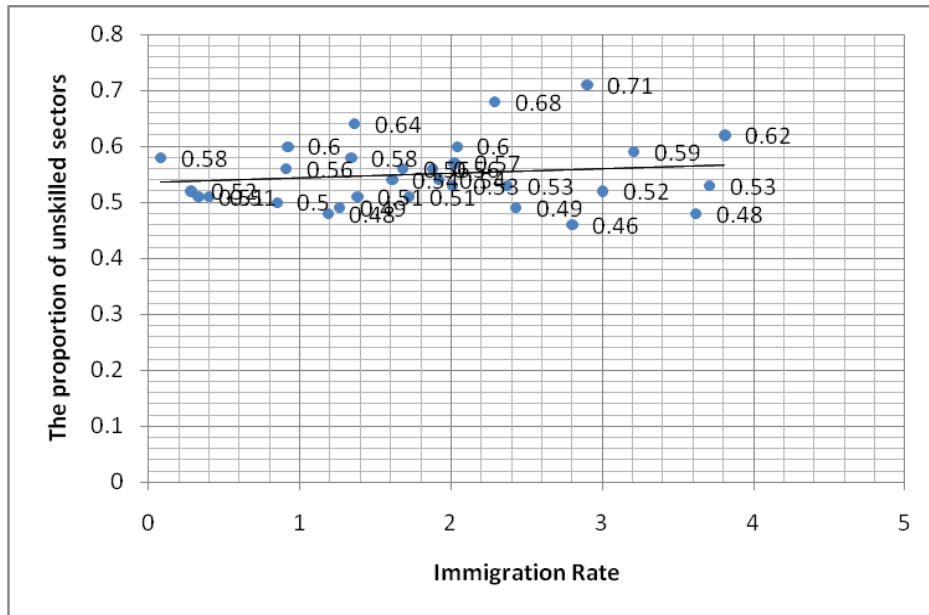


Figure 12. The relationship between intra-provincial immigration rate and the proportion of less-skilled sectors (slope=0.008, $R^2=0.02$)

Source: China's 2000 Population Census

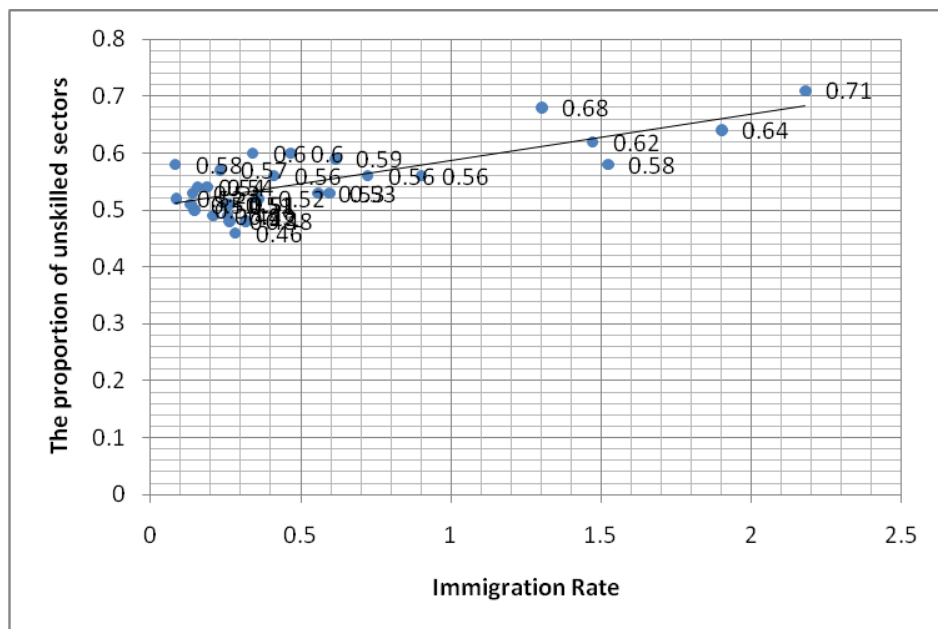


Figure 13. The relationship between inter-provincial immigration rate and the proportion of less-skilled sectors (slope=0.082, $R^2=0.607$)

Source: China's 2000 Population Census

The results (see Figure 12 & 13), again, consolidates the demand-side argument. Similar to the unemployment model, inter-provincial migration seems to be more effective in promoting employment in less-skilled sectors than its control group, the intra-provincial migration. However, intra-provincial migration was also contributive to the expansion of the less-skilled sectors. Altogether, the high presence of intra- and inter-provincial immigrants in the receiving regions enlarged, although unobtrusively, the magnitude of less-skilled sectors.

6. Conclusions

Although immigrant workers are an integral part of urban labor markets, in China, various forms of regulatory efforts have been made by the government to halt the market allocation of labor from taking place. In recent years, especially during 1994 to 2000, due to economic slowdown and large-scale dismissals of urban-registered workers in China, such efforts were escalated. To further control migration, the central government promulgated the much-debated, anti-migration regulation in 1994 in the hope of discouraging inter-provincial migrants from entering many sectors and avoiding competing jobs with the urban unemployment. This nation-wide, discriminatory regulation eased political and social concerns, as it could maintain political stability and ensure urban workers' entitlement to job opportunities (Cai, 2001). However, the rationale of political or societal stability is grounded on the presumption of the subordinate role of immigrant workers beforehand; and thus overlooks the potential positive effect of immigration in expanding urban labor market. This research, on the other hand, offers a different perspective by examining the economic implication of the policy by looking into its employment consequences and estimating immigration's effects on occupational distribution without the policy interference.

Contemporary migration theories were largely developed for countries with less heavy policy interventions and less migration control than China. Thus, the direct application of existing methodologies to gauge the effects of immigration in China is inappropriate because they end up measuring the compound outcome of both immigration and policy instruments. Since the anti-migration policy enacted in 1994 was primarily administered against inter-provincial immigrants, it created a natural experiment context, where intra-provincial immigration served as a control group. Based on this natural experimental setting, this study compared the roles that intra- and inter-provincial immigrants respectively played in Chinese urban labor market. Taking the labor market composition as a proxy of the immigrants' labor market impacts, this study observed a complex effect immigration having on urban labor market that are largely ignored by researches that are solely emphasized on wages and employment.

Two dominant schools of thoughts in migration studies have established two seemingly contentious, theoretical accounts on immigrations' impacts. One strand (the supply-side) argues that immigrants' arrivals deliver harms on urban labor market as they substitute local labor forces. The other strand (the demand-side) maintained that immigration brings about benefit to the locals because they expand local labor demands to the extent that its positive outcome outstrips the adverse impact. The findings revealed from this research, however, suggest that the demand-side and supply-side effects are not mutually exclusive; and actually, they co-exist in the context of China's urban labor market. There is slight sign that both intra- and inter-immigration inflows would enlarge the pie of urban labor market. Meanwhile, with a vast majority of inter-provincial immigrants being denied from entering skilled job sectors, many

less-educated inter-provincial immigrants have been squeezed into less-skilled sectors than it would have been if there were no policy interventions (alluded from the intra-provincial immigration). The above two effects combined imply that the competitive role of migrant workers assume cancels out the benefits brought about by immigration; a disproportional increase of inter-provincial immigrants in less-skilled sectors is hence resulted; and urban workers' job opportunities in these sectors were endangered. Paradoxically, the regulation's stifling on migrants' job selection made a large share of urban less-skilled workers encounter severe job loss induced by the large inflow of immigrants, even precluding another important source of threats arising from the ever-growing self-employed, informal sectors (Meng, 2001). Therefore, from economic pointed of view, the biased anti-migration policy is faulted, since it not only distorted efficient labor allocation, but also exerted adverse effects on urban workers, the very group of stakeholders the policy initially aimed to protect.

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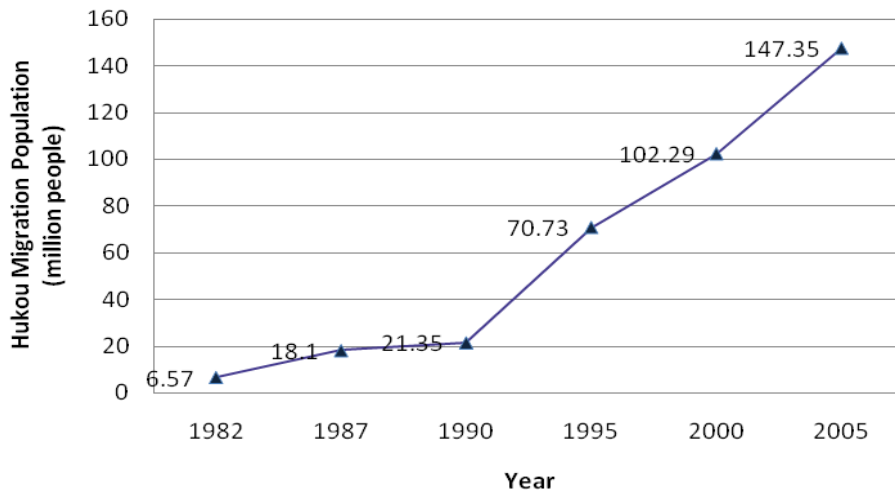


Figure 1. Hukou Migration Population in China (1982-2005)

Source:

- China Population Census 1% Sample, Household 1982
- China Population Census 1% Sample, Household 1987
- China 4th Population Census 1990
- China Population Census 1% Sample, Household 1995
- China 5th Population Census 2000
- China Population Census 1% Sample, Household 2005

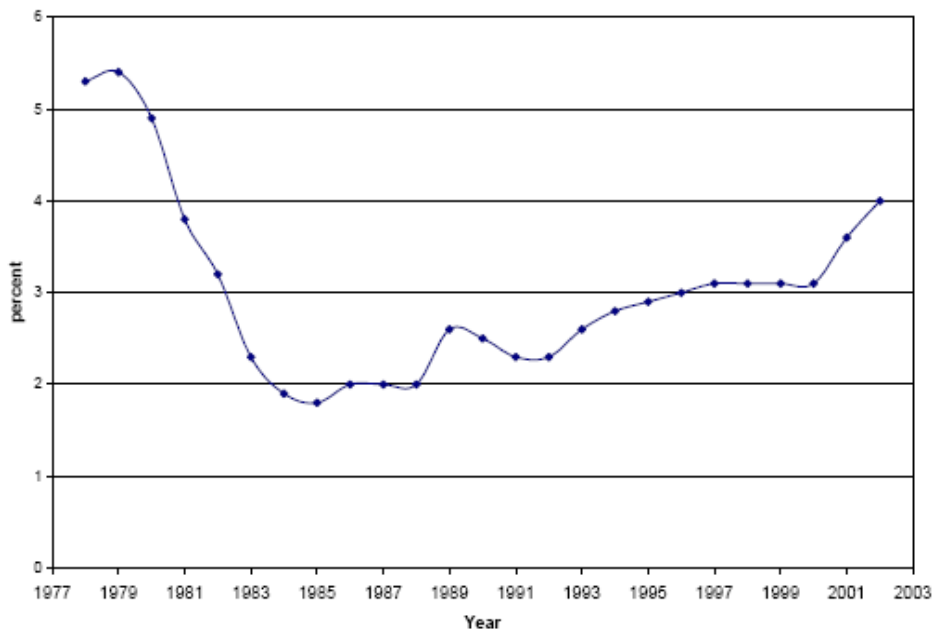


Figure 2. City and Township Unemployment Rates (1978-2002)

Source: China Statistical Year Book 1978-2002

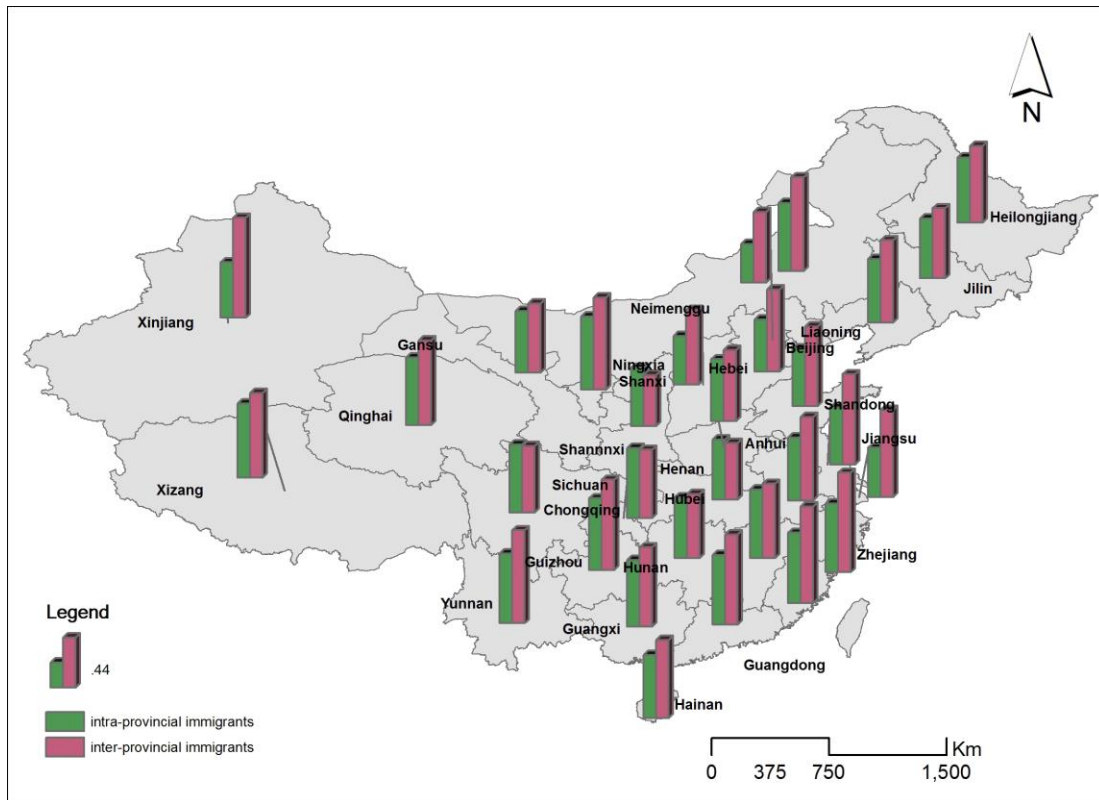


Figure 5. The education attainment of intra- and inter- provincial immigrant labors (t-test mean difference=-0.15530, sig.=0.000)

Source: China's 2000 Population Census, Supplemental tables



Figure 6. Urban workers' share in less-skilled sectors

Source: China's 2000 Population Census

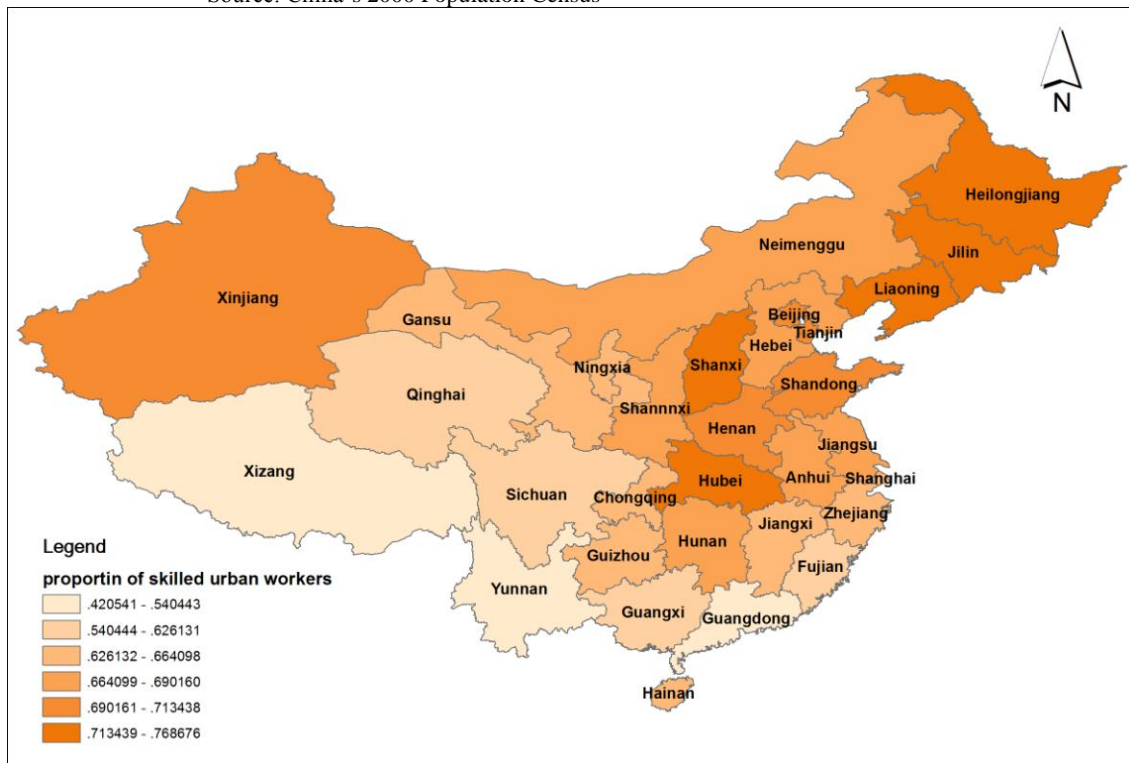


Figure 7. Urban workers' share in skilled sectors

Source: China's 2000 Population Census

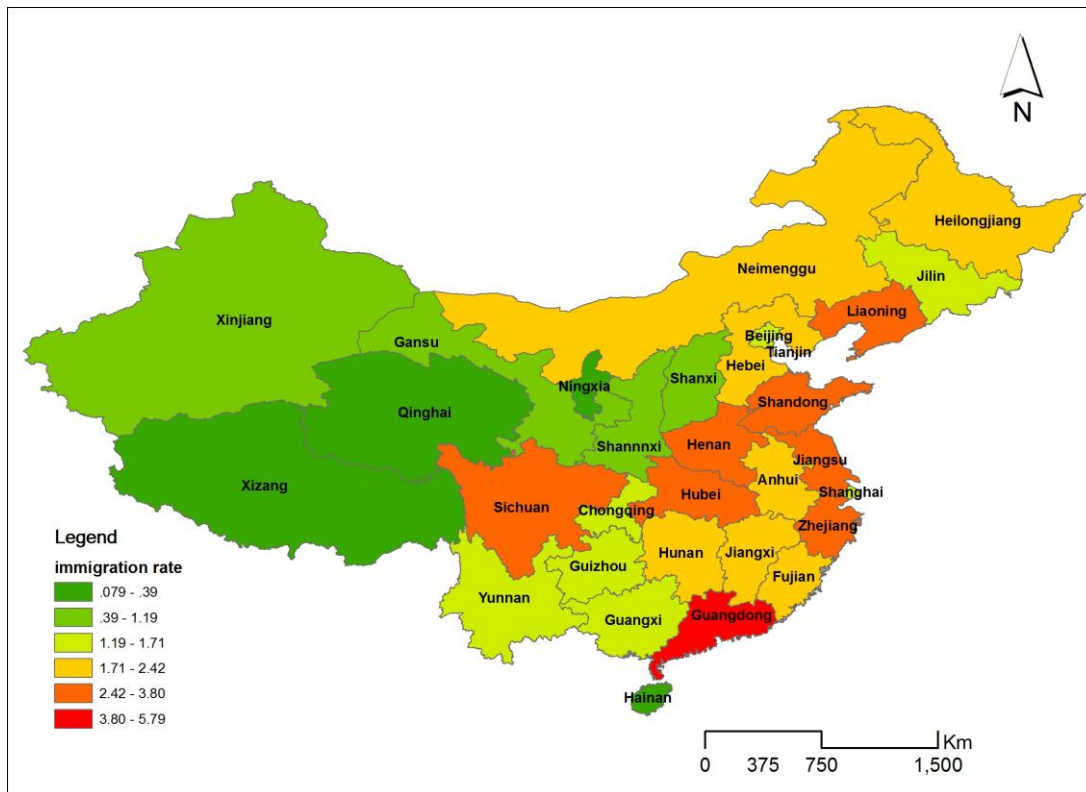


Figure 8. Intra-provincial immigration rate
Source: China's 2000 Population Census

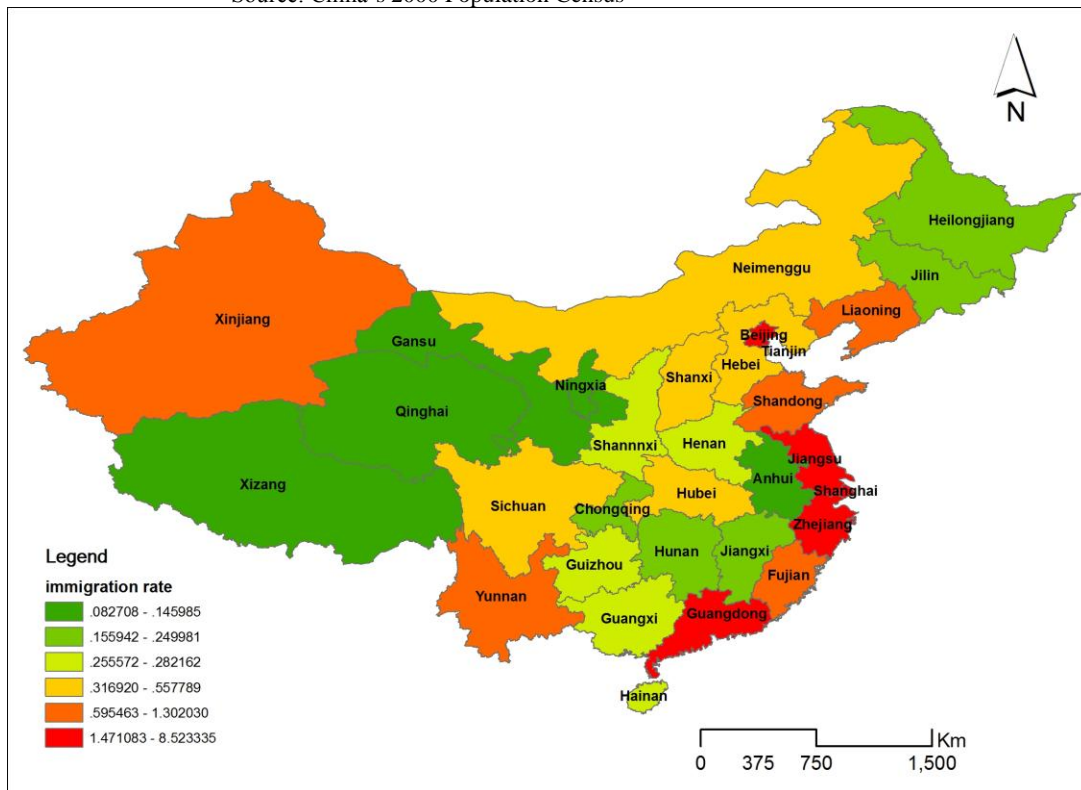


Figure 9. Inter-provincial immigration rate

Source: China's 2000 Population Census

Table 1.
Policies regarding inter-provincial migration: the case of Beijing

Period	Quantity Control	Registration and Fee Policy	Application and Approval Procedure
Formulating Regulation Policy period (1989-91)	Temporary worker must have the local Hukou; aim to reduce the rural migrants by 200,000-250,000; tight control over the recruitment of rural migrants.	The employer must apply for the temporary resident permit and working permit for their nonlocal employees.	
Loosely controlled period (1992-94)		Stop to collect the management fee from the baby-sitters who are from outside Beijing.	Formalize the labor contract for nonlocal workers; give more power to the lower level authority to approve the recruitment of rural migrants from local rural areas; give partial power to the employers to recruit nonlocal workers.
Strictly controlled period (1995-2000)	Tightly control the recruitment of nonlocal workers within the sectors with a large number of layoff workers; do not permit recruitment of nonlocal workers if the company has laid off 10% of its work force; set the ratio and formulate the rules on the recruitment of nonlocal workers and layoff workers; put a total quota on the nonlocal workers.	nonlocal workers must apply for temporary resident permit and working permit for nonlocal workers. The nonlocal worker must have employment certificate. Formalize the application procedure for the working permit. There are three different kinds of temporary resident permit	Formalize the control procedure for the nonlocal workers; take three-noa migrants into custody and send them back to their home towns. Strictly control the recruitment of nonlocal workers for certain sectors.

Sources: Reproduced from Cai et.al.(2001),Table 4.