

Inter-Provincial Migration Projection to 2100 by Urban-Rural State in China—Based on Provincial and Province-Capital-Level Talent Attraction Policy

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Extended Abstract

1. Introduction

Population migration has always been not only a traditional research topic in geography, demography, economics and sociology, but also a significant interdisciplinary issue. Since the reform and opening-up policy released in 1978, rapid economic development happened everywhere in China. Meanwhile, along with the inequality in development level, inter-provincial voluntarily migrate from remote area to coastal regions. Data, from the National Sixth census in 2010, suggests that amount of population mobility has reached 261 million, which increased by 81.03% compared to National fifth census data in 2000¹. Furthermore, count for inter-provincial migration who have leaved their usual residence five years ago is 54.99 million, adding 22.71 million compared to the front census.

There are four migration patterns in inter-provincial migration: urban-to-urban migration mode, urban-to-rural migration mode, rural-to-rural migration mode and rural-to-urban migration mode. Besides, mobility from rural areas to urban regions is the main pattern in inter-provincial migration. For instance, around 108 million individuals migrate from rural to urban area in 2010 and the migration flows between rural regions has increased to 72.9 million indicated by 6th national population census. By contrast, returning flow from urban to rural region is not that obviously in China and hard to feel intuitively by researchers. However, the phenomenon identified as a counter-urbanization has recently rise in developed economics (Remoundou, Gkartzios and Garrod, 2016). A common sense has been reached by scholars on inter-provincial migration that individuals in western, central and relatively poor region, tend to move to more developed eastern provinces, like Beijing, Shanghai, Jiangsu and so on, which can provide more variety of job and normally higher salary than origin province (Wang Guixin, Pan Zehan and Lu Yanqiu, 2012; Fan Cindy, 2005). In the long run, the patterns for inter-provincial migration will continue and increase, because the geographic feature in China affecting economic development and industrial distribution remain unchanged (Wang Guixin, Pan Zehan and Lu Yanqiu, 2012).

Since 2017, provincial and province-capital-level talent attraction policies spring up to maintain rapid and sustainable development in economy. These talent policies target to graduating students, overseas students, domestic leading talents, international talents and so on. Except attractive funding to talents, some provinces have set population growth targets at a specific period to facilitating population inflow, some also have set more restrictive Hukou points policy to limit in-migration, but welcome talents and elites including Beijing and Shanghai. To some extent, policies implemented by local governments will

¹ Here migration means citizen's residence location now is not consistent with his/her Hukou registered in street and the phenomenon has been last at least half a year.

affect inter-provincial migration trend and volume, meanwhile age, occupation, education structure of migrants and population in both origin and destination will be changed. Meanwhile rapid urbanization will continue in the near future in China.

2.Data collection

Talent policies and provincial/City development plan in various provinces is being collected now and try to make a plain classification and sub-classification according to influence talent policy has on demographic index, such as promoting population growth, limiting population growth, promoting and limiting in-migration characteristics. For example, while there were already 24.15 million long-term residents in Shanghai in the late 2015, government in Shanghai still set a population volume target, no more than 25 million long-term residents in 2020 and around 25 million in 2035. Additionally, an attractive talent policy has also been implemented by Shanghai government, including sorts of housing subsidies according to talent type, owning a Hukou in Shanghai, sufficient fund for scientific research and so on.

Migration data is collected from China census and sample survey, and a migration event is defined that one person's residence place is different from five years ago.

3.Modeling

The gravity model is commonly and popularly used in migration research.

$$m_{ij} = k \frac{p_i^a p_j^b}{d_{ij}^c}$$

m_{ij} : the number of migration who migrates from origin province i ($i = 1, \dots, n$) to destination province j ($j = 1, \dots, n$).

p_i^a and p_j^b : denote population in origin province i and destination province j respectively.

d_{ij}^c : distance between origin and destination.

Log transform for the gravity model.

$$\ln(m_{ij}) = \ln(k) + a \ln(p_i) + b \ln(p_j) + c \ln(d_{ij}) + \varepsilon_{ij}, \varepsilon_{ij} \sim N(0, \sigma_\varepsilon^2)$$

Actually, the not only population in both sides and distance can have an effect on the migration, but also the income, education and other factors play a significant role in migration. So here

p_i and p_j can be attributes in origin and destination respectively. More variables can be involved in this mode.

4.primiry analysis

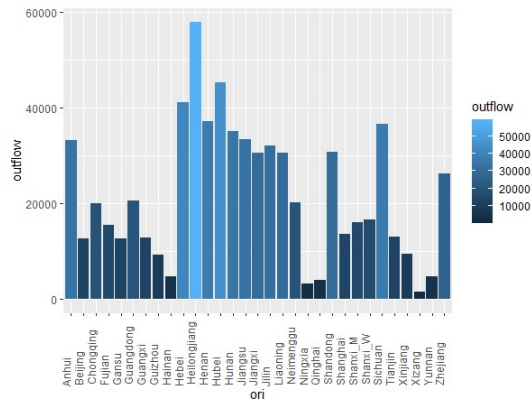


Fig1. Inter-province outflow during 2005-2010

As the literature mentioned, provinces in the center of China provide lots of labor for other provinces, usually the developed area. Among them, the top five outflow provinces are: Hei Longjiang, Hu Bei, He Bei, Si Chuan and An Hui. Meanwhile, outflow in the west is not as much as provinces in the center.

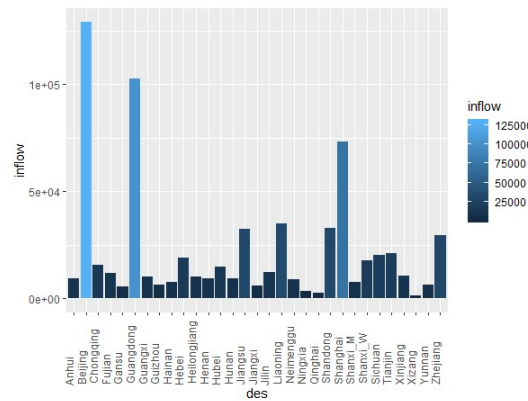


Fig2. Inter-province inflow during 2005-2010

Beijing, Shanghai and Guangdong, as the long-term and attractive provinces, attracts most part of outflow(44.68%). Additionally, labor intensive industry used to mainly concentrated on the eastern coastal areas, like Zhejiang, Jiangsu.

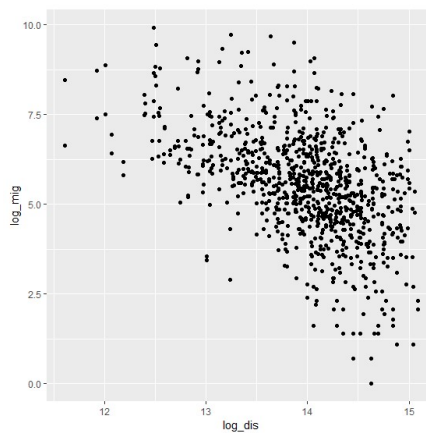


Fig3. Scatter plot for Inter-province inflow and distance during 2005-2010

The picture shows that an negative correlation between migration and distance. On the one hand, it can account for the difference in outflow when provinces are in a low income level.

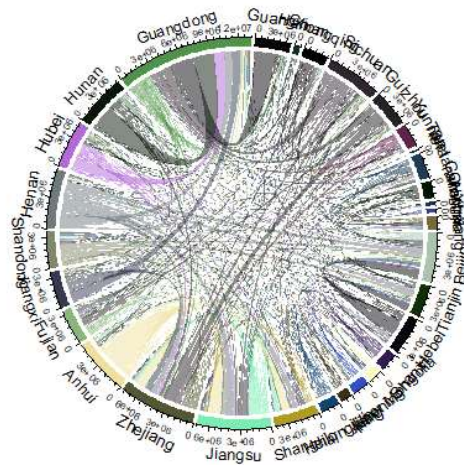


Fig4. Bilateral migration flow during 2010-2015

A rough bilateral migration is plotted and provinces is expressed by each unit. Inflow migration and outflow migration is obviously observed and the width of each unit means the total population of inflow and outflow.

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