

# A Spatial Comparison of Short and Long Term Migration Trends in China

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## Abstract

China's floating population, those individuals who have migrated between counties or provinces for a period of longer than 6 months, account for 79 million individuals. If intracounty migration is also included, the number jumps to 145 million individuals or over 11% of the total population. This study examines the geographical differences in short and long term migration using ArcGIS to manipulate the spatial GIS data. The study shows that both short and long term migration (in absolute numbers) occurs more frequently near cities and in coastal regions. However, by normalizing the data by population size, the study eliminates the problems of population size on the size of the migrants. Using this normalized data, the study finds that western and northern counties have a large number of migrants present relative to the size of the population. Determining where this floating population migrates helps explain regional inequalities in employment opportunities.

## Definitions

**Short term migrants:** Those individuals who are residing at their current location for less than 6 months, but have been away from their permanent residence for over 6 months.

**Long term or permanent migrants:** Those individuals who have resided at their current location for more than 6 months, but their place of permanent residence is elsewhere.

## Introduction

This study uses data from the 2000 Census carried out by the National Bureau of Statistics of China and compiled on a county basis with geospatial references. This study finds slightly different data for migration using the 2000 census than Liang and Ma (2004). There are approximately 25 million short term migrants and 131 million long term migrants accounting for 16 and 84% of all migrants respectively. However, this may reflect short term migrants reluctance to be counted in the census for fear that they may be forced to return to their permanent residence rather than being favor of them in general. Using the 2000 Census figure of 1.24 billion people for the population of China, migrants account for over 12% of the population, and therefore determining to where and for what reason these individuals migrate are of significant importance to Chinese policy makers.

The distance that migrants travel can be used as a barometer of regional inequalities. This assumes that all else being equal, an individual will chose a job in a closer location than an equal job in a location further from their permanent residence. Because most migrants travel for economic reasons, the number or proportion of migrants in an area is likely to reflect the relative economic status of that county relative to surrounding counties.

## Literature Cited

1. Liang, Zai and Ma, Zhongyong (2004) "China's Floating Population: New Evidence from the 2000 Census." *Population and Development Review* 30(3): 467-488.

## Methods

All figures use GCS WGS 1984 and are projected with Lambert's Asia Conformal Conic Projection in ArcGIS. In contrast to the 1990 Chinese Census when the residency requirement was a full year, the 2000 Census only requires individuals to reside in a location for 6 months before they are considered to be residents and migrants in their new county. The 2000 census data was then used to create the two variables that are used in this study.

The first variable is a measure of short term migration and is defined as the "Total population who have resided in the township, towns and street communities for less than 6 months but have been away from the places of their permanent household registration for more than 6 months." These individuals have not stayed in the same location for a period greater than 6 months during the census period and are known as "China's Floating Population" because they continually migrate from region to region searching for work.

The second variable is a measure of long term migration which is defined as the "Total population who have resided in the township, towns, and street communities for more than 6 months but the places of their permanent household registration are elsewhere." These individuals are often referred to as permanent migrants in the literature. Both of these variables correspond to the number of migrants, short or long term, in a given county at the time of the 2000 Census, and can not be spatialized as to where these migrants permanently reside.

Figures 1 and 2 simply represent the total number of short and long term migrants respectively by county. Since some counties are more populated than others, it is important to compare migration trends where the number of migrants has been normalized by the size of the population. This occurs by dividing the migrant population in the county by the total population in the county to determine an approximate percentage of migrants in the county. Figures 3 and 4 represent the number of short and long term migrants that have been normalized by the population size of the county. Similarly, figures 5 and 6 represent short term and long term migrants that have been normalized, not however by the population of the county, but by the population of the province. Therefore, it combines all the migrants from each county in a given province, and then divides by the population to arrive at a percentage of the provincial population whom are migrants.

To calculate migration rates, all figures were grouped separately into 5 quintiles, each group accounting for 20% of the total. This was done to accommodate the fact that there are more long term or permanent migrants than short term migrants, so having the same scale would not be possible. In the county level data, there are 2676 counties, so each quintile contains approximately 535 counties. For the provincial data, each quintile contains six of the 31 provinces with one having seven. Quintiles allow quick interpretation between figures where scales differ.

Without the province of Shanxi, the number of short term migrants falls to only 10 million, while the long term migrants are relatively unchanged. While this is definitely a possibility to happen in reality, the fact that there is no carry over to neighboring counties raises suspicion. Therefore, the data from the Shanxi province are erroneous, and do not reflect the actual migration status of individuals living in Shanxi.

## Acknowledgements

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## Results

Excluding Shanxi province, short term migrants are only between zero and three percent of the population of the province, while long term migrants range from five to thirty-two percent. There are 14 provinces with long term migrants accounting for over 10% of their population, while there are no provinces where that is true of short term migrants. The distribution of short and long term migrants are relatively spread throughout the country. However, the province of Guangdong has significantly more migrants than all other provinces. It accounts for 22% of all short term migrants and 17% of long term migrants while the next closest provinces account for only eight and six percent respectively. It should also be noted that this data excludes Hong Kong, which is directly adjacent to Guangdong, and likely to have a substantial number of both short and long term migrants.

The nine major coastal provinces (Beijing, Tianjin, Hebei, Shandong, Jiangsu, Shanghai, Zhejiang, Fujian, and Guangdong) account for approximately one third of the population, but contain over half of both short and long term migrants. Also, short term migrants average about one percent of the population, while long term migrants account for over 16%, suggesting that migrants in these areas typically come to these areas and stay because of the excellent employment opportunities there. This can be seen visually as the mean center of China, weighted by the number of migrants, is further east and south for long term migrants than for short term migrants.

## Discussion

First comparing figures 1 and 2, there does not seem to be a large disparity between the two. However, even though the same highest and lowest quintiles are in the same place, the largest long term migrant population in one county is approximately 4.5 million people whereas the largest short term migrant population is only 550,000. There is also the issue of the Shanxi province, discussed above, which reflects the more accurate findings that a larger number of counties in the south east of China are in the highest 20%.

Because figures 1 and 2 were not easily comparable, figures 3 and 4 normalize the data from figures 1 and 2. Figure 3 shows that once population size was taken into account, there are a large number of western counties where migrant make up a significant proportion of their populations. This trend is further pronounced in figure 4 where the migrant rich counties in the western and northern regions are the dominant feature on the map. There appears to be a difference in the distance that short term migrants are able to travel from the major cities on the east coast, while long term migrants have ample opportunity to travel great distances to secure jobs in more remote locations.

In an attempt to show general China wide trends, figures 5 and 6 aggregate the county level data and examine the normalized percentage of short and long term migrants in province populations. The results from figures 5 and 6 are similar, but include some important differences. Figure 5 shows the inner coastal provinces being part of the lowest quintile as many of the individuals that live there only have to migrate short distances to get to the economically booming coastal region. This suggests that either these provinces will likely continue to see migration out of their provinces towards coastal regions where the return to labor is that much greater. However, figure 6 illustrates that both Hebei and Shandong provinces have a significant number of long term migrants. This most likely reflects relatively well off individuals in near coastal provinces migrating out to the coast where there are increasingly well paid jobs, and migrants from further west are moving east into these provinces to take the jobs of the other migrants. This can also be seen by the decrease in the proportion of long term over short term migrants in provinces like Shanxi and Gansu. Therefore, it appears as if short term migration is occurring in more localized areas with long term migration traveling further distances to regions with higher growth potential or in areas filling in where short term migrants have vacated.

Figure 1: Short Term Migration

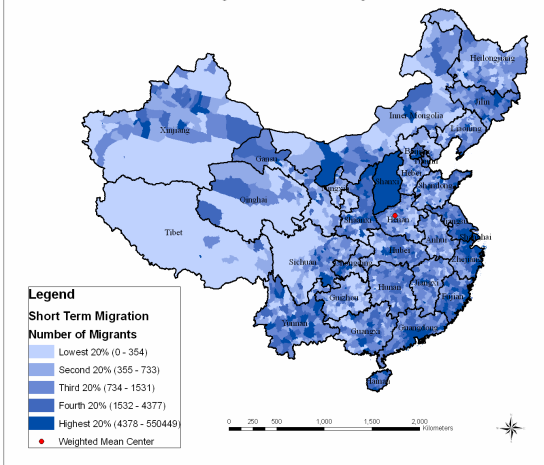


Figure 3: Short Term Migration Normalized by Population Size

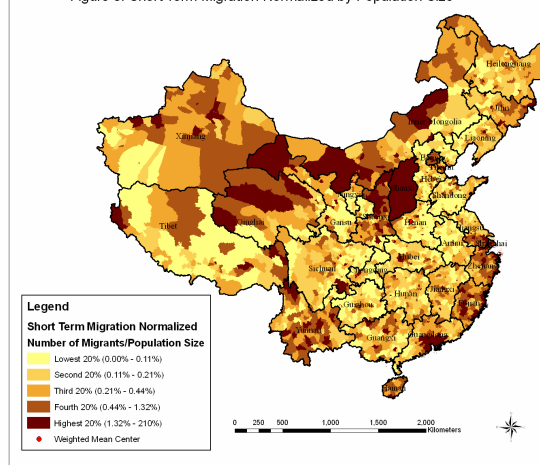


Figure 5: Short Term Migration by Province Normalized by Population Size

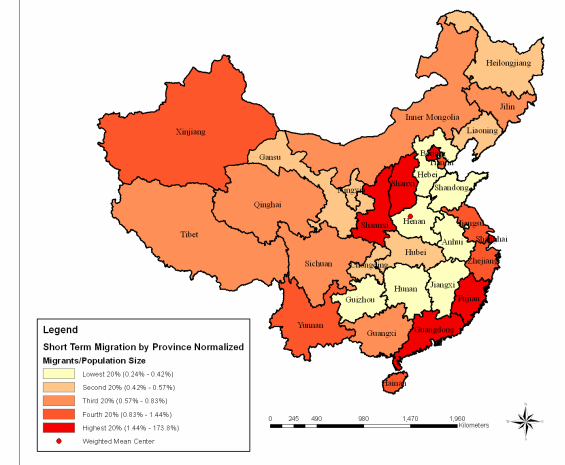


Figure 2: Long Term Migration

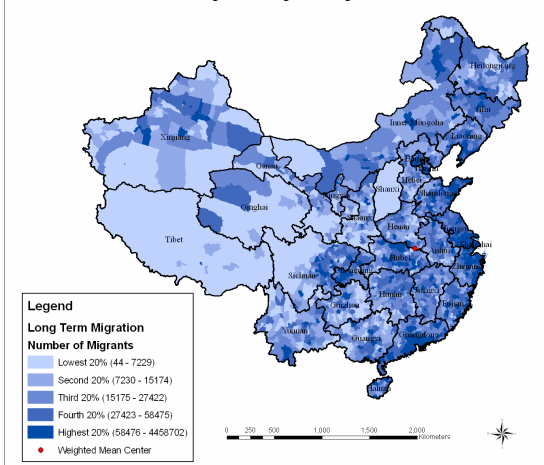


Figure 4: Long Term Migration Normalized by Population Size

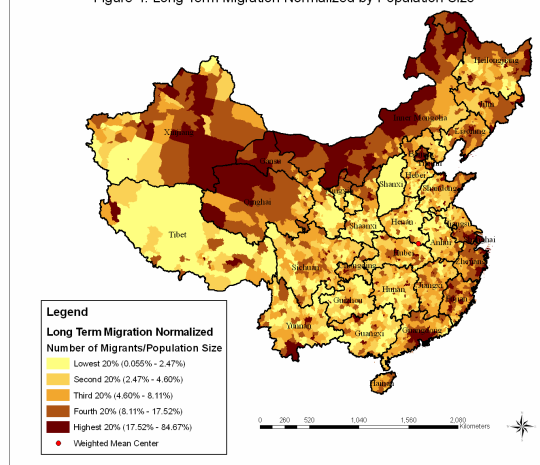


Figure 6: Long Term Migration by Province Normalized by Population Size

