Internal Migration in the New Era of Urbanization of China

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Abstract:

China has entered a new phase of urbanization with majority of its population now living in urban areas, while experiencing rapid economic growth and demographic transition as well as social reform. Given a shrinking pool of rural population, rural-to-urban migration as the main driving force for urban population growth in the past decades has declined. Natural population growth and urban-to-urban migration play increasingly important roles for urban growth and spatial urban population distribution across subnational regions. Adopting a multi-regional population projection model, we examine the relative contribution from natural and migratory growth as well reclassification to national urban growth in the past three decades, and project the future changes under different demographic and urbanization scenarios. Using Shanghai as a case study, this paper explores the future migration trends and its implications for socioeconomic development, paying particularly attention to well-being of migrants without local household registration who made major contribution to economic growth of the city but are not integrated into the social welfare system.

Extended Abstract:

Motivation

China's extraordinary economic boom has accompanied by an unprecedented scale of urbanization. There have been more than 500 million rural residents moved to the cities during the past less than four decades, and the rural population size has stopped growing since 1992. More than 700 million citizens are now living in total of 657 cities, 160 of them having a million or more population. As a result, the urbanization level of China increased from less than 20% in 1980 up to 54.7% by the end of 2014 (Xinhua 2015). Urban growth in China has not only served as the engine of economic growth of China, but also made important contribution to global urbanization and economic growth. In the past three decades, more than 90% of global urban growth occurred in China (UNPD 2014); and, according to Stiglitz (1999), urbanization in China will be one of the two fundamental factors that deeply influence global human development in the 21st century.

The tremendous urban population growth of China has been accompanied by rapid economic growth and demographic transition. More importantly, urban economic growth to a large extents has been driven by the so called a demographic windows of opportunity which was also engendered by rapid fertility decline and changes in population age compositions favorable for high saving rates and labor market (Bloom and Finlay 2009; Chen 2010). With the further evolution of demographic transition in China, however, the demographic dividend disappear soon

and the favorable age structure will quickly turn into a "demographic tax" as age population age (Cai 2010). The shrinking rural population along the urbanization process has also reduced the size of pool for rural-to-urban migration. In the meantime, the 500 million newly urbanized residents have very different social status in their new abode according to the household registration system. While less than half of them gained urban local household registration (or Hukou) through either reclassification of home villages from rural to urban or urban employment recruitment, 260 million of the migrant workers in the cities do not have a local Hukou booklet. Although they may have jobs to support themselves now in the cities, the migrant works are not entitled to the social welfare and therefore are much less settled and seek lives back home or move across cities. This is particularly true for the floating population in large cities such as Shanghai, seeking to strictly control growth of nonlocal Hukou migrants, which accounts for more than 40% of its 25 million residents. The uncertain residential status of the migrant works and the possible changes in the household registration system play a critical role in determining the future trends of urban growth and spatial population distribution in China. Hence, it is important to understand the demographic determinants of urban growth, particularly the impacts of internal migration, its future trends and relationships with other socioeconomic and political factors in the new era of urbanization of China.

Literature Review

Demographically, urbanization is caused by differential urban-rural natural population growth rate, net rural-to-urban migration, and net reclassification of locations from rural to urban. Some scholars argue that demographic transition is closely linked with an urbanization transition (Becker 2007; Skeldon 2008); and, in different phases of urban transition the impacts of natural growth and internal migration on urbanization vary significantly (Kelley and Williamson 1984; Ledent 1982; Zelinsky 1972). In the early stage of urban transition, net rural-to-urban migration is the main source of urbanization. In the second stage, when urbanization increases to a certain level, natural growth in the urban areas contributes more to urban growth than migratory growth. After urbanization reaches a very high level, in the third stage, net rural-to-urban migration may again play a more important role to further urbanization. According to Chen et al. (1996), the rural out-migration rate increased from 0.61 percent in the 1960s to 1.14 percent in the 1980s in the developing world. However, the trend varied significantly across different developing regions. During the same period, rural out-migration rate declined steadily in Africa, but gradually increased in Asia; in Latin America and the Caribbean, it increased firstly between the 1960s and 1970s before declined afterwards. These different trajectories were consistent with what is known about their economic situations and urbanization levels/growth rates of different regions.

Several studies have been conducted to quantify the relative contribution of natural growth and migratory growth to urbanization in the past decades (Chen, Valente, and Zlotnik 1996; Ledent 1982; National Research Council 2003; Rogers 1982). Chen et al's estimate suggests that in the 1980s migration and reclassification accounted for 54 percent of urban growth in the developing world as a whole. A large proportion of urban growth due to migratory growth and reclassification was originated from China; without China, migration and reclassification was only responsible for 40 percent of urban growth in the developing world.

While the above mentioned assessment from Chen et al provides useful information for understanding the impacts of internal migration on urban growth, the decomposition analysis is a short term flow estimate, based on the instantaneous contributions of migration and natural increase to urban growth. The genuine and complete effects of migration should be considered in terms of 'stock', as a cumulative measure and accounting for the contributions from not only the migrants themselves, but also their descendants (National Research Council 2003). According to Rogers (1982), 'the long run impacts of current patterns of migration and natural increase on urban population growth and urbanization levels can be assessed only by population projection'; more importantly, the assessment using an aggregate level projection model with fixed rates 'is of limited value for answering the question on whether it is natural increase or net migration that is the principal source of urban population growth'; therefore, 'a more realistic model that allows the natural increase rate to change over time along with rate of net urban in-migration' is needed. This model should be able to disaggregate the rural and urban population by age.

In this study, we take the advice of Rogers and adopt the multiregional demographic approach to analyze the demographic determinants of urbanization of China in the past decades based on which we examine the relative contribution, of natural, migratory growth and reclassification, to urban population growth. Moreover, we project future trends in urban population growth and the specific contribution from natural growth and from the combined effects of migration and reclassification, under different urbanization scenarios. In order to make assumptions on plausible change in demographic parameters particularly changes in rural-urban migration patterns, we conduct in-depth analysis using national and city level household survey data. Using Shanghai as a case study, we pay particular attention to the population dynamics of the metropolitan areas, where nonlocal Hukou holders of migrant workers play a crucial role and will to a lager extent determine the trend of future urban growth of China. Based on the present research, we will reach better understanding of the trends in internal migration and its contribution to urban population growth in a developing country like China, in the process of demographic and urban transitions.

Methods, Data, and Primary Result:

We follow Rogers' suggestion (mentioned above, Rogers 1982) and use a multistate population/urbanization projection model developed at NCAR to assess the net contribution of migration, vs natural growth and reclassification, to future urbanization. A detailed description of the model is contained in an published article (Jiang and O'Neill 2009) and will not be repeated here. In simple terms, the basic accounting strategy of the model is as follows.

$$P^{t+5}_{x+5,s,r} = (P^{t}_{x,s,r} + P^{t}_{x,s,u} \times m_{x,s,u-r} \times 5 - P^{t}_{x,s,r} \times m_{x,s,r-u} \times 5) \times S_{x,s,r}$$

$$P^{t+5}_{x+5,s,u} = (P^{t}_{x,s,u} + P^{t}_{x,s,r} \times m_{x,s,r-u} \times 5 - P^{t}_{x,s,u} \times m_{x,s,u-r} \times 5) \times S_{x,s,u}$$

where $P_{x+5,s,r}^{t+5}$ and $P_{x+5,s,u}^{t+5}$ are the population aged *x+5*, with sex *s*, in rural and urban area, at time *t+5*; $m_{x,s,u-r}$ is the urban to rural migration rate of age *x* and sex *s*, $S_{x,s,r}$ is the survival rate for rural population of age *x* and sex *s*.

For the youngest age group in the rural area, the formula is expressed as

$$P_{0-4,s,r}^{t+5} = (\sum_{i=15}^{49} (P_{i,f,r}^{t} \times ASFR_{i,r} + P_{i,f,r}^{t} \times S_{i,f,r} \times ASFR_{i+5,r}) \div 2 \times 5$$

$$+ P_{0-4,s,r}^{t} \times 2.5 \times m_{0,s,u-r} - P_{0-4,s,u}^{t} \times 2.5 \times m_{0,s,r-u}) \times S_{0,s,r}$$

where $ASFR_{i,r}$ is the age specific fertility rate of rural women, $P_{i,f,r}^{t}$ is the rural female population of age *i* at time *t*.

It is noteworthy that some multiregional population projection models use age frequency distributions of migrants or net migration rates. In our model, the use of gross rural-to-urban and urban-to-rural migration rates allows for detailed analysis of urbanization-migration, but at the cost of additional challenges in obtaining adequate data to derive these rates.

From China censuses data of 1990, 2000 and 2010, we obtain the population by age, gender and rural/urban status. From the micro-sample of the censuses datasets, we derive the age, gender, and rural-urban specific fertility and mortality rates, as well the rural-to-urban and urban-to-rural migration rates. Figure 1 shows that during the last five years of the 20th century, China recorded the one of the highest rural-to-urban migration rates in human history; and the rates of returning migration from urban to rural is much lower, which resulted in a huge number of migrants contributed to rapid urbanization. Moreover, the city-ward migrants are largely concentrated on the young adult age groups.

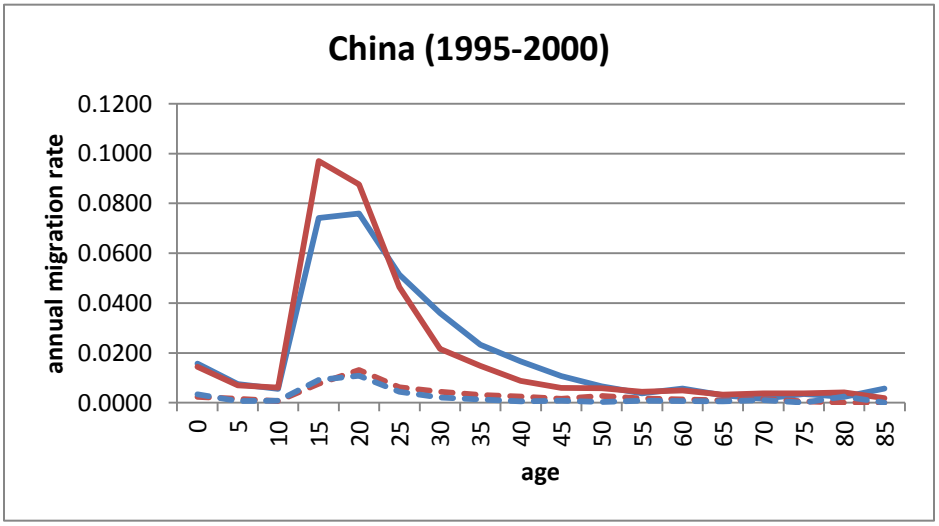

Figure 1 Age and Gender profiles of rural-urban migrants of China, 1995-2000

Figure 1 represents an extremely high rural-to-urban migration rates and highly concentrated age pattern in the late 1990s when China was experiencing rapid urbanization. This high rate and age profiles of internal migration could not last for long. The recent data from 2010 Census reveals a significantly lower rural-urban migration rates.

Based on the rural-urban population and the demographic rates of the 3 time points, we use the multistate population/urbanization model to simulate the process of urban population growth, in order to understand the relative contribution of natural, migratory growth, and reclassification.

Using the same demographic model, we project future changes of urban growth and the contribution of net rural-to-urban migration under different urbanization scenarios. We will adopt the urbanization scenarios under the IPCC new socioeconomic scenarios - the Shared Socioeconomic Pathways (SSPs, Jiang and O'Neill 1995). To adequately assume future changes of demographic variables, we will use data from 2010 Census. Because the micro-data from the 2010 Census is not available, we need to use other data sources to conduct in-depth analysis to understand migrants' behavior, particularly the uncertainty of retaining migrant works in different cities. We have obtained the 2014 national survey of migration dataset, and the micro data of population registration from Shanghai Municipal Government which helps us to conduct detailed analysis of demographic behavior of non-local Hukou holders.

We conduct the case study of Shanghai Municipality and simulate the plausible changes in the size and composition of population under different scenarios. From the 2010 census data, we derived the baseline population of Shanghai by age, gender, and Hukou status. Figure 2 reveals that Shanghai population displays a very much distorted population pyramid - a "tree-shaped" population age structure, with nonlocal Hukou migrant worker making up most of the labor forces (Figure 3). In fact, without large inflow of migrant works, Shanghai would have experienced population decline in the past decade, with its recorded TFR of 0.78.

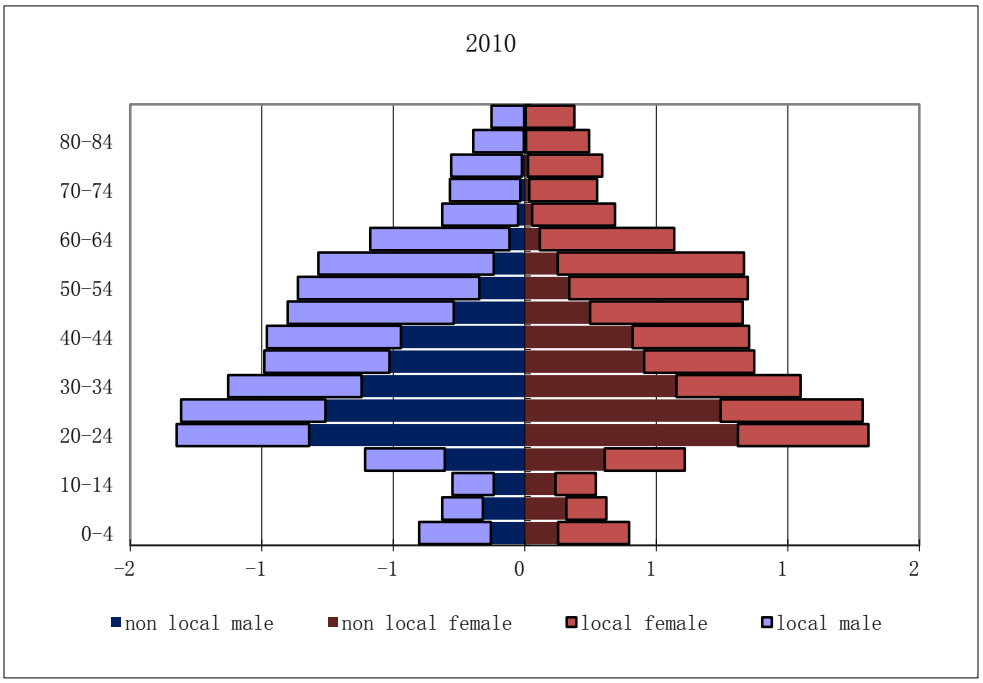

Figure 2. Population composition of Shanghai by age, gender and Hukou Status, 2010

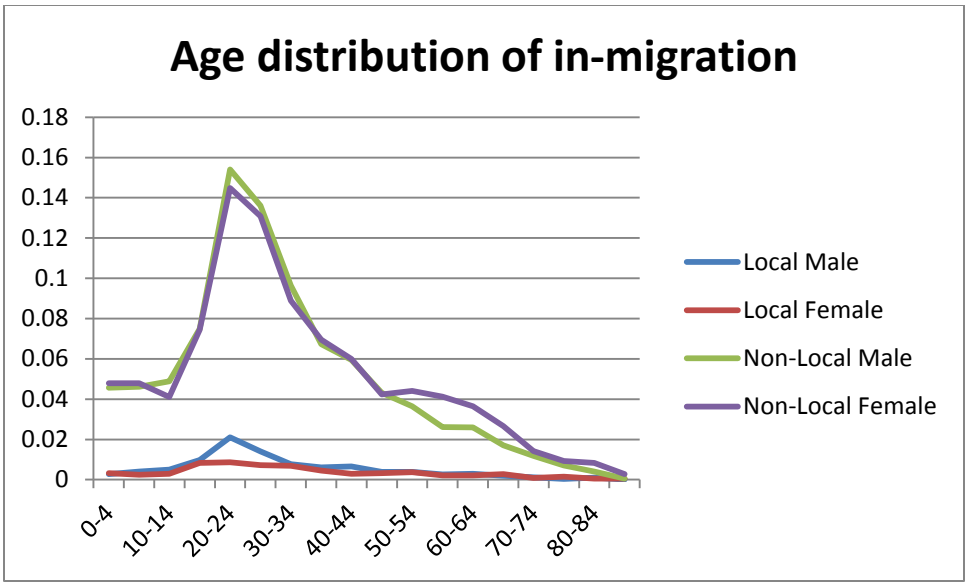

Figure 3. Age and gender profiles of in-migrants with local and nonlocal Hukou, 2009-2010

While the municipal governments put efforts to limit the inflow of migrant workers, the constraints on in-migration may generate some significant impacts on future changes in population size and age structure. Even if the number of in-migrants remains at the current levels over the next 40 years, by year 2050 Shanghai will have 34.5% of the population aged 65+, which would seriously affect future economic growth, social welfare system, and elderly supports.

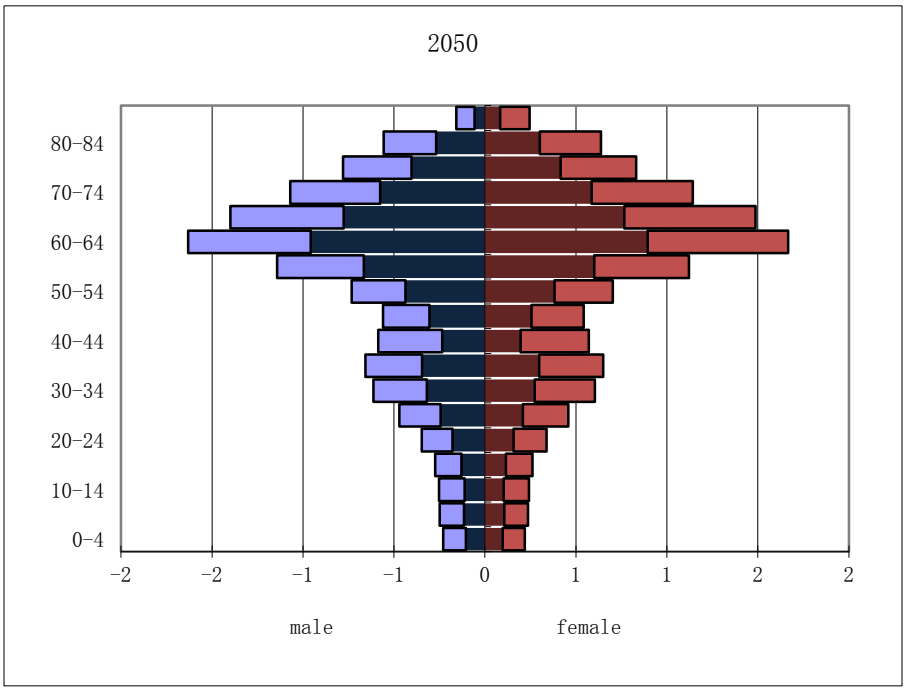

Figure 4. Simulated population changes by 2050, assuming the number of in-migrants remain the current level

While the intensity, direction and tempo of future movement of the migrant workers would be influenced by migration policies of the Shanghai municipal government, it would largely determined by the experiences and perception of the nonlocal Hukou residents about their livelihoods in Shanghai, comparing to those in their homes and in other cities of the country. Using the sample survey conducted by the Shanghai Population Office and Shanghai University, we will analyze the factors determining the willingness and barriers for the migrants to be integrated with local community, in order to study the future trends of internal migration and its impact on urbanization in China.

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