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Accounting for China's urbanization

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ABSTRACT

It is widely acknowledged that large-scale urbanization plays a pivotal role in China's miraculous economic growth over the past two decades. Yet many of the basic statistics and facts remain disputable. The contribution of this paper is two-fold. First, based on the publicly available 2000 and 2010 census data, plus some auxiliary information from other sources, we develop an accounting method to back out the scale and composition of China's urbanization. We find that urbanization accounts for 80.4% of the total urban population growth of 211 million in the 2000s. Moreover, more than half of the urbanized population, about 85.6 million, is due to rural–urban migration. Our findings suggest that rural–urban migration increased by two thirds from the 1990s to 2000s, while the population urbanized by land reclassification is roughly the same across the two periods.

1. Introduction

A wave of urbanization has swept over China in the past two decades. The urban population ratio skyrocketed from 26% in 1990 to 50% in 2010 in a country with more than one billion people. It is widely acknowledged that urbanization plays a pivotal role in China's miraculous economic growth. Moreover, there is little doubt that urbanization will maintain its momentum and continue to be an important driving force for economic growth in China in the next one decade or two.[1] The obvious importance of the issue has sparked a growing literature devoted to characterizing the basic patterns of China's urbanization (e.g., Li, Li, Wu, & Xiong, 2012; Meng, 2012).

Yet our knowledge remains thin for the following reason. Urbanization is a rich dynamic process involving two basic components: (i) rural–urban migration; and (ii) urbanization by urban land expansion. A first-order issue is to identify the scale and composition of urbanization. Since urbanization is dynamic per se, direct identification requires both the current and historical residential status at the individual level. To this end, the literature often resorts to the surveys that provide such information. These surveys, however, are designed for various purposes and tend to have various degrees of representativeness for the urbanized population. It is not surprising to see large disparities in the results based on different surveys. For instance, the literature provides a range of the estimated migration that seems too wide to be taken seriously. According to Knight, Deng, and Li (2011), migrant workers would account for about 40% of the total urban labor force. By contrast, Cai and Du (2011) suggests a ratio of barely 13%.

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[1] At the current speed, China's urban population would account for 68% of the total population by 2030 (see Song et al., forthcoming).

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This paper proposes a novel way to account for China's urbanization. The idea is to back out population flows from population stocks in the publicly available census data. The challenge is obvious: The 2010 census does not ask about historical residential status, except for those without local Hukou.[2] Worse, the rural–urban population dynamics are difficult to construct without access to the individual-level data that are not publicly available. To tackle the issue, we develop an accounting framework that characterizes population dynamics. To the best of our knowledge, this is the first attempt in the literature to build a mapping from population stocks in census to population flows by residential and Hukou status. The model allows us to identify the two channels of urbanization in a structural way. We find that urbanization accounts for 80.4% of the total urban population growth of 211 million from 2000 to 2010. The rest of the growth is due to the natural growth of the urban population. Among the urbanized population, rural–urban migration accounts for more than half, about 85.6 million. The rest of the urbanized population, about 84.2 million, comes from the expansion of urban land.

It is worth emphasizing that without the guidance of the model, there is no obvious way of measuring urbanization from the census data. No papers in the literature construct an explicit mapping between the population flow from rural to urban areas (i.e., urbanization) and the population stocks available in the census data. Recent work on China's urbanization has exploited three other major datasets: (i) NongMinGong Survey (see, e.g., Knight et al., 2011; Meng, 2012); (ii) China National Rural Survey (see, e.g., Rozelle, Huang, Zhang, & Li, 2008; Wang, Huang, Zhang, & Rozelle, 2011); and (iii) Rural Urban Migration in China and Indonesia (see, e.g., Kong, Meng, & Zhang, 2010; Meng, 2012). Some other survey data are also used, such as China Family Panel Studies (see, e.g., Xu & Xie, unpublished paper). Each dataset has its own strengths and limitations. For instance, compared with censuses, survey data often provide more direct information on rural–urban migration. The downside of these surveys is that their samples are typically drawn from population databases in local administrative offices, which underrepresent migrants.

The rest of the paper is organized as follows. Section 2 discusses the data. We present the accounting framework in Section 3 and, then, use it to back out the scale and composition of China's urbanization in the 2000s. Section 4 conducts several robustness checks and Section 5 concludes.

2. Data

This paper mainly exploits the 2000/2010 census data for variables on population by residential status (rural/urban) and by Hukou status (local/non-local and agricultural/non-agricultural). We also use the 2005 one-percent population survey (henceforth, the mini-census) and the 2008 China General Social Survey to complement the census data. The China General Social Survey was conducted jointly by the Department of Sociology at Renmin University of China and the Survey Research Centre of Hong Kong University of Science and Technology. As will be shown below, the 2005 mini-census and the 2008 China General Social Survey provide information on Hukou status change that is an important identification device in our accounting exercise.

The rural/urban classification and the multi-dimensional Hukou status deserve discussion. Following the definition given by China's National Bureau of Statistics in 2000, we classify rural/urban by city (urban), town (urban) and township (rural).[3] The urbanized population in a certain period is, thus, referred to as the urban population that used to live in a rural area prior to that period. Similarly, rural–urban migrants are those who physically relocate from a rural to an urban area in a given period.

Hukou status is multi-dimensional: agricultural/non-agricultural and local/non-local. The agricultural/non-agricultural classification is often based on the rural/urban status of a person's original Hukou registration place, though the agricultural Hukou can be converted under circumstances that will be discussed below. In the 2000 census, 24.7% of the total population had non-agricultural Hukou. The number increased to 29.1% in the 2010 census.[4] The local/non-local classification shows whether a person's current place of residence is his Hukou registration place. In the 2010 census, 261 million people (19.6% of the total population) did not have local Hukou. The number had increased by 81% since 2000. As will be shown below, the changing Hukou compositions will be essential for identifying rural–urban migration.

Although census adopts the same rural/urban definition for the current residential status, it classifies the Hukou registration place into four jurisdictive categories that are not entirely consistent with the standard rural/urban definition: (i) Street; (ii) Residents' Committee of Town; (iii) Villagers' Committee of Town; and (iv) Township. To deal with potential inconsistencies, the literature often uses "Street" + "Residents' Committee of Town" and "Villagers' Committee of Town" + "Township" as proxies for urban and rural areas, respectively.[5] This approach, which is exactly how the 1990 census defines rural/urban area, tends to deliver a reasonably good approximation. Admittedly, it would bias the results from the more recent censuses since some places under the jurisdiction of "Villagers' Committee of Town" have been classified as urban areas by the above new rural/urban definition. We will follow the literature in our benchmark analysis and address the issue of potential bias in Section 4.1.

[2] By contrast, the 2000 census asks about historical residential status for everyone. See below for a detailed explanation of Hukou status.

[3] The rural/urban definition has changed a bit in the 2000s, but the difference is too small to have any major effect on our results. Specifically, according to the 2010 definition, urban areas should be located in or contiguous to the area where the local government is located. The only difference in the 2000 definition is that if a region is NOT located in or contiguous to the area where the local government is located, but located in a municipal district with a population density above 1500 people per square km, it would be classified as urban, while it is rural by the 2010 definition. The difference is negligible since it is hard to find a discontinuous area in a high-density municipal district. See Chan and Hu (2003) and Chan (2007) for more details on the definitions.

[4] The Ministry of Public Security also provides information on agricultural/non-agricultural Hukou. According to the reason detailed in Appendix A, the Ministry of Public Security data tend to overestimate the size of the population with agricultural Hukou.

[5] See, for example, Wang (2004) and Cai and Wang (2008).