Urbanization in China

What is the True Urban Population of China? Which is the Largest City in China?

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"Virtually overnight, Chongqing has become the largest city not only in China but in the world," *Time* magazine not too long ago proclaimed (April 18, 2005). This is very interesting because if you ask people in China, few would think that Chongqing is the largest city in their country, at least not in the meaning of "city" as we normally understand it.

China is number one in the world in total urban population. The National Bureau of Statistics (NBS) reports that by the end of 2007 the urban population had grown to nearly 600 million, accounting for about 45% of the nation's 1.32 billion inhabitants. To some, this large and growing urban population conjures up an image of a huge and rising middle class and, of course, a potentially enormous mass consumer market.

How large is the true urban population of China? Which of China's cities is the largest? Though these questions may seem elementary, they underlie some fundamental issues we have to confront in analyzing an increasingly urbanized China. Obviously, the size of the urban and city populations are essential in many economic and business analyses, as are the various per capita metrics derived from them.

The study of China's urbanization and related statistics has consumed tremendous energy from scholars and analysts in the last three decades. Despite that, confusion and contradictions still abound in the popular media concerning the size of the population of many Chinese cities, and this is even true in academic publications. A major contributing factor is that China has probably the world's most complex and confusing urban and city statistical data, with multiple indicators of city/urban population and a complicated administrative system, which also uses social and economic statistics to directly evaluate performance of local government officials for promotion. Added to these aspects are the continuing rapid economic and social changes in the country and the periodic adjustments of its administrative and statistical systems.

Defining the City and Urban Population[1]

In order to study city development and related phenomena properly in any country, it is necessary to delimit cities within meaningful geographical boundaries. Almost all cities of any size contain a continuous built-up area, and many also have nearby residential and industrial suburbs. In addition, many large cities, especially in developed countries, have an extensive daily commuting zone closely related functionally to the urban core. The urban core and the commuting zone combine to form the metropolitan area, as it is commonly known.

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[1] This section draws from Kam Wing Chan, (2007), "Misconceptions and Complexities in the Study of China's Cities: Definitions, Statistics, and Implications," *Eurasian Geography and Economics*, 48(4), pp.383-412.

As in other countries, a Chinese city or municipality (*shi*) is an administrative unit. However, many Chinese large cities today typically encompass an extensive area, which contains an urbanized core (high-density built-up area), surrounded by numerous scattered towns and large stretches of rural territory, usually with dense farming populations. These cities are so large in area that they are more aptly called "regions" (denoted by A in Figure 1). The most extreme example is Chongqing, which has an administrative area of 82,300 sq km (about the size of the entire country of Austria), and a resident (*de facto*) population of 31.69 million in 2005. More than two-thirds of the employed workers in this Chongqing are actually engaged in agriculture.[2] Thus, this figure cannot be taken as the population of the "metropolitan area" or "urban agglomeration," as is often done by the less informed.

Administratively, the urban core, together with some close-in built-up and rural areas, is divided into "city districts" (*shiqu*), and the surrounding rural areas (including any towns) into counties (*xian*). The area labeled B in Figure 1 comprises the city districts portion of the region. Generally, the boundary of B corresponds to the concept of "urban administrative area" used in the United Nations publications that compare data for different countries.

The urban administrative area is different from what can be called "the urban statistical area" (shaded area in Figure 1), which is defined on the basis of "urban characteristics." In 2000-2005, the principal criteria were the administrative urban status of the area and the presence of a minimum average population density of at least 1,500 persons per sq km, or contiguity of built-up areas. The urban statistical areas are found both within the city districts (B) and in the counties outside them. Those within B can be considered as the truly urban portion of the city.

Different Population Counts

Four commonly used population indicators for China's largest cities in 2000 are shown in Table 1. The first three indicators are drawn from the counts of actual or *de facto* population in China's 2000 Census, and apply to three different geographies illustrated in Figure 1. Indicators I and II correspond to the aggregate population totals in the administrative areas A and B, respectively. Indicator III includes only the population in the urban statistical areas of the city districts (the shaded areas within B). Among the three, III is the closest to the concept of "urban agglomeration" used by the United Nations. We currently do not have good commuting data to delineate accurately the boundaries of China's major metropolitan areas; a rough analysis of the data for several large Chinese cities in 2000 suggests that for many of them, Indicator III still covers an area larger than the metropolitan area, for example by including population in some statistical urban areas which lie outside the labor market area of the core city.

In addition to the statistics of the *de facto* population, there is another set of population numbers, derived from the Chinese *hukou* (household registration) system (see box). Under current law, each citizen is required to register in one and only one place of (permanent) residence. This *hukou* classification defines one's rights and eligibility for welfare and services (such as public education and housing) in a specific administrative

[2] Data from the 2000 Census show that the share of total employment in the Chongqing region accounted for by agriculture was 72.8%.

unit. From a local government's perspective, the *hukou* population is the *de jure* population for whom it has a fiscal responsibility.

From the *hukou* registration statistics, the Chinese public security authorities publish annually the totals of population with local *hukou* in each city and administrative area (Indicator IV in Table 1). These *hukou* population statistics do not represent the *de facto* population figures of the cities, though they have often been mistakenly used as such. For almost all major cities, the *hukou* population is smaller than the *de facto* population because of inmigration of people whose *hukou* remains back in their original community and who are still counted there by the local authorities (compare II and IV). In some cases, such as in the well-known migrant city of Shenzhen, the differences are huge. Shenzhen's 2000 population with local *hukou* was only 1.25 million, whereas the 2000 Census, based on exactly the same geographic boundary, reported a *de facto* resident population for the same year of 7.0 million (including 6 million whose *hukou* registration was somewhere else). The difference in 2000 was 5.75 million, growing even larger in 2005, to 6.32 million. Such differences evidently can be crucial in making judgments about a particular city, especially when using per capita measures (discussed below).

In Table 1 the ten largest cities are ranked by Indicator III in 2000. The ranking appears to be consistent with the common perception. Shanghai is China's largest city in population, not Chongqing. The latter, ranked seventh, had a city population of only 6.17 million in 2000. This is far smaller than the number of 30-odd million sometimes cited by media sources.

What is the True Urban Population Size of China?

While the great majority of scholars concur that China's official urban population total in 2000 was reasonable and that it approximated the reality, there are serious doubts raised by some international business consultants about that claim. One extreme view holds that the official urban population is highly inflated; it argues that China's true urban population size was only about 350 million (or 28% of the nation's population) in 2005.[3]

Officially, the national urban population (459 million in 2000) is the aggregate of the population in all the urban statistical areas of cities and towns (i.e. *de facto* population in the shaded areas in Figure 1). Most experts would agree that this is a reasonable approach to define the urban population. The approach yields an urban percentage of 36% for China in 2000 and 43% in 2005 (which is based on the same criteria of 2000) (Table 2).

More recent and detailed research by scholars using the 2000 Census data has revealed that there is a considerably higher percentage of agricultural employment among the urban population in 2000 in China than in India, regarded as a more typical developing country. China had about 21% of the workers living in the urban statistical areas working in agriculture, compared to about 7-13% in India (Table 3). Since genuinely urban areas would not have more than a small proportion of their workers farming, this could imply overly generous urban boundaries, or possible overcounting of migrants in the destinations (mostly in city districts) in 2000 Census, as I have pointed out elsewhere.[4]

[3] UBS, *How to Think About China*, Part 7 (2008 Edition), p.9.
[4] Kam Wing Chan, 2003. "Chinese Census 2000: New Opportunities and Challenges," *The China Review*, 3(2), p.5.

The above two factors are likely to overlap. My estimate of the combined urban population overcount caused by them is about 30 million. In other words, China's urban percentage may have been slightly overcounted by about 2 percentage points in 2000 and 2005. If so, the real urban population in 2005 should be lowered marginally to about 530 million, but definitely not 350 million!

In 2006, China adopted a revised definition to define its urban statistical areas, intended as an improvement over the 2000 definition and in response to the perceived conceptual and operational problems. A preliminary examination of the new criteria suggests that it may yield better results, as it uses the smallest population accounting units possible ("residents' committee" and "villagers' committee") to differentiate urban and rural areas, and it relies more on urban physical features (built-up areas and contiguity) than on administrative geography.

How has this new definition affected our urbanization analysis? It is obviously still too early to gauge systematically. Under the new definition, the nation's urban population stood at 594 million in 2007. The effect of the change at the national level seems to be small, though we do notice that the annual growth rate of the urban population under the new definition has slowed to below 3 % in 2006 and 2007, compared to an average of 4% in the previous five years under the previous definition. At the individual city level, we expect to see larger differences. Because of their urban patterns and industrial locations, some cities are more sensitive to this change. One example is Dongguan, a major export-processing city in Guangdong with a dispersed industrial spatial pattern. Based on the population of the urban statistical areas, Dongguan's population grew from 3.87 million in 2000 to 4.79 million in 2005 under the 2000 definition, averaging about 4.3% per year. The urban population based on the new definition bounced to 5.74 million in 2006, a jump of almost 20%.

Implications for Economic and Business Analysis

Multiple city population statistics in use in China serve different administrative, fiscal and statistical purposes. Failures to differentiate or interpret them correctly can result in highly distorted, if not outright erroneous, analysis.

Since the bulk of China's present and likely future urban population growth comes from net migration from rural areas (including reclassification of the rural population as cities expand), most new additions to the city population are low-income migrants from the countryside. Their situation is often aggravated by institutional discrimination and exclusion through the *hukou* system. In the present Chinese case, it is quite simplistic to equate the expansion of the urban population with the growth of the middle class. Quite the contrary, one can argue that since the new urban comers are mostly poor migrants with little chance of assimilating into the urban population, China may well be facing an urban underclass, in the range of 250 million within the next ten years if the current discriminatory and exclusionary policies against peasant migrants persist and recent migration trends continue.

It is also critical to choose carefully the appropriate population statistics to represent the city and when generating per capita indicators. City population itself can represent market size, while per capita GDP, for instance, is frequently employed as a yardstick of a city's economic well-being or its average consumer purchasing power. Per capita GDP in

China is also a major indicator used to assess the performance of local government officials.[5]

There have been numerous studies comparing the competitiveness or productivity of cities in China, including highly publicized annual studies of city competitiveness by mainland Chinese scholars since 2003. Unfortunately, they have often used the wrong city population to generate per capita GDP and other measures. Many have applied the *hukou* population (IV in Table 1) to compute the per capita GDP, unaware or simply ignoring that this population statistic does not encompass all the residents and in some cases may include only a minority of the *de facto* population.[6] Table 4 shows the two versions of the per capita GDP in 2000 for the same set of cities in Table 1. For instance, Shenzhen would be the most "competitive" city in China in 2000, as some have actually concluded based partly on its astronomically high per capita GDP, such as the 2000 figure of RMB¥ 133,305 in Table 4, derived from a wrong population base!

In December 2003, the NBS required that by the end of 2005 all published per capita GDP statistics at the local level be computed based on the *de facto* population, not the *hukou* population. This is a welcome and sensible move in bringing normalcy and reasonableness to the per capita GDP statistics for Chinese cities. Table 4 shows data for a sample of cities from the latest NBS statistical yearbooks. A quick analysis shows that Shenzhen's and Dongguan's per capita GDP's have been restored to the right level by applying the *de facto* population base; this is true for a few other cities in the table.

However, there are obvious problems with some other GDP's. Guangzhou's (2005), Tianjin's (2006) and Shenyang's (2005 and 2006) are still computed on the basis of the *hukou* population, and so appear higher than they should. Even more unsystematic, Wuhan's 2006 per capita GDP actually uses a base that excludes four of its city districts, as noted in the *China City Statistical Yearbook 2007*. Apparently the NBS's 2003 mandate had not been followed by every city even by early 2007. It is evident that the Chinese local per capita figures cannot automatically be taken at face value, as analysts often feel able to do with data from many other countries. Careful research to understand what such numbers really represent is crucial before anyone starts cranking the data.

[5] Hence, there is likely political intervention in the numbers by local officials. The fact that China's GDP statistics are fraught with problems is well known and extensively studied. Our concern here is with the population denominator used in computing per capita GDP statistics at the city level.

[6] Even if aware of the statistical problems, many city governments have also clung to this practice, which of course helps raise the reported per capita GDP for almost all cities, and in this way boosts their performance record.

Table 1--Population Statistics of China's Ten Largest Cities, 2000 and 2005 (in millions)[a]

		2000				2005	
		De facto Population [b] of			*Hukou* Population of City Districts [c]	*De facto* Population of City Districts [d]	*Hukou* Population of City Districts [c]
Rank		Region (City Districts and Counties)	City Districts	Urban Statistical Areas of City Districts			
	Notations used in Text:	**I**	**II**	**III**	**IV**	**II**	**IV**
1	Shanghai	16.41	14.35	**13.46**	11.37	17.13	12.90
2	Beijing	13.57	11.51	**9.88**	9.74	14.43	11.14
3	Guangzhou	9.94	8.52	**7.55**	5.67	8.21 [e]	6.17
4	Wuhan	8.31	8.31	**6.79**	7.49	8.53	8.01
5	Tianjin	9.85	7.50	**6.76**	6.82	8.57	7.73
6	Shenzhen	7.01	7.01	**6.48**	1.25	8.14	1.82
7	Chongqing	30.51	9.69	**6.17**	8.96	10.41	10.30
8	Shenyang	7.20	5.30	**4.60**	4.85	na	4.96
9	Chengdu	11.11	4.33	**3.96**	3.36	4.72	4.82
10	Dongguan	6.45	6.45	**3.87**	1.53	6.56	1.66

Notes and sources:

[a] These cities are ranked by the *de facto* population of urban statistical areas of city districts in 2000 Census. Boundaries of some cities and city districts may have changed after 2000.

[b] Data are from the 2000 Census (November 1).

[c] *Hukou* population statistics are year-end figures published by the Ministry of Public Security.

[d] Unless otherwise noted, these figures are implied mid-year population used to calculate the per capita GDP of these cities in *China City Statistical Yearbook 2006*. They are assumed to be based on the *de facto* population.

[e] This is computed directly from 2005 1% Population Survey (November 1), Guangdong volume.

Table 2—Total and Urban Population in China by Official Definitions, 2000-2007

Year	Total Population (in millions)	Urban Population (in millions)	% Urban	Average Annual Growth of Urban Population (%)
2000	1,267	459	36.2	
2005	1,308	562	43.0	4.1 (2000-2005)
2006	1,314	577	43.9	2.7
2007	1,321	594	44.9	2.9

Note: 2000 and 2005 urban population figures are based on 2000 urban definition; 2006 and 2007 figures are based on 2006 urban definition.

Source: NBS

Table 3--China and India: Percentage of Workers Engaged in Agriculture

		Official Definition			
	All workers	Urban	City Urban	Town Urban	Rural
CHINA					
1982	73.7	23.4	24.5	20.7	87.8
1990	72.2	23.6	26.2	16.6	89.1
2000	64.4	20.8	14.3	31.9	85.2
INDIA					
1981	68.8	13.0			83.3
1991	66.9	13.3			82.3
2001	58.2	7.5			73.3

Source: Richard L. Forstall and Kam Wing Chan, "Population of Chinese Cities: Definitions and Comparisons," Paper presented at the Annual Meeting of Association of American Geographers, April 15-19, 2008, Boston, USA.

Table 4 -- Per Capita GDP of Ten Largest Cities (City Districts), 2000, 2005 and 2006 (in RMB¥, Current Prices)

Cities	2000		2005	2006
	per capita GDP (based on *hukou* population)	per capita GDP (based on *de facto* population)	per capita GDP	per capita GDP
Shanghai	36,054	28,565	52,889	59,306
Beijing	23,942	20,264	46,878	52,042
Guangzhou	38,207	25,398	78,428	67,407
Wuhan	16,109	14,518	26,238	45,541
Tianjin	20,422	18,574	39,695	52,017
Shenzhen	133,305	23,759	60,801	69,450
Chongqing	8,770	8,112	16,712	17,080
Shenyang	19,336	17,686	36,779	45,827
Chengdu	19,944	15,457	32,131	39,286
Dongguan	32,091	7,598	33,263	39,468

Notes: Figures for 2000 are computed based on official GDP data (from *China City Statistical Yearbook 2001*) and city population figures in Table 1. Figures for 2005 and 2006 are directly from *China City Statistical Yearbooks 2006 and 2007*; they are supposedly based on *de facto* population. See discussion in the text.

Box: Is China Abolishing the *Hukou* System?

The industrialization strategy pursued by China during the Maoist era was based on strictly controlling rural to urban migration. The major means for doing this was the *hukou* (household registration) system, set up in 1958. Under this system, all citizens were classified as either urban or rural residents. Urban residents had state-guaranteed food grains, jobs, housing, and access to an array of subsidized welfare and social services. Rural residents had very few of these perquisites and had to rely on themselves or their collectives. In essence, the *hukou* system functioned as an internal passport system, similar to the *propiska* system used in the former Soviet Union.

Since the early 1980s, development of markets and the demand for cheap labor for sweatshop output for exports have led to easing of some migratory controls. Rural migrants are now allowed to work in cities, mostly in low-end jobs shunned by urban residents, but they are not eligible for basic urban social services and education programs. This group (called "rural migrant labor") in 2006 was estimated at about 132 million, most of whom were in the cities. This two-tier system of urban citizenship and the unequal treatment of the migrant population have drawn much concern and criticism within China and outside.

In response, in recent years China has initiated a number of reforms to the *hukou* system. Those reforms have been widely interpreted as measures at abolishing the *hukou* institution. For example, *The New York Times* proclaimed in 2005 in one news headline: *China to Drop Urbanite-Peasant Legal Differences*. A recent article by Chan and Buckingham published in the Chinese studies flagship journal, *The China Quarterly*, examined this issue and concluded that many new initiatives been misunderstood. Most of the changes in the *hukou* system and other initiatives since the late 1990s have had only marginal impact on weakening the foundation of the system – the separation of the population into two segments (loosely, rural and urban) and discrimination based on that.

Actual changes in recent years include some devolving of the *hukou* system to local control, and the partial opening of city *hukou* to those with money or professional skills. Instead of the central government, city governments now approve the granting of local *hukou* for their jurisdiction. Cities have granted *hukou* mostly to those who are millionaires and able to purchase a high-end apartment or make large business investments, or those who have a degree or professional qualifications. Spouses and children of existing residents with local *hukou* may also be eligible. This has produced some easing in the *hukou* migration system for these select groups. Also, in some cities, farmers in the urban periphery who have become landless through requisitioning are compensated by city *hukou* with partial welfare benefits. A handful of cities also experimented with plans in the early 2000s to allow some qualified migrant laborers to acquire city *hukou*. But these experiments were very limited in scope and were all soon withdrawn.

For the 100 million-plus mostly poor rural migrant laborers, the chance of getting city *hukou* has not been improved under these new initiatives. The criteria for gaining city *hukou* set by local governments under the more "entrepreneurial" approach are clearly beyond the reach of most peasant migrants.

Figure 1-- Conceptual Structure of a Typical Large City in China