

# Urban Places: Statistical Definitions

Richard L Forstall, Alexandria, VA, USA

Kam Wing Chan, University of Washington, Seattle, WA, USA

© 2015 Elsevier Ltd. All rights reserved.

This article is a revision of the previous edition article by S. Moses, volume 24, pp. 16035–16040, © 2001, Elsevier Ltd.

## Abstract

Virtually all countries report population and other data as urban or rural, but specific definitions vary greatly as to the geographic units used and how populous an urban place must be. Many countries recognize urban as including overflow and suburbs outside municipal limits, giving rise to additional definitions such as urbanized areas and metropolitan areas. This article discusses the US definition of urban and its evolution, summarizes the US metropolitan definition, and compares the urban definitions of the 40 countries with the largest urban populations, with special attention to China.

## Introduction

Studies of cities and urbanization rely on the availability of relevant statistics, especially censuses and other data from national, state, and municipal governments. Most countries publish a range of statistics for their cities, and many do so for aggregates identified as urban and rural. However, what is termed a city varies greatly across countries and sometimes even within countries, and there is little international consistency in what is defined as urban. The United Nations Population Division publishes estimates and projections of urban population for the world and individual countries, but in doing so it accepts each country's own particular urban definition and has not made any recent effort to establish an international standard.

This wide variation in official census definitions of urban is not due primarily to differences in the concept of what constitutes an urban locality. In nearly all countries, the adopted definition of urban seeks to identify a high-density concentration of nonagricultural population, typically with some kind of municipal government. However, the minimum population size required for recognition varies widely by country.

Countries also differ in how they delimit the individual urban place, which may be an administrative unit, such as a city or commune, or may be defined with a nonadministrative boundary. Each alternative has some advantages; choice of an administrative unit generally will maximize the amount of statistical data available for the place, from censuses, other government-produced statistics, and private sources. On the other hand, places defined with nonadministrative boundaries may more precisely represent the place as a dense concentration of nonagricultural population, but be less convenient as to data availability and public recognition (Gibbs, 1961: Part I; Goldstein and Sly, 1974; Arriaga, 1975).

Besides recognizing urban places as a category, many countries have defined larger entities such as urban areas, urbanized areas (UAs), and metropolitan areas (MAs). These concepts developed early in the twentieth century, as the population and geographical extent of urban development overflowed the boundaries of most large and many small cities, leaving the city administrative unit underbounded and less representative of the actual urban concentration. But just as

with urban places themselves, definitions of these larger urban entities have varied greatly across countries.

The following sections of this article discuss the definition of urban used in the United States, the US metropolitan definition, and the urban and metropolitan definitions currently used by some larger countries. The concluding section, by the second author, presents the urban definition used in China.

## United States: Definitions of Urban

Official concern with determining urban and rural populations in the United States can be traced back to the 1850 decennial census. A statistical atlas of 1874 and the 1880 census recognized municipalities of at least 8000 population as urban and also presented data for an alternative threshold of 4000. A supplementary analysis of the 1900 census was the first that officially designated places of 2500 or more as urban (Walker, 1874; Truesdell, 1949). That size threshold for urban status has been retained in every subsequent US decennial census, although no extended justification for it has been offered.

However, besides the changes in threshold there have been significant changes in the choice of geographic unit to which the population threshold is applied. Moreover, the US experience illustrates how the nature of a country's administrative divisions can affect its definition of urban territory.

## US Incorporated Municipalities

Under the federal structure of the United States, major differences in the characteristics of municipalities appear across states, because each state creates and oversees its own administrative subdivisions. All states have counties or county equivalents, and subcounty units of various degrees of local self-government, collectively referred to as minor civil divisions (MCDs). Incorporated municipalities exist in all but one state (Hawaii); they are variously termed cities, towns, boroughs, or villages. In most states, they are associated with locally recognized nonagricultural population concentrations and contain relatively little open-country population.

These 'incorporated places' (the Census Bureau term) comprise only a small share of the total US area, while the

remainder is sometimes referred to as 'unincorporated.' In 2010, 19 533 incorporated places contained 192.0 million people or 62.2% of the US population, but only 122 236 m<sup>2</sup> or just 3.5% of the land area. Many incorporated places are very small, with roughly half having fewer than 1000 residents (U.S. Census Bureau, 2012: Tables 8, 9, and 38).

The six New England States (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont) diverge from this pattern. Here, the basic subdivisions are incorporated municipalities termed cities or towns, which collectively comprise all or most of the inhabited area of the state. Unlike the typical incorporated place in the other states, in New England most towns and some cities include considerable open-country territory along with at least one high-density concentration of population.

This New England pattern in which local municipal-type governments include rural as well as urban territory somewhat resembles the commune-type pattern found widely in Europe, although the New England units average much larger in extent than typical communes. It dates from the first period of English settlement in the early 1600s. While some other Northern states have subcounty municipal-type governments, commonly termed townships, they also have many incorporated municipalities like those of the remaining states – in some cases within and subordinated to the townships. Among these states are New York and Wisconsin, where the entities commonly called townships are officially termed towns.

Since 1900, the US Census Bureau has regarded as 'incorporated places' only municipalities incorporated as cities, boroughs, or villages, and towns except in New England, New York, and Wisconsin. While not questioning that the towns in the latter states are incorporated municipalities, the census does not regard them as places, because they typically include much open country as well as population concentrations.

Township governments are also especially strong in New Jersey, Pennsylvania, Michigan, and Minnesota. In all 12 strong-township states, recent censuses have provided much the same range of data for towns and townships as for incorporated places of comparable size. Most of the other Midwestern states also have subdivisions termed townships, as do Arkansas and North Carolina, but their municipal activities are few or nonexistent today. The Census Bureau treats them like the MCDs of other states (U.S. Bureau of the Census, 1994: Chapter 8; U.S. Census Bureau, 2012: Table 39).

### New England Towns: Urban or Rural?

The existence of these town-type municipalities in New England and other states not surprisingly has created problems of comparability for an urban category defined in terms of municipalities of a specified size. Under the varying rules of the censuses prior to 1930, all or most New England towns that met the population threshold were included as wholly urban.

In 1930, an adjustment was made under which only towns in Massachusetts, New Hampshire, and Rhode Island could qualify, provided they contained "a village or other thickly settled area having more than 2500 inhabitants and comprising, either by itself or when combined with other villages in the same town, more than 50 percent of the total population of the town" (Truesdell, 1949: p. 9). However, in

these cases, it was still the whole town that was treated as urban, not just the thickly settled portion.

Also in 1930 and 1940, a few political subdivisions in other states, regarded as analogous to the New England towns, were treated as urban under a special rule if they had at least 10 000 residents, a population density of at least 1000 per square mile, and included no subordinate incorporated place. Most of these special-rule areas were suburban in character and located in states with strong town or township governments. However, at that time the urban category still excluded extensive suburban development located in 'unincorporated' areas outside municipal boundaries.

Before the 1940 census, totals of urban population using the 2500 threshold were determined all the way back to the first US census in 1790. Towns in New Hampshire, Massachusetts, and Rhode Island were included for census years in which they appeared to meet the criteria adopted in 1930. The special-rule areas in other states were included only for 1940 and 1930.

The remainder of the population was defined as rural. With minor revisions and the addition of data for 1950 determined on the 1940 basis, these urban and rural totals for 1790 to 1950 based on places of at least 2500 have been published in each subsequent census (U.S. Census Bureau, 2012: Table 7).

### Urbanized Areas

As early as 1790, urban development overflowed across some municipal boundaries, notably around Philadelphia. If the overflow was either annexed by the parent city or separately incorporated in places meeting the population threshold, it qualified to be included in the official urban category. However, by about 1900, annexation activity by large cities had slowed and a significant share of suburban development was taking place in unincorporated territory (Weber, 1899/1967).

The census responded to such changes from 1910 through 1940 by defining 'metropolitan districts,' which represented a functional approach not limited to the continuously built-up environs of cities. The next section of this article discusses them further.

The 1950 census introduced the concept of the UA, with the stated aim of providing a better separation of urban and rural populations in the vicinity of larger cities. A UA was defined to comprise at least one city of at least 50 000 and its more or less contiguous built-up suburbs, incorporated or unincorporated. Incorporated places were never split by a UA boundary, but in New England towns, suburban townships, and unincorporated territory generally only the built-up parts were included.

The 1950 UAs were defined using precensus fieldwork and a density criterion of at least 500 housing units per square mile. Industrial areas and other zones of distinctly urban land use also were included even if they did not meet the housing density requirement, and the UAs have always allowed gaps of up to 1.5 miles in built-up continuity, under specified conditions. In 1960, the density limit was lowered slightly to 1000 persons per square mile applied to small enumeration areas. Starting in 1970, the UA definitions began to exclude sparsely settled portions of certain incorporated places.

## Census Designated Places

The 1950 census also identified and defined many population concentrations outside UAs that were not separately incorporated, including many in New England. These unincorporated places, which were renamed 'census designated places' (CDPs) in 1980, were defined for concentrations as small as 1000; those of at least 2500 were treated as urban. CDPs located within UAs were not separately identified in 1950, but many have been recognized in later censuses.

Together, the recognition of UAs and CDPs added a net 6.7 million to the 1950 urban population, increasing it from 59.6 to 64.0% of the US total (U.S. Census Bureau, 2012: Table 7). Collectively, the 1950 changes altered the US urban definition from one based almost entirely on municipal status and boundaries to one that embraced densely populated unincorporated territory near larger cities, and also recognized qualified population concentrations even if they were not separately incorporated. These modifications, however, still did not include most unincorporated suburban development around smaller cities and towns.

After 1970, some UAs were defined as of that year around certain cities of less than 50 000, and starting in 1980 a UA was recognized for each area whose total population was at least 50 000. Supplementing the official series, Pickard (1967a,b) used the 1970 census criteria to define UAs of at least 50 000 for 1920–40, and also UAs not already defined by the census for 1950 and 1960, mainly because lacking any city as large as 50 000.

By 1990, technical developments permitted replacing manual determination of UA boundaries from detailed maps with interactive analysis of population density at the block level, in turn allowing UA definitions to systematically exclude sparsely settled portions of incorporated places (U.S. Bureau of the Census, 1994: Chapter 12).

## Urban Clusters

In 2000, UA delineation was essentially fully automated, and the criteria were loosened slightly to permit inclusion of some development down to a population density of 500 per square mile. But the major development of 2000 was the recognition of urban clusters (UCs), identified by applying the delineation rules for UAs to identify all concentrations of at least 2500 population.

For purposes of defining the urban category, the clusters superseded smaller incorporated places or CDPs, either including them in a cluster, or eliminating them by determining that they did not have as many as 2500 residents at the required density level. Thus, as of 2000, urban territory in principle was defined completely independently of administrative boundaries.

To document the effect of the 2000 changes on the size of the urban category, the 2000 criteria were also applied to 1990 data. The changes would have added a net of 7.0 million to the 1990 urban population and raised the urban share from 75.2 to 78.0% (U.S. Census Bureau, 2012: Table 7).

Changes in the defining procedure for the 2010 census were relatively few, mainly involving qualification of specified types of nonresidential areas as urban if adjacent to a UA or UC.

In 2010, altogether UAs and UCs included 249.3 million people and a land area of 106 386 m<sup>2</sup>, amounting to 80.7% of the national total population of 308.7 million, but only 3.0% of the land area. As with most earlier definitions, 'rural' comprised the rest of the national territory.

Useful as the UAs are, they are far less well known than the MAs discussed in the next section. Indeed, the public's chief awareness of UA boundaries may stem from the reduced speed limits that generally apply when entering them (Plane, 2004).

For users who consider 2500 too low a threshold for the urban category, data are available for urban territory by cluster population size. For example, if the threshold for cluster recognition were 25 000 instead of 2500, the 2010 urban share would comprise 73.9% of the total population and 2.6% of the area (U.S. Census Bureau, 2012: Table 6).

## United States: MAs

The general term 'metropolitan area' means a large city including its suburbs. The term has developed mostly independently of the related term 'metropolis,' a city of major importance in its country or region; many officially recognized MAs in the United States are not metropolises in that sense. In contrast to a UA, which is a high-density concentration of continuous urban development and thus in a sense a single place, an MA is conceived as a functional entity, embracing both a UA as its core and surrounding territory closely related to that core.

The MAs used in official US statistics since 1950 are 'metropolitan statistical areas' (MSAs) defined by the US Office of Management and Budget (OMB) as a geographic standard for all federal statistical agencies, ensuring that statistics from different agencies will refer to consistent boundaries. OMB defines an MSA as a large population nucleus or core plus adjacent communities having a high degree of economic and social integration with that core. Integration is measured using census data on commuting to work. The Census Bureau conducts the technical work needed to arrive at the individual MSA delineations.

In general, entire counties form the MSA building blocks, so that besides a city and its UA, MSAs typically include more distant satellite communities and much open country. In the 2010 census, MSAs were reported with a total of 258.3 million residents, of which 218.0 million, or 84.4%, were in UAs, while the MSA total land area was 912 992 m<sup>2</sup> of which only 85 177, or 9.3%, was in UAs. UCs within MSAs included another 10.0 million residents and 6520 m<sup>2</sup>, leaving 30.3 million residents and 821 295 m<sup>2</sup> defined as both rural and metropolitan (U.S. Census Bureau, 2012: Tables 8 and 9).

## Recognizing and Delineating MSAs

The first US official recognition of functional-type MAs came in the 1905 Census of Manufactures, which presented data on 13 'industrial districts' defined in terms of subcounty MCDs. In the 1910 decennial census, 'metropolitan districts' were officially defined, generally in terms of MCDs, which were included chiefly on the basis of a population density of at least 150

per square mile. The list of metropolitan districts was updated and boundaries revised after 1920, 1930, and 1940 (U.S. Bureau of the Census, 1913: pp. 73–77; Thompson, 1948). These were probably the earliest national metropolitan definitions that stated specific criteria (Forstall et al., 2009).

However, definition in terms of subcounty units greatly limited the usefulness of metropolitan districts for the compilation of statistical data other than from the decennial census, since most such data were not available except by county. As a result, in 1949, the US Bureau of the Budget (later renamed the OMB), in consultation with the various statistical agencies, established criteria to define ‘standard metropolitan areas’ (SMAs) for presentation in the 1950 census.

This called for decisions on four fundamental aspects: (1) the choice of geographic building blocks, (2) the minimum size for qualification as an SMA, (3) how to define the core area of the SMA, and (4) how to determine which if any additional units to include. To maximize their usefulness, generally the SMAs were defined in terms of counties. They included every city of at least 50 000, with the city’s county constituting the central core. However, just as with the urban definition, the unusual character of New England county subdivisions resulted in special treatment; the SMAs and cores in those states were defined in terms of cities and towns instead of counties.

Commuting data were chosen for determining whether any counties beyond the core should be included in the SMA. There were no national commuting data at the county level, but transportation and other agencies had conducted many local surveys. The final criteria required 15% of workers commuting to the core for an outlying county to qualify. Counties also had to meet specified requirements of ‘metropolitan character,’ such as having less than one-third of their labor force engaged in agriculture and at least half their residents living in contiguous MCDs with 150 persons or more per square mile. There were 169 SMAs defined for 1950, consisting of 265 counties and 208 New England cities and towns.

The SMAs were rechristened ‘standard metropolitan statistical areas’ (SMSAs) in 1959 to emphasize that they were not necessarily suitable as general-purpose MAs, and various other changes were made in the criteria after 1950 (Forstall, 2012).

As the availability of data for them made the SMSAs better known, they could be said to suffer from their own popularity. Some local areas wanted to achieve SMSA status in spite of not qualifying for it under the official rules. For example, in 1959, portions of the New York and Chicago SMSAs were split off to create several separate SMSAs, and the New York and Chicago areas as previously defined were recognized as ‘standard consolidated areas’ (SCAs), thereby establishing a two-level hierarchy of SMSAs within SCAs. Finally, in 1972, the Nassau-Suffolk SMSA on Long Island was created out of the New York area, although it did not even contain a qualifying central city.

### Changes for 1980

The census-defined UAs, first established in 1950, were finally accepted as the basis for defining the SMSA central core, consisting of counties with at least half their population in the UA. To deal with the inconsistencies presented by the Nassau-Suffolk, New Jersey, and Chicago definitions, the

criteria expanded the two-level hierarchy of areas. Within SMSAs of 1 million or more, defined strictly according to the published rules, component ‘primary metropolitan statistical areas’ (PMSAs) were recognized based mainly on specified commuting criteria. Any area in which PMSAs qualified was termed a ‘consolidated metropolitan statistical area’ (CMSA) while all other areas remained MSAs, thus supplanting the terms SCA and SMSA. Recognition of a PMSA required support from local opinion, which OMB ascertained through congressional offices. The need to recognize both CMSAs and PMSAs emphasized a fifth fundamental question in defining MAs: how to decide when two hitherto separate areas have become a single multicentered area.

After the updating based on the 1980 census, there were 351 areas in June 1983, including 253 MSAs and 22 SCAs comprising 76 PMSAs.

### Developments 1990–2010

The 1990 review of the MA standards made only minor changes in the criteria, but many users declared that they should be less complicated, even while recognizing that metropolitan structure had become more complex. During the 1990s, OMB and the Census Bureau undertook an extensive review of the standards, including commissioning proposals by outside scholars (Dahmann and Fitzsimmons, 1995). Revised standards in December 2000 included converting to county-unit definitions of MSAs in New England, although ancillary definitions in terms of cities and towns were retained as ‘New England city and town areas.’ The commuting level required to include an outlying county was raised from 15 to 25%, and the earlier requirements of metropolitan character (density, recent growth, etc.) were eliminated. PMSAs were replaced by ‘metropolitan divisions’ but only within MSAs of at least 2.5 million.

The major change for 2000 was the recognition of ‘micropolitan areas’ around the newly recognized UCs, provided the UC population was at least 10 000. The term ‘core based statistical areas’ (CBSAs) was adopted for the collective metropolitan and micropolitan areas. Provision was also made for recognizing ‘combined statistical areas’ (CSAs) consisting of adjacent CBSAs (metro or micro) if their employment interchange was at least 15%, with local support required unless interchange exceeded 25%; the components of CSAs retained their status as CBSAs.

Only a few changes were made in the standards for 2010. The term ‘definition’ was replaced by ‘delineation,’ and the delineation of CSAs was revised to qualify inclusion of any adjacent CBSA if employment interchange was at least 15%, without reference to local opinion.

In February 2013, the MSA delineations were updated using estimates of commuting from the 2006–10 five-year American Community Survey (U.S. Office of Management and Budget, 2013). The 2013 updating resulted in 381 MSAs, totaling 262.5 million people or 85.0% of the 2010 US total, compared with 84.9 million and 56.1% in the SMAs in 1950. There were also 536 micropolitan areas, accounting for another 8.8% of the 2010 total and leaving only 6.2% of the population outside CBSAs. Together the CBSAs accounted for 47.4% of the US land area (U.S. Census Bureau, 2013).

The official US MAs have come into wide use by both government agencies and private industries. They also have served as a model for defining MAs abroad ([International Urban Research, 1959](#)). Changes in the criteria over time have reflected such factors as the availability of new data and techniques of analysis, more extensive use of the delineations outside of government, and increased interest in urban, suburban, and exurban trends.

## Urban Definitions in Other Countries

### Definitions Used in 40 Large Countries

The most significant difference in how countries define urban relates to how they delimit the individual urban place. In the first edition of its *Demographic Yearbook*, the [United Nations Statistical Office \(1948: Table 9\)](#) recognized three main types of locality definitions in what is still a useful classification:

- (a) Agglomerations without regard to official boundaries or forms of government.
- (b) Areas with official boundaries under the jurisdiction of local or "urban" forms of government. These are special areas and do not comprise the whole country.
- (c) Relatively small (or smallest) areas or administrative subdivisions with fixed boundaries which, in sum, comprise the whole country. These may or may not be under local forms of government.

The United Nations' (UN's) current biennial projections of world population include 2011 estimates of each country's urban population and a note specifying the country's definition of its urban category ([United Nations Population Division, 2012](#)). Forty countries are listed with at least 15 million urban population; together they account for 3057 million or 82% of the estimated world urban total of 3632 million. Based primarily on the information in that publication, the following discussion groups these 40 large countries into nine categories, broadly based on the UN categories of 1948. Following the UN's usage, 'agglomeration' denotes a concentration of continuous urban-type development.

- A – Agglomerations, not based on administrative boundaries
- A1 – Agglomerations defined primarily by population density: the United States, United Kingdom, Canada, and Australia, with a total urban population of 356 million, use density for small enumeration units to arrive at agglomeration boundaries. Their population thresholds for urban qualification range from 1000 in Canada and Australia to 2500 in the United States and 10 000 in the United Kingdom.
- A2 – Agglomerations defined based on urban continuity, which may extend across administrative boundaries: France and Algeria, with a total urban population of 80 million. France's definition requires 2000 residents in the main agglomeration of a commune, defined as consisting of houses and other urban structures separated by less than 200 m. However, it is the whole commune that is treated as urban, as are other communes with built-up continuity with a qualifying commune, even though their population is below the 2000 limit. Thus, France follows an agglomeration approach, but defines the agglomeration in terms of entire communes.

A3 – Agglomerations described as localities, population centers, or places: Mexico, Argentina, Colombia, Vietnam, Venezuela, and Chile, with total urban population of 233 million. Urban thresholds range from 2000 (Argentina) to 4000 (Vietnam). Exactly how localities are defined is not always specified.

A4 – Agglomerations provided they are seats of local administrative units: Brazil and Peru, with a total urban population of 189 million. Available evidence suggests that this criterion includes some very small localities, although their effect on the country's urban total may be trivial.

- B – Urban units are municipalities, distinguished from nonmunicipal territory
- B1 – Urban units are incorporated municipalities: Japan, the Russian Federation, Nigeria, Pakistan, Iran, Ukraine, Thailand, Poland, Saudi Arabia, and Iraq, with a total urban population of 540 million. Most countries in this group do not cite an urban threshold, but Nigeria uses 20 000 and Saudi Arabia 5000. How closely this urban definition compares with the other categories depends on whether municipalities are tightly or generously defined. For example, Japan's cities, which comprise its urban population, included 90.7% of its population and 57.2% of its area in 2010 ([Japan Statistics Bureau, 2012: Table1](#)).
- B2 – Most urban units are municipalities, but some are nonmunicipal areas with specified urban characteristics: India, Bangladesh, Malaysia, Morocco, and Myanmar (Burma), with a total urban population of 486 million. India and Bangladesh generally use a threshold of 5000 and Malaysia of 10 000. Myanmar's criteria were not available to the UN in 2012; it is placed here assuming that (like India and Bangladesh) it still follows the model established decades ago by the Census of India.
- B3 – Urban units limited to capitals of provinces and districts: Turkey and Egypt, with a total urban population of 89 million. Especially in Egypt (2011 urban proportion 43.5%), this definition probably omits considerable urban-type development.
- B4 – Urban units identified largely in terms of cities or municipalities, not necessarily including their entire areas, and sometimes including noncity areas: China, Indonesia, Philippines, Republic of Korea, South Africa, and the Democratic Republic of Congo, with a total urban population of 945 million. The urban criteria for these countries typically are lengthy and detailed and some 'cities' are overbounded. This is especially true of China, whose urban definition is presented in the final section of this article.
- C – Urban units are small administrative units (communes). Germany, Italy, and Spain, with a total urban population of 138 million comprise this category. Italy and Spain use a threshold of 10 000.

### Changes in Urban Definitions

Some countries have changed their urban definitions in recent decades. In Western Europe, definitions in many countries used to be based on municipalities, whose territory was largely urban in character. Subsequent amalgamations of local-government units resulted in expanding most municipalities

to include much rural territory (Council of European Municipalities and Regions, 2009: pp. 4–7). This encouraged adoption of urban definitions based on individual agglomerations, for example, in Sweden, Norway, Denmark, and the United Kingdom. Such changes not only improve the preciseness of the urban definition, but also add to the difficulty of making valid comparisons of urban population across countries and over time.

### Official Urbanized and Metropolitan Definitions in Other Countries

Besides the countries listed in categories A1 and A2 above, only a few countries publish officially defined urban agglomerations. India's urban agglomerations are defined in terms of contiguous municipalities and nonmunicipal urban outgrowths. Japan has published densely inhabited districts (DIDs) since 1960, based on small enumeration areas, density of at least 4000 persons per km<sup>2</sup> and 5000 total population. Individual DIDs do not cross municipal boundaries, but detailed maps permit identifying continuous agglomerations. Formerly, the DIDs were the basis for defining Japan's urban population.

Many countries define functionally conceived MAs under various labels, generally in terms of minor administrative divisions. Besides the United States, these include Canada, Mexico, Colombia, Brazil, Belgium, Netherlands, Switzerland, Austria, Hungary, the Scandinavian countries, Bangladesh, Japan, Australia, and New Zealand. The defining criteria vary widely and not all countries specify them in detail, but most appear to use commuting data to determine metropolitan boundaries.

Besides these national definitions, some international bodies have presented analogous definitions on their Web sites, such as functional urban areas (European Observation Network, or ESPON) and 'larger urban areas' (Eurostat), supplementing rather than superseding the nationally developed definitions.

The UN's list of largest so-described urban agglomerations (United Nations Population Division, 2012), although widely used, unfortunately is an internally inconsistent mixture of the MA, UA, or city-proper definitions of individual countries (Forstall et al., 2009). Systematic efforts to define MAs or UAs internationally include those by International Urban Research (1959), Hall and Hay (1980), and Moriconi-Ebrard (1993, continued by the Geopolis Web site). Champion and Hugo (2004), Hall and Pain (2006), and Champion (2011) have pointed to evolutionary trends that raise new questions about urban and metropolitan definitions. The unofficial Web sites of Geographia and the Lincoln Institute of Land Policy present extensive data on large world urban areas (Angel, 2012; Angel et al., 2012), and various other Web sites offer population data on cities and towns by country and in some cases on MAs or UAs.

### Urban Definitions in China

The People's Republic of China has what may be the world's most complicated and confusing way of defining its urban

population. The sources of confusion are multiple and multilayered. The complexity is first compounded by the Chinese household registration (*hukou*) system, which does not consider most migrants to cities as permanent residents and excludes many of them from the city's annual *de jure* population counts. In contrast, the decennial census reports population on a *de facto* basis, producing counts often quite different from the annual count. Moreover, the coexistence of multiple urban and city definitions also complicates the task of defining a city and city population. Finally, rapid development over the past three decades in the country and its major cities, including numerous changes in the urban definition and local administrative boundaries, has also added complexity.

A Chinese city or municipality (*shi*) is an administrative unit, but the 'city' label can be misleading. Large cities refer to those in the categories of prefecture-level and provincial-level cities. There are also many smaller cities (county-level cities) and several thousand towns. The principles used in defining 'urban' within them are similar to those for large cities. Most large Chinese cities today 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.'

In almost all large cities, the urban core, together with some close-in built-up and rural areas, is divided into 'city districts' (*shiqu*), while the surrounding rural areas (including many towns) are divided into counties (*xian*). The urban administrative area (the collective city districts) generally is larger than what can be called the continuously built-up UA around the core.

Besides referring to the entire region-sized administrative area, the word *shi* is also often used to refer to a smaller area – the aggregate of city districts only. Even more confusing, the term 'city population' (*shi renkou*) can mean the population of any of the following: the city region (including its subordinate counties), the aggregate of city districts, the aggregate urban areas (see below) within the city region, or the aggregate urban areas within the city districts only.

Up until about the mid-1990s, the aggregate of city districts did roughly correspond to the UA for most large cities. However, since then, many largely rural counties have been reclassified administratively as city districts in the pursuit of rapid 'urbanization' (Yew, 2011). In other words, many city districts now include large stretches of rural territory. As a result, in the 2000 census, China's National Bureau of Statistics (NBS) defined two urban categories, city urban and town urban. Under this definition, city urban includes, first, all city districts with a population density of at least 1500 persons per km<sup>2</sup>. Second, for other city districts, urban areas are (1) all subdistrict units (*jiedao* (streets), *zhen* (towns), and *xiang* (townships)) that include the city or district government headquarters, or street government offices; (2) subdistrict units with built-up areas contiguous to the units specified in (1); and (3) all other *jiedao* units. Town urban comprises village-level units, which are residents' committees (*jumin weiyuanhui*) or include the town government headquarters, and other units whose built-up area is con-

tiguous to the preceding. Based on that urban definition, China's *de facto* urban population accounted for 36% of the total population in 2000. Many specialists considered the results acceptable and generally comparable to urban counts used in other countries (see, e.g., Chan, 2007).

China's urban definition underwent further changes in 2006 and 2008. The latter definition was used in the 2010 Census and is in use currently. In cities and towns, urban areas consist of residents' committee units where local-government headquarters (city, district, county, or township) are located, and units with built-up structures contiguous to those units. Additional units that are not contiguous but have a population of at least 3000 (such as development zones and mining areas) are also considered urban areas. Based on this definition, the 2010 Census counted 666 million urban population, or 50% of the nation's population.

While the city population statistics from the census and other NBS sources are for the *de facto* population, the *de jure* set published by the public security authorities using local household registers (*hukou*) is widely used within various levels of governments. These *hukou* population data count only the population with legal permanent registration in the area, and do not reflect the actual population in residence. Under China's *hukou* system, each citizen is required to register in one and only one place of (permanent) residence. An individual's *hukou* status defines his or her rights and eligibility for social welfare and various services, including public education and housing, within a specific administrative unit. Since there are often significant disparities in services, especially between rural and urban units, change of one's *hukou* registration is ordinarily not granted even though one has migrated to a new place (Chan, 2010). Some minor changes to the *hukou* system have been implemented locally in recent years and bolder changes are currently being discussed and considered.

For almost all large cities, the *hukou* population is smaller than the *de facto* population because of in-migration of people whose *hukou* remains back in their original place of registration. In some extreme cases, the differences between the registered (*hukou*) population and the actual *de facto* population can be huge. In 2010, in Shenzhen adjacent to Hong Kong, local *hukou* population was only 2.6 million, whereas the *de facto* census population was 10.4 million.

Suburbanization began to emerge around China's large cities in the 1990s and has accelerated in the last decade. Their expanding high-density cores are increasingly encircled by somewhat less dense suburban development. For a variety of analytical and policy purposes, it is very useful to be able to define a metropolitan boundary based on a daily labor-shed concept, as is done in many other countries.

However, there are no official or standard criteria for defining MAs in China. While the MA concept has frequently been mentioned by researchers, often they do not mean by it the daily labor shed. Since commuting data are still not systematically collected or available publicly, some researchers have proposed alternative methods to delimit MAs (e.g., Chan and Forstall, 2012).

**See also:** Urban Planning: Methods and Technologies.

## Bibliography

- Angel, S., 2012. Planet of Cities. Lincoln Institute of Land Policy, Cambridge, MA.
- Angel, S., Parent, J., Civco, D.L., Blei, A.M., 2012. Atlas of Urban Expansion. Lincoln Institute of Land Policy, Cambridge, MA.
- Arriaga, E., 1975. Selected measures of urbanization. In: Goldstein, S., Sly, D.F. (Eds.), The Measurement of Urbanization and Projection of Urban Population. IUSSP Committee on Urbanization and Population Distribution, Ordina, Dolhain (Belgium), pp. 19–87. Working Paper 2.
- Champion, A., 2011. The changing nature of urban and rural areas in the United Kingdom and other European countries. In: Zlotnik, H. (Ed.), Population Distribution, Urbanization, Internal Migration and Development: An International Perspective. United Nations, New York, pp. 144–160.
- Champion, T., Hugo, G., 2004. New Forms of Urbanization. Ashgate, Aldershot.
- Chan, K.W., 2007. Misconceptions and complexities in the study of China's cities: definitions, statistics, and implications. Eurasian Geography and Economics 48 (4), 383–412.
- Chan, K.W., 2010. The Chinese household registration system and migrant labor in China: notes on, a debate. Population and Development Review 36 (2), 357–364.
- Chan, K.W., Forstall, R.L., 2012. Delimiting Beijing's Metropolitan Area. Paper Presented at Annual Meeting of Association of American Geographers February 25, New York.
- Council of European Municipalities and Regions, 2009. Changes in Local and Regional Structures in Europe. [www.ccre.org/docs/changes\\_in\\_local\\_and\\_regional\\_structures\\_web\\_EN.pdf](http://www.ccre.org/docs/changes_in_local_and_regional_structures_web_EN.pdf) (accessed 13.06.26.).
- Dahmann, D.C., Fitzsimmons, J.D., 1995. Metropolitan and Nonmetropolitan Areas: New Approaches to Geographical Definition. Working Paper Series No. 12. U.S. Bureau of the Census, Washington, DC.
- Forstall, R.L., 2012. Metropolitan areas. In: Anderson, M.J., Smith, R.Z., Salvo, J.J. (Eds.), Encyclopedia of the U.S. Census, second ed. CQ Press, Thousand Oaks, CA, pp. 311–314.
- Forstall, R.L., Greene, R.P., Pick, J.B., 2009. Which are the largest? Why lists of major urban areas vary so greatly. Tijdschrift voor Economische en Sociale Geografie 100 (3), 277–297.
- Gibbs, J.P. (Ed.), 1961. Urban Research Methods. Van Nostrand, Princeton, NJ.
- Goldstein, S., Sly, D.F. (Eds.), 1974. Basic Data Needed for the Study of Urbanization. IUSSP Committee on Urbanization and Population Distribution, Ordina, Dolhain (Belgium). Working Paper 1.
- Hall, P., Hay, D., 1980. Growth Centres in the European Urban System. University of California Press, Berkeley.
- Hall, P., Pain, K., 2006. The Polycentric Metropolis. Earthscan, Sterling, VA.
- International Urban Research, 1959. The World's Metropolitan Areas. University of California Press, Berkeley.
- Japan Statistics Bureau, 2012. Densely Inhabited Districts. Somusho Tokeikyoku, Tokyo.
- Moriconi-Ebrard, F., 1993. L'Urbanisation du Monde depuis 1950. Anthropos, Paris.
- Pickard, J.P., 1967a. Dimensions of Metropolitanism. In: Research Monograph, vol. 14. Urban Land Institute, Washington, DC.
- Pickard, J.P., 1967b. Appendixes to Dimensions of Metropolitanism. In: Research Monograph, vol. 14A. Urban Land Institute, Washington, DC.
- Plane, D.A., 2004. Population distribution—geographic areas. In: Siegel, J.S., Swanson, D.A. (Eds.), The Methods and Materials of Demography. Elsevier Academic Press, San Diego, pp. 81–104.
- Thompson, W.S., 1948. The Growth of Metropolitan Districts in the United States: 1900–1940. U.S. Government Printing Office, Washington, DC.
- Truetsdell, L.E., 1949. The development of the urban-rural classification in the United States: 1874–1949. U.S. Bureau of the Census, Current Population Reports, Series P-23, No. 1. U.S. Government Printing Office, Washington, DC.
- United Nations Population Division, 2012. World Urbanization Prospects: The 2011 Revision. United Nations, New York.
- United Nations Statistical Office, 1948. Demographic Yearbook 1948. United Nations, Lake Success, NY.
- U.S. Bureau of the Census, 1913. Thirteenth Census of the United States Taken in the Year 1910. In: Population, 1910, vol. I. U.S. Government Printing Office, Washington, DC.
- U.S. Bureau of the Census, 1994. Geographic Areas Reference Manual. Bureau of the Census, Washington, DC.
- U.S. Census Bureau, 2012. 2010 Census of Population and Housing, Population and Housing Unit Counts, CPH-2-1. United States Summary, Washington, DC.
- U.S. Census Bureau, 2013. Population Change for Metropolitan and Micropolitan Statistical Areas in the United States and Puerto Rico (February 2013 Delineations): 2000 to 2010 <http://www.census.gov/population/www/cen2010/cph-t/CPH-T-5.pdf>.

- U.S. Office of Management and Budget, February 28, 2013. Revised Definitions of Metropolitan Statistical Areas, Micropolitan Statistical Areas, and Combined Statistical Areas, and Guidance on Uses of the Delineations of These Areas. OMB Bulletin No. 13-01.
- Walker, F.A., 1874. Statistical Atlas of the United States Based on the Results of the Ninth Census 1870: With Contributions from Many Eminent Men of Science and Several Departments of the Government. J. Bien, New York.
- Weber, A.F., 1899/1967. The Growth of Cities in the Nineteenth Century. Cornell University Press, Ithaca.
- Yew, C.P., 2011. Pseudo-urbanization? Competitive government behavior and urban sprawl in China. *Journal of Contemporary China* 20 (72), 281–298.

- <http://epp.eurostat.ec.europa.eu> – Eurostat (accessed 13.07.05.).
- <http://www.geohive.com> – GeoHive (accessed 13.07.05.).
- [www.e-geopolis.eu](http://www.e-geopolis.eu) – Geopolis (accessed 13.09.21.).
- <http://www.lincolnst.edu> – Lincoln Institute of Land Policy. (accessed 13.07.05.).
- <http://www.statoids.com> – Statoids (accessed 13.07.05).
- [un.org/en/development/desa/population/](http://un.org/en/development/desa/population/) – United Nations Population Division. Topics: Biennial Projections of National Totals, National Urban, Large Urban Agglomerations (accessed 13.07.05.).
- [unstats.un.org](http://unstats.un.org) – United Nations Statistics Division. Topics: Demographic Yearbook, National Census Dates (accessed 13.07.05.).
- [www.census.gov](http://www.census.gov) – U.S. Census Bureau. Topics: Publications, Geography, Urban, Metropolitan; Web sites of National Statistical Agencies (accessed 13.07.05.).

## Relevant Websites

- <http://www.citypopulation.de> – City Population (accessed 13.07.05.).
- [www.demographia.com](http://www.demographia.com) – Demographia (accessed 13.07.05.).
- <http://www.espon.eu> – ESPON (accessed 13.07.05.).