



# Urban Growth in Developing Countries: A Review of Current Trends and a Caution Regarding Existing Forecasts

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**Summary.** — The purpose of this paper is to clarify the nature of the on-going urban transition in developing countries, the quality of the available data, and the uncertainty of existing urban forecasts. Although the recently released United Nations' publication *World Urbanization Prospects* is an invaluable resource for those interested in studying urban change, the data in the report are somewhat deceptive in their apparent completeness and beyond the narrow confines of technical demography there is a great deal of misunderstanding and misreporting about what these data mean and how they should be interpreted. For example, while the scale of urban change is unprecedented and the nature and direction of urban change is more dependent on the global economy than ever before, many aspects of the traditional distinction between urban and rural are becoming redundant. This paper provides a broad overview of the available evidence on patterns and trends in urban growth in developing countries, highlighting regional differences where appropriate. The paper also examines the quality of past urban population projections and finds that there has been considerable diversity in their quality by geographic region, level of development, and size of country.

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## 1. INTRODUCTION

São Paulo is the largest urban agglomeration in Brazil and the foremost industrial center in South America. But until the 1880s, São Paulo was a minor commercial center. In 1890, when Rio de Janeiro had a population of more than half a million, the population of São Paulo was only 65,000. Widespread coffee cultivation brought sudden prosperity to the region and transformed it from an isolated frontier to a vibrant economic region. By the early 1900s, manufacturing became established in São Paulo and the population grew to 240,000, due in large part to a massive influx of immigrants from various parts of Europe. By 1950, São Paulo had become the chief manufacturing center of Brazil. Today, the São Paulo Metropolitan Area accounts for about half of Brazil's total industrial output.

Not surprisingly perhaps, São Paulo faces many environment and ecological problems associated with rapid industrialization and population growth. More than 50% of the population lives in substandard housing and

many residents do not have access to clean water or sanitation services. Air and noise pollution, crime, overcrowding, and traffic congestion are all pervasive problems. Moreover, despite rapid economic growth, the local economy has only been able to absorb a fraction of the growing labor force so that unemployment and underemployment remain persistent problems (Bruna, 2000). Poor performance of the

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Brazilian economy during the 1990s coupled with the devaluation of the *real* in January 1998 have further exacerbated weaknesses in the local economy (Scott, 2001a).

Although unique in many ways, many elements of São Paulo's story are not so uncommon. In an increasingly urban world, almost half the world's total population and nearly three-quarters of all Westerners live in urban areas. At the beginning of the 20th century, just 16 cities in the world contained at least a million people, the vast majority of which were in industrially advanced economies. Today, at the beginning of the 21st century, there are around 400 cities around the world that contain over a million residents, and about three-quarters of these are in low- and middle-income countries. According to the latest United Nations' projections, virtually all of the world's population growth over the next 30 years will occur in urban areas (see Figure 1).

In many parts of the world, urbanization is being accelerated by (and is accelerating) a new global economy that is literally changing the face of the planet. Increasingly, urban growth is being influenced by continued global economic integration and the struggle for countries—and indeed individual cities—to be competitive in the global marketplace. Managing urban growth has increased in both scope and complexity and has become one of the most important challenges of the 21st century.

While the notion of sustainable urban development is one that is now firmly established on both the scientific and political agendas, addressing these and other urban challenges will, at a minimum, require accurate and up-to-date demographic data. Many questions emerge from the above discussion:

What are the current rates of urbanization and city growth around the world and how are these rates changing over time? How important will mega-cities be in the 21st century relative to small or medium-sized cities? What is the relative contribution of rural–urban migration, natural increase, and reclassification to urban growth? How much faith should one place in urban population projections?

The purpose of this paper is to review the available evidence on patterns and trends in urban growth in developing countries. Out of necessity, this means turning initially to the United Nation's (UN) publication *World Urbanization Prospects* (United Nations, 2002), because it is the only comprehensive source of international urban data available. Although invaluable to those interested in studying urban change, the data in the UN report are somewhat deceptive in their apparent completeness and there is a great deal of misunderstanding and misreporting by nonspecialists about what these data mean and how they should be interpreted. For example, much has been made of the fact that half of the world's population will soon be living in urban areas and that virtually all future population growth for the foreseeable future will be in urban areas. Many writers have interpreted this to mean that the majority of the world's population will soon be living in huge mega-cities. Certainly this is the impression one gets from reading a great deal of the literature on the challenges of sustainable urban development. But this is, of course, nonsense. In reality, the urban population will be distributed among urban areas of all sizes, including quite small market towns or administrative centers that might contain less than a few thousand inhabitants (Hardoy, Mitlin, &

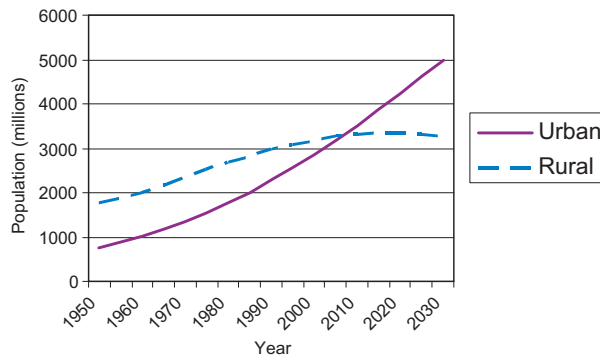


Figure 1. Estimated projected urban and rural population in the world (1950–2030). Source: United Nations (2002).

Satterthwaite, 2001). In fact, most urban growth over the next 25 years will not take place in mega-cities at all but will occur in far smaller cities and towns. An even more frequent mistake made by many commentators is to attribute urban population growth solely to rural-to-urban migration, which although an important element in the story is often less important than simple natural increase (i.e., the surplus of births over deaths) or the annexation and reclassification of land around the periphery as urban.

Most end-users cite the UN data as if it is absolute truth rather than treating them as simply indicative of general broad trends. There is a general underappreciation of the fact that the UN is forced to rely on member countries' existing definitions of what constitutes an urban or a rural area. Not only do these definitions differ widely by country, in many places the traditional urban/rural dichotomy is becoming increasingly inadequate as improvements in transportation networks and communications collapse time and space. The remainder of this paper discusses the main challenges associated with studying urbanization, the key demographic features of the urban transition, major regional differences, and the uncertainty that is associated with urban projections.

## 2. CHALLENGES ASSOCIATED WITH STUDYING URBANIZATION

The most fundamental source of potential confusion in the study of urbanization and city growth is the measurement of urban itself. What defines an urban area? Unfortunately, there is no unique answer. Despite the fact that the world is becoming more and more urban in nature, the definition of urban itself remains rather fleeting, changing over time and space (Frey & Zimmer, 2001).

Because the UN is forced to rely on national statistical agencies for their data, the definition of what constitutes an urban area varies from one country to another and this obviously makes crosscountry comparisons problematic. Some countries define their urban population as those people living within certain administrative boundaries—such as in administrative centers or *municipios* (as in El Salvador), municipality councils (as in Iraq), or in places having a municipality or a municipal corporation, a town committee, or a cantonment board

(as in Bangladesh or Pakistan). Other countries prefer to classify their urban population using either population size or population density as the primary consideration. But the line between urban and rural is to a certain extent arbitrary and culturally bound and so not surprisingly, it differs between countries. In Benin, for example, localities with 10,000 inhabitants or more are classified as urban in the UN data while in Angola, Argentina, and Ethiopia, all localities with 2,000 inhabitants or more are considered urban. In yet other cases, urban boundaries are drawn up based on a mixture of population size or density and various economic or social indicators. In Botswana, for example, an agglomeration of 5,000 or more people where 75% of the economic activity is nonagricultural would be considered urban. For Cuba, places with 2,000 inhabitants or more would automatically be considered urban by the UN. But so might places with fewer inhabitants if they also had paved streets, street lighting, piped water, sewage, a medical center and educational facilities (United Nations, 2001).

Similarly, it is just as difficult to identify the population of a given city and even more hazardous to compare the size of various cities against one another. This is because the size of a city's population is a function of how and where the city administrative boundaries are drawn. Again, this can be quite arbitrary and may not include large numbers of people living contiguous to the city "proper" at urban levels of residential density but who fall outside of the city's administrative boundaries. Consequently, the population of some of the world's largest urban areas can vary by many millions depending on which definition is used. For example, the population of Mexico City can refer to the Federal District (*Distrito Federal*) or the Mexico City Metropolitan Area (MCMA) (see Figure 2). In 2000, the population of the Federal District was estimated to be 8.6 million, while the population of the larger Mexico City Metropolitan Area was estimated to be approximately 17.9 million residents. It is also quite possible to argue that neither of these measures is a very good indicator of the true scale of the Mexico City area. Rather one should include the population of the entire polynuclear megalopolis that is centered on Mexico City, which would include the populations of Toluca, Puebla, Cuernavaca, Querétaro, and Pachuca. This would raise the size of the population to 23.2 million in 2000, implying that the expanded Mexico City area accounts

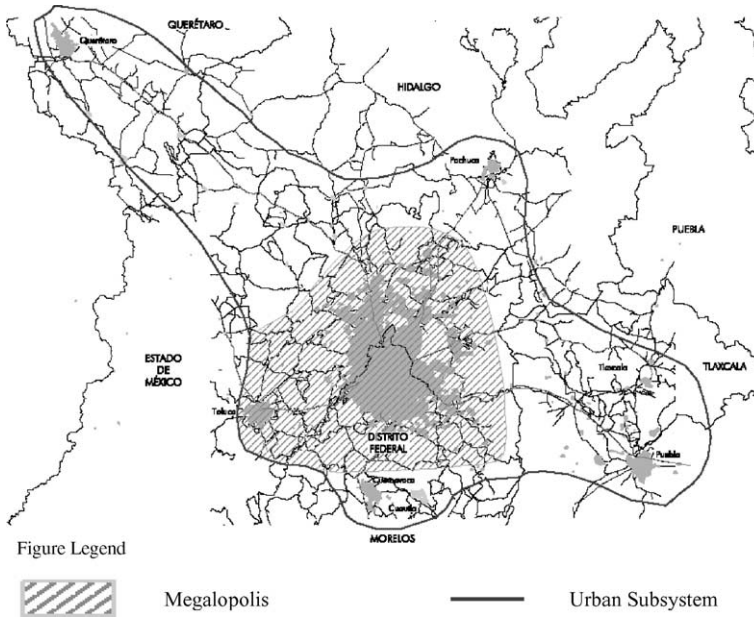


Figure 2. Mexico City, 1995. Source: Garza (2000). Reprinted with permission.

for around 35% of the total urban population of Mexico (Garza, 2002). Thus, any estimate of the size of a particular city needs to be clarified in terms of whether it is an estimate of the central city, the greater metropolitan area, or a wider planning region that may include other subsidiary settlements. Statistics on the number and sizes of cities can also be manipulated up or down fairly easily simply by adopting small changes to the definition of an urban area (Hardoy *et al.*, 2001).

To understand the significance of these definitional issues, consider the cases of the two largest countries in the world: China and India (Hardoy *et al.*, 2001). China significantly lowered the criteria for qualifying localities as urban in the early 1980s (Goldstein, 1990; Lin, 2002; Zhang & Zhao, 1998). Consequently, official Chinese statistics show a massive increase in the number of towns and cities and in the size of the total urban population in the mid-1980s. In 1987, for example, the newly created city of Zibo in Shandong Province contained 2.4 million residents within its (generous) city boundaries. But 66% of the urban population was principally engaged in agriculture (Goldstein, 1990).

Because there is no global standard, one needs to be very careful when making cross-country comparisons regarding the extent to

which particular countries are urbanized. In some countries, city boundaries are drawn so liberally that they contain a significant amount of land that is still basically used for agricultural purposes. Shanghai is a notable example. Although the city is industrializing rapidly, one of the reasons that Shanghai's population is so large—approximately 13 million in 1994—is because, administratively speaking, the Shanghai city region covers an area of 6,640 km<sup>2</sup>: the central city occupies 280 km<sup>2</sup> (4.4%) while the suburban district and the suburban counties—much of which is still devoted to agricultural production—comprise 6,060 km<sup>2</sup> (95.6%) (Yeung & Sung, 1996). At the other end of the spectrum, some countries draw their city boundaries so tightly that they miss important population growth that is occurring in peri-urban areas just outside the official city boundary (Jones, 2001). This appears to be the case in certain cities in Asia such as Bangkok, Jakarta, Manila, and Taipei, which may all be twice as large as their officially recorded sizes (Jones, 2001; Jones, Tsay, & Bajracharya, 2000). Similarly, most of India's rural population resides in villages that contain between 500 and 5,000 inhabitants. In other countries, many of these villages would be classified as urban. Consequently, if India were to adopt a different definition of what constitutes an urban area, it

could suddenly transform itself from a predominantly rural to a predominantly urban population (Hardoy *et al.*, 2001).

Even ignoring complications such as what defines an urban area for a moment, an analysis of urban growth and trends in city sizes over time is still constrained by another problem, namely the lack of reliable and up-to-date demographic data. Census data are the principle source of information on individual cities but censuses usually occur only once a decade and then take several years to be analyzed and released. In some countries, no new census data have become available since the 1980s or even the 1970s so that in some cases, “recent” urban statistics are in fact imputed from data that are now two decades or more out of date. In the 1999 revision of *World Urbanization Prospects*, for example, only 18% of the database was built using data that was less than three years old. In 43% of cases, the data were between three and eight years old while in the remaining 38% of cases, the UN was forced to rely on data that were already more than eight years old (United Nations, 2001). Naturally, this situation varies by region. Generally speaking, high-income countries have the best baseline data while African countries have the worst. In the 1999 revision, the UN was forced to rely on data more than eight years out of date for 56% of African countries (United Nations, 2001).

Finally, efforts to study urban population dynamics are hampered by the tendency for censuses to undercount urban populations. No census is ever perfect. But crowded cities with large mobile populations are generally recognized as being one of the most difficult challenges to census takers and cities are often suspected of being underenumerated in official statistics. In the recent census in Indonesia and Pakistan, for example, a large undercount is suspected in both Jakarta and Karachi (Jones, 2001). Given the myriad of definitional problems discussed above, it almost goes without saying that just about any statistic on an urban population is, at best, just an approximation of reality.

### 3. KEY DEMOGRAPHIC FEATURES OF THE CURRENT URBAN TRANSITION

The current urban transition differs from the experience of Europe and the United States in the first half of the 20th century in a number of important respects (Brocknerhoff, 2000;

Hall & Pfeiffer, 2000; Sassen, 2001a; Yeung, 2000). First and most importantly, the scale of change is unprecedented. Second, urbanization is occurring at a rapid (though not although unprecedented) pace. Third, urbanization is now occurring more rapidly in countries that have relatively lower levels of per capita income and in the case of Africa, urbanization appears to have become partially decoupled from economic development. Fourth, the nature and direction of urban change today is more dependent on the global economy than ever before. Fifth, there is an on-going convergence in urban and rural lifestyles so that, to some extent, the traditional distinction between these two groups is becoming redundant. Sixth and finally, urbanization is occurring under a broadly different set of demographic regimes. Obviously many of these features are related.

#### (a) *A new scale of change*

It is the absolute number of new urban residents that probably gives the clearest picture of the challenge faced by governments, urban planners, and the like over the next 30 years. The urban population of the world is estimated to increase from 2.86 billion in 2000 to 4.98 billion by 2030 (see Table 1). By comparison, the size of the rural population in the world is expected to grow only very marginally, going from 3.19 billion in 2000 to 3.29 billion in 2030. In other words, virtually all population growth over the next 30 years will be concentrated in urban areas, a stark contrast with the pattern of growth seen over 1950–75, when population growth was much more evenly divided between urban and rural areas (see Figure 3).

Given the increase in total urban population, it is not surprising to discover that the world is experiencing both an increase in the absolute number of large cities and seeing cities reach unprecedented sizes. Hardoy *et al.* (2001) calculate that the average size of the world's one hundred largest cities has grown from around 200,000 in 1800 to over five million in 1990. Similarly, the number of cities above any arbitrary threshold has grown. For example, consider the number of cities with more than one million residents. At the beginning of the 19th century, Beijing (then Peking) was the only million-plus city (Chandler, 1987). Even by the turn of the 20th century, there were still only 16 million-plus cities in the world. But, by 1950, the number of million-plus cities had grown to 86, by 1975 it had grown to 195, and by 2000,

Table 1. *Population size and growth, urban and rural, by region*

| Region                              | Mid-year population (millions) |       |       |       | Growth rate (%) |           |         |
|-------------------------------------|--------------------------------|-------|-------|-------|-----------------|-----------|---------|
|                                     | 1950                           | 1975  | 2000  | 2030  | 1950–75         | 1975–2000 | 2000–30 |
| <i>Urban</i>                        |                                |       |       |       |                 |           |         |
| Total                               | 751                            | 1,543 | 2,862 | 4,981 | 2.9             | 2.4       | 1.8     |
| High-income countries <sup>a</sup>  | 359                            | 562   | 697   | 825   | 1.8             | 0.9       | 0.6     |
| Middle and low income               | 392                            | 981   | 2,165 | 4,156 | 3.7             | 3.2       | 2.2     |
| Europe                              | 287                            | 455   | 534   | 540   | 1.8             | 0.6       | 0.04    |
| Latin America and the Caribbean     | 70                             | 198   | 391   | 608   | 4.2             | 2.7       | 1.5     |
| Northern America                    | 110                            | 180   | 243   | 335   | 2.0             | 1.2       | 1.0     |
| East Asia and Pacific               | 103                            | 258   | 703   | 1,358 | 3.7             | 4         | 2.2     |
| East Asia and Pacific without China | 33                             | 96    | 246   | 474   | 4.3             | 3.8       | 2.2     |
| South Asia                          | 72                             | 164   | 372   | 849   | 3.3             | 3.3       | 2.7     |
| Central Asia                        | 14                             | 40    | 77    | 118   | 4.3             | 2.6       | 1.4     |
| Middle East and North Africa        | 22                             | 70    | 177   | 360   | 4.6             | 3.7       | 2.3     |
| Sub-Saharan Africa                  | 20                             | 67    | 219   | 648   | 4.9             | 4.7       | 3.6     |
| <i>Rural</i>                        |                                |       |       |       |                 |           |         |
| Total                               | 1,769                          | 2,523 | 3,195 | 3,289 | 1.4             | 0.9       | 0.1     |
| High-income countries <sup>a</sup>  | 219                            | 187   | 184   | 139   | -0.6            | -0.07     | -0.9    |
| Middle and low income               | 1,550                          | 2,336 | 3,011 | 3,151 | 1.6             | 1.0       | 0.2     |
| Europe                              | 261                            | 221   | 193   | 131   | -0.7            | -0.5      | -1.3    |
| Latin America and the Caribbean     | 97                             | 124   | 127   | 116   | 1.0             | 0.1       | -0.3    |
| Northern America                    | 62                             | 64    | 71    | 61    | 0.1             | 0.4       | -0.5    |
| East Asia and Pacific               | 639                            | 1,008 | 1,113 | 870   | 1.8             | 0.4       | -0.8    |
| East Asia and Pacific without China | 153                            | 242   | 294   | 268   | 1.8             | 0.8       | -0.3    |
| South Asia                          | 392                            | 645   | 982   | 1,176 | 2               | 1.7       | 0.6     |
| Central Asia                        | 32                             | 51    | 63    | 63    | 1.8             | 0.9       | -0.04   |
| Middle East and North Africa        | 59                             | 85    | 130   | 160   | 1.4             | 1.7       | 0.7     |
| Sub-Saharan Africa                  | 156                            | 255   | 426   | 622   | 2               | 2         | 1.3     |
| <i>Total world population</i>       |                                |       |       |       |                 |           |         |
| Total                               | 2,520                          | 4,066 | 6,057 | 8,270 | 1.9             | 1.6       | 1       |
| High-income countries <sup>a</sup>  | 578                            | 749   | 881   | 964   | 1               | 0.6       | 0.3     |
| Middle and low income               | 1,942                          | 3,317 | 5,176 | 7,307 | 2.1             | 1.8       | 1.1     |
| Europe                              | 548                            | 676   | 727   | 671   | 0.8             | 0.3       | -0.3    |
| Latin America and the Caribbean     | 167                            | 322   | 518   | 724   | 2.6             | 1.9       | 1.1     |
| Northern America                    | 172                            | 244   | 314   | 396   | 1.4             | 1         | 0.8     |
| East Asia and Pacific               | 742                            | 1,266 | 1,816 | 2,228 | 2.1             | 1.4       | 0.7     |
| East Asia and Pacific without China | 186                            | 338   | 540   | 742   | 2.4             | 1.9       | 1       |
| South Asia                          | 464                            | 809   | 1,354 | 2,025 | 2.2             | 2         | 1.3     |
| Central Asia                        | 46                             | 91    | 141   | 181   | 2.7             | 1.8       | 0.8     |
| Middle East and North Africa        | 81                             | 155   | 307   | 520   | 2.6             | 2.7       | 1.8     |
| Sub-Saharan Africa                  | 176                            | 322   | 645   | 1,270 | 2.4             | 2.8       | 2.3     |

Sources: United Nations (2002), World Bank (2002).

<sup>a</sup> High-income countries have Gross National Income per capita (GNI p.c.) of \$9,266 or more based on World Bank estimates.

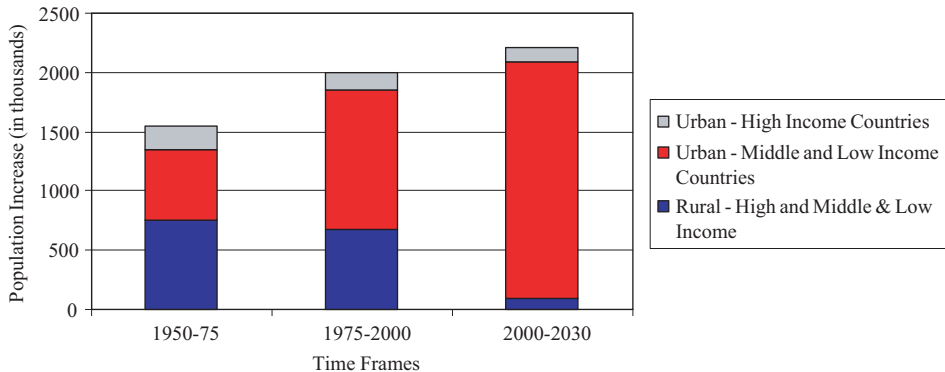


Figure 3. *Distribution of world population growth (1950–2030). Source: United Nations (2002), World Bank (2002).*

there were nearly 400. According to the latest UN projections, there will be more than 150 new million-plus cities around the world over the next 15 years (United Nations, 2002). Increasingly, new million-plus cities will be located in Africa, Asia, and Latin America.

(i) *Large cities*

“Mega-cities”—which are now conventionally defined to be large urban agglomerations of 10 million or more—have become both more numerous and considerably larger in size. Tables 2 and 3 show how the number, size, and spatial distribution of the world’s largest cities have changed over time. In 1950, there were only eight cities in the world that had a population of over five million. New York, London, and Tokyo were the largest agglomerations in the world, containing 12.3, 8.7, and 6.9 million residents respectively. Cities such as Mumbai (formerly Bombay), Mexico City, and Rio de Janeiro were still relatively small cities: each contained about 2.9 million residents. By 1975, there were 22 cities that contained more than five million people and five massive urban agglomerations that contained over 10 million residents: Tokyo, New York, Shanghai, Mexico City, and São Paulo. In 2000, there were 39 five million-plus cities while 16 cities had surpassed the 10 million mark. In 1950, New York with 12.3 million residents, was the largest city in the world. Today, a city that size would not make it onto a list of the top 10 cities in the world.

Nevertheless, despite popular images to the contrary, the world will not all be living in huge mega-cities in the near future. Certainly, the proportion of urban residents in developing countries residing in “large” cities (i.e., those cities with a population of one million or more)

is rising. By 2015, approximately 21% of the national populations of middle- and low-income countries are expected to be living in cities with at least one million residents. But this obviously leaves 79% of the populous who will not be living in large cities in 2015.

The concentration of national populations in large cities is particularly striking in Latin America and the Caribbean where over 32% of the population reside in million-plus cities. By 2015, almost 38% of the population of the region will live in such cities (United Nations, 2002). This is a significantly higher percentage than either Africa or Asia, which are only expected to have 15% and 19% of their populations living in million-plus cities by 2015, respectively (United Nations, 2002).

Many low- and middle-income countries exhibit a high degree of urban primacy with a large proportion of the national population living in a single city, which, in many cases, is also the capital city. This is not the case in most high-income countries. The phenomenon is common in Latin America and the Caribbean where there are 17 countries with over 15% of the country’s population residing in the largest city. In eight of these countries, over one-quarter of the national population live in the largest city. In Africa, there are nine countries with more than 15% of the population in the largest city. In two cases—Libya and Congo—the figure is over 30%. In Asia, 14 countries have over 15% of their total populations in the largest city although one of these is Singapore, a city state.

(ii) *Intermediate and smaller cities*

Large cities will play a significant role in absorbing future anticipated growth, but one

Table 2. *List of urban agglomerations with 5 million or more people*

| Region                                  | 1950   | 1970   | 2000  | 2015   |
|---|--|--|---|--|
| <i>High-income countries</i>            |  |  |   |  |
| OECD countries                          | Paris<br>Rhein-Ruhr<br>London<br>New York<br>Tokyo | Paris<br>Rhein-Ruhr<br>London<br>Milan<br>New York<br>Los Angeles<br>Chicago<br>Tokyo<br>Osaka | Paris<br>Rhein-Ruhr<br>London<br>New York<br>Los Angeles<br>Chicago<br>Osaka                  | Paris<br>Rhein-Ruhr<br>London<br>New York<br>Los Angeles<br>Chicago<br>Osaka<br>Toronto  |
| Other high income                       |  |  | Hong Kong   | Hong Kong  |
| <i>Middle- and low-income countries</i> |  |  |   |  |
| Latin America and the Caribbean         | Buenos Aires                                       | Buenos Aires<br>Rio de Janeiro<br>São Paulo<br>Mexico City                                     | Buenos Aires<br>Rio de Janeiro<br>São Paulo<br>Mexico City<br>Lima<br>Santiago<br>Bogota      | Buenos Aires<br>Rio de Janeiro<br>São Paulo<br>Mexico City<br>Lima<br>Santiago<br>Bogota<br>Guatemala City<br>Belo Horizonte                       |
| East Asia and the Pacific               |  |  | Bangkok<br>Metro Manila   | Bangkok<br>Metro Manila<br>Chongqing<br>Shenyang<br>Hanoi<br>Ho Chi Minh<br>Yangon<br>Bandung  |
| South Asia                              |  | Bombay<br>Calcutta   | Bombay<br>Calcutta<br>Bangalore<br>Delhi<br>Hyderabad<br>Madras<br>Karachi<br>Lahore<br>Dhaka | Bombay<br>Calcutta<br>Bangalore<br>Delhi<br>Hyderabad<br>Madras<br>Karachi<br>Lahore<br>Dhaka<br>Kabul<br>Pune<br>Chittagong<br>Ahmedabad<br>Surat |
| Central Asia                            |  |  | Istanbul  | Istanbul   |
| Middle East and North Africa            |  | Cairo  | Cairo<br>Teheran  | Cairo<br>Teheran<br>Riyadh<br>Baghdad<br>Jidda   |



Table 2—continued

| Region             | 1950 | 1970 | 2000              | 2015  |
|--------------------|------|------|-------------------|---|
| Sub-Saharan Africa |      |      | Lagos<br>Kinshasa | Lagos<br>Kinshasa<br>Addis Ababa<br>Luanda<br>Abidjan |

Based on projections by United Nations Population Division.

Source: United Nations (2002).

should not lose sight of the fact that for the foreseeable future the majority of urban residents still reside in much smaller urban settlements. Exact data on this point are hard to find since no comprehensive database of cities under 750,000 exists in a readily available format. Nevertheless, some information on the growth in urban population by size of city is available (see United Nations, 2002). Figure 4 shows the number of new urban residents that are projected to be added to cities of various sizes between 2000 and 2015 by level of development. Clearly, the lion's share of the increase in urban population over the next 15 years will continue to be in towns and cities with fewer

than one million inhabitants. This is true both for high-income countries and for middle- and low-income countries combined. Even in 2015, towns and cities under one million will still account for well over half of the total urban population (see Figure 5). In fact, only 4.1% of the world's population is expected to be living in cities of 10 million inhabitants by 2015. Small cities are rarely, if ever, the focus of editorials lamenting their rapid growth or their lack of public services. Nevertheless when added together, their combined size makes them very significant especially because in comparison with larger areas in developed countries, smaller urban areas, particularly

Table 3. Number of urban areas and total urban population by size, 1950–2015

| Size of urban area                      | Number of cities |      |      |      | Urban population (in thousands) |         |           |           |
|---|------------------|------|------|------|---------------------------------|---------|-----------|-----------|
|   | 1950             | 1975 | 2000 | 2015 | 1950                            | 1975    | 2000      | 2015      |
| <i>Global</i>                           |                  |      |      |      |                                 |         |           |           |
| 10 million or more                      | 1                | 5    | 16   | 21   | 12,339                          | 68,118  | 224,988   | 340,497   |
| 5 to 10 million                         | 7                | 16   | 23   | 37   | 42,121                          | 122,107 | 169,164   | 263,870   |
| 1 to 5 million                          | 75               | 174  | 348  | 496  | 144,335                         | 331,576 | 674,571   | 960,329   |
| 500,000 to 1 million                    | 106              | 248  | 417  | 507  | 75,134                          | 176,414 | 290,113   | 354,448   |
| Fewer than 500,000                      | n.a.             | n.a. | n.a. | n.a. | 481,455                         | 844,296 | 1,502,920 | 1,950,323 |
| <i>High-income countries</i>            |                  |      |      |      |                                 |         |           |           |
| 10 million or more                      | 1                | 2    | 4    | 4    | 12,339                          | 35,651  | 67,403    | 70,641    |
| 5 to 10 million                         | 4                | 7    | 5    | 6    | 26,389                          | 54,550  | 37,650    | 45,359    |
| 1 to 5 million                          | 38               | 64   | 81   | 95   | 76,504                          | n.a.    | 183,635   | 211,578   |
| 500,000 to 1 million                    | 32               | 28   | n.a. | n.a. | 24,138                          | n.a.    | n.a.      | n.a.      |
| Fewer than 500,000                      | n.a.             | n.a. | n.a. | n.a. | n.a.                            | n.a.    | n.a.      | n.a.      |
| <i>Middle- and low-income countries</i> |                  |      |      |      |                                 |         |           |           |
| 10 million or more                      | 0                | 3    | 12   | 17   | 0                               | 32,467  | 157,585   | 269,856   |
| 5 to 10 million                         | 3                | 9    | 18   | 31   | 15,732                          | 67,557  | 131,514   | 218,511   |
| 1 to 5 million                          | 40               | 110  | 267  | 401  | 67,831                          | n.a.    | 490,936   | 748,751   |
| 500,000 to 1 million                    | 74               | 220  | n.a. | n.a. | 50,996                          | n.a.    | n.a.      | n.a.      |
| Fewer than 500,000                      | n.a.             | n.a. | n.a. | n.a. | n.a.                            | n.a.    | n.a.      | n.a.      |

n.a. = Not available.

Source: United Nations (2002).

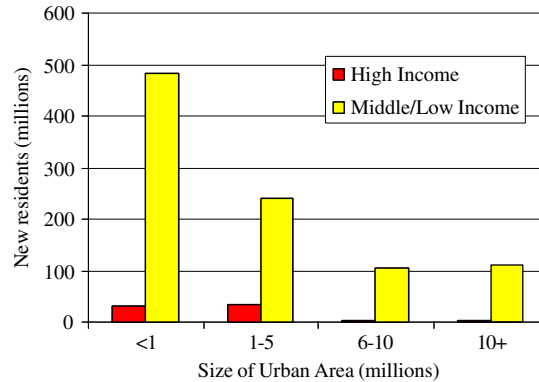


Figure 4. Number of urban residents added to the urban milieu between 2000 and 2015 by level of development. Source: United Nations (2002), World Bank (2002).

settlements under 100,000 people, tend to be significantly under-served with regard to access to piped water, waste disposal, and electricity (National Research Council, 2003).

#### (b) *A rapid pace of change*

For many social commentators the most alarming aspect of the trend towards global urbanization has been the apparent pace at which it has occurred (see, for example, Linden, 1996). But, contrary to alarmist views, the pace of urbanization in developing countries is not accelerating. At the global level, the urban population over the next five years is expected to grow at an average annual rate of around 2.0%, down from 2.7% during the late 1980s or over 3.0% during the 1950s and early 1960s. In fact, the pace of urbanization currently being experienced in the middle- and low-income countries is remarkably similar to the historical experience of other parts of the world. For example, between 1975 and 2000, the percentage of the population living in urban areas in developing countries grew from 27% to 40%, which while high, is remarkably similar to the experience of the more developed world during the first quarter of the 20th century (Brockerhoff, 2000). Nevertheless, because this growth is being applied to an ever-expanding base population, the absolute increase in the number of urban dwellers will be enormous.

Also contrary to popular perception, rural-urban migration is not always the principal driving force behind rapid urbanization. Certainly, cities attract large numbers of rural-urban migrants seeking education, jobs, or

better access to basic services. But, cities everywhere are growing simply through natural increase (i.e., the excess of births over deaths). In addition, cities often contain a higher proportion of women of reproductive age than do rural areas, which can result in higher crude urban birth rates even if urban fertility rates are lower. Furthermore, as cities grow, they usually annex neighboring areas as the nearby population increasingly engages in nonfarm activity and suburbs develop as urban residents begin to commute. Hence urbanization can be caused by a variety of factors: natural increase, rural-urban migration, and annexation. The relative importance of the various causes of urban population growth varies both within and between regions and countries but in a great many cases, natural increase is, and will continue to be, the most important factor explaining urban growth.

A related point is that the world's largest cities are actually not the world's fastest growing cities for the simple reason that, for this to be true, the absolute increase in population each year would quickly become enormous. As the scale of the city increases, the growth rate of a city's population typically declines and in fact, the growth of most of the world's mega-cities has slowed down recently, reflecting slower national population growth rates. The world's fastest growing cities are usually far smaller cities because they start out with a much smaller base population. It is not uncommon to find examples of double-digit growth rates for small cities or towns but it is rare to find cities of several million inhabitants growing by as much as 5% per annum and most grow at a rate much lower than this (Hardoy

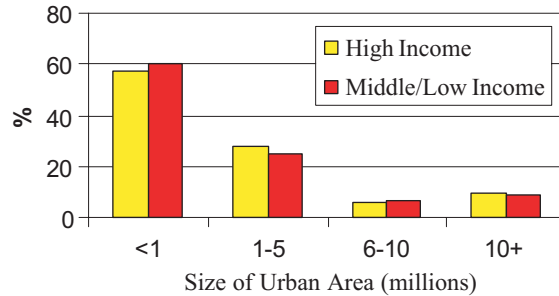


Figure 5. Projected distribution of urban residents by size of urban area in 2015. Source: United Nations (2002), World Bank (2002).

*et al.*, 2001). Most of the world's largest cities actually grew far more rapidly several decades ago when they were somewhat smaller. Indeed, for some cities in Latin America such as São Paulo or Buenos Aires, one has to go back to the late 19th century or early 20th century to find their most rapid period of growth (Hardoy *et al.*, 2001).

What is true, however, and often the source of some confusion, is that the absolute number of people living in huge urban agglomerations has been rising rapidly. For example, the number of people living in agglomerations of 10 million or more rose from 68 million in 1975 to 225 million in 2000. But, most of this increase was simply a function of certain urban agglomerations that had less than 10 million residents in 1975 crossing the 10 million threshold by 2000. Thus, in middle- and low-income countries, the number of 10 million plus urban agglomerations rose from three to 12 and the number of people living in "mega-cities" rose from 32 million in 1975 to 158 million in 2000 (United Nations, 2002).

A related point is that it is wrong to assume that the most rapidly growing mega-cities are all located in Asia, Africa, or Latin America. Cities such as Shanghai, Buenos Aires, and Calcutta, for example, may have grown from between 4 and 5 million in 1950 to around 13 million today but this is no different from the experience of Los Angeles over the same period of time. In terms of the rate of growth, it is actually considerably slower than the experience of such US cities as Atlanta, Miami, or Phoenix (Satterthwaite, 1996).

Nevertheless, some of today's mega-cities have experienced rather high rates of population growth over the last quarter of a century. Dhaka in Bangladesh and Lagos in Nigeria, for

example, both grew faster than 6% per annum during the 1980s and early 1990s. But, these are the exceptions. Among the world's 16 mega-cities, only four grew at annual rates over 3% per annum during the 1990s and seven experienced slower than 1% per annum growth. The United Nations projects that over the next 15 years only four mega-cities—Lagos, Dhaka, Karachi, and Jakarta—will experience growth rates over 3% per year and 10 will experience very low growth, at below 1% per year. By way of comparison, developing country cities such as Osaka, Tokyo, and New York are growing at 0.5% or less per year. Los Angeles is currently growing at slightly under 1% per annum.

Finally, it is always possible to find examples of cities that can boast truly spectacular urban growth. Certainly economic development in Pacific Asia has transformed the region and many of its cities at a speed and on a scale never before witnessed (Lo & Yeung, 1996; Yeung, 1988, 2000, 2002). On mainland China, for example, since the government embarked on a pattern of gradual economic reform in 1978, coastal cities such as Shenzhen, Guangzhou, and Xiamen have grown at incredible rates, completely transforming themselves both physically and economically into modern cities (Yeung & Hu, 1992; Yeung, 1988).

### (c) *More rapid urbanization in relatively poorer countries*

Undoubtedly the most profound difference between the experience of the first half of the 20th century and today is that, in the first half of the century, urbanization was predominantly confined to countries that enjoyed the highest levels of per capita income. In the more recent past (and indeed for the foreseeable future), the

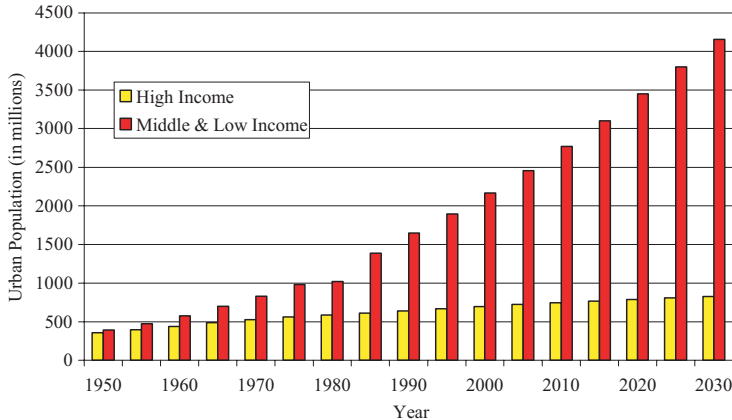


Figure 6. Growth of urban population, 1950–2030. Source: United Nations (2002), World Bank (2002).

most visible changes in urbanization have occurred and will continue to occur in middle- and low-income countries (see Figure 6). Thus, between 1975 and 2000, the urban share of the population in low- and middle-income countries combined rose from 29.6% in 1975 to 41.8% in 2000. By 2030, it is expected to reach 56.9%. By contrast, in high-income countries, 79% of the population already lived in urban areas by 1975, so the urban share increased relatively more slowly between 1975 and 2030, climbing to 86% in 2030. Similarly, the distribution of the world's largest cities has also changed profoundly over the last 50 years. Today, the largest urban agglomerations in the world are mainly in the South. Cities in Europe such as London and Paris are now dwarfed, in demographic terms, by huge cities in the developing world such as Dhaka, Mumbai, São Paulo, Karachi, and Mexico City.

Projections indicate that nineteen new five million-plus cities will be added to the world between 2000 and 2015, of which only one will be located in a high-income country (United Nations, 2002). The others will all be in either low- or middle-income countries. By 2015, of the world's 30 largest urban agglomerations, 18 will be in Asia, six in Latin America, three in Africa, and three in the rest of the world. Each of these urban agglomerations is projected to contain over eight million residents and the largest three, Tokyo, Dhaka, and Mumbai, are each projected to contain over 22 million residents in 2015.

In some parts of the world, cities have been growing without a concomitant expansion of

economic activity. Contrast, for a moment, the experience of sub-Saharan Africa against that of East Asia and the Pacific. Although the change in the level of urbanization is remarkably similar, the big difference is that in East Asia and the Pacific Gross Domestic Product (GDP) per capita has shot up while in sub-Saharan Africa, GDP per capita has completely stagnated. Perhaps not surprisingly then, a recent World Bank report observed that "... cities in Africa are not serving as engines of growth and structural transformation. Instead they are part of the cause and a major symptom of the economic and social crisis that have enveloped the continent" (World Bank, 2000, p. 130).

#### (d) *Urbanization in an increasingly global world*

An important feature of the current urban transition is the fact that the nature and extent of urban growth is now more dependent on the global economy today than ever before. Without a doubt, globalization, i.e., the progressive integration of the world's economies, has accelerated over the past 30 years. Driven by an astounding rate of technological change, particularly in the areas of transportation and telecommunications, globalization has radically reduced the need for spatial proximity and reshaped the organization, management and production of firms and industries. Globalization has also been facilitated by a more favorable international political climate, the collapse of communism, and financial deregulation that has allowed capital to become more mobile

than ever before (Yeung, 2000). These changes have combined to produce a more integrated and global economy than ever before, characterized by a new international division of labor, increased trade and investment, growing transnational communications, and expanding crossborder alliances between businesses and industries (Berry, Conkling, & Ray, 1997; Cohen, 1981; Sassen, 2000, 2001b, 2002).

Globalization brings both potential risk and benefits. Theoretically, as the economies of the world become more interconnected, and technology and management expertise spreads, factors of production are used more efficiently, markets expand, and the opportunities for wealth creation become much greater. But there is also a potential downside because while the opportunities for wealth creation are multiplied, so is the inherent instability of the economy (Yeung, 2002). Open borders mean that local economies are more susceptible to external economic shocks and from competition from imports from abroad, both of which can quickly result in significant job losses. Because the bulk of economic activity is centered in cities, urban residents are more exposed to both the risks and the benefits of globalization. Moreover, because the benefits of globalization are far from evenly distributed, globalization has been associated with rising inequality and social polarization. In many places, income inequality has increased dramatically, increasing spatial and economic segmentation (see, for example, Calderia, 2000 on São Paulo).

Worldwide economic restructuring and the growing interdependence of countries and regions around the world has also led to the emergence of a new urban hierarchy. As the nature and form of the new global economy has evolved, scholars have struggled to develop a new lexicon to characterize the nature of large-scale urban networks and to articulate the various links between globalization and cities. For example, Hall (1966) and Friedmann and Wolff (1982) emphasized the significance of a special class of cities—world cities—which are distinct from other urban agglomerations because of the pivotal roles they play in the global economy. Friedmann (1986) identified 30 world cities that can roughly be arranged into a world-city hierarchy in accordance with the economic power that they command. At the top, are New York, London, and Tokyo, which operate as the command centers of the world economy, as key locations for finance and other

specialized services, as sites of production and innovation, and, ultimately, as markets for products and innovations (Sassen, 2001a). After that, ordering cities becomes far more difficult, because there are no unambiguous criteria for assigning particular cities to a specific place in the global system (Friedmann, 1995). Over the last decade, there has been a flurry of research on the role that various cities or systems of cities play in the modern global economy (see, for example, Knox & Taylor, 1995; Sassen, 2000, 2001a; Taylor & Walker, 2001; Yeung, 2000). Underlying all of this research is the notion that a relatively small number of key cities serve as the dominant loci in today's global economy, contributing disproportionately to the internationalization of capital, production, services, and culture (Yeung, 1995).

Globalization clearly has had a very uneven impact on various parts of the world. While the restructuring of global production has brought numerous benefits to some countries, previously thriving manufacturing cities in industrially advanced economies have lost many factory jobs and have been forced to restructure their economy. The region that has benefited the most from globalization is Asia while large parts of Africa have effectively been bypassed. During the 1980s, 13 newly industrializing countries (NICs) accounted for 80% of all manufacturing output in the developing world (Dicken, 1992). Predictably, apart from three southern European countries, the NICs were Hong Kong, Singapore, South Korea, Taiwan, Malaysia, Thailand, and India in Asia, and Brazil, Mexico, and Argentina in Latin America (Dicken, 1992).

In some parts of Asia, the results of the transformation of the global economy have been both spectacular and truly profound. The growth of East Asia's share of world economic output has grown from 4% in 1960 to 25% in 1995 (Yeung, 2000). Cities such as Tokyo, Seoul, Taipei, Hong Kong, Manila, Bangkok, Kuala Lumpur, Singapore, and Jakarta have flourished over the last 20 years, emerging as world cities after registered spectacular increases in their GDP of over 1,000% (Lo & Yeung, 1996; Savitch, 1996). Furthermore, several crossborder economic agglomerations or "growth triangles" have emerged as examples of cooperative subregional development (see Figure 7). Singapore, for example, limited in size, and therefore ability to spread, has sought the establishment of a multinational

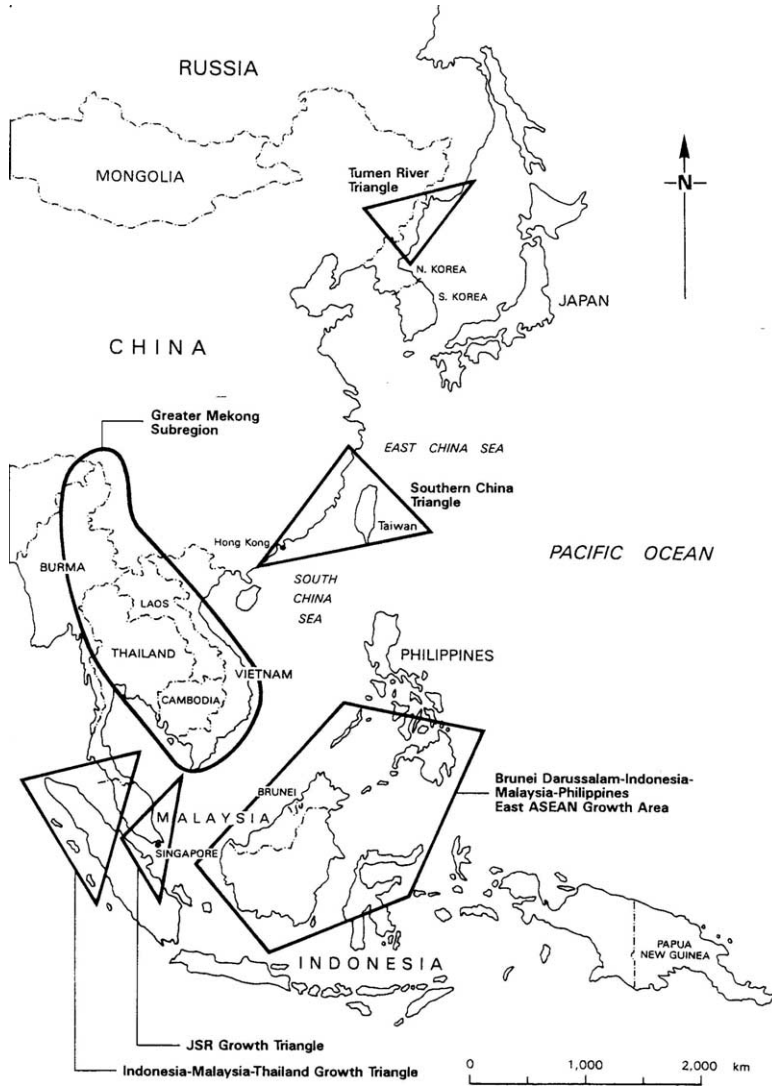


Figure 7. Regional urban linkages: The Asian “Triangles.” Source: Yeung (2000). Reprinted with permission.

regional growth triangle linking it to the Riau Islands in Indonesia and Malaysia’s province of Johor (Macleod & McGee, 1996; Yeung, 2000). A second growth triangle exists in Southern China that incorporates Fujian and Guangdong provinces on mainland China, as well as Hong Kong and Taiwan. Although each is at a different stage of formation and integration, other examples of existing or emerging growth triangles are:

- Penang (Malaysia), Southern Thailand, Sumatra (Indonesia)

- The East ASEAN Growth Area: Brunei Darussalam-Indonesia-Malaysia-Philippines
- Greater Mekong Subregion: Cambodia, Lao People’s Democratic Republic, Myanmar, Thailand, Vietnam, and Yunnan province (China) (Yeung, 2000).

The region is also witnessing the formation of “urban corridors” that connect cities across the region, the best example of which is the Beijing-Seoul-Tokyo (BESETO) corridor—which stretches 1,500 km connecting 77 cities of over 200,000 inhabitants each (Choe, 1996).

An important point to note is that while globalization creates more linkage and interdependence around the world, it also reinforces local advantage. Globalization is largely being driven by multinational corporations, which can compete more successfully in the global marketplace when they are able to take advantage of cheap labor or other particularly favorable circumstances of production. But, far from implying a world of borderless space, globalization actually emphasizes the importance of the subnational or local environment. As a result, globalization means that the growth and development of cities in newly industrializing countries (NICs) is strongly influenced by the size and structure of foreign markets and the ability of cities to attract foreign investment and technology. Successful cities, i.e., those that are able to attract foreign capital investment and technology have been able to accelerate their economic growth to spectacular heights (Yeung, 1995).

Because globalization is implicitly linked to localization, globalization is changing the roles and responsibilities of local and state governments. The growing emphasis of many governments on financial deregulation, free trade, and the removal of protectionist trade barriers has weakened the sovereignty of nation states and given greater power to private capital (Sassen, 1996). It has also reduced the significance of traditional territorial boundaries and increased the importance to cities of attracting foreign direct investment. Globalization has allowed individual cities to break away from the fate of their national economies. Increasingly success or failure depends on the ability of municipal governments to capitalize on the assets of the local environment and to provide the modern infrastructure, enabling environment, and low-wage, flexible workforce demanded by modern businesses. This reality has fed the demand by cities for increased political autonomy and fiscal authority. Not surprisingly, therefore, globalization has been linked to the tendency of many countries toward decentralization of responsibilities and resources to the municipal level. Over the past decade, legislation has been enacted in a wide range of countries from all regions giving municipal governments new power and resources with which to design and implement locally relevant policy (World Bank, 2000). Thus, cities are not just growing in size, they are also gaining in economic and political influence (Yeung, 2002).

(e) *The convergence of urban and rural lifestyles*

Just as the scale and extent of the urban transformation has increased, settlement systems have also increased in their complexity. The ease of transportation and communication has blurred the distinction between urban and rural areas. As a result, new settlement systems have emerged that are not easily captured by a simple urban/rural dichotomy. In parts of Pacific Asia, for example, zones of intense economic activity have emerged in the intersection between cities and rural areas that are neither urban nor rural in the traditional sense although they contain essential elements of each (Ginsburg, Koppel, & McGee, 1991). McGee (1991) refers to these extended metropolitan zones as “*desakota*” zones, derived from the Indonesia words for village (*desa*) and town or city (*kota*). The essential feature of these *desakota* zones is that the landscape appears essentially rural and almost all the land is still under cultivation. Most income, however, now comes from nonagricultural sources. Village and small cottage industries provide employment for some family members while others commute into the city. Remittances from other family members who live in the city often constitute another important source of family income. Furthermore, the nature of agricultural production in these *desakota* zones has shifted away from a subsistence-based economy to a market-oriented strategy with greater emphasis on higher-value production (McGee, 1991).

In areas that are already highly urbanized, there is rapidly diminishing utility in continuing to differentiate spatial context simply on the basis of a rural/urban dichotomy. In Latin America, for example, an appreciation of urban structure and change means coming to grips with describing the changing spatial context in an already predominantly urban environment. The most salient point about the transformation of the urban system in Mexico during 1980–2000, for example, is not that the country’s degree of urbanization rose from 55% to 67%, but that it has been transformed from a highly monocentric system of cities toward a new polycentric one with nine large metropolises as their main nuclei (Garza, 2002).

While it has long been recognized that the conventional division between rural and urban is a gross oversimplification of the underlying complexity of today’s human settlement systems, in reality it is still the only one that is

usually available. In some cases, this is changing. Advances in the geo-coding of census and survey data may enable researchers to link large amounts of data of different kinds and to develop more sophisticated conceptualizations and measurements of the dimensions of settlement systems (Hugo, Champion, & Lattes, 2001). But even assuming increasingly sophisticated measurement over time, the growing complexity of human settlement patterns may mean that the use of a single measure—such as urban/rural—may become increasingly inadequate to capture the various distinct aspects of settlement patterns of interest to public policymakers. Other criteria, such as population density or the degree of accessibility (or remoteness) of a particular location may also have to be better defined and measured (Coombes & Raybould, 2001; Hugo *et al.*, 2001).

As urban regions have grown in both population size and economic and political significance, increasing emphasis has been placed on the concept of the “city-region” as the appropriate unit of analysis for urban policy (see, for example, Scott, 2001b; Simmonds & Hack, 2000). The “city-region” can be identified loosely by the extent and nature of economic activity within an extended economic zone surrounding the city proper. Many city-regions have grown enormously over the last 20 or 30 years. The Extended Bangkok Region, for example, already contains over 17 million people and by 2010, is expected to extend 200 km from its current center (Kaothien & Webster, 2001). Similarly, Metropolitan São Paulo contains approximately 16.4 million people and extends over 8,051 km<sup>2</sup> (over 3,108 miles<sup>2</sup>) (Bruna, 2000). As these and other city-regions have grown over the last 20 years, they have been physically and structurally transformed. Increasingly, large-scale capital investments, whether for new airports, manufacturing plants, or office space have relocated to the urban fringe. Furthermore, there has been a relocation of function within various parts of the city-region. In many cases, the central core areas, limited in their ability to grow in size, have ceded new manufacturing jobs to peripheral areas, which have grown rapidly. Instead, the central core increasingly has become the command center for regional or global business, housing specialized business services such as telecommunications, banking, law offices, financial management, management consulting, information services, and the like. Thus, as city-

regions have grown, their position within regional economies has strengthened. Because city-regions imply close economic links over large geographic areas, growing emphasis is being placed on developing regional land use plans and other initiatives in order to manage these new regional forms (Scott, 2001b; Simmonds & Hack, 2000).

(f) *Urbanization under different prevailing demographic conditions*

Since the mid-20th century, the prevailing demographic regimes of most developing countries have changed profoundly. Soon after the end of WWII, rapid declines in infant and child mortality occurred throughout the developing world, in large part due to the exportation of Western drugs and to better health practices. Gains in life-expectancy that took 50 or 100 years to achieve in the developed world were achieved in little more than a decade or two in the developing world (National Research Council, 2000). Similarly, the beginning of a dramatic change in fertility in developing countries can be traced back to about the 1960s, albeit with considerable regional variation (Caldwell & Caldwell, 2001; National Research Council, 2000). In 1950, the average woman in the developing world gave birth to around six children over the course of her lifetime. But by 1995, this figure had fallen to around 3.1 children per woman in all developing countries combined, a decline of nearly 50% from mid-century levels. Consequently, the last 50 years have seen great change, not just in levels of urbanization and city growth, but also in other demographic indicators as well. In particular, the initial period of dramatic improvements in life-expectancy without a fertility response generated extremely high rates of population growth, which in turn led to the dramatic expansion of the population of the developing world discussed above.

In some settings, these abrupt declines in fertility and mortality have significant ramifications for both the demographic structures of the populations and for social and economic development. For example, declining fertility has been credited as a major contributor to sustained economic growth among the Asian Tigers of South Korea, Taiwan, Thailand, Singapore, Indonesia, Malaysia, and the former Hong Kong territory. The reason is that the shift to smaller families produces several important changes: slower growth in the num-



ber of school-age children which permits an increase in the educational investment per child; reduced dependency ratios which can produce an increase in national savings rates and reduce the need for certain types of public expenditures; and, a one-time extraordinarily large cohort of working-age adults (see Higgins & Williamson, 1997; Mason, 2001).

Where the demographic transition is further along, declines in fertility, coupled with declines in mortality have the effect of aging the population, that is, increasing both the average age of the general population and the proportion of the population over a certain age. Although longer life-expectancy is obviously highly desirable, societal aging, if it is achieved rapidly, leaves governments little time to adapt to the various economic, social, and political challenges that it presents. In some European countries, population aging occurred gradually over the course of centuries. In France, for example, 7% of the population was aged 65 or older in 1865. By 1980, that proportion had doubled to 14%, a significant transformation of the country's age pyramid, but one that played out over a period of 130 years. Today, about 7% of China's population is aged 65 or older. This proportion is expected to increase to 14% by 2027: the same transformation of the age pyramid that took 130 years in France will take just 27 years in China (US Bureau of the Census, 2001). Some cities in developing countries are already beginning to face some of the challenges that population aging creates. In Argentina, for example, population aging began

sooner and occurred more rapidly than in neighboring countries, so that, by the 1990s, cities such as Greater Buenos Aires already contained several neighborhoods have significant numbers of elderly residents (Lloyd-Sherlock, 1997).

4. MAJOR REGIONAL DIFFERENCES

The simple description of events provided above masks enormous regional differences. There are enormous differences in the pattern of urbanization between regions and even greater variation in the level and speed with which individual countries or indeed individual cities within regions are growing. Latin America, for example, is far more urbanized than Africa or Asia. The level of urbanization in Latin America—75%—already matches that of Europe or North America. Consequently the rate of urbanization in Latin America is quite slow. At the other end of the spectrum, Asia and Africa are still both predominantly rural in character with each having no more than 38% of its total population living in urban areas (see Figure 8). But, being less urbanized, these two regions are expected to experience relatively faster rates of urbanization over the next 30 years. By 2030, 53% of Africa's population and 54% of Asia's population are expected to be living in urban areas. It is also important not to lose sight of the fact that the various continents are also quite different in terms of total population size—Asia is much larger—so that there

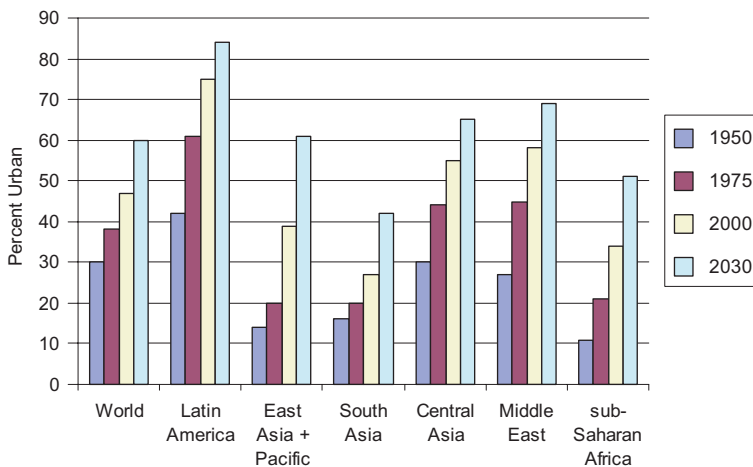


Figure 8. Percent of population living in urban areas in various regions of the world (1950–2030). Source: United Nations (2002), World Bank (2002).

are almost twice as many urban residents in Asia as there are in Latin America and Africa combined. All of these regions are in the midst of major political, social, and economic transitions driven to varying degrees by the omnipresent forces of globalization, democratization, and decentralization.

(a) *Latin America and the Caribbean*

Latin America is now predominantly an urban region, with levels of urbanization comparable to that of North America and many European countries. The percentage of the total population living in urban areas has risen from 42% in 1950 to 75% in 2000. In absolute terms, the region's urban population has gone from 70 million in 1950 to 391 million in 2000, equivalent to an annual growth rate of around 3.5% per annum across the entire period (see Table 1).

The structure and nature of growth of Latin America's cities can best be understood within the larger demographic, social, economic, and political context. Broadly speaking, the economic history of the region since WWII can be characterized as consisting of three periods: a period of fairly strong and sustained growth during 1945–80 when urban growth in most countries in the region accelerated, a "lost decade" of major economic recession and debt during 1980–90, and a period of mild recovery since 1990. After WWII, urban growth in many countries in the region was advanced by large rural–urban migration and import-substitution policies that included government support for infant industries and high trade barriers. The majority of new industry was concentrated in a few major cities, most of which were also national capitals. Consequently, urban development has produced a high degree of urban primacy with an unusually large fraction of the population of the region residing in large cities (i.e., cities of over one million): 32% compared with 15% for Asia or 13% for Africa. Over 1950–2000, the number of million-plus cities in the region increased from just six to over 50. And the four largest cities—Buenos Aires, Mexico City, Rio de Janeiro, and São Paulo—have grown to previously unimaginable sizes. In 1950, the largest city in the region was Buenos Aires, which at that time had a population of around five million compared with Mexico City and Rio de Janeiro which both had populations around 2.9 million and São Paulo which had a population of 2.5 million. In

2000, the size of these four cities was estimated to be 18.1 million (Mexico City), 18.0 million (São Paulo), 12.0 million (Buenos Aires), and 10.7 million (Rio de Janeiro). Mexico City and São Paulo are two of the three largest urban agglomerations in the world.

The UN forecasts that the population of the region will grow to 723 million in 2030 (United Nations, 2002). Not only will all this growth be absorbed in urban areas, but rural-migration is also expected to continue. Consequently, over the next 30 years, the total rural population is expected to decline slightly while the total urban population is expected to grow by more than 200 million. Given the existing high levels of urbanization, additional growth implies that by 2030, more than four out of every five people in Latin America will live in cities, further increasing the demand for already overburdened public services. Nevertheless, there has been a dramatic and somewhat unanticipated slowdown in the growth of some of the most important mega-cities in Latin America as congestion costs and/or government incentives have diverted new investment beyond metropolitan boundaries. In some cases, such as in the São Paulo region of Brazil, new plants have located as far as 200 km from the central core (Gilbert, 1994). In addition, many large Latin America cities were profoundly affected in the 1990s by severe economic recession and programs of structural adjustment.

These summary statistics mask important differentials in the extent of urbanization and the pace of urban growth both across and within countries. At one end of the spectrum, countries such as Argentina, Chile, and Uruguay were already quite highly urbanized by 1950 so that their rate of urbanization over the last 50 years has been relatively modest. Chile, for example, went from being 58% urban in 1950 to 86% urban in 2000. While, over the same time period, Brazil totally transformed itself, going from 36% urban in 1950 to 81% urban by 2000. Even after a 50-year period of fairly sustained urban growth, there remain large disparities across the region. Countries such as Mexico, Argentina, Brazil, Chile, French Guiana, Uruguay, and Venezuela as well as several Caribbean islands are more than three-quarters urban, while at the other end of the spectrum Guatemala and Guyana are less than 50% urban.

Within individual countries urban growth has also been very uneven. In most countries, national capitals have grown fastest. But, in

some places, such as in Amazonia, Brazil or in Mexico along the US-Mexico border, rapid economic expansion has generated rates of growth that are considerably higher than the national average. Generally speaking, the rate of urban growth and the growth of some of the region's largest cities has slowed considerably over the last couple of decades. In many places, secondary cities and towns on the outskirts of large metropolitan regions have been more successful in attracting new investment than larger cities and have begun to grow faster (Villa & Rodriguez, 1996). Thus the region has experienced reverse polarization as high land and labor costs have created urban diseconomies in the largest cities and forced manufacturing plants to relocate beyond the main metropolitan boundaries.

Urban growth slowed in Latin America in the early 1980s as the region witnessed a period of major social and economic upheaval and fell into a serious and prolonged economic recession. Many Latin American countries were forced to implement stabilization and adjustment policies designed to restore their economies by reducing the size of the public sector and improving efficiency in their labor markets. As part of these reforms, governments were obliged to scrutinize state-driven initiatives for industrialization based on import substitution and instead to place greater emphasis on the role of market forces to determine the location and nature of new economic growth. Many industries developed on the basis of an import-substitution model were forced to contract or close as local consumer markets shrunk and protective barriers were removed (UNHABITAT, 1996).

Perhaps the one consistent factor in the region's tumultuous economic and political history is the persistence of mass poverty in the face of enormous wealth: Latin America is the region with the greatest income inequality in the world. Evidence of both absolute and relative poverty is clearly visible in all Latin American cities: large shanty towns, large numbers of poor people, low unemployment but high underemployment, a large informal economy, insufficient urban infrastructure, poor public services, crime, and high levels of air, water, and noise pollution. Yet despite some measure of economic recovery in the 1990s, general standards of living in many of the region's major cities are worse than they were in the 1970s (Gilbert, 1996). Increasingly, urban elites have sought to isolate themselves,

increasing the already high degree of spatial polarization between the rich and the poor (Calderia, 2000).

The experience of various Caribbean countries/territories with respect to urbanization is quite diverse (Portes, Dore-Cabral, & Landolt, 1997). As a whole the Caribbean is approximately 75% urban but underneath this summary statistics there is considerable variation. At one extreme, countries/territories such as Anguilla, Guadeloupe, and Martinique are essentially completely urban while in other countries such as Haiti and Grenada only approximately one-third of the population reside in urban areas. While some countries in the region (e.g., the Dominican Republic or Guadeloupe) have urbanized fairly rapidly over the last 50 years, others, such as the Bahamas or Trinidad and Tobago, were already fairly urban in 1950 and as a consequence have lower rates of urbanization over the last 50 years. Nevertheless Haiti, which is only one-third urban, consistently stands out in any analysis of urban trends in the six largest Caribbean countries/territories. Three of the remaining five (Cuba, Puerto Rico, and Trinidad and Tobago) are approximately 75% urban while the other two (The Dominican Republic and Jamaica) are both over 50% urban.

#### (b) *East Asia and the Pacific*

Asia is such a vast and heterogeneous region that it virtually defies generalization. Altogether, the region contains 3.7 billion people, or approximately three-fifths of the world's population. Despite relatively low level of urbanization (37.5% in 2000), Asia contains 1.38 billion urban residents or just under half of the world's urban population (United Nations, 2002). Given such vast numbers, it is not surprising that few generalizations are meaningful. Dominated statistically by China and India, the region contains over 200 cities with a million or more residents and 21 cities with five million or more residents.

Although the population growth rate for Asia as a whole has been declining since the late 1960s, the enormity of the base population to which these rates have been applied has meant that the total population of the region has grown rapidly over the past 50 years. Starting from around 1.4 billion in 1950, the region's population increased to 2.4 billion in 1975 and to around 3.7 billion today. Over the same time period, the urban population has increased

more than 5.5-fold from 244 million in 1950 to 1.38 billion today. Even more striking is the fact that the most recent UN projections show that over 1.25 billion additional people will be added to Asia's population by 2030, all of whom will be absorbed in urban areas. By 2015, 18 of the world's 80 largest urban agglomerations will be in Asia. By 2030, 54% of Asia's population is expected to be living in urban areas.

Given the diversity of experience within the continent with respect to the level of economic development and the degree of urbanization, it is useful to classify the various countries in the region according to their level of urbanization and economic development.

Many cities in Pacific Asia have experienced dramatic economic growth, reflecting the fact that the region is completely integrated into the new global economy. Cities on the forefront of global restructuring such as Hong Kong, Singapore, Seoul, and Taipei have enjoyed unprecedented growth rates of more than 10% per annum throughout the 1970s and early 1980s. All now rank among the top trading cities in the world and in fact, the level of GNP per capita in Hong Kong and Singapore exceeds that of many European countries. The experience of rapid urban transformation is now being repeated in the "new" Newly Industrializing Economies (NIEs) of Malaysia, Thailand, Indonesia, and the Philippines. Cities such as Jakarta and Bangkok are booming even though Indonesia would still be classified as a low-income country according to World Bank criteria, while Malaysia, Thailand, and the Philippines would be considered middle-income countries (World Bank, 2002).

At the national level, China is still a predominantly rural population with a level of GNP per capita that would place it in the lower-middle income range. Nevertheless, parts of China share many of the characteristics of other Pacific Asian economies. China's coastal region has witnessed incredibly rapid urban and industrial development since 1978 when the government departed from its previous policy of self-reliance and announced a new "open policy," designed to attract foreign investment and technology. Initially, foreign investment was limited to four Special Economic Zones (SEZs)—Shenzhen, Zhuhai, Xiamen, and Shantou—which were established as testing grounds for a more open, export-oriented development strategy. Gradually, other special zones have been established. The result has

been phenomenal economic growth for these zones and a massive increase in export-led foreign exchange earnings for the country as a whole (Yeung & Hu, 1992). In Shenzhen, for example, which was chosen as one of the four initial SEZs because of its close proximity to Hong Kong, the value of industrial output in 1987 was almost 70 times the value of industrial output in 1980, implying an annual rate of growth of 60% per annum (Wong, Cai, & Chen, 1992; Yeung & Chu, 1998). Similarly, Xiamen, located directly opposite the island of Taiwan, has enjoyed staggeringly rapid export-led growth and industrialization over the last 20 years, thanks in large part to strong ties with overseas Chinese that has resulted in an enormous influx of direct foreign investment into the zone (Yeung & Chu, 2000). Xiamen's GDP increased over 57-fold over 1980–97, implying an average rate of growth around 23% per annum (Howell, 2000). Similarly, coastal cities such as Dalian, Guangzhou, Qingdao, Shenzhen, Tianjin, and Xiamen have all undergone remarkable transformations over the last 20 years since the government's open policy began (see Yeung & Hu, 1992).

In Shanghai, the transformation is more recent but even more dramatic. Long the largest industrial city and the economic powerhouse of socialist China, Shanghai was one of the 14 cities designated open in 1984. Perhaps surprisingly, however, the city initially experienced relative modest growth compared with certain parts of Southern China, particularly Guangdong and Fujian (Yeung, 2000; Yeung & Sung, 1996). But, the pace of urban development in Shanghai increased sharply after 1990, when the central government announced the development of Pudong New Area, a large area of agricultural and marginal land east of the central city. For example, since 1991, the growth of foreign investment in the city has been tremendous. In 1985, Shanghai attracted US\$759 million of foreign investment. By 1996, this figure had increased to US\$15.14 billion (Wu, 2000). Consequently the city is now experiencing dramatic restructuring (see Wu, 2000; Wu & Yusuf, in press).

### (c) *South Asia*

For the most part, South Asian countries are more rural and have significantly lower levels of GDP per capita than other parts of Asia. Not surprisingly, therefore, the pace of urban change in the region has been relatively modest

and in fact it has been slower than the UN projected in the 1980s (Visaria & Visaria, 1995). Nevertheless, urbanization has still presented enormous urban management challenges for a region in which extreme poverty and deprivation are all too common and where current levels of basic physical infrastructure and urban services are extremely inadequate. Over the past 50 years, the region's urban population has grown by around 300 million people. In 1950, only 18% of the region's population—around 72 million people—lived in urban areas. But by 2000, 27% of the region—around 372 million people—resided in urban areas. The latest UN projections suggest that an additional half a billion people will be added to urban areas in South Asia over the next 30 years, presenting a daunting challenge for urban management.

As the region's population has become more urban, the number and size of the region's largest cities has increased. The region is home to five of the world's 30 largest cities: Mumbai, Calcutta, and Dehli (India), Dhaka (Bangladesh), and Karachi (Pakistan). By 2015, however, the UN Population Division estimates that the region will be home to seven of the world's 30 largest cities and three of the world's five largest urban agglomerations: Dehli, Dhaka, and Mumbai are all projected to grow to over 20 million people. But again, it is worth reinforcing that the majority of urban growth will take place in considerably smaller cities and towns.

The long-run benefits of increasing industrialization and urbanization should not deflect attention from the immediate problem of widespread poverty and deprivation. More than a quarter of a billion people in the region live in absolute poverty and the signs of extreme poverty and deprivation are extremely visible in all major cities. In Bombay, for example, despite many slum improvement schemes over the years, almost half of the population still lives either on the streets or in slums (Panwalkar, 1996).

As has been noted above, a particular feature of the process of urbanization in this region as well as in parts of East Asia is the way in which improved modes of transportation such as the bus and the scooter have extended the reach of urban areas and blurred the distinction between urban and rural lifestyles. In extended *desakota* zones surrounding the city, the majority of land remains under cultivation although non-farm jobs become an increasing important source of

employment and income (Ginsburg *et al.*, 1991).

#### (d) *Former Soviet republics*

Cities in former Soviet republics such as Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan in central Asia and Armenia, Azerbaijan, and Georgia in Western Asia have followed a somewhat different pattern. Until the collapse of the former Soviet Union, these countries operated under a centralized planned economy where government decisions rather than market forces determined the nature, scale, and spatial distribution of economic activities. Consequently, political, ideological, symbolic, social, military, and technical factors took on enormous, if not overriding significance (Kostinskiy, 2001). Differences in ideology and approach were most apparent in cities. For example, the lack of a market for land in cities, led to the growth of Soviet cities in concentric rings with vast amounts of unused land throughout the city (Becker & Morrison, 1999). The limited role permitted to private housing markets and private enterprise and the emphasis on large-scale housing estates brought a very different logic to the form and spatial distribution of cities in the former Soviet Union than those in the West (Harloe, 1996; UNHABITAT, 1996). In addition, there was a general tendency among Soviet policymakers to favor large-scale industrial production over the service or retail sectors and often industries were located in patterns that a market economy would not have produced. There was also a tendency to keep plants in production long after they would have been deemed unprofitable or too expensive in the West. Consequently, the collapse of the Soviet Union resulted in an unprecedented drop in output, rapid impoverishment of large sections of society, great uncertainty about the future, and a fundamental re-evaluation of the location, functioning, and organization of productive activity. These changes are most apparent in cities.

The end of the Cold War and the collapse of the Soviet Union has had enormous social, economic, and demographic consequences. During 1987–94, marriage rates in the newly independent states fell by between 25% and 50%, divorce rates in some newly independent states rose by 25%, birth rates fell by between 20% and 40%, and male life-expectancy fell by around six years (Becker & Hemley, 1998;

Cornia & Panicià, 1999). Death rates among middle-aged male adults rose dramatically, due to a large increase in cardiovascular disease, accidents, injuries and violent causes, and other preventable diseases such as tuberculosis, bronchitis, pneumonia, and dysentery (Becker & Bloom, 1998). In addition, the republics on the periphery of the former Soviet Union witnessed significant ethnic-based migration, partly as a response to deteriorating urban living conditions and economic and social stress and partly as a response to growing regional nationalism. In Kazakhstan, for example, 11% of the population emigrated out of the country during 1990–99 leading to deurbanization on aggregate (Musabek, Becker, Seitenova, & Urzhumova, 2001). A similar pattern of out-migration of Russians and other non-Kyrgyz ethnic groups has also been recorded in neighboring Kyrgyzstan in the years immediately following the break-up of the Soviet Union (Anderson & Becker, 2001).

(e) *North Africa and the Middle East*

The North Africa/Middle East region is home to some of the world's oldest cities. But while cities such as Alexandria, Baghdad, Damascus, and Jerusalem have all existed for thousands of years, the population of the region was predominantly rural until the second half of the 20th century. In 1950, only 27% of the region's 81 million people lived in urban areas. By 2000, both the absolute size and the spatial distribution of the population had changed rather dramatically. The total population of the region had grown to 307 million and the proportion urban had grown from 27% to 58% (Table 1). In absolute terms, the number of urban residents increased over eight-fold over a 50-year period, going from 22 million in 1950 to 177 million in 2000. The region's largest cities: Cairo, Istanbul, and Teheran, now contain more than seven million people and number among the largest urban agglomerations in the world. By 2030, the level of urbanization within the region is expected to be close to 70%.

There is probably less diversity with respect to the level of urbanization between countries in the North Africa and the Middle East region than between countries in other regions. The need for people in many parts of the region to have sufficient access to water combined with the rapid industrialization and high levels of international labor migration to oil-rich Gulf States has resulted in a situation whereby most

countries within the region are at least 50% urban and many countries such as Libya, Bahrain, Kuwait, Lebanon, Saudi Arabia, and Qatar are more than 85% urban. The one notable exception in the region is Yemen where only 25 of the population is urban. But, once again it is important to bear in mind that virtually every country in the region defines its urban population in a slightly different way, so strict crosscountry comparisons like this are highly problematic.

For many people, the Middle East conjures up an image of a region where politics, religion, and violence have become inextricably intertwined. But it is important to remember that there is a great deal of socioeconomic and political heterogeneity within the region. In fact, the region contains some of the least developed countries in the world together with some of the wealthiest. Similarly the region contains both very open societies together with politically and economically isolated societies. These differences have resulted in a wide array of urban problems throughout the region: from basic poverty alleviation to post-conflict reconstruction and rehabilitation. In Egypt, for example, rural-to-urban migration combined with rapid population growth has contributed to a proliferation of slums and an acute housing shortage in Cairo (Omran & Roudi, 1993). While in post-conflict Iraq, the main urban challenges have to do with establishing the infrastructure of urban government and other issues of rehabilitation and reconstruction.

(f) *Sub-Saharan Africa*

Sub-Saharan Africa has long been one of the least developed and least urbanized regions of the world with most sub-Saharan African economies still heavily dependent on subsistence agriculture. Nevertheless, the region has absorbed relatively high rates of urban growth over the past 50 years. In 1950, only 15% of the Africa population was living in towns or cities, compared with 17% in Asia or 41% in Latin America. By 2000, 38% of the region's population lived in urban areas, compared with 37% of Asia's population or 75% of Latin America's population. In absolute terms, Africa's urban population grew from 32 million in 1950 to 102 million in 1975 and to 295 million in 2000 (United Nations, 2002).

Most cities in Africa are small by international standards. Lagos is the only sub-Saharan African urban agglomeration to make the UN

list of the 30 largest urban agglomerations in the world. Kinshasa, with 5.1 million residents in 2000, is the only other African large urban agglomeration with more than five million residents although there are an additional couple of dozen cities in the region with between one and five million residents. This list includes Johannesburg, which the UN treats as a city with an estimated population of 2.3 million in 2000, whereas other estimates put the population of the Greater Johannesburg Metropolitan Region at around 7.3 million in 1996 (Crankshaw & Parnell, in press). Data problems are, in fact, a common problem in describing urban trends in the region. The data on Lagos are quite a good illustration of this point. With little reliable up-to-date data at their disposal when they were preparing the 1999 revision of *World Urbanization Prospects*, the UN estimated that the population of Lagos was going to be approximately 13.5 million in 2000 (United Nations, 2001). By the 2001 revision, this estimate was drastically reduced to 8.7 million (United Nations, 2002).

African fertility has started to fall (Cohen, 1998) and is expected to continue to fall substantially over the coming decades. Nevertheless, population momentum ensures that the total population of the region will continue to increase: from 784 million in 2000 to 1,489 million in 2030, at an annual growth rate of approximately 2.1% per annum. According to the latest UN projections, the urban population is expected to grow from 295 million in 2000 to 787 million in 2030, equivalent to an annual rate of change of 3.3% per annum (United Nations, 2002). According to these projections, sometime before 2025, African society will become predominantly urban. By 2030, 55% of the region's population will live in urban areas. But, given that many African countries count places with as few as 2,000 people as urban, it may be an exaggeration to use the terms "urban" and "city" synonymously in this case. Regardless, given that a large fraction of the Africa population will reside in small towns and cities in the near future, urban development planning for such communities should continue to be a top priority.

As elsewhere, understanding urban change in Africa requires consideration of the social, economic, and political history of the region. In Africa's case, the role of the colonial experience merits special consideration (Stren & Halfani, 2001). Colonialism, which in much of Africa, lasted from the late 19th century until at least

the early 1960s, influenced the structure and pattern of African urban growth in a number of different ways. Indeed, a number of today's more prominent African cities such as Abidjan, Johannesburg, and Nairobi simply did not exist prior to colonial rule. Rather, they were founded and developed during colonial times as centers of commerce and administrative activity. More generally, however, colonialism led to the formation of a new urban system that displaced traditional networks of trade and influence that had developed over many centuries. This new urban system reflected a colonial economic framework that emphasized the exploitation of Africa mineral resources, primary agricultural production (including plantations), and transportation and communications activities (Stren & Halfani, 2001). These new patterns of commerce and trade, in turn, led to heightened levels and new patterns of migration as Africans sought work in mines, plantations, or newly developing urban areas.

Colonial urbanization also affected the physical structure and layout of many cities. Perhaps the most obvious characteristic of colonial urban planning was the partitioning of urban space into two highly uneven zones: a "European" space that enjoyed a high level of urban infrastructure and services, and an "indigenous" space that was marginally serviced (Stren & Halfani, 2001). This relative indifference to the needs of the African majority was "a characteristic of urban planning that was rooted in the very fabric of the colonial state" (Stren & Halfani, 2001, p. 468).

Following independence, the population of many African cities grew rapidly, basically in the absence of significant industrialization. City growth was fueled both by high levels of national population growth and high spatial mobility. The availability of large numbers of jobs in a newly formed public sector plus better access to health and education services, and an urban bias in terms of trade between primary products and manufactured goods (e.g., government subsidies on bread) contributed to make urban life attractive.

Since the 1970s, urban growth in Africa has been most affected by the region's economic crisis. A current list of ailments include declining productivity in agriculture and industry, a lack of foreign exchange, increasing indebtedness, worsening balance-of-payments position, and declining real wages. In addition, in several countries the legacy of long civil wars, combined with years of economic mismanagement,

has generated massive and rapid population flows into cities and left economies teetering on the verge of collapse. As a consequence of these and other prolonged economic problems, many sub-Saharan African countries have been forced to implement stabilization and adjustment policies, often under the auspices of the International Monetary Fund (IMF). These policies have caused considerable social and economic stress, particularly to urban residents.

The essential feature of current Africa urbanization, however, is that, unlike cities in much of Asia and Latin America, African cities are economically marginalized in the new global economy. African cities are growing despite poor macroeconomic performance and without significant direct foreign investment making it next to impossible for urban authorities to provide low-income housing, high-quality urban services, or sufficient employment.

## 5. THE ACCURACY OF PAST URBAN PROJECTIONS

As cities grow and evolve, managing them becomes increasingly complex. Probably the single most important output that urban planners and policymakers want from demographers is accurate and reliable forecasts of future urban growth. Most publications that discuss future urban change predict both that urbanization in developing countries will continue more or less unchecked and that large urban agglomerations will continue to grow to extraordinary heights far into the future. But this assumption has produced some fairly spectacular errors in the past. For example, in 1980, the population of Mexico City was estimated to be around 11.9 million. Given that it was growing very rapidly—around 5.5% per annum at the time—demographers predicted that by 2000, the population of Mexico City would be around 31 million. Fortunately, this never happened. Today, the population of Mexico City is around 18.1 million, nowhere near the 1980 projection. More generally, however, the scale of urban growth in the developing world is significantly less than what was predicted 20 years ago: the 1999 projection of the urban population at 2000 is 12.4% less than the 1980 projection. So, how much confidence should one place on current UN forecasts of future urban growth? Of course, no one knows the future with any certainty. But given

that the basic methodology for projecting urban populations has remained more or less the same for the past 20 years, demographers can say something about the expected accuracy of the most recent urban projections by examining the average error of past forecasts (Keyfitz, 1981).

Table 4 reports mean percentage errors (MPEs) and mean absolute percentage errors (MAPEs) for 169 countries and territories whose boundaries have not changed substantially over the past 20 years (i.e., it excludes countries in the former Soviet Union). The MPE can be either positive—indicating that projections were consistently too high—or negative—indicating that they were consistently too low. As such, the MPE offers a measure of bias. By contrast, the MAPE is always positive and is usually taken to be a measure of imprecision.

The high occurrence of positive values in the first three columns of the table indicates that urban projections have been more often too high than too low. This is partly attributed to the fact that fertility has declined in many places more rapidly than was expected. At the global level, forecasts of the urban population in 2000 made 20 years ago were approximately 14% too high, forecasts made 10 years ago were approximately 17% too high, and forecasts made five years ago were nearly perfect, a fortunate result that is due to roughly equal numbers of high and low errors calculating each other out. This pattern is almost as one might expect a priori, because projections typically are better the shorter the time interval. The abnormality in this series can be explained entirely by the inclusion of China in the calculations. Urbanization trends in China, which is home to 30% of the urban population of Asia, have fluctuated greatly over the years. These fluctuations stem both from historical events such as the cultural revolution and its aftermath that retarded or even reversed urbanization in China at certain points of time and from the fact that the official criteria to determine cities and towns has changed several times since 1983 making it difficult to determine urban trends in China since 1980 (Lin, 2002; Zhang & Zhao, 1998). When the Chinese data are removed a more consistent pattern is revealed with shorter time periods associated with more accurate projections.

Table 4 also shows that there has been considerable diversity in the quality of urban projections by geographic region, level of economic



Table 4. Mean percentage error (MPE) and mean absolute percentage error (MAPE) in urban population projections for the year 2000, by length of forecast, region, level of development, and size of country<sup>a</sup>

|                             | MPE <sup>b</sup>      |                       |                      | MAPE <sup>c</sup> |          |         |
|-----------------------------|-----------------------|-----------------------|----------------------|-------------------|----------|---------|
|                             | 20 years <sup>d</sup> | 10 years <sup>e</sup> | 5 years <sup>f</sup> | 20 years          | 10 years | 5 years |
| <i>Region</i>               |                       |                       |                      |                   |          |         |
| East Asia + Pacific         | 0.039 <sup>g</sup>    | 0.267                 | -0.028               | 0.113             | 0.289    | 0.043   |
| EAP excluding China         | 0.184                 | 0.098                 | -0.004               | 0.295             | 0.166    | 0.053   |
| Europe                      | 0.140                 | 0.13                  | 0.088                | 0.140             | 0.130    | 0.088   |
| Latin America + Caribbean   | 0.198                 | 0.054                 | -0.009               | 0.226             | 0.075    | 0.021   |
| Middle East + North Africa  | 0.133                 | 0.068                 | 0.085                | 0.245             | 0.123    | 0.105   |
| South Asia                  | 0.272                 | 0.197                 | 0.027                | 0.291             | 0.197    | 0.070   |
| Sub-Saharan Africa          | 0.218                 | 0.234                 | 0.055                | 0.382             | 0.274    | 0.097   |
| OECD                        | 0.068                 | -0.024                | -0.018               | 0.110             | 0.048    | 0.020   |
| Other high-income           | -0.183                | -0.102                | -0.056               | 0.334             | 0.199    | 0.072   |
| <i>Level of development</i> |                       |                       |                      |                   |          |         |
| Low                         | 0.231                 | 0.183                 | 0.032                | 0.312             | 0.199    | 0.080   |
| Lower middle                | 0.069                 | 0.261                 | -0.013               | 0.115             | 0.283    | 0.049   |
| LMI excluding China         | 0.256                 | 0.099                 | 0.037                | 0.279             | 0.161    | 0.066   |
| Upper middle                | 0.128                 | 0.089                 | 0.008                | 0.199             | 0.115    | 0.026   |
| High                        | 0.060                 | -0.027                | -0.019               | 0.117             | 0.053    | 0.022   |
| <i>Size of country</i>      |                       |                       |                      |                   |          |         |
| 0-2 million                 | 0.074                 | 0.063                 | 0.030                | 0.528             | 0.268    | 0.169   |
| 2-10 million                | 0.120                 | 0.098                 | 0.019                | 0.282             | 0.199    | 0.082   |
| 10-50 million               | 0.216                 | 0.108                 | 0.027                | 0.329             | 0.163    | 0.070   |
| 50+ million                 | 0.124                 | 0.192                 | 0.001                | 0.168             | 0.208    | 0.049   |
| 50+ million excluding China | 0.189                 | 0.126                 | 0.018                | 0.227             | 0.149    | 0.054   |
| <i>World</i>                |                       |                       |                      |                   |          |         |
| World                       | 0.141                 | 0.171                 | 0.007                | 0.206             | 0.199    | 0.055   |
| Excluding China             | 0.190                 | 0.120                 | 0.020                | 0.257             | 0.156    | 0.060   |

<sup>a</sup> Based on sample of 169 countries and territories whose boundaries have not changed substantially over the last 20 years. Excludes former Soviet Union.

<sup>b</sup> MPE = mean percentage error. Positive error associated with projections being too high and negative error with projections being too low.

<sup>c</sup> MAPE = mean absolute percentage error.

<sup>d</sup> 20-Year comparison based on comparing projections for the year 2000 in United Nations (1980) with "actual" data in United Nations (2001).

<sup>e</sup> 10-Year comparison based on comparing projections for the year 2000 in United Nations (1991) with "actual" data in United Nations (2001).

<sup>f</sup> 5-Year comparison based on comparing projections for the year 2000 in United Nations (1998) with "actual" data in United Nations (2001).

<sup>g</sup> All figures are weighted by population size.

development, and size of country. On average, the UN urban projections have been most reliable for OECD and least reliable for countries in sub-Saharan Africa and for other high-income countries, many of which are quite small. UN projections also tend to be better for larger countries than for smaller countries, probably because they receive more attention.

The conclusion is that projections must be treated with a good deal of caution, especially if

one is interested in going down to the country or even city-level. Typically, projections at higher levels of aggregation are slightly more reliable because regional-level data benefit to a certain extent from the crosscancellation of individual country-level errors. Nevertheless, even for some regions, the future is highly uncertain. For example, the UN predicts that by around 2025, the African continent will be transformed into a predominantly urban society.

This is based on little more than the simple extrapolation of the current trend, which may or may not be a good guide for the future. To a certain extent, current levels of urbanization in Africa can be attributed to factors other than rising industrialization (e.g., the need to establish various public service institutions following independence). Given the historical connection between industrialization and urbanization, continued urbanization in Africa may only be possible if there is a sharp increase in economic development. Given the corruption, political instability, and limited amount of skilled labor in many countries, it may be extremely difficult for African countries to attract the level of foreign direct investment necessary to propel them into the 21st century.

Given that there is good reason to question the plausibility of some aspects of the UN forecasts, it is unfortunate that there is no real discussion of uncertainty in the most recent revision of *World Urbanization Prospects*. This is in stark contrast to when the first UN report on urban population statistics (United Nations, 1969), which was extremely clear on this point. Over the years, as the production of the report has become routine, the original cautionary language has disappeared (National Research Council, 2003).

## 6. CONCLUSIONS

In an increasingly urban world, almost half the world's total population and over three-quarters of the population of high-income countries live in urban areas. At the beginning of the 20th century, there were just 16 cities in the world that contained at least a million people, the vast majority of which were in advanced industrial economies. Today, there are more than 400 cities around the world that contain more than a million residents, about three-quarters of which are in low- and middle-income countries. Furthermore, rural economies and lifestyles are becoming increasingly urban in nature as the proportion of the labor force working in nonagricultural activities rises.

Globalization and the desire to make cities competitive on a global stage have become the principal forces driving urban economic development throughout much of the world. The dramatic increase in the mobility of capital, the telecommunications revolution, and political changes have altered the nature and speed of urban economic growth both between and

within cities. Countries are industrializing rapidly, especially in Pacific Asia, while advanced economies are shifting out of manufacturing toward finance, specialized services, and information handling. These forces are forcing countries—and indeed individual cities—to redefine their comparative advantage and to be competitive in the global marketplace (Yeung, 2001).

The UN predicts that virtually all of the world's population growth for the foreseeable future is projected to occur in urban areas. In Africa, Asia, and Latin America alike, population growth will become largely an urban phenomenon. By 2030, almost 60% of the population of low- and middle-income countries will live in urban areas. In the long run, this is good news. But the challenge over the next 30 years will be to take full advantage of the potential benefits of urbanization in an inclusive way while lessening the obvious potential negative sequelae. How well local authorities are able to respond to this challenge will shape patterns of regional and national development, as well as the social and political stability of many countries. Of particular concern to many commentators is the absolute scale of urban change that will be faced in the world's poorest countries. Most of this growth will not occur in primary cities but in smaller secondary cities and towns where poverty rates are higher and where existing coverage of basic public services is far from comprehensive (National Research Council, 2003).

There is considerable uncertainty surrounding the scale and pace of future urban growth. Certainly the fact that the scale of urban growth in the developing world is significantly less than what was predicted 20 years ago should warn us to treat current projections carefully. Nevertheless, despite all the problems of error and inaccuracy and the long-standing definitional problems that have never been overcome, it is clear that the world is still in the midst of a sweeping and profound urban transformation that is literally changing the face of the planet. It is not simply that a greater proportion of people are living in cities or all sizes, but also that there is far greater regional and global integration than ever before. There has also been a general convergence in lifestyles between urban and rural areas as distance and time have collapsed. Consequently, the traditional distinction between urban and rural areas has become insufficient for many purposes and an enormous challenge for the social

sciences is to come up with a classification system that adequately represents present day spatial realities. This work is now underway (see, for example, Hugo *et al.*, 2001).

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