






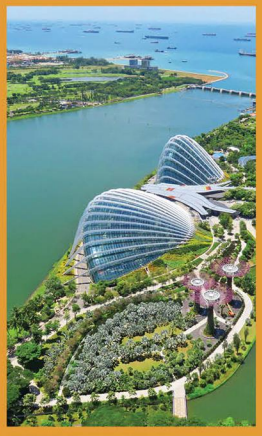

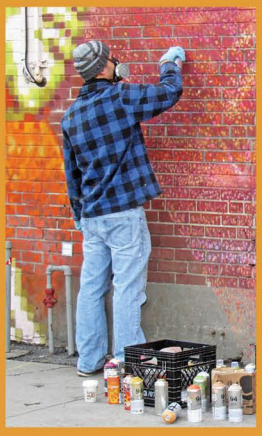
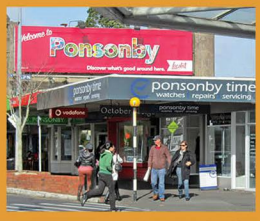


CITIES OF THE WORLD

REGIONAL PATTERNS AND URBAN ENVIRONMENTS

Edited by Stanley D. Brunn, Donald J. Zeigler, Maureen Hays-Mitchell, and Jessica K. Graybill

SEVENTH EDITION

Cities of the World

Regional Patterns and Urban Environments

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Cities of the World, Seventh Edition, is dedicated to
Stanley D. Brunn,
geographer extraordinaire, who has
richly earned the title Editor Emeritus for his
imaginative leadership in launching the first edition
of *Cities of the World* in 1982, for his friendship to
the editors and authors of all editions, for his steady
hand in guiding five revisions of the book, and for the
inspiration he provided for this, the seventh edition.

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Preface

Cities of the World has become a staple of urban geography and urban studies courses that emphasize international perspectives on the city. With each edition, the popularity of the book has swelled, and its use has expanded into courses beyond geography—urban and regional planning, global affairs, anthropology, sociology, history, and economics—at both the undergraduate and graduate levels.

This, the seventh edition of *Cities of the World*, continues the traditions of previous editions in that it calls on teams of regional experts to explain and interpret cities in their parts of the world using geography's twin perspectives: the perspective of space and the perspective of human–environment relationships. Accordingly, each regional team has provided a historical perspective on urban growth and development, profiles of key cities in each region, models that help us think more clearly about a city's internal structure, and discussions of problems and challenges—for city residents, planners, and policymakers—looming on the horizon. However, with new and renewed emphasis on climate change and international migration, the seventh edition also stakes out new territory. And, we continue to present a full-color version of urban geography by including copious graphics and well over one hundred photographs documenting the life and landscapes of over one hundred cities, including two-thirds of the world's megacities.

All thirteen chapters in this seventh edition have been substantially revised and some introduce new author teams, whom we welcome warmly. They bring fresh perspectives and expertise to the project. Most authors have conducted extensive fieldwork in their region and also travelled extensively in both rural and urban areas, and many have lived long-term in their region. The organization of this edition is similar to the previous six. The "book end" chapters explore contemporary world urbanization (chapter 1) and the future of cities (chapter 13). The remaining eleven chapters are devoted to urbanization and cities in major world regions. Each chapter begins with two facing pages; on the left side, a regional map that shows the major cities and, on the right, a table of basic statistical information about cities and urbanization in each region and a list of ten salient points about that region's urban experience are provided. All chapters conclude with a list of resources that can be used by the student and instructor for additional information about cities in that region or specific cities.

We owe a debt of gratitude to many individuals who have played major roles in helping this seventh edition see the light of day. We thank all chapter authors for providing timely, insightful, and well-written chapters, and we thank Alexis Ellis for her valuable cartographic contribution. Susan McEachern of Rowman

and Littlefield has provided long-standing support for this volume and previous ones. Her eye for detail, continuity, and change is unmatched. Susan's team at Rowman and Littlefield worked to ensure the high quality of this edition, and we thank them for their commitment, timely support, and attention to detail throughout the process. Finally, we thank our families whose enthusiastic and selfless support made this project enjoyable and possible.

As always, we welcome feedback from students and teachers on ways to ensure that subsequent editions will make learning about the world's cities and global urbanization more useful, appealing, challenging, and rewarding. We hope you enjoy this latest edition.

Stanley D. Brunn
Donald J. Zeigler
Maureen Hays-Mitchell
Jessica K. Graybill

Cities of the World

Regional Patterns and Urban Environments

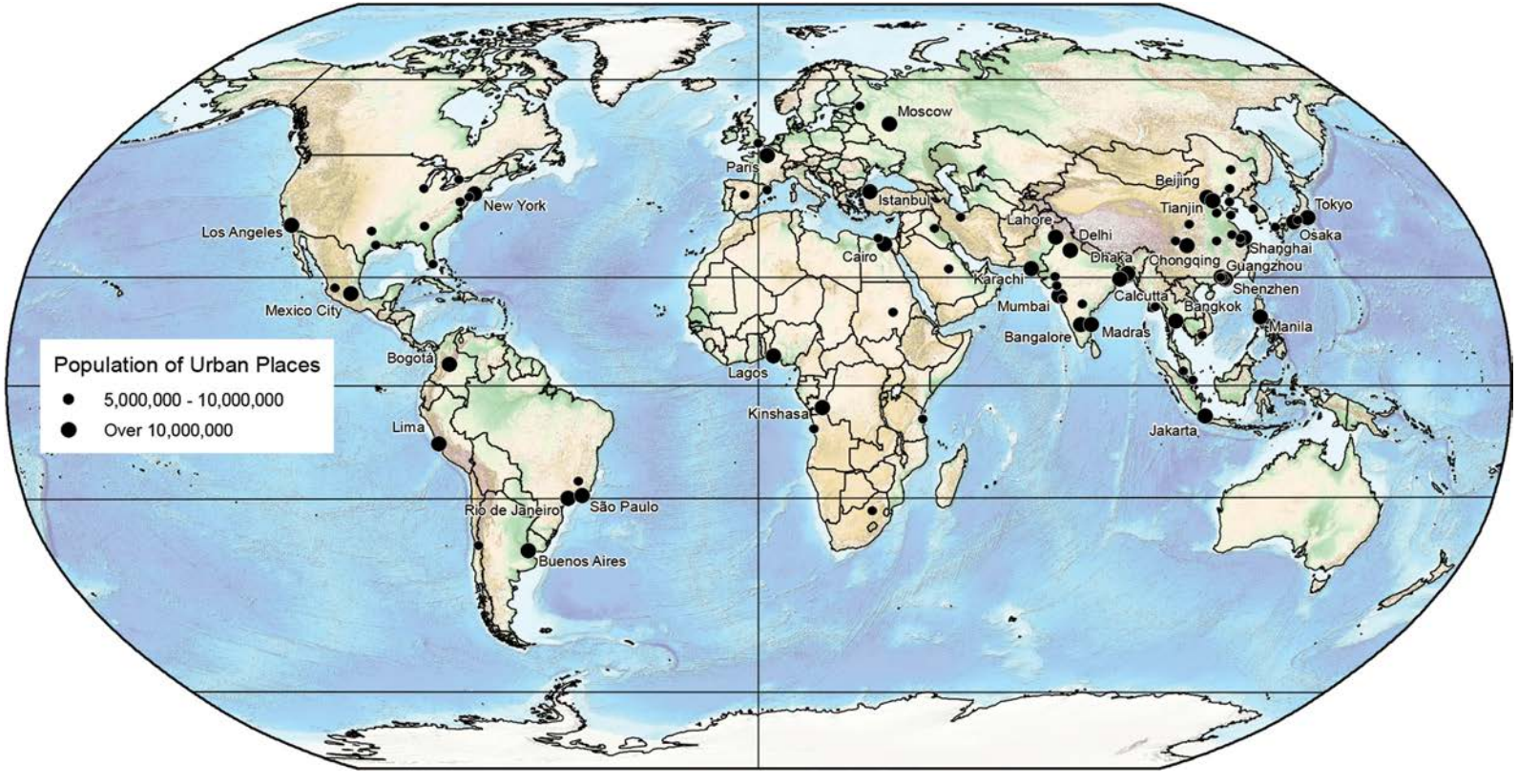

Figure 1.1 Major Urban Agglomerations of the World. *Source:* United Nations, Department of Economic and Social Affairs, Population Division, World Urbanization Prospects: 2018 Revision.

1

World Urban Development

JESSICA K. GRAYBILL, MAUREEN HAYS-MITCHELL, AND DONALD J. ZEIGLER

KEY URBAN FACTS

Total World Population	7.6 billion
Percent Urban	55%
Total Urban Population	4.2 billion
Countries 100% Urbanized	Europe: Monaco, Vatican City Americas: Antigua and Barbuda Asia/Pacific: Singapore, Nauru Middle East: Kuwait
Countries Less Than 15% Urbanized	Burundi (13%), Papua New Guinea, (13%), Liechtenstein (14%)
Annual Urban Growth Rate (2015–2020)	1.9%
Number of Metacities (>20 million)	9
Number of Megacities (>10 million)	34
Countries with Most Urban Agglomerations over 300,000 population	China (423), India (180), United States (126)
Urban Agglomeration with Highest Density	Dhaka (106,300/sq. mi., 41,000/sq km)
Largest Metacities (>20 million)	Tokyo (37 m), Delhi (30 m), Shanghai (27 m), São Paulo (22 m), Mexico City (22 million)
World Cities	55 Alpha-class cities 80 Beta-class cities 77 Gamma-class cities
Global Cities (Alpha++)	London, New York

KEY CHAPTER THEMES

1. The world's population is growing rapidly, but the world's urban population is growing four times as fast.
2. In 2007, Earth became a majority-urban planet, yet the proportion of people living in cities varies widely from 13 percent in Burundi to 100 percent in Singapore.
3. The scale of urbanization is increasing as evidenced by the emergence of megacities, metacities, conurbations, and megalopolises around the world.
4. Some countries' patterns of urbanization follow the rank-size rule, while other countries are characterized by urban primacy or dual primacy.
5. The evolution of cities is best understood as a three-stage process: preindustrial cities, industrial cities, and postindustrial cities.
6. Cities are usually classified by function as market centers, transportation centers, or specialized service centers.
7. Four classic models have been proposed to explain the spatial organization of land uses within cities: concentric zone model, sector model, multiple nuclei model, and inverse concentric zone model.
8. Urban management issues revolve around the environment, population, urban services, race and ethnicity, housing, employment, privacy, governance, and globalization, among others.
9. As people worldwide continue to migrate for multiple reasons, including labor and fleeing uncertain futures in their home countries, addressing human rights and sustainable development challenges will be increasingly concentrated in cities.
10. Anthropogenic climate change is increasingly a factor in urban environmental issues, causing increased urban heat island effects and higher probabilities of extreme weather events that can impact densely populated areas in disastrous ways.

Comparing maps of the world from 2020 and 1900 would show two features that have become strikingly different over time and space: proliferation of independent nations and burgeoning numbers and sizes of cities. One hundred twenty years ago, about a dozen major empires divided the world; today, there are 195 independent countries, most carved out of previous empires. Likewise, a century ago, the number of the world's major cities was small and concentrated in the industrialized countries of Europe, North America, and Japan. Today, the greatest numbers of cities, and the largest cities, are found in former colonial regions of the Global South and in China (Figure 1.1). Around the year 1800, perhaps 3 percent of the global population lived in urban places of 5,000 people or more. By 1900 more than 13 percent did, and by 2000 this percentage skyrocketed to over 47 percent. In 2007, for the first time in human history, over half of Earth's human population made the ***city*** their home, and today Earth's inhabitants are 55 percent urban dwellers. The rapid pace of ***urbanization*** is accompanied by globalization and the creation of ***world cities***,

the outcome of technological advances in transportation and communication. It is important to understand why and how individual cities connect with other cities worldwide. Our global urban habitat is increasingly connected by the flows of people, goods, services, and capital that unite cities, people, and environments across time and space. Urban institutions drive globalization, the hallmark of twenty-first-century economic geography.

Yet, our urban planet also pulsates with problems at the human-nature interface (Figure 1.2). They range from local concerns about air quality to regional problems of water quality and quantity to global environmental change caused increasingly by human-induced, or anthropogenic, climate change. Some physical effects of climate change include rising average global temperatures, rising sea levels and associated coastal erosion, and changes to the global hydrosphere-atmosphere circulation patterns that impact the locations and frequencies of weather events like hurricanes, droughts, or floods. Impacts of climate change on human populations and cities include all of the physical effects and impacts on human lives and infrastructure supporting the built environment, such as increased heat waves and urban heat island effects; increased possibility of damage to homes due to erosion or

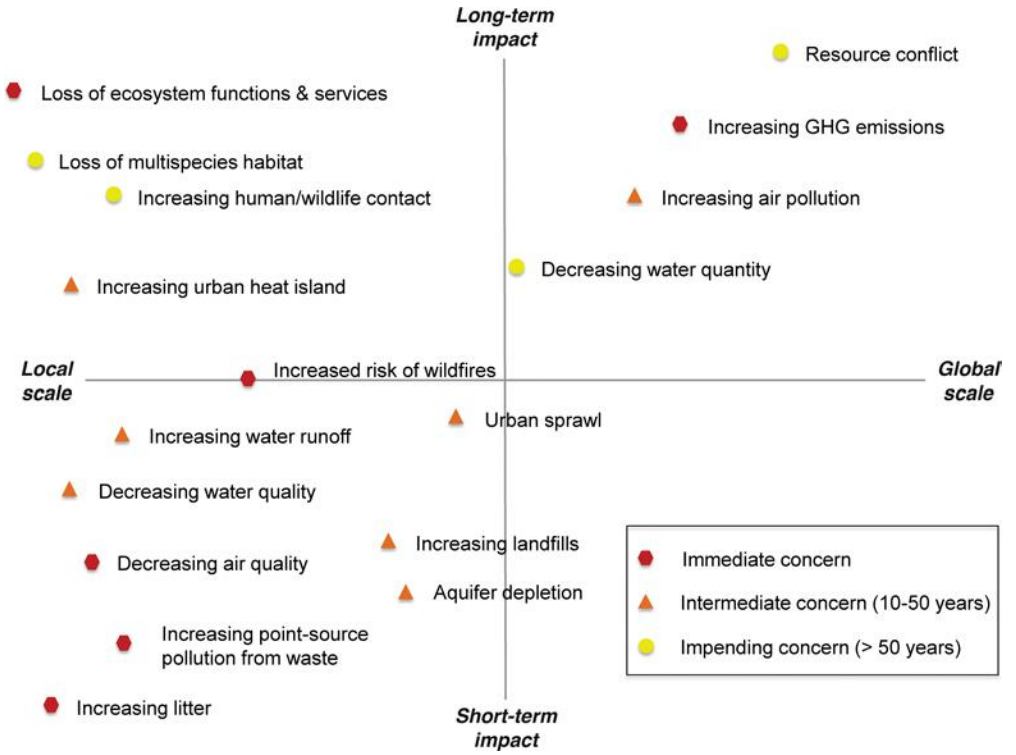

Figure 1.2 Urban Environmental Risks. This diagram indicates the generalized, possible risks and concerns for the environment of urban and urbanizing places at (i) local, regional, and global scales and (ii) across short- and long-term time horizons. Because individual places will experience a different suite of environmental concerns, this diagram is intended to pique discussion of possible urban environmental changes. *Source:* Jessica Graybill.

flooding; and increased air pollution, which affects people with asthma, allergies, and other health conditions. Chicago, for instance, is already planting more shade trees, choosing species that will thrive in a warmer climate. In 2014, in anticipation of warmer school days, Chicago installed air conditioning in schools for the first time.

Due to the interconnectedness of human and natural systems and the fact that over half of Earth's population is choosing to live in cities, urban problems must be approached on multiple scales and by many kinds of scholars. Climate change is transforming environments worldwide, albeit differentially, and the human consequences of climate change are beginning to be noticed in some cities and regions, as people who are affected by extreme weather events in their home regions are choosing to migrate to other places, often cities, where they will not experience, for example, drought, flooding, or loss of homes. While scientists acknowledge the existence of anthropogenic climate change and scholars conduct research to understand how it will affect humans and ecosystems, there is not yet a formal definition of an environmental migrant—sometimes called a climate refugee—meaning there is not recognition of this status or protection for it under international law (Box 1.1).

Worldwide urbanization has dramatic, revolutionary implications for the history of civilization—as dramatic as were earlier agricultural and industrial revolutions. In the industrial countries of Europe, North America, and Australia as well as parts of Asia—the Global North—urbanization accompanied and was the consequence of industrialization. Although far from being utopian, cities in those regions brought previously unimagined prosperity and longevity to millions. Industrial and economic growth combined with rapid urbanization to produce a demographic transformation that decreased population growth and enabled cities to expand apace with economic development. In Latin America, Africa, and most of Asia—the Global South—urbanization has occurred only partially due to industrial and economic growth. Here, it is primarily a result of rising expectations by rural people who migrate to cities for better lives and economic opportunities. This rush to the cities, unaccompanied until very recently by significant declines in natural population growth, has resulted in the explosion of urban places in the Global South.

Although there are exceptions, most notably in South America where urbanization levels are high, most highly urbanized nations experience high standards of living. However, even in the Global North, where life for most urban residents is incomparably better than for those living in the cities of Global South, there are serious concerns about the future of the city. For example, what is the optimal city size? What should be the role of the ***capital city***? Are cities getting too large to provide effective administration and humane and uplifting urban environments? Is the growth of ***megacities*** and ***metacities*** unmanageable? Will the ***megalopolis*** or ***conurbation*** become the norm for the twenty-first century? What will be the impact of ever-expanding ***urban agglomerations*** on human society; life-sustaining environmental systems that provide water, food, and multispecies habitats; resource development; and governments facing increased social disparities, cultural pluralism, and diversity of political expression? Will migration of millions of people from places experiencing conflict and violence into cities alter how urban governments and residents respond to population growth and increased multiculturalism? Can the

Box 1.1 Who Is a Climate Refugee?

Jessica Graybill, Colgate University

Climate refugees, sometimes called environmental migrants, are people who have been forced to leave their homeland because of drastic environmental change. For example, floods, droughts, sea-level rise and coastal erosion, and desertification are all examples of either catastrophic weather events or longer-term changes in the physical environment that make a geographic region impossible to continue living in. Environmental migrants might remain in their home countries when fleeing environmental problems, or they might cross international borders.

An example of environmental migrants remaining in their home country is the Dust Bowl migrations in the 1930s in the United States. At that time, many farmers and town residents fled the human-created droughts (from poor farming practices) in the Midwest for other places, especially the western United States where the land was still relatively undeveloped and they could easily join or even create new communities. Another example is flooding in Bangladesh today, where coastal villages are devastated by increased flooding and typhoons, ostensibly due to anthropogenic climate change, and village residents choose to migrate to cities far from the coastline, often working in low-paying jobs and living in substandard conditions to survive.

Some environmental migrants cross international borders to find relief from environmental change. For residents of Pacific Islands that are disappearing underwater due to sea-level rise, such as the Republic of Kiribati in the Pacific Ocean, there is no other choice but to emigrate, often going to nearby countries in Pacific Asia. In Central America, multiple climate stressors—sea-level rise, intensified drought or rainfall, and increasingly frequent and stronger hurricanes—add to already existing societal stressors that lead people to migrate from their home countries. In this situation, Mexico and the United States are already becoming migration "hotspots" for environmental migrants from Central America.

What is interesting in this current time period that is increasingly being defined by anthropogenic (human-induced) climate changes—sometimes called the Anthropocene—is that there is no formal recognition of people as climate refugees. With no formal recognition, there is no legal definition, meaning that climate refugees cannot be assisted under international refugee law, which has a specific focus on assisting people who are being persecuted for reasons of race, religion, nationality, membership in a social group, or political opinion. The environment, under this law, is not a persecuting agent.

It is unknown how many migrants have moved due to climate stressors in the past, and it is unknown for the future as well. The lack of reliable estimate stems from a lack of knowledge of the exact reasons that people migrate and a lack of official figures regarding migration within individual countries. When people migrate for more than one reason, it is

difficult to establish a causal link between human mobility and environmental change. One thing that geographers hope to better understand is the link between outmigration from rural areas into urban areas due to climate stressors, such as the previous example from Bangladesh. Regardless of the numbers or the exact definition of a climate refugee, people are moving because of climate stressors and changing weather patterns, and in most cases, people will adapt to climate stressors by migrating.

sustainable city movement improve health and well-being for all of Earth's inhabitants, especially as anthropogenic climate change brings environmental change to many cities? How does the rise of ***urbanism*** create new understandings, uses of, and desires for nature by humanity?

THE WORLD URBAN SYSTEM: PROSPECTS UNTIL 2050

In 1800, the world stood on the brink of 1 billion inhabitants. In only 130 years, humanity added a second billion, and in only eleven years, the seventh billion was added. Although the world's population increased about three times from 1950 to 2020, the world's urban population increased almost 6 times (Figure 1.3). Twenty years into the twenty-first century, world human population is approaching 8 billion, and over half live in urban settings. This exponential growth of human population and the rise of cities as the dominant human habitat changes both urban and rural places but at different rates in different places worldwide.

Economics, trade, culture, religion, and environment are just a few of the linkages that connect cities worldwide. ***Urban landscapes*** are also connected to nonurban people, places, and phenomena that impact the city, its growth (or decline), and the health and well-being

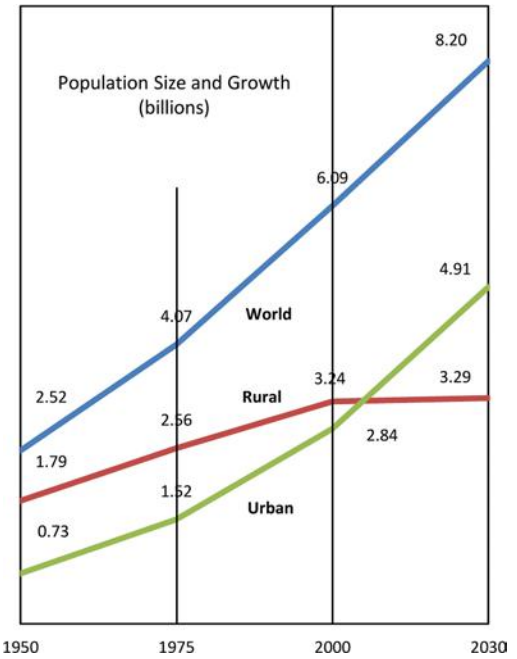

Figure 1.3 Growth of World and Urban Population, 1950–2030. *Source:* United Nations, Department of Economic and Social Affairs, Population Division, World Urbanization Prospects: 2005 Revision.

of urban residents. The world urban system, then, describes people and their economic, social, cultural, and environmental activities that connect urban people and phenomena from local to global scales. Some of the most important trends in our current world urban system are related to continued human population growth and spatial distribution.

The United Nations *World Urbanization Prospects* (2018) provides a valuable overview of urbanization trends for the next several decades. Overall world urban population is expected to increase by 67 percent by 2050, from 4.2 billion in 2018 to 6.3 billion in 2050. Virtually all of the expected growth in the world's population will be concentrated in the ***urban areas*** of the Global South, especially Asia and Africa. Nevertheless, the rate of growth of the world urban population is slowing down. From 2025 to 2050, the urban growth rate is expected to decline to 1.3 percent per year. While urban population will increase, world rural population is expected to reach a maximum of 3.4 billion in 2020 and slowly decline thereafter, decreasing to 3.1 billion in 2050. These global trends are driven mostly by the dynamics of rural population growth in the Global South. But, the sustained increase of the urban population, combined with the pronounced deceleration of rural population growth, will result in an increasing proportion of the population living in urban areas. Globally, the level of urbanization is expected to rise from 55 percent in 2018 to 68 percent in 2050.

Among cities of different sizes, the world urban population is not distributed evenly. Over half of the world's urban dwellers live in cities or towns with fewer than half a million inhabitants. The greatest numbers of people live in cities with less than one million people, but the phenomenon of the ***megacity*** is increasing worldwide. There are 34 mega-cities worldwide, each with at least 10 million inhabitants, accounting for 13 percent of the world urban population. The number of megacities is projected to increase to 41 by 2030.

Until 1975, just three megacities existed worldwide: New York, Tokyo, and Mexico City. Today, Asia has 20 megacities, North and South America have 8, and Africa and Europe have 3 each. Tokyo, the capital of Japan, is the world's most populous urban agglomeration, comprised of Tokyo and 87 surrounding cities and towns. If it were a country, it would rank thirty-fifth in population size, at 37.4 million inhabitants. Tokyo now qualifies as a ***metacity*** according to the United Nations description for urban agglomerations with more than 20 million inhabitants. Following Tokyo, the next largest urban agglomerations are Delhi, Shanghai, São Paulo, Mexico City, Dhaka, Cairo, Beijing, and Mumbai. New York–Newark and Los Angeles are the largest urban agglomerations in the United States, with approximately 19 million inhabitants each. In 2025, the world's most populous urban agglomeration will still be Tokyo, with 38 million inhabitants, although its population will scarcely increase. Delhi, India, is projected to be the most populous urban agglomeration by 2028 with 37 million inhabitants. Megacities are experiencing very different rates of population change than other kinds of cities. Generally, their rate of growth is slow, at less than 1 percent per year. Megacities exhibiting these slow rates of growth include all those located in the Global North and the four megacities in Latin America.

Outdone only by the metacity, megacities represent the extreme of the distribution of cities by population size (Figure 1.4). They are followed by large cities with populations from 5 million to just under 10 million, which in 2019 numbered 50 and are expected to number 65 in 2030. Three quarters of these "megacities in waiting," which house 8 percent of the world's population, are located in the Global South. Cities with more than one million inhabitants but fewer than 5 million

Figure 1.4 With iconic Moscow looming on the horizon, including colorful St. Basil's, a summer stage fills up with modern Muscovites intent on getting the most out of yoga. *Source:* Photo by Jessica Graybill.

are numerous, and every fifth person, statistically, lives in a medium-sized city. Smaller cities, with populations from 500,000 to one million inhabitants, are even more numerous and account for about 10 percent of the overall urban population. The number of these cities is expected to decrease in the next couple of decades to house just under half of the world's urban population.

Historically, the process of rapid urbanization started first in what is today the Global North. In 1920, just less than 30 percent of the Global North was urban, and by 1950, more than half of its population was living in urban areas. In 2020, high levels of urbanization, surpassing 80 percent, characterized Australia, New Zealand, the United States, and Canada. Europe, with 73 percent of its population living in urban areas, is the least urbanized region in the Global North.

The Global South had a higher percentage of its population living in urban areas in both 1950 and 2010. In absolute numbers, however, there were more urban dwellers in the Global North in 1950; by the end of the century this had changed (Table 1.1). Unfortunately, urban development has not kept up with urban growth throughout Middle and South America, Africa, the Middle East, and much of Asia. Latin America and the Caribbean, for instance, have caught up to the Global North in degree of urbanization, but economic development, health care, and education lag. Poor housing quality is a striking characteristic in these regions, standing in stark contrast to cities in the Global North. Sub-Saharan Africa remains the least urbanized and the least developed region in the world. Latin America's urban explosion may be over, but

Table 1.1 Urban Patterns: Global North and Global South (in thousands)

	World pop (2018)	*Global North*	*Global South*
Urban	4,219,817	993,837	3,225,980
Rural	3,413,002	269,363	3,143,639
TOTAL	7,632,819	1,263,200	6,369,619
	World pop. 2050 projected		
Urban	6,338,611	1,113,500	5,225,111
Rural	3,212,333	189,610	3,022,723
TOTAL	9,550,944	1,303,110	8,247,834

Source: United Nations, Department of Economic and Social Affairs, Population Division, World Urbanization Prospects: 2018 Revision.

in Africa, India, and China, the urban population explosion continues. Only in 2010 did China reach urban majority status, and it is expected to gain momentum as the century proceeds.

While increases in urban population have been felt worldwide, the pace of urban change is most dramatic in the Global South (Figure 1.5). Latin America and the Caribbean have an exceptionally high level of urbanization, higher than that of Europe. Africa and Asia, in contrast, remain mostly rural, with 40 percent and 42 percent, respectively, of their populations living in urban areas. By mid-century, Africa and Asia are expected

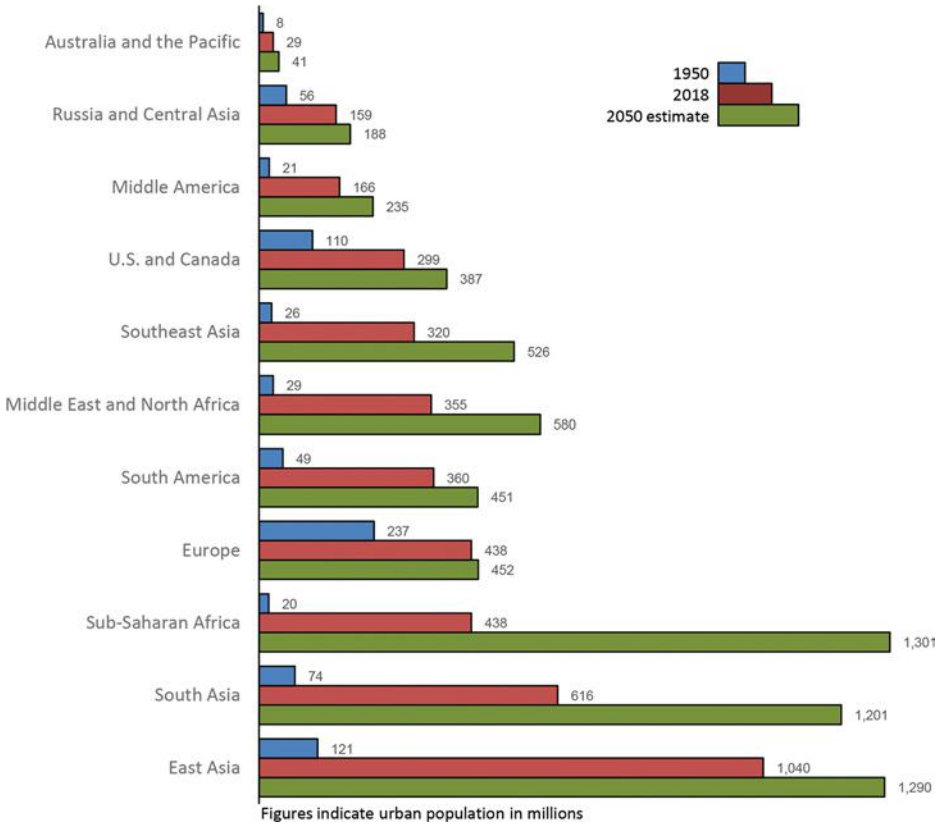

Figure 1.5 Urban Population of World Regions, 1950, 2018, 2050. *Source:* United Nations, Department of Economic and Social Affairs, Population Division, World Urbanization Prospects: 2018 Revision.

still to have lower levels of urbanization than other world regions. This is quickly changing in some countries; for example, the largest urban growth is expected in India, China and Nigeria until at least 2050.

The greatest number of cities and the greatest number of large cities (3 million or more inhabitants) are now found in the Global South. This can also be seen in a list of the world's largest urban areas, where those in the Global South now outnumber those in the Global North. Of the 20 largest urban agglomerations in 1950, 13 were in the Global North and 7 were in the Global South. The 20 largest urban agglomerations in 2000 included only five in the Global North, located in only three countries: Japan (Tokyo and Osaka), the United States (New York and Los Angeles), and France (Paris). Today, Mexico City is larger than three-quarters of the world's independent states. Since 1975, countries in the Global South are urbanizing at much more rapid rates compared to countries in the Global North, across all city sizes.

Amidst the continuing trend of urban growth worldwide, some cities experience population decline over time, especially in regions where overall human population is not increasing or where urban economic viability is stagnating. Many cities currently experiencing decline are located in parts of Asia, Europe, and North America. Taking the long view of the overall process of urbanization, it is noteworthy that the movement of people out of rural into urban areas occurs at different rates and for different reasons in different countries, causing continuous evolution of the world urban system over time and space.

WORLD URBANIZATION: PAST TRENDS

Early Urbanization: Antiquity to Fifth Century CE

The first cities in human history were located in Mesopotamia, along the Tigris and Euphrates Rivers, probably about 4000 BCE. Cities were founded in the Nile Valley about 3000 BCE, in the Indus Valley (present-day Pakistan) by 2500 BCE, in the Yellow River Valley of China by 2000 BCE and in Mexico and Peru by 500 CE (Figure 1.6). These early cities are thought to have been relatively small. Ur in lower Mesopotamia, for instance, was the largest city in the world 6,000 years ago with a population of about 60,000. In fact, most cities of antiquity held only 2,000 to 20,000 inhabitants without significant increase in the number of cities overall. The largest ancient city was Rome, which Peter Hall has called "the first great city in world history." In the second century CE, Rome may have had 1 million inhabitants, making it the world's first city of that size. Between the second and ninth centuries, however, Rome's population declined to less than 200,000. In fact, the world's largest cities in 100 CE were completely different from the largest cities in 1000 CE (Table 1.2).

Ancient cities appeared where nature and the state of technology enabled cultivators to produce more food and other essential goods than necessary for survival for themselves and their families. That surplus established a division of labor among specialized occupations and the beginning of commercial exchanges. Cities were the settlement form adopted by those members of society whose direct presence in places of agricultural production was not necessary. These cities were

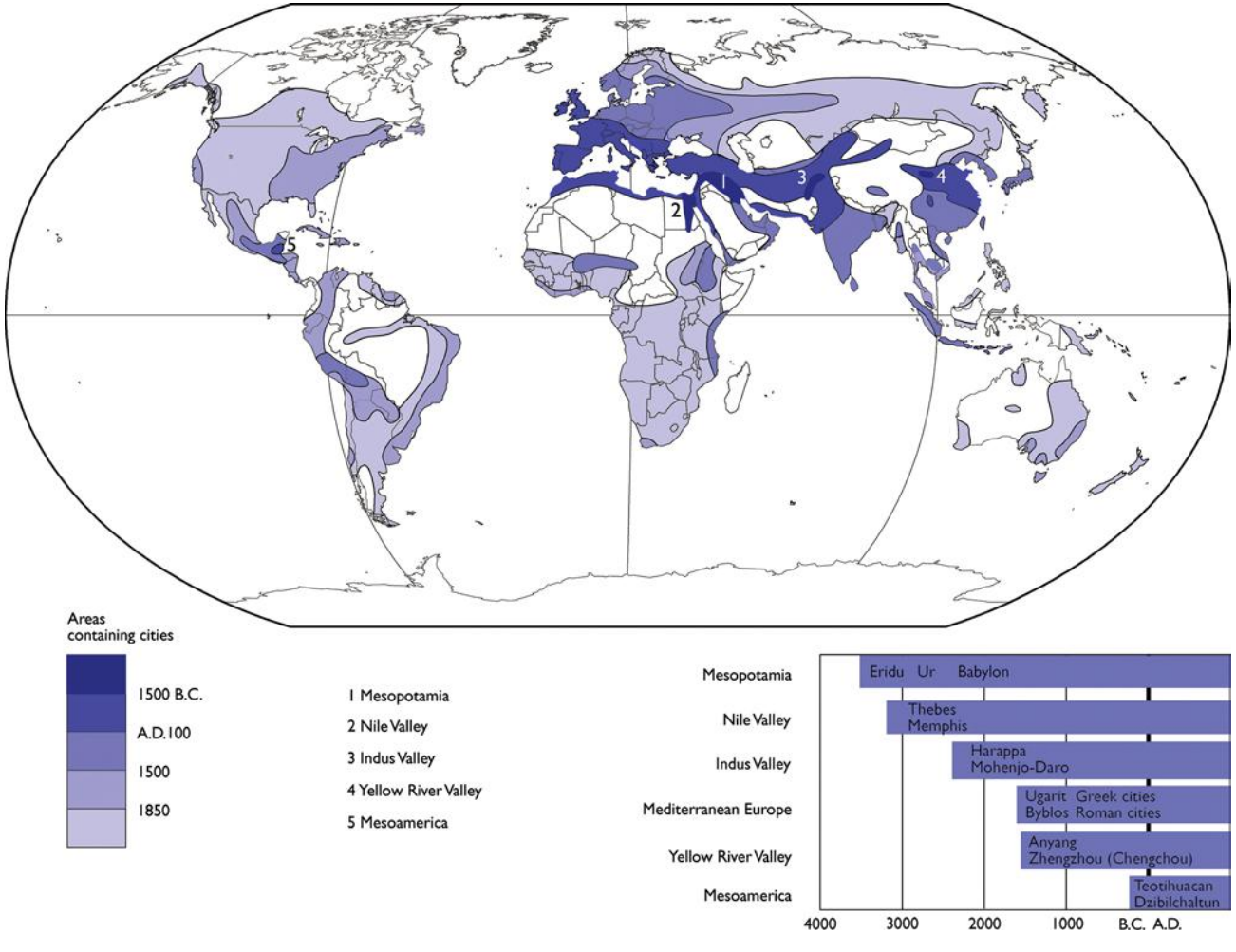

Figure 1.6 Spread of Urbanization, Antiquity to Modern Times. *Source:* Adapted from A. J. Rose, *Patterns of Cities* (Sydney: Thomas Nelson, 1967), 21. Used by permission.

Table 1.2 The Largest Cities in History

	Largest Cities in the Year 100			*Largest Cities in the Year 1000*	
1	Rome	450,000	1	Cordova, Spain	450,000
2	Luoyang, China	420,000	2	Kaifeng, China	400,000
3	Seleucia (on the Tigris), Iraq	250,000	3	Constantinople (Istanbul), Turkey	300,000
4	Alexandria, Egypt	250,000	4	Angkor, Cambodia	200,000
5	Antioch, Turkey	150,000	5	Kyoto, Japan	175,000
6	Anuradhapura, Sri Lanka	130,000	6	Cairo, Egypt	125,000
7	Peshawar, Pakistan	120,000	7	Baghdad, Iraq	125,000
8	Carthage, Tunisia	100,000	8	Nishapur (Neyshabur), Iran	125,000
9	Suzhou, China	n/a	9	Al-Hasa, Saudi Arabia	110,000
10	Smyrna, Turkey	90,000	10	Pata (Anhilwara), India	100,000
	Largest Cities in the Year 1500			*Largest Cities in the Year 2000*	
1	Beijing, China	672,000	1	Tokyo, Japan	34,450,000
2	Vijayanagar, India	500,000	2	Ciudad de México (Mexico City), Mexico	18,066,000
3	Cairo, Egypt	400,000	3	New York–Newark, USA	17,846,000
4	Hangzhou, China	250,000	4	São Paulo, Brazil	17,099,000
5	Tabriz, Iran	250,000	5	Mumbai (Bombay), India	16,086,000
6	Constantinople (Istanbul), Turkey	200,000	6	Shanghai, China	13,243,000
7	Guar, India	200,000	7	Kolkata (Calcutta), India	13,058,000
8	Paris, France	185,000	8	Delhi, India	12,441,000
9	Guangzhou, China	150,000	9	Buenos Aires, Argentina	11,847,000
10	Nanjing, China	147,000	10	Los Angeles–Long Beach–Santa Ana, USA	11,814,000

Sources: Historical cities: Tertius Chandler, *Four Thousand Years of Urban Growth: An Historical Census* (St. David's University Press, 1987); http://geography.about.com/library/weekly/aa01201a.htm; Year 2000 data: United Nations, Department of Economic and Social Affairs, Population Division, World Urbanization Prospects: 2005 Revision.

religious, administrative, and political centers and represented a new social order, but one that remained dynamically linked to rural society. In these ancient cities were specialists, such as priests and service workers, as well as a population that appreciated the arts and the use of symbols for counting and writing. Other attributes of early cities included taxation, external trade, social classes, and gender differences in the assignment of work. Farms, villages, and smaller towns surrounded each city where exchange of goods, ideas, and people and the complexity of technology and the division of labor was limited. Trade, then, was a basic function of ancient cities, which were linked to the surrounding rural areas and to other cities by a relatively complex system of production and distribution as well as by religious, military, and economic institutions.

The Middle Period: Fifth to Seventeenth Century CE

From the fifth-century fall of the Roman Empire to the seventeenth century, cities in Europe grew either slowly or not at all. The few large cities declined in size and function. Thus, the Roman Empire's fall marked the effective end of urbanization in Western Europe for hundreds of years.

The major reason for the decline of European cities was a decrease in spatial interaction. After the collapse of Rome and its empire, urban localities became isolated and turned to self-sufficiency to survive. From their very beginnings, cities have survived and increased in size because of trade with their rural hinterlands and with other cities, near and far. The disruption of the Roman transportation system, the spread of Islam in the seventh and eighth centuries, and the pillaging raids of the Norse in the ninth century almost completely eliminated trade between cities. These events, plus periodic attacks by Germanic and other northern groups, resulted in an almost complete disruption of urban and rural interaction. Both rural and urban populations declined, transportation networks deteriorated, entire regions became isolated, and people became preoccupied with defense and survival.

Although urban revival did occur 600 years after the fall of the Roman Empire via fortified settlements and ecclesiastical centers, growth in population and production remained quite small. The reason is simply that exchange was limited—conducted largely with people of the immediate surrounding region. Most urban residents spent their lives within the city walls. Thus, urban communities developed very close-knit social structures. Power was shared between feudal lords and religious leaders. The economically active population was organized into guilds—for craftspersons, artisans, merchants, and others. Social status was determined by one's position in the guild, family, church, and feudal administration. Gender roles were also well defined. Despite the rigid societal structure, merchants and the guilds saw innovative possibilities in "free cities," where a person could reach his or her full potential within a community setting.

Over time, commerce expanded and linked cities to expanding state power, resulting in a system called mercantilism. The purpose of mercantilism was to use the power of the state to help the nation develop its economic potential. Mercantile policies protected merchant interests by controlling trade subsidies, creating trade monopolies, and maintaining strong, armed forces to defend commercial interests. Cities were mercantilism's growth centers, and specialization and trade kept the system alive.

Mercantilism, though based on new economic practices, had one important element in common with the system of the previous period. It restrained and controlled individual merchants in favor of the needs of society. However, the rising middle class of merchants and traders opposed any restrictions on their profits. They opposed economic regulation and used their growing power to demand freedom from state control. They desired an end to mercantilism. As the power of the capitalists increased, the goal of the economy became expansion, and profit became the function of city growth. While the new market economy provided the means for social recognition, the social costs were high. The greatest hardship fell on those receiving the fewest benefits: women, poor farmers, and the rising industrial working class. The new force of capitalism pushed aside the last vestiges of feudal life and created a new central function for the city: industrialization. It was capitalism that ushered in the Industrial Revolution and led to the emergence of the industrial city.

While Europe experienced a process of decline and rebirth of the ***preindustrial city***, other world regions experienced quite different patterns. In East Asia, for example, the city did not decline as in medieval Europe. In China, numerous cities founded in antiquity

have remained continuously occupied and economically viable for centuries. Moreover, long before any city in Europe again grew to a size to rival ancient Rome, very large cities were thriving in East Asia. Chang'an (present-day Xi'an), for example, reputedly had a population of more than 1 million people when it was the capital of Tang China in the seventh century. Kyoto, the capital of Japan for over a thousand years, was modeled after ancient Changan; it had a population exceeding 1 million by the middle of the eighteenth century. Although most of the ancient cities of Asia had populations of less than 1 million, they were still far larger than cities in Europe until the commercial-industrial revolutions there. The principal explanation for this historical pattern of urban growth lies in the very different cultures and geographical environments, plus the ***sites and situations*** of the great cities that anchored Asian civilizations.

Although empires waxed and waned in Asia, just as in Europe, premodern cities there continued to serve as vital centers of political administration, cultural and religious authority, and markets for agricultural surplus. Only with the arrival of European colonialism did those societies and their cities begin to be threatened. Several centuries of European colonialism in Asia added a new kind of city to the region: a European commercial city sometimes grafted onto a traditional city and sometimes created anew. In either case, the new ***colonial city*** eventually came to dominate eastern Asia's ***urban landscape***. That dominance has continued into the contemporary period.

In the Middle East and North Africa, the preindustrial city also existed and thrived through the centuries, long before Europeans began colonizing the region. But once colonialism was fully asserted in the region, the same process of grafting and creating new European-style commercial cities occurred, with consequences similar to those in eastern Asia.

In sub-Saharan Africa and Latin America, the urban experience varied somewhat from that of much of Asia and the Middle East. In Latin America, the indigenous city—and the societies that created that city, such as the Maya, Inca, and Aztec—was largely obliterated by Spanish conquest and colonization. The Spanish and the Portuguese thus created new cities in the vast realm of Latin America that reflected European cultures. In sub-Saharan Africa, the indigenous cities of various African kingdoms, such as Mali, Songhay, Axum, and Zimbabwe, had existed for centuries but were also impacted by European colonialism. By the nineteenth century, they were largely destroyed, and Europeans created new commercial cities, usually coastal, that quickly dominated the region.

Hence, the European-created city became the model for urban growth and development worldwide with the materialization of this vision of the city in Europe and through its export to colonial empires after 1500. In some regions, it was imposed on indigenous societies that were exterminated or displaced (as in North and South America, Australia, and the Pacific). In regions with long histories of indigenous cultures and urban life, it existed alongside and transformed indigenous cities (as in most of Asia, the Middle East, and Africa).

Industrial and Postindustrial Urbanization: Eighteenth Century to the Present

Only after the Industrial Revolution, which began around 1750, did significant worldwide

urbanization occur. Industrial cities, drawing first on water power and then on steam generated from coal, saw an increase in the scale of manufacturing. The factory system was born, the demand for labor increased, and rural-to-urban migration swelled the size of cities, first in Great Britain and then in Europe and North America. By the nineteenth century, cities emerged as important places of population concentration. In 1900, only one nation, Great Britain, could be regarded as an urbanized society in the sense that more than half of its inhabitants resided in ***urban places***. During the twentieth century, however, the number of urbanized nations increased dramatically. In the United States, the 1920 census revealed for the first time that the majority of Americans lived in cities. In England, the great industrial cities of Manchester and Birmingham blossomed during this period. Scotland saw the rise of Glasgow. In the United States, manufacturing built Chicago, Pittsburgh, Cincinnati, and St. Louis. In the early and mid-twentieth century, the automobile industry transformed another set of cities: Detroit in the United States, Turin in Italy, Tolliati in Russia, and Adelaide in Australia.

CITY FUNCTIONS AND URBAN ECONOMIES

City Functions

Some cities are born because a strategic location must be defended; others serve the demands of trade and commerce; others serve governmental administration or religious pilgrimage; and still others thrive from turning primary commodities into manufactured goods. Geographers have traditionally classified cities into three categories based on their dominant functions: (1) market centers (trade and commerce); (2) transportation centers (transport services); and (3) specialized service centers (such as government, recreation, or religious pilgrimage). Some cities serve a single function—the "textile cities" of the southeastern United States, for instance—but functional diversity is more common.

Cities categorized as market centers are also known as central places because they perform a variety of retail functions for the surrounding area. Central places offer multiple goods and services ranging from grocery stores and gas stations to schools and corporate headquarters (Figure 1.7). Small central places, or market centers, depend less on the characteristics of a particular site and more on being centrally located with respect to their market areas. These centers tend to be located within the trade areas of larger cities; people living in small cities must go to larger cities to make certain purchases for which there is not a sufficient market locally. There is thus a spatial order to the settlements and their functional organization. Central place theory, as revealed by geographer Walter Christaller in the 1930s, explained the regular size, spacing, and functions of urban settlements as they might be distributed across a fertile agricultural region, for instance. In central place theory, the largest cities, or highest-order centers, are surrounded by medium-sized cities that are in turn surrounded by small cities, all forming an integrated part of a spatially organized, nested hierarchy. The locational orientation of market centers is quite different from the locational orientation of transportation and specialized function cities.

Transportation cities perform break-of-bulk or break-in-transport functions along waterways, railroads, or highways. Where

Figure 1.7 On the Indonesian island of Bali, the city of Denpasar is the highest order central place in the urban hierarchy. Education is one of the many services available, and these boys just got out of school and onto a moped. *Source:* Photo by D.J. Zeigler.

raw materials or semi-finished products are transferred from one mode of transport to another—for example, from water to rail or rail to highway—cities emerge as processing centers or as transshipment centers. Unlike central places, whose regularity in location is accounted for by marketing principles, transportation cities are located in linear patterns along rail lines, coastlines, or major rivers. Frequently, major transport cities are the focus of two or more modes of transportation, for example, the coastal city that is the hub of railways, highways, and shipping networks.

Today, of course, almost all cities have multiple transportation linkages. Exceptions tend to be isolated towns, such as mining centers in Siberia that may have only air or rail connections or primitive seasonal roads to the outside. Cities performing single functions, such as recreation, mining, administration, or manufacturing, are called specialized function cities. A very high percentage of the population participating in one or two related activities is evidence of specialization. Oxford, England, is a university town; Rochester, Minnesota, is a health-care town; Norfolk, Virginia, is a military town; Canberra, Australia, is a government town; and Cancún, Mexico, is a tourist town. Specialization is also evident in cities where the extraction or processing of a resource is the major activity. Cities labeled as mining and manufacturing cities have much more specialization than those with diversified economic bases.

Sectors of the Urban Economy

The economic functions of a city are reflected in the composition of its labor force. Preindustrial societies are associated with rural economies. These economies have the largest percentages of their labor force engaged in the primary sector: agriculture, fishing, forestry, and mining. Preindustrial cities have historically been commercial islands in seas of rural populations. The Industrial Revolution triggered the emergence of cities oriented to manufacturing, the secondary sector of the economy. It created a demand for labor in factories, and a larger percentage of the population began living in urban areas. As factory workers added their buying power to the city's economy, the service sector, or tertiary economic activities, grew as well. The quaternary sector, a more advanced stage of the service sector, consists of information- and intellect-intensive services, which play an increasingly important role in the world economy. Identifying the mix of primary, secondary, tertiary, and quaternary activities within urban regions as they have changed over time helps identify specific stages of humanity's economic evolution (Figure 1.8).

The association between urbanization and industrialization has been characteristic of Europe, North America, Japan, Australia, and

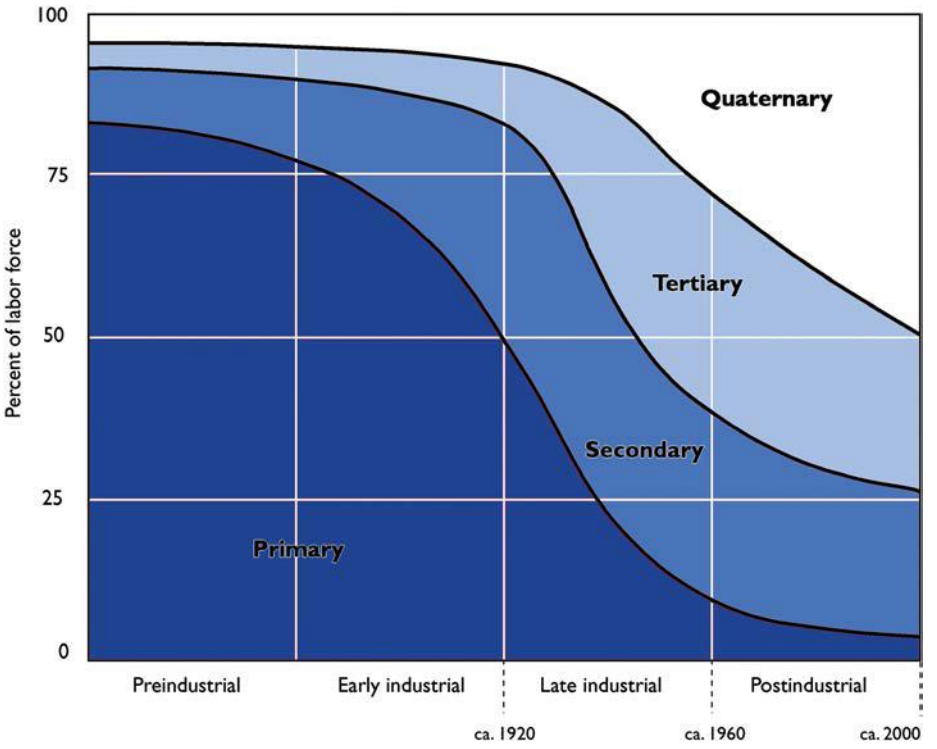

Figure 1.8 Labor Force Composition at Various Stages in Human History. *Source:* Adapted from Ronald Abler et al., *Human Geography in a Shrinking World* (Belmont, CA: Wadsworth, 1975), 49.

New Zealand. That is, cities and industries grew synchronously. Across Africa, Asia, and Latin America, many urbanizing countries have not experienced a corresponding increase in the manufacturing sector of the economy. Instead, their service sectors—small retailers, government servants, teachers, professionals, and bankers—provide jobs for growing urban populations. Also included are many service workers in the informal economy, including people willing to perform odd jobs (such as watching parked cars or cleaning houses) and working in unskilled service occupations, such as street vending, scavenging, and laboring at construction sites. In the informal sector, barter and the exchange of services often take the place of monetary exchanges, thus bypassing government accounting and taxation.

Basic and Nonbasic Economic Activities

The economic base concept states that two types of activities exist: those that are necessary for urban growth and those that exist primarily to supplement those necessary functions. The former are called basic economic activities. They involve the manufacturing, processing, or trading of goods or the providing of services for markets located outside the city's boundaries. Examples include automobile assembly and insurance underwriting. They are the key to economic growth. Economic functions of a city-servicing nature are called nonbasic functions. Grocery stores, restaurants, beauty salons, and so forth are nonbasic economic activities because they cater primarily to residents within the city

itself (Figure 1.9). Income generated by a city's economic base is channeled back into the city's nonbasic sector, where employees in those industries purchase groceries, gasoline, insurance, entertainment, and other everyday needs and wants.

The economic base of some cities is grounded in manufacturing industries, the secondary sector of the economy. Manchester, England, and Pittsburgh, Pennsylvania, are prime examples of older industrial cities whose growth and prosperity depended upon world markets, for cotton textiles and steel, respectively. Since World War II, both cities have lost their manufacturing base and have sought to create service industries for which there is a larger market. The economic base of the ***postindustrial city***, in fact, is to be found in the tertiary and quaternary sectors of the economy. Silicon valleys developed in the late twentieth century to service the needs of the computer industry. In the early twenty-first century, biotech valleys are becoming the economic base of choice. Cities such as Geneva, Singapore, San Francisco, and Boston are competing to have biotechnology firms move into their regions. Money from biomedical and pharmaceutical research provides an economic base tied to high-level applications of technology and brainpower.

As a city's economic base increases, it has a multiplier effect throughout the community. Growth (and conversely, decline) becomes a cumulative process in which growth begets growth (and vice versa). This is known as the principle of circular and cumulative causation.

Figure 1.9 Street peddlers in Shakhrisabz, Uzbekistan, the birthplace of Tamerlane (Timur), sell goods from China and Turkey to local Uzbek customers in this ancient Silk Road city. *Source:* Photo by Jessica Graybill.

For instance, one way cities grew in the past was by attracting more manufacturing enterprises. Each new factory stimulated general economic development and population growth. Business output increased due to a greater demand for products. Rising profits increased savings, causing investments to rise. Increased productivity resulted in greater wealth. The growing population then reached a new level, or threshold, resulting in a new round of demands. Larger cities are able to offer a greater number and variety of services than smaller cities. Conversely, conditions can create negative circular and cumulative causation—a downward spiral. Thus, it is easy to understand why city mayors work so hard to promote their respective cities as favorable sites for investment and new business locations.

THEORIES ON THE SPATIAL STRUCTURE OF CITIES

Geographers have long been intrigued by the internal spatial structure of cities. Components of that structure include industrial zones, commercial districts, warehouse rows, residential areas, parks and open space, and transportation routes, among others. Multiple theories have been developed to describe and explain the pattern of land use and the distribution of population groups within cities. The four most widely accepted theories, or models, of city structure are the concentric zone model, the sector model, the multiple nuclei model, and the inverse concentric zone model (Figure 1.10). All evolved from observations that suggested that different urban land uses were predictably, not randomly, distributed across the city.

The Concentric Zone Model

A concentric zone theory was first conceptualized by Friedrich Engels (coauthor of the Communist Manifesto) in the mid-nineteenth century. In 1844, Engels observed that the population of the ***industrial city*** of Manchester, England, was residentially segregated based on class. He noted that the commercial district (offices plus retail and wholesale trade) was located in the center of Manchester

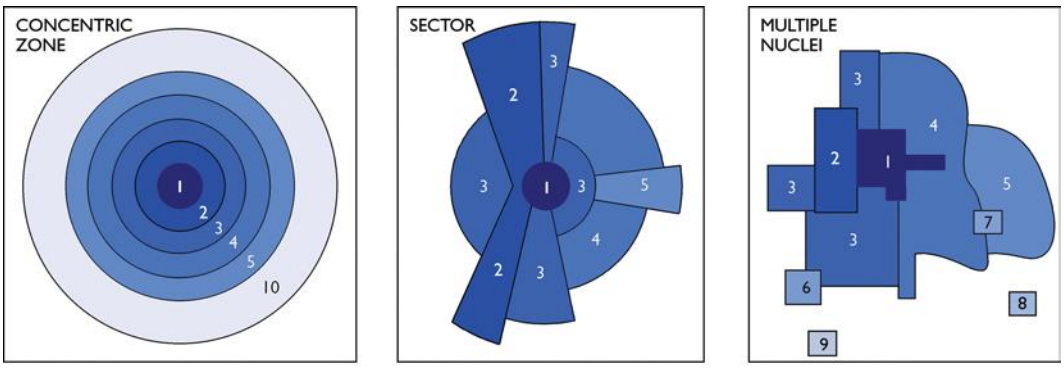

Figure 1.10 Three Models of the Internal Spatial Structure of Cities Offer Templates for Comparing Urban Land Uses across the Gamut of Cities. *Source:* Adapted from various sources.

and extended about half a mile (0.8 km) radially. Besides the commercial district, Manchester consisted of unmixed working people's quarters, which extended a mile and a half (2.3 km) around the commercial district. Next, extending outward from the city, were the comfortable country homes of the upper bourgeoisie. Engels believed this general pattern to be more or less common to all industrial cities.

Engels might have described the pattern first, but most social scientists consider E. W. Burgess, a University of Chicago sociologist, to be the father of the concentric zone model. According to Burgess, the growth of any city occurs through radial expansion from the city core, forming a series of concentric rings, or a set of nested circles that represents successive zones of specialized urban land uses. The five zones Burgess described during the 1920s, before the automobile transformed Chicago, were: (1) the central business district (CBD) and its retail and wholesale areas; (2) the zone of transition, characterized by stagnation and social deterioration; (3) the zone of factory workers' homes; (4) the zone of better residential units, including single-family dwellings and apartments; and (5) the commuter zone, extending beyond the city limits and consisting of suburbs and satellite communities.

The process Burgess used to explain these concentric rings was called invasion and succession. Each type of land use and each socioeconomic group in the inner zone tends to extend its zone by invasion of the next outer zone. As the city expands, population groups are spatially redistributed by residence and occupation. Burgess further demonstrated that many social characteristics—the percentage of foreign-born groups, poverty, and delinquency rates—are spatially distributed in a series of gradients away from the central business district. Each tends to decrease outward from the city center.

The Sector Model

Homer Hoyt, an economist, developed the sector model in the 1930s. Hoyt examined spatial variations in household rent in 142 American cities. He concluded that general patterns of housing values applied to all cities and that those patterns tended to appear as sectors, not concentric rings. According to Hoyt, residential land use arranges itself along selected highways leading into the CBD, thus giving land-use patterns a directional bias. High-rent residences were the most important group in explaining city growth because they tended to pull the entire city in the same physical direction. New residential areas did not encircle the city at its outer limits but extended farther and farther outward along select transportation axes, giving the land-use map the appearance of a pie cut into many pieces. The sectoral pattern of city growth is partially explained by a filtering process. When new housing is constructed, it is located primarily on the outer edges of the high-rent sector. The homes of community leaders, new offices, and stores are attracted to the same areas. As inner, middle-class areas are abandoned, lower-income groups filter into them. By this process, the city grows over time in the direction of the expanding high-rent residential sector.

The Multiple Nuclei Model

In 1945, two geographers, Chauncy Harris and Edward Ullman, developed a third model to explain urban land-use patterns: the multiple nuclei model. According to their theory, cities tend to grow around several