CHAPTER 1

Introduction and Axioms of Urban Economics

Cities have always been the fireplaces of civilization, whence light and heat radiated out into the dark.

—Theodore Parker

I'd rather wake up in the middle of nowhere than in any city on earth.

—Steve McQueen

This book explores the economics of cities and urban problems. The quotes from Parker and McQueen reflect our mixed feelings about cities. On the positive side, cities facilitate innovation, production, and trade, so they increase our standard of living. On the negative side, cities are noisy, dirty, and crowded. As we'll see in the first part of the book, firms and people locate in cities because the obvious costs of being in a city are more than offset by subtle benefits of producing in close proximity to other firms and people. As we'll see later in the book, policies that combat urban problems such as congestion, pollution, and crime are likely to increase the vitality of cities, causing them to grow.

WHAT IS URBAN ECONOMICS?

The discipline of urban economics is defined by the intersection of geography and economics. Economics explores the choices people make when resources are limited. Households make choices to maximize their utility, while firms maximize their profit. Geographers study how things are arranged across space, answering the question, Where does human activity occur? Urban economics puts economics and geography together, exploring the geographical or location choices of utility-maximizing households and profit-maximizing firms. Urban economics also identifies inefficiencies in location choices and examines alternative public policies to promote efficient choices.

Urban economics can be divided into six related areas that correspond to the six parts of this book.

1. **Market forces in the development of cities.** The interurban location decisions of firms and households generate cities of different size and economic structure. We explore the issues of why cities exist and why there are big cities and small ones.
2. **Land use within cities.** The intraurban location decisions of firms and households generate urban land-use patterns. In modern cities, employment is spread throughout the metropolitan area, in sharp contrast to the highly centralized cities of just 100 years ago. We explore the economic forces behind the change from centralized to decentralized cities. We also use a model of neighborhood choice to explore the issue of segregation with respect to race, income, and educational level.
3. **Urban transportation.** We explore some possible solutions to the urban congestion problem and look at the role of mass transit in the urban transportation system. One issue is whether a bus system is more efficient than a light-rail system or a heavy-rail system like BART (San Francisco) or Metro (Washington).
4. **Crime and public policy.** We look at the problem of urban crime and show the links between crime and two other urban problems, poverty and low educational achievement.
5. **Housing and public policy.** Housing choices are linked to location choices because housing is immobile. We'll discuss why housing is different from other products and how housing policies work.
6. **Local government expenditures and taxes.** Under our fragmented system of local government, most large metropolitan areas have dozens of local governments, including municipalities, school districts, and special districts. In making location choices, households consider the mix of taxes and local public goods.

WHAT IS A CITY?

An urban economist defines an urban area as a geographical area that contains a large number of people in a relatively small area. In other words, an urban area has a population density that is high relative to the density of the surrounding area. This definition accommodates urban areas of vastly different sizes, from a small town to a large metropolitan area. The definition is based on population density because an essential feature of an urban economy is frequent contact between different economic activities, which is feasible only if firms and households are concentrated in a relatively small area.

The U.S. Census Bureau has developed a variety of geographical definitions relevant to urban economics. Since much of the empirical work in urban economics is based on census data, a clear understanding of these definitions is important.

The appendix to this chapter provides the details of the census definitions. The key census definitions, some of which are new for the 2000 Census, are as follows.

1. **Urban area:** A densely settled geographical area with a minimum population of 2,500 people and a minimum density of 500 people per square mile. In 2000, there were 3,756 urban areas in the United States.
2. **Urban population:** People living in urban areas. In 2000, the urban population was 79 percent of the total population.
3. **Metropolitan area:** A core area with a substantial population nucleus, together with adjacent communities that are integrated, in an economic sense, with the core area. To qualify as a metropolitan area, the minimum population is 50,000 people. In 2000, there were 361 metropolitan statistical areas in the United States.
4. **Micropolitan area:** A smaller version of a metropolitan area with a concentration of 10,000 to 50,000 people. In 2000, there were 559 micropolitan statistical areas in the United States.
5. **Principal city:** The largest municipality in each metropolitan or micropolitan statistical area. A municipality is defined as an area over which a municipal corporation exercises political authority and provides local government services such as sewage service, crime protection, and fire protection.

This book uses three terms to refer to spatial concentrations of economic activity: *urban area, metropolitan area,* and *city*. These three terms, which will be used interchangeably, refer to the economic city (an area with a relatively high population density that contains a set of closely related activities), not the political city. When referring to a political city, we will use the term *central city* or *municipality*.

WHY DO CITIES EXIST?

This is the fundamental question of urban economics. People need land to produce food and other resources, and living in dense cities separates us from the land where food is produced. As Bartlett (1998) points out, no other creatures in the animal world form anything like cities. Herbivores such as wildebeests and bison form larger herds but constantly migrate to fresh land to ensure a steady supply of food. Coral is concentrated in stationary reefs, but ocean currents provide a steady supply of food to the stationary coral. Perhaps the closest thing to a city in the natural world is a bee hive or an anthill. Eusocial insects such as bees and ants form colonies with thousands of inhabitants, with highly specialized castes—soldier ants, drones, breeders, nurses, and cleanup crews. In contrast with human cities, these insect agglomerations are closed to non-natives and not based on voluntary exchange.

Cities exist because human technology has created systems of production and exchange that seem to defy the natural order. Three conditions must be satisfied for a city to develop.

1. **Agricultural surplus.** People outside cities must produce enough food to feed themselves and city dwellers.

2. **Urban production.** City dwellers must produce something—goods or services—to exchange for food grown by rural workers.
3. **Transportation for exchange.** There must be an efficient transportation system to facilitate the exchange of food and urban products.

Figure 1–1 shows the share of people living in cities in the United States from 1800 to 2010. Over this period, the urban share increased from 6 percent to 82 percent, a remarkable transformation that also occurred in other parts of the world. As we'll see in the next three chapters of the book, the transformation of a rural society into an urban one occurred because technological advances increased the agricultural surplus (condition 1), increased the productivity of urban workers (condition 2), and increased the efficiency of transportation and exchange (condition 3).

Figure 1–2 shows urbanization rates for different regions around the world, with projections for the year 2030. In 1950, urbanization rates were relatively low in Africa and Asia, and highest in Oceania and North America. Between now and the year 2030, urbanization rates are expected to increase everywhere, with the largest increases in Africa and Asia. For the world as a whole, the urbanization rate was 30 percent in 1950 and is expected to double by the year 2030.

Table 1–1 (page 6) shows the population figures for the nation's 30 largest metropolitan areas. The New York area tops the list, followed by Los Angeles, Chicago, Dallas, and Philadelphia. The third column shows the percentage growth of each

FIGURE 1–1 Percent of U.S. Population in Urban Areas, 1800–2010

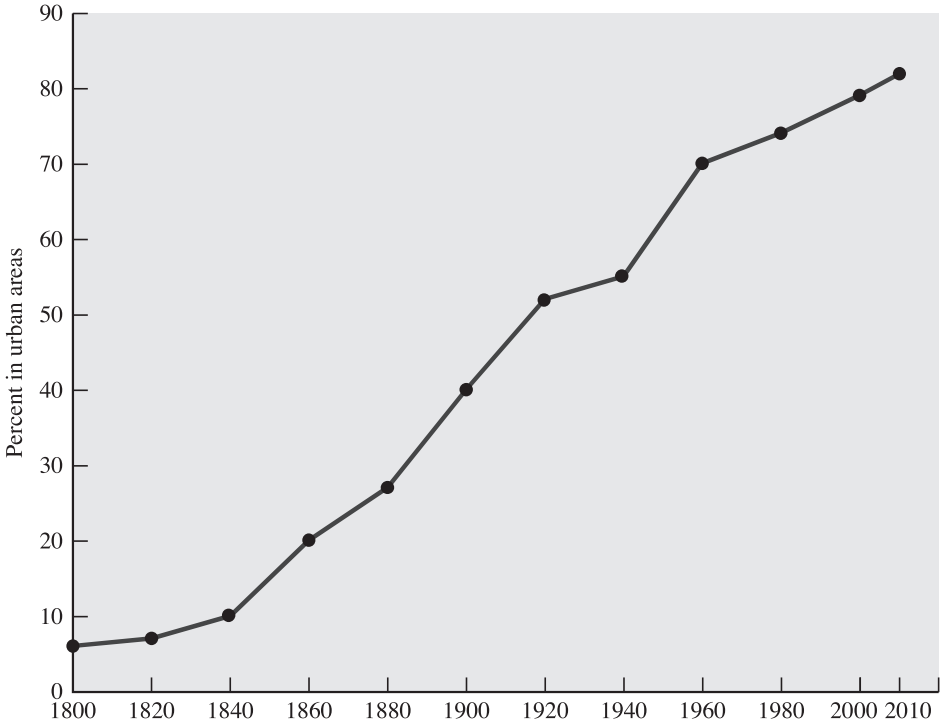
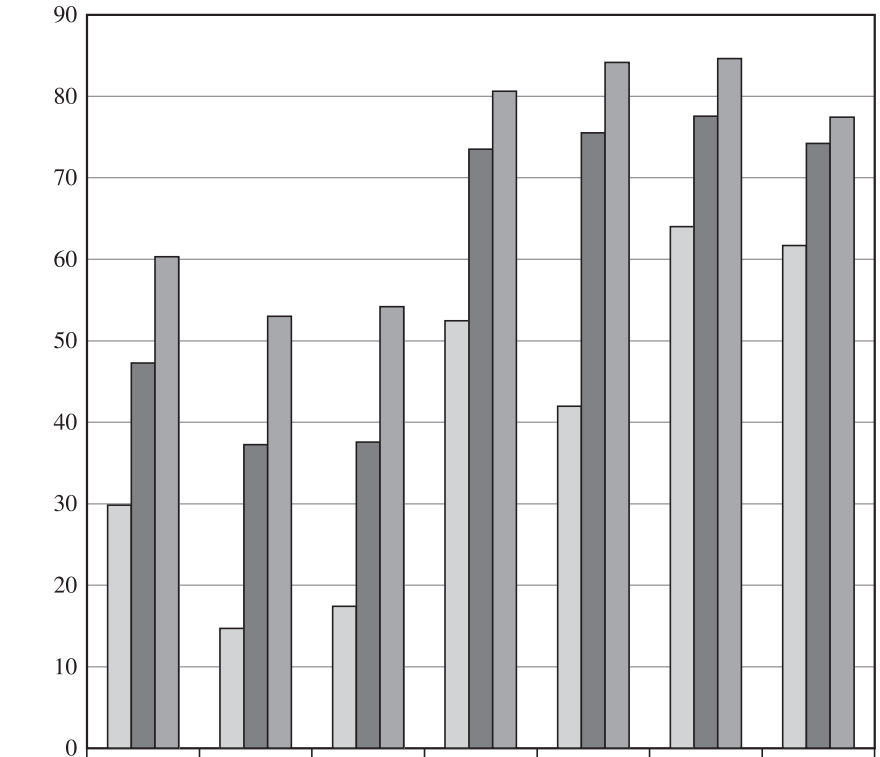


FIGURE 1–2 Urbanization Rates, by World Region, 1950–2030



	World	Africa	Asia	Europe	Latin America and the Caribbean	North America	Oceania
1950	29.8	14.7	17.4	52.4	41.9	63.9	61.6
2000	47.2	37.2	37.5	73.4	75.4	77.4	74.1
2030	60.2	52.9	54.1	80.5	84	84.5	77.3

Percent in urban areas

Source: United Nations: World Urban Prospects, 2001 Revision.

metropolitan area over the period 2000 to 2005. The most rapidly growing metropolitan areas were in the South, the Mountain States, and the West. In three metropolitan areas—Detroit, Pittsburgh, and Cleveland—population decreased over this period, continuing a two-decade trend of decreasing population. These metropolitan areas experienced large losses in manufacturing employment.

Table 1–2 (page 7) shows the population figures for the world's largest metropolitan areas outside the United States. The table shows actual populations in 1975 and 2005, and projected populations for the year 2015. Eight metropolitan areas, all of which are in the developing world, are expected to grow by at least 20 percent over the 10-year period. In contrast, three cities in the developed world (Tokyo,

TABLE 1–1 Largest Metropolitan Areas in the United States, 2009

Metropolitan Area	Population in 2009	Percentage Change 2000–2009	Rank
New York-Northern New Jersey-Long Island, NY-NJ-PA	19,069,796	4.1	1
Los Angeles-Long Beach-Santa Ana, CA	12,874,797	4.1	2
Chicago-Naperville-Joliet, IL-IN-WI	9,580,567	5.3	3
Dallas-Fort Worth-Arlington, TX	6,447,615	24.9	4
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	5,968,252	4.9	5
Houston-Sugar Land-Baytown, TX	5,867,489	24.4	6
Miami-Fort Lauderdale-Pompano Beach, FL	5,547,051	10.8	7
Washington-Arlington-Alexandria, DC-VA-MD-WV	5,476,241	14.2	8
Atlanta-Sandy Springs-Marietta, GA	5,475,213	28.9	9
Boston-Cambridge-Quincy, MA-NH	4,588,680	4.5	10
Detroit-Warren-Livonia, MI	4,403,437	−1.1	11
Phoenix-Mesa-Scottsdale, AZ	4,364,094	34.2	12
San Francisco-Oakland-Fremont, CA	4,317,853	4.7	13
Riverside-San Bernardino-Ontario, CA	4,143,113	27.3	14
Seattle-Tacoma-Bellevue, WA	3,407,848	12.0	15
Minneapolis-St. Paul-Bloomington, MN-WI	3,269,814	10.1	16
San Diego-Carlsbad-San Marcos, CA	3,053,793	8.5	17
St. Louis, MO-IL	2,828,990	4.8	18
Tampa-St. Petersburg-Clearwater, FL	2,747,272	14.7	19
Baltimore-Towson, MD	2,690,886	5.4	20
Denver-Aurora-Broomfield, CO	2,552,195	17.1	21
Pittsburgh, PA	2,354,957	−3.1	22
Portland-Vancouver-Beaverton, OR-WA	2,241,841	16.3	23
Cincinnati-Middletown, OH-KY-IN	2,171,896	8.1	24
Sacramento–Arden-Arcade–Roseville, CA	2,127,355	18.4	25
Cleveland-Elyria-Mentor, OH	2,091,286	−2.6	26
Orlando-Kissimmee, FL	2,082,421	26.6	27
San Antonio, TX	2,072,128	21.1	28
Kansas City, MO-KS	2,067,585	12.6	29
Las Vegas-Paradise, NV	1,902,834	38.3	30

Source: U.S. Census Bureau, "Table 1–Annual Estimates of the Population of Metropolitan and Micropolitan Statistical Areas: April 1, 2000 to July 1, 2009 (CBSA-EST2009-01)," March 2010.

Osaka, and Paris) are expected to grow slowly. In the United States, New York is expected to grow 6 percent over the period, and Los Angeles is expected to grow 7 percent.

Figure 1–3 (page 8) shows the time trend of large urban agglomerations in the world, defined as metropolitan areas with at least 1 million people. The figure distinguishes between cities in the developed and less developed regions. In 1970, the two types of regions had roughly the same number of large cities. By 1996, however, the number of large cities in the less developed regions nearly doubled, and by 2015 there will be roughly four times as many large cities in less developed regions.

TABLE 1–2 Populations and Projected Populations of Large World Cities

Metropolitan Area	Nation	Population 1975 (million)	Population 2005 (million)	Population 2015 (million)	Percent Change 2005–2015
Tokyo	Japan	26.6	35.2	35.5	1
Ciudad de México (Mexico City)	Mexico	10.7	19.4	21.6	11
Sao Paulo	Brazil	9.6	18.3	20.5	12
Mumbai (Bombay)	India	7.1	18.2	21.9	20
Delhi	India	4.4	15.0	18.6	24
Shanghai	China	7.3	14.5	17.2	19
Kolkata (Calcutta)	India	7.9	14.3	17.0	19
Jakarta	Indonesia	4.8	13.2	16.8	27
Buenos Aires	Argentina	8.7	12.6	13.4	7
Dhaka	Bangladesh	2.2	12.4	16.8	35
Karachi	Pakistan	4.0	11.6	15.2	31
Rio de Janeiro	Brazil	7.6	11.5	12.8	11
Osaka-Kobe	Japan	9.8	11.3	11.3	0
Al-Qahirah (Cairo)	Egypt	6.4	11.1	13.1	18
Lagos	Nigeria	1.9	10.9	16.1	48
Beijing	China	6.0	10.7	12.9	20
Manila	Philippines	5.0	10.7	12.9	21
Moskva (Moscow)	Russian Federation	7.6	10.7	11.0	3
Paris	France	8.6	9.8	9.9	0
Istanbul	Turkey	3.6	9.7	11.2	15

Source: United Nations. Urban Agglomerations 2005.

THE FIVE AXIOMS OF URBAN ECONOMICS

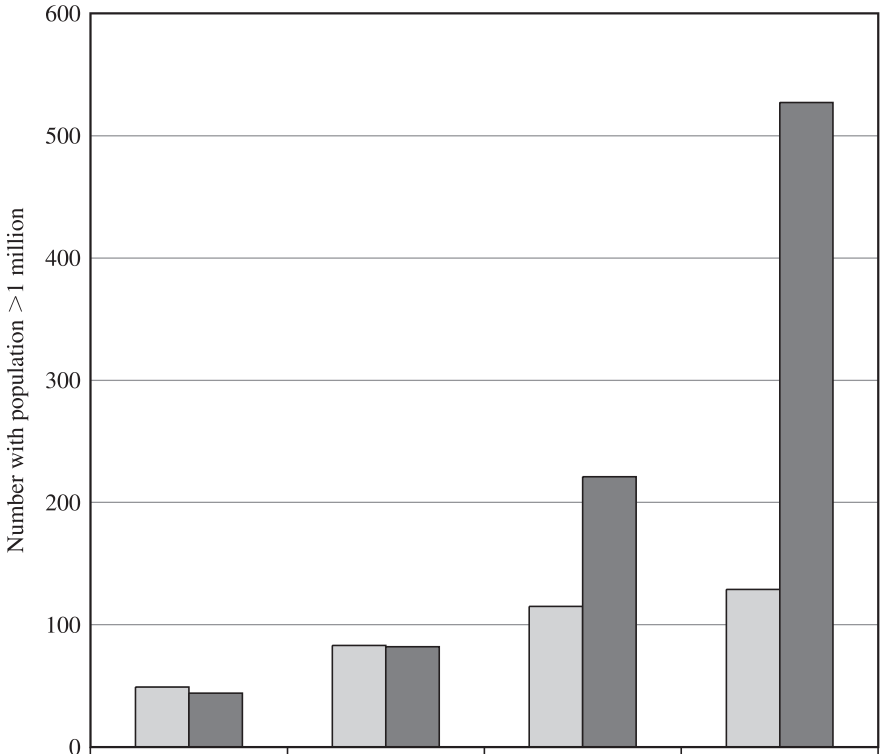
Urban economics explores the location choices of households and firms, and so it is natural to assume that people and firms are mobile. Of course, people don't instantly change their workplaces and residences when circumstances change; therefore, a model of perfect mobility tells us more about long-term changes than short-term ones. The average household changes its residence every seven years, meaning that about 14 percent of the population moves every year. Although most models of urban economics assume perfect mobility, there are exceptions, and we will highlight the analysis that assumes less than perfect mobility.

In this part of the chapter, we introduce five axioms of urban economics. An axiom is a self-evident truth, something that most people readily understand and accept. For our purposes, "most people" are people who have taken at least one course in economics. The five axioms lie at the heart of urban economics and together provide a foundation for the economic models of location choices. As you go through the book, these five axioms will appear repeatedly.

1. Prices Adjust to Achieve Locational Equilibrium

A locational equilibrium occurs when no one has an incentive to move. Suppose that you and Bud are competing for two rental houses, one along a beautiful beach

FIGURE 1–3 The Number of Large Agglomerations in the World, 1950–2015



	1950	1970	1996	2015
More developed regions	49	83	115	129
Less developed regions	44	82	221	527

Source: United Nations World Population Prospects (New York: United Nations, 2001).

and one along a noisy highway. If the two houses have the same price (the same monthly rent), you would prefer the beach house, and so would Bud. Flipping a coin and giving the beach house to the winner wouldn't generate a locational equilibrium because the unlucky person in the highway house would have an incentive to move to the more desirable house.

Locational equilibrium requires a higher price for the beach house. To eliminate the incentive to move, the price of the beach house must be high enough to fully compensate for the better environment. The question is, How much money are you willing to sacrifice to live on the beach? If your answer is $300 and Bud agrees, then the equilibrium price of the beach house will be $300 higher than the price of the highway house. In general, prices adjust to generate the same utility level in different environments, getting people to live in both desirable and undesirable locations.

The same sort of economic forces operate in the labor market. Workers compete for jobs in desirable locations, causing lower wages in more desirable locations. Suppose you are competing with Ricki for two jobs, one in Dullsville and one in Coolsville, a city with a more stimulating social environment. If a $500 gap in

the monthly wage fully compensates for the difference in the social environment, the equilibrium wage will be $500 lower in Coolsville. The two workers will be indifferent between the two cities because a move to Coolsville means a $500 wage cut. In the labor market, wages adjust to get people to work in both desirable and undesirable environments.

The price of land also adjusts to ensure locational equilibrium among firms. Office firms compete for the most accessible land in a city, and land at the center is the most accessible and thus the most expensive. In equilibrium, office firms on less accessible land far from the center pay lower prices for land, and can be just as profitable as firms on the most accessible land.

2. Self-Reinforcing Effects Generate Extreme Outcomes

A self-reinforcing effect is a change in something that leads to additional changes in the same direction. Consider a city where the sellers of new automobiles are initially spread evenly throughout the city. If one seller relocates next to another seller on Auto Road, what happens next? Auto consumers compare brands before buying, and the pair of sellers on Auto Road will facilitate comparison shopping and thus attract buyers. The increased consumer traffic on Auto Road will make it an attractive site for other auto sellers, so they will move too. The ultimate result is an "auto row," a cluster of firms that compete against one another, yet locate nearby.

Self-reinforcing changes also happen in the location decisions of people. Suppose artists and creative types are initially spread out evenly across a dozen cities in a region. If by chance one city experiences an influx of artists, its creative environment will improve as artists (1) are exposed to more ideas and fabrication techniques and (2) can share studios, print shops, tool suppliers, and other facilities. The cluster of artists will attract other artists from the region, causing a concentration of artistic production in one city. In recent decades, cities that have attracted artists and creative folks have experienced relatively rapid growth (Florida, 2002).

3. Externalities Cause Inefficiency

In most transactions, the costs and benefits of the exchange are confined to the individual buyer and seller. The consumer pays a price equal to the full cost of producing the good, so no one else bears a cost from the transaction. Similarly, the consumer is the only person to benefit from the product. In contrast, an externality occurs when some of the costs or benefits of a transaction are experienced by someone other than the buyer or seller, that is, someone *external* to the transaction.

An external cost occurs when a consumer pays a price that is less than the full cost of producing a product. The price of a product always includes the costs of the labor, capital, and raw materials used to produce the product, but it usually does not include the environmental costs of producing the product. For example, if burning gasoline in automobiles generates air pollution, part of the cost of driving is borne by people who breathe dirty air. Similarly, when you enter a crowded highway, you slow down everyone else, meaning that other drivers bear a cost.

An external benefit occurs when a product purchased by one person generates a benefit for someone else. For example, painting my peeling house improves the appearance of my neighborhood, increasing the value of my neighbor's house as well as mine. Education generates external benefits because it improves communication and thinking skills, making a person a better team worker. In other words, some of the benefits of education are experienced by a person's fellow workers, who become more productive and thus earn higher wages.

When there are external costs or benefits, we do not expect the market equilibrium to be socially efficient. In the case of external cost, people pay less than the full social cost of an action like driving, so they drive too much. In the case of external benefit, people get less than the full social benefit from an action like education, so they stop short of the socially efficient level of education. As we'll see later in the book, cities have all sorts of external costs and benefits. In many cases there is a simple solution: Internalize the externality with a tax or a subsidy, and let individuals, who then bear the full social cost and benefits of their actions, decide what to do.

4. Production Is Subject to Economies of Scale

Economies of scale occur when the average cost of production decreases as output increases. For most products, if we start with a relatively small production operation and double all inputs, the average cost of production decreases. In the jargon of economics, when the long-run average cost curve is negatively sloped, we say that there are scale economies in production. Scale economies occur for two reasons:

- **Indivisible inputs.** Some capital inputs are "lumpy" and cannot be scaled down for small operations. As a result, a small operation has the same indivisible inputs as a large operation. For example, to manufacture frisbees you need a mold, whether you produce one frisbee per day or a thousand. Similarly, to produce microprocessors you need a clean room and other expensive equipment, whether you produce one processor per day or a thousand. As output increases, the average cost decreases because the cost of the indivisible input is spread over more output.
- **Factor specialization.** In a small one-person production operation, a worker performs a wide variety of production tasks. In a larger operation with more workers, each worker specializes in a few tasks, leading to higher productivity because of continuity (less time is spent switching from one task to another) and proficiency (from experience and learning). The notion of factor specialization is captured in the old expression, "A jack of all trades is master of none." Adding to this expression, we can say that a specialized worker is a master of one task.

As we'll see later in the book, scale economies play a vital role in urban economies. In fact, as we'll see in Chapter 2, if there are no scale economies, there will be no cities. It is costly to transport products from a production site to consumers, so centralized production in cities will be sensible only if there is some advantage that more than offsets transport costs.

The extent of scale economies in production varies across products. Microprocessors are produced in $5 billion fabrication facilities with a highly specialized workforce performing hundreds of complex tasks, resulting in large scale economies in production. In contrast, pizza is produced with a $5,000 pizza oven with just a few production tasks, so scale economies are exhausted sooner. In general, the extent of scale economies is determined by the lumpiness of indivisible inputs and the opportunities for factor specialization.

5. Competition Generates Zero Economic Profit

When there are no restrictions on the entry of firms into a market, we expect firms to enter the market until economic profit is zero. Recall that economic profit equals the excess of total revenue over total economic cost, where economic cost includes the opportunity costs of all inputs. Two key components of economic costs are the opportunity cost of the entrepreneur's time and the opportunity cost of funds invested in the firm. For example, suppose an entrepreneur could earn $60,000 in another job and invests $100,000 in the firm, taking the money out of a mutual fund that earns 8 percent. The economic cost of the firm includes $60,000 in time cost and $8,000 in investment cost. Once we account for all the opportunity costs, the fact that economic profit is zero means that a firm is making enough money to stay in business, but not enough for other firms to enter the market. Earning zero economic profit means earning "normal" accounting profit.

In urban economics, competition has a spatial dimension. Each firm enters the market at some location, and the profit of each firm is affected by the locations of other firms. Spatial competition looks a lot like monopolistic competition, a market structure in which firms sell slightly differentiated products in an environment of unrestricted entry. Although this sounds like an oxymoron such as "tight slacks" and "jumbo shrimp," the words are revealing. Each firm has a monopoly for its differentiated product, but unrestricted entry leads to keen competition for consumers who can easily switch from one differentiated product to another. With spatial competition, each firm has a local monopoly in the area immediately surrounding its establishment, but unrestricted entry leads to keen competition. Firms will continue to enter the market until economic profit drops to zero.

WHAT'S NEXT?

This introductory chapter sets the stage for the economic analysis of cities in the rest of the book. Here are some of the big questions we'll address in coming chapters:

- Why do cities exist?
- Are cities too big or too small?
- What causes urban economic growth?
- Why is employment in modern cities so widely dispersed?
- Why is there so much segregation with respect to race and income?

- Why do economists advocate a tax of about 7 cents per mile for all driving and about 27 cents per mile for driving on congested roads?
- Why do so few people take mass transit?
- What are the key inputs in the education production function?
- Why is crime higher in cities?
- Why does the typical metropolitan area have dozens of municipalities?

In answering these and other questions, we will use the five axioms of urban economics. In addition, we will use a number of economic models to explore the spatial aspects of decision making. It's worth noting that much of the analysis in the book reflects advances in urban economics in the last 10 to 15 years, in both theoretical modeling and empirical analysis.

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Appendix: Census Definitions

The U.S. Census Bureau has developed a variety of geographical definitions relevant to urban economics. Since much of the empirical work in urban economics is based on census data, a clear understanding of these definitions is important. This appendix provides the details of the census definitions.

URBAN POPULATION

The first three definitions deal with the urban population and are based on the census block, the smallest geographical unit in census data. A *census block* is defined as an area bounded on all sides by visible features (streets, streams, or tracks) or invisible features (property lines or political boundaries). The typical census block has between a few dozen and a few hundred residents. A *block group* is a group of contiguous census blocks. There are two types of urban areas:

1. **Urbanized area.** An *urbanized area* is a densely settled core of census block groups and surrounding census blocks that meet minimum population density

requirements. In most cases, the density requirement is 1,000 people per square mile for the core block groups and 500 people per square mile for the surrounding blocks. Together, the densely settled blocks must encompass a population of at least 50,000 people. In 2000, there were 464 urbanized areas in the United States.

2. **Urban clusters.** An *urban cluster* is a scaled-down version of an urbanized area. The total population of the census blocks that make up an urban cluster is between 2,500 and 50,000 people. In 2000, there were 3,112 urban clusters in the United States.
3. **Urban population.** The Census Bureau defines the nation's *urban population* as all people living in urbanized areas and urban clusters. Based on this definition, 79 percent of the population lived in urban areas in 2000.

METROPOLITAN AND MICROPOLITAN STATISTICAL AREAS

The census bureau has a long history of changing its definitions of metropolitan areas. The general idea is that a metropolitan area includes a core area with a substantial population nucleus, together with adjacent communities that are integrated, in an economic sense, with the core area. Over the years, the labels for metropolitan areas have changed from standard metropolitan area (SMA) in 1949, to standard metropolitan statistical area (SMSA) in 1959, to metropolitan statistical area (MSA) in 1983, to metropolitan area (MA) in 1990, which referred collectively to metropolitan statistical areas (MSAs), consolidated metropolitan statistical areas (CMSAs—the largest metropolitan areas), and primary metropolitan statistical areas (PMSAs—parts of CMSAs).

The new label for areas considered metropolitan, implemented in 2000, is *core based statistical area* (CBSA). Each CBSA contains at least one urban area (either an urbanized area or an urban cluster) with at least 10,000 people and is designated as either a metropolitan area or a micropolitan area.

1. **Metropolitan area.** A *metropolitan statistical area* includes at least one urbanized area with at least 50,000 people.
2. **Micropolitan area.** A *micropolitan statistical area* includes at least one urban cluster of between 10,000 and 50,000 people.

In 2000, there were 361 metropolitan statistical areas and 559 micropolitan statistical areas in the United States.

The building blocks for metropolitan and micropolitan areas are counties. For a particular CBSA, central counties are ones in which at least 5,000 people or 50 percent of the population resides within urban areas with at least 10,000 people. Additional outlying counties are included in the CBSA if they meet minimum thresholds of commuting rates to or from the central counties. Specifically, at least 25 percent of workers in an outlying county must work in one of the central counties, or at least 25 percent of the jobs in an outlying county must be filled by residents of one of the central counties.

Together CBSAs contain 93 percent of the nation's population, with 83 percent in metropolitan areas and 10 percent in the smaller micropolitan areas. The percentage of the population in CBSAs (93 percent) exceeds the percentage in urban areas (79 percent) because CBSAs encompass entire counties, including areas outside urban areas (defined by the smallest geographical unit, the census block).

PRINCIPAL CITY

The largest municipality in each metropolitan or micropolitan statistical area is designated a *principal city*. Additional cities qualify as "principal" if they meet minimum requirements for population size (at least 250,000 people) and employment (at least 100,000 workers). The title of each metropolitan or micropolitan statistical area consists of the names of up to three of its principal cities and the name of each state into which the metropolitan or micropolitan statistical area extends. For example, the name for Minneapolis metropolitan area is Minneapolis-St. Paul-Bloomington, MN-WI, indicating that it includes parts of two states with two other municipalities large enough to merit listing. For most metropolitan areas, the label includes only one principal city. About a dozen large metropolitan areas are divided into smaller groupings of counties called metropolitan divisions.