



PROVA n. 1

Il laboratorio FULL organizzerà nel prossimo autunno un kick-off meeting con l'obiettivo di presentare il proprio programma di attività alla comunità Politecnica, a enti e soggetti pubblici e privati di ambito locale e nazionale, e ai propri potenziali partner internazionali.

Il candidato descriva:

- quale formato di evento propone;
- quali materiali preparatori di tipo scientifico e/o comunicativo ritiene necessari;
- quali strumenti di interazione ritiene utile impiegare;
- con quali strumenti prevede di diffondere i risultati; e infine
- articoli un possibile programma di attività per la produzione dell'evento.

Il candidato legga e traduca il brano allegato.

## CHAPTER 5

# Urban Growth

*An economic forecaster is like a cross-eyed javelin thrower:  
He doesn't win many accuracy contests, but he keeps the  
crowd's attention.*

—ANONYMOUS

**I**n an urban economy, there are two sorts of growth. First, economic growth is defined as an increase in a city's average wage or per-capita income. Second, employment growth is defined as an increase in a city's total workforce. In this chapter, we explore the various sources of income and employment growth and look at the consequences of increases in a city's total employment. One of the key questions is, Who benefits when total employment increases?

### ECONOMIC GROWTH: INCREASE IN PER-CAPITA INCOME

Economic growth is defined as an increase in per-capita income. The traditional—nongeographical—sources of economic growth are as follows:

- **Capital deepening.** Physical capital includes all the objects made by humans to produce goods and services, such as machines, equipment, and buildings. Capital deepening is defined as an increase in the amount of capital per worker—it increases productivity and income because each worker works with more capital.
- **Increases in human capital.** A person's human capital includes the knowledge and skills acquired through education and experience. An increase in human capital increases productivity and income.
- **Technological progress.** Any idea that increases productivity—from a worker's commonsense idea about how to better organize production, to a scientist's invention of a faster microprocessor—is a form of technological progress. The resulting increase in productivity increases income per worker.



## PROVA n. 2

Il laboratorio FULL organizzerà per l'estate 2018 una conferenza scientifica internazionale sul tema della legacy industriale urbana, con l'obiettivo di fare uno stato dell'arte sulla ricerca internazionale sul tema, raccogliere le più avanzate esperienze a livello globale e promuoverne sperimentazioni su scala locale e nazionale.

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## CHAPTER 6

# *Urban Land Rent*

*The trouble with land is that they're not making it anymore.*

—WILL ROGERS

**T**ake a walk from the outskirts of a metropolitan area to the center, and you'll observe some curious changes along the way. Early in your trip, the price of land will increase slowly and sometimes decrease, but eventually the price will start to increase exponentially. As you approach the center, building heights will increase exponentially too, so buildings near the center will tower over buildings just a few blocks away. In this chapter, we explain why the price of land varies within cities and show the connection between expensive land and tall buildings.

This is the first of three chapters on the spatial structure of cities. In this chapter, we divide the urban economy into three sectors—manufacturing, offices, and households—and see how much each sector is willing to pay for land in different parts of the city. Land usually goes to the highest bidder, so once we know how much each sector is willing to pay for land, we can predict what goes where. In the next chapter, we'll look at the actual land-use patterns in modern cities and see how things have changed in the last 100 years. In the third chapter on spatial structure, we'll explore the effects of government policy on land-use patterns.

### INTRODUCTION TO LAND RENT

It will be useful to define two terms, *land rent* and *market value*. Land rent is the periodic payment by a land user to a landowner. For example, a firm may pay \$9,000 per month to use an empty lot as a parking lot. In contrast, the market value of land is the amount paid to become the land owner. In this book, the "price" of land is land rent, a periodic payment to a landowner. This is sensible because many other economic variables are expressed as periodic payments, including household income, firm profits, and interest payments.

The rent on a particular plot of land is determined by how much money can be earned by using the land. David Ricardo (1821) is credited with the idea that the



### PROVA n. 3

Il laboratorio FULL organizzerà nel prossimo autunno un seminario di lavoro interno con il proprio advisory board internazionale con l'obiettivo di stringere relazioni con possibili partner di ricerca, raccogliere linee di indirizzo e suggerimenti sui propri programmi di ricerca e sviluppare attività comuni e sperimentazione.

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## CHAPTER 7

# Land-Use Patterns

*Otis's apparatus (the elevator) recovers the uncounted planes  
that have been floating in the thin air of speculation.*

—REM KOOLHAAS

**I**n modern metropolitan areas, jobs are divided between central business districts, suburban subcenters, and “everywhere else.” It turns out that most jobs are elsewhere—widely dispersed throughout the metropolitan area—and most people work and live far from the center. In this chapter, we describe the spatial distributions of employment and population within cities, then look back about 100 years to a different urban reality. In the heyday of the monocentric city, between two-thirds and three-fourths of jobs were near the center. We’ll explore the market forces behind the transformation of cities and discuss the causes and consequences of urban sprawl.

### THE SPATIAL DISTRIBUTION OF JOBS AND PEOPLE

We will use two notions of urban geography to describe the distribution of jobs and people in metropolitan areas. The first is the distinction between a central city and the surrounding area. Recall that the *central city* is defined as the territory of the municipality at the center of the metropolitan area. The *suburban area*—the rest of the metropolitan area—is defined as the land area covered by the other municipalities. The second geographical distinction is between a central area within three miles of the center and the rest of the metropolitan area.

#### The Spatial Distribution of Employment

We’ll start by looking at the spatial distribution of employment in U.S. metropolitan areas. Figure 7-1 shows the number of metropolitan jobs inside and outside central cities. In 1980, central cities had about 11 percent more jobs. The suburbs grew faster than the central cities, and by 1994, there were more jobs in the



PROVA n. 4

Nel quadro di un contratto di ricerca per conto terzi, il laboratorio FULL organizzerà nella primavera del 2018 un workshop sul campo all'interno di un rilevante complesso patrimoniale a cui inviterà esperti internazionali, operatori economici, istituzioni, ricercatori e studenti.

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## CHAPTER 8

# Neighborhood Choice

*Love thy neighbor as yourself, but choose your neighborhood.*

—LOUISE BEAL

When a household chooses a house or apartment, it is choosing much more than a dwelling. It is also choosing a set of local public goods (schools, parks, and public safety) and a set of taxes to finance the public goods. The household is also choosing a set of neighbors who provide opportunities for social interactions and send their kids to the same schools. In this chapter, we explore the economics of neighborhood choice. In contrast with our earlier analysis of commuting-based residential choice, the analysis in this chapter considers a variety of neighborhood characteristics.

### DIVERSITY VERSUS SEGREGATION

Our discussion of neighborhoods considers the issue of diversity. At one extreme is a city of diverse neighborhoods, each with an equal representation of households of different races and income levels. At the other extreme is a segregated city with a neighborhood for each type of household, rich and poor, black and white.

Cities in the United States experience a high degree of residential segregation with respect to income, education level, and ethnicity. Figure 8-1 (page 162) shows median incomes across the 176 census tracts in Suffolk County, the county containing Boston. If neighborhoods were perfectly integrated with respect to income, the median income would be the same in all census tracts. Instead, the range of median income across tracts is \$12,100 to \$98,900. Table 8-1 (page 162) shows the distribution of median income across census tracts in several U.S. cities. The data is for the county containing the central city. The first row of numbers shows the 10th percentile of median income, defined as the median income in the tract whose median income is higher than 10 percent of the city's tracts. At the opposite extreme, the fifth row shows the median income for the 90th percentile. In seven of the eight cities, the median income of the 90th percentile is between twice and three times the median income of the 10th percentile.