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Major Models of the Spatial Organization of Urban Societies

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Numerous models for the organization of urban societies have been designed, and this chapter provides an overview of them. These models may have changed over time as a result of changes in the societies themselves (*apartheid*, for example, went from being a form of racial discrimination in South Africa to a crime against humanity). Section 1.1 therefore attempts to outline the historical evolution of the spatiality of markers of social status in cities. One of the most widespread and important trends in urban inequality is the concentration of poor residents in makeshift or degraded neighborhoods, sometimes built illegally or informally, under the umbrella term "slums" (Davis 2006). While the spatial concentration of wealth and affluence may be detrimental to society as a whole in the long run, the spatial concentration of deprivation has direct and immediate effects on the health of residents and the education of their children that warrant primary attention (section 1.2). The chosen separation of individuals, whether on the basis of their economic and cultural ability to isolate themselves or on the basis of an elective strategy that facilitates the expression of minority identities, is discussed in section 1.4, after a review of historical examples of institutional segregation (section 1.3). The penultimate section of the chapter aims to reintegrate the idea of dynamics into the spatial organization of societies, by taking into account spatial circulation and mobility, which can attenuate as well as reproduce inequalities in access to urban resources (section 1.5). Finally, in section 1.6, we present possible corrective

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measures and remedies for changing the organizational model of societies and reducing urban inequalities.

1.1. Historical evolution of the spatiality of social status markers in the city

Cities emerged independently in different parts of the world, with time lags, but always after three or four millennia of sedentarization of societies through agriculture. During this period, social institutions, the division of labor and the specialization of trades were invented. The hierarchy of statuses in the organization of societies, which characterize the functioning of urbanized social groups, gradually consolidated (Demoule 2019). The increasing size of social groups and the explicitness, notably through writing, of the rules of their functioning and relations, institute modes of "distinction" in social statuses, which are often expressed not only in social practices but also in the choices or assignments of location in the city (Veblen 1899/1970; Bourdieu 1979). For a long time, these locations had to take into account the physical constraint of proximity, during the centuries when the bulk of travel was carried out on foot or by fairly slow transport. In the course of history, social stratifications, varying according to culture and power relations, but always expressing asymmetrical and inegalitarian relations, have evolved according to various spatial forms, more or less marked by these segregations.

1.1.1. *Ancient and medieval cities: center–periphery model of social status and mosaics of professions*

Status differences were strongly marked in ancient urban societies, where patriarchal and patrimonial relations of inter-individual domination were established between aristocratic landowners and the popular (plebeian) categories they exploited and protected. Sometimes reinforced by religious representations, and often by unequal economic capacities, these bonds of interpersonal loyalty between members of the city were added to the legal and economic bonds uniting masters and slaves in all urban societies of the period. Historians of antiquity often note the mingling of rich and poor in the same urban districts, which can be explained by the daily functioning of the division of labor and the interweaving of roles in these highly hierarchical societies, where some were subject to the personal service of others, routinely enlisted for forced labor, while at the same time being engaged in relations of servitude well anchored in individual and social representations. But at least until modern times, "the importance of clothing and forms, their ostentatious diversity, avoided any confusion as to the respective quality of people who mingled in the city" (Donzelot 2006, p. 1). Indeed, physical proximity did not mitigate status inequalities, and living quarters

were quite distinct, within houses between masters and servants or according to the different urban districts. Status inequality also operated for circulations in the public space, between those at the top and those at the bottom.

The residential groupings in the city space were organized first of all by the choice of location of the richest near the places symbolizing political and religious power, by family or by clan, for example, in the model of Roman cities or those of the Ottoman Empire. The model of a shift from the center to the periphery according to a decreasing function of caste status dominated the traditional organization of cities in India (Dumont 1966; Chatterjee 1967; Vaguet 1997). The caste system was accompanied by strong spatial segregation, which may still persist today. "The relegation of a few untouchable castes to separate neighborhoods in urbanized villages is a clear manifestation of the persistence of social ostracism" (Dupont 2004, p. 163). The author demonstrates in this recent analysis that the segregation of untouchables and scheduled castes or scheduled tribes cannot be explained, all other things being equal, by the characteristics of these populations alone in terms of income, profession or education. On the contrary, analysis of the discourses of Delhi's urban elite shows a rejection and a claimed distancing of untouchables and the poor on the basis of their supposed impurity and violence, as well as a naturalization of poverty as a justification for urban inequalities (Paugam *et al.* 2017).

Another logic of social separation in ancient cities was found in the grouping of trades of the same nature in distinct districts (Roncayolo 1996; Gravier 2018). Whether this grouping was justified by reasons of convenience (functioning of markets), distance from sources of nuisance (tanners, blacksmiths, even fishermen) or by regulatory measures (granting of monopolies or franchises, establishment of product standards, collection of taxes), it was practically always institutionalized, in professional associations that were called *corporations*. The current names of streets and neighborhoods of some cities (rue des Orfèvres, rue des Tanneurs in France) still refer to this strict organization of the urban space. Sometimes, the grouping reflected both the economic function and the origin of people considered foreign to the city. The name "ghetto" (the foundry district), where Jews were concentrated in Venice in the Middle Ages, has become the generic term for these highly segregated places.

Another constant in the history of urban segregation is the clustering of recent immigrants in the same neighborhoods, often near the traffic routes that allow their entry into the city. It can be found in all patterns of spatial organization of ancient cities, whether territorial capitals or trading posts (Nightingale 2012). The ability of migrants to assimilate into the city involves a gradual acculturation into neighborhoods where information and prior connections facilitate it, as was again seen during the great rural exoduses to industrializing cities in the 19th century. It

constitutes the main process of social evolution of American cities in the model systematized by sociologist Burgess for 1920s Chicago, or even today in the case of cities in poor, fast-growing countries, such as India (Kundu and Saraswati, 2012).

The distinction between those who have a "right to the city" (Lefebvre 1968) and those who do not have this urban status may have materialized in space through the relegation of certain activities and populations beyond city walls. The historian J. Le Goff (1967) emphasizes the importance of urban ramparts as physical and symbolic markers of the separation between the urban and the rural in European cities of the Middle Ages. Enclosures with a small number of gates were built for defensive or fiscal reasons around cities in Europe and Asia and periodically expanded to accommodate urban expansion (Benevolo 1993). For example, Figure 1.1 outlines the seven or so enclosures that have represented the successive boundaries of Paris since the 4th century, often replaced by traffic ring roads in the present-day municipality, as well as the more square-shaped ones that guided the design of the first boulevards around Beijing. Some activities were relegated beyond these walls, a situation chosen in the case of certain religious congregations, or suffered as in the case of the large caravanserais housing nomadic populations, pilgrims or merchants around the main gates of the great cities, for example, on the silk routes, in Isfahan, Samarkand or Peking. For a long time, recreational activities that played on tax differentials (such as the Paris guinguettes celebrated by the Impressionist painters) were also relegated to the intermediate fringes between the city and the countryside.

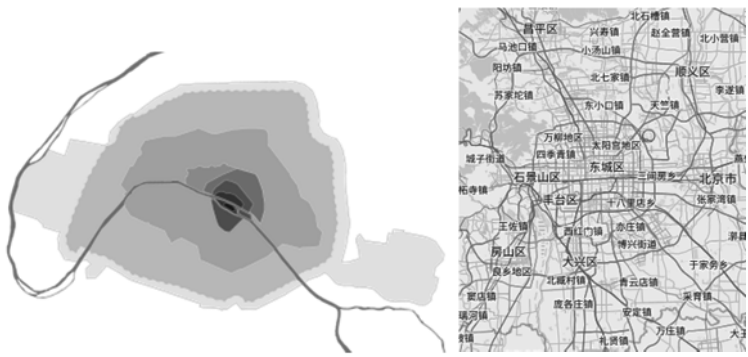

Figure 1.1. *Successive boundaries of the enclosures that have walled off the municipality of Paris since the 4th century and the perimeters of Beijing that have been transformed into traffic rings. Source: https://fr.wikipedia.org/wiki/Enceintes_de_Paris and https://wiki.openstreetmap.org/wiki/Beijing. For a color version of this figure, see www.iste.co.uk/cottineau/cities.zip*

1.1.2. *From "vertical" to "horizontal" segregation with industrial cities*

Urban planning operations designed to consolidate the power of the urban aristocracy and bourgeoisie by embellishing and monumentalizing urban space were frequent in the 18th century and resulted in the forced exclusion of less powerful or poorer populations, who were often relegated to peripheral locations (Perrot 1968). But it was especially in the 19th century, with the Industrial Revolution and the motorization of transport, that the social division of urban space between rich and poor neighborhoods became more pronounced and generalized. Several processes more or less coincided, leading to major changes in the social composition of urban neighborhoods. The overpopulation of the countryside and the appeal of new industrial jobs led to large migratory movements towards cities from the beginning of the 19th century, causing the exceptional growth of mining and manufacturing towns, especially in Great Britain, Belgium and Germany. The increased urban densities, combined with unhealthy housing and inadequate hygiene conditions, promoted the spread of epidemics to such an extent that historians and demographers coined the expression "man-eating cities" to refer to the excess urban mortality of this period (Barles 1999). Working-class neighborhoods for employees were built around factories or railroad stations in suburbs beyond the city walls. Large-scale urban planning operations such as those undertaken in Paris by Baron Haussmann destroyed the medieval city centers and drove the poorest populations, considered in the 19th century to be the "dangerous class" (Chevalier 1958), out to the neighboring villages, which had become suburbs and long remained very under-equipped, while the urban bourgeoisie occupied the quality buildings along the newly opened avenues. These changes in the distribution of social categories in urban space were observed so regularly that the German geographer Johann Georg Kohl (1841) proposed a model. He described the shift from a "vertical" social stratification according to building floors to a horizontal segregation according to urban neighborhoods. In pre-industrial cities, where housing was already very dense, craftsmen and shopkeepers occupied the first floor of buildings, aristocrats and middle-class individuals lived on the second floors, which sometimes had balconies, workers and employees crammed into the upper floors, which were more difficult to access, and servants lived in the attics or in the basements (Figure 1.2A). With the Industrial Revolution, suburbs gathering workers were built around factories, which established a more clearly differentiated distribution visible on the map of cities, the distance being overcome by the circulation of streetcars (Figure 1.2B and C). The gentrification of historical city centers was further amplified by the invention of the elevator towards the end of the 19th century (Halbwachs 1938; Chombart de Lauwe 1952).

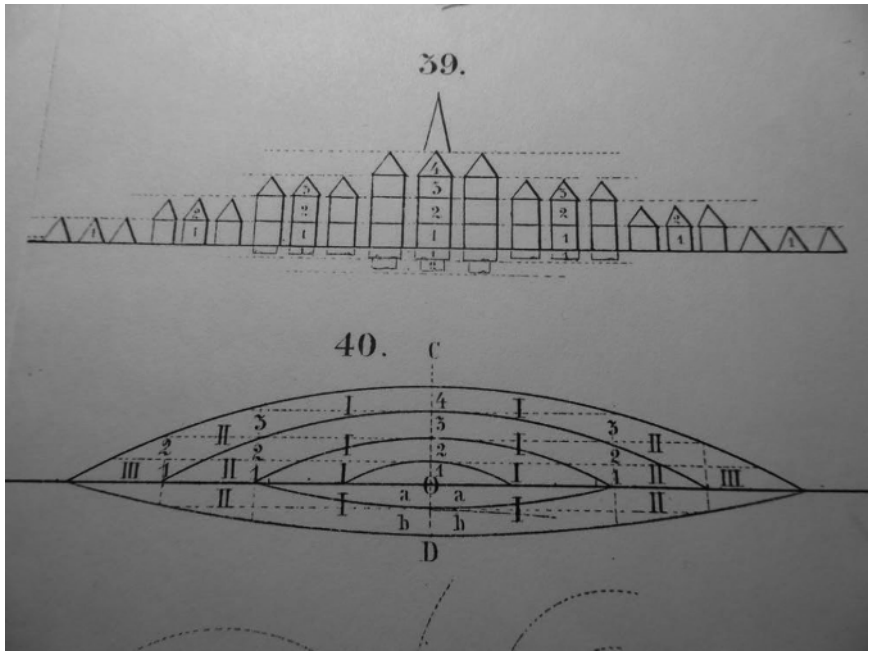

Figure 1.2. *A model of the evolution of urban social segregation according to J.G. Kohl. Source: Kohl (1841, p. 417). Figure 39 shows vertical segregation in buildings at the beginning of the 19th century, with artisans and shopkeepers on the ground floor (1), middle-class people on the second floors (2) and employees and servants (3 and 4) on the upper floors. Figure 40 shows the evolution towards a horizontal segregation of these social categories in the city with the industrial revolution and the motorization of transport. For a color version of this figure, see www.iste.co.uk/cottineau/cities.zip*

1.1.3. *Canonical spatial models for contemporary cities: factorial urban ecology*

After the advent of democratic political regimes, the erosion of social categories defined in terms of order and lineage did not abolish the hierarchy of social categories but gave way to a conception of social status characterized even more than before by the level of household wealth. Social inequalities in the liberal economy city have been analyzed in detail for US cities by sociologists conducting multiple surveys and using census data since the 1920s. Those at the University of Chicago (Park *et al.* 1925) proposed models of the spatial organization of urban societies that have been extremely successful. Burgess's model describes an organization in concentric zones, the center of which is occupied by the business

district, surrounded by a zone of deteriorated housing inhabited by newly arrived immigrants who find in these peri-central neighborhoods the information and jobs that allow them to integrate into urban society. They tend to move successively to zones further and further from the center as their incomes rise. This evolutionary model is based on the observation of residential trajectories and the mobility of populations in urban space (in US cities at the beginning of the 20th century). In mapping land values and their evolution in many cities, however, the economist Homer Hoyt (1939) proposed a model with a different spatial form. According to Hoyt, urban space is divided into rich and poor sectors, depending on the layout of access routes to the central business district, with richer residents choosing better-serviced areas and poor people being relegated to less accessible interstitial areas. Over time, overvalued areas grow toward the periphery using the same fast traffic corridors with good accessibility to the central business district (CBD; see Figure 1.3).

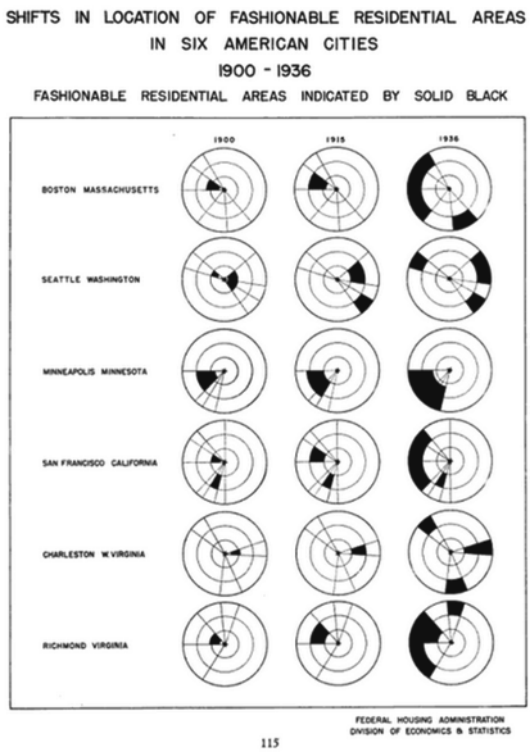

Figure 1.3. *Changes in the location of attractive neighborhoods in six US cities from 1930 to 1936. Source: Hoyt (1939)*

It was other sociologists and then geographers who later brought these two models together and reconciled these apparently contradictory, but in fact complementary, interpretations of the location of social differences in the city. Using simple statistical methods, the sociologists Shevky and Bell (1955) demonstrated correlations between indicators characterizing the inhabitants and their living conditions and identified three major sets of criteria: social rank or economic status, family status and ethnic status. The spatial distributions of these "latent dimensions" organizing social inequalities and differences, analyzed in San Francisco in 1940 and 1950, are relatively independent of each other in terms of location patterns. Working on thousands of blocks in the Chicago metropolitan area with more than 60 variables, the geographer Brian Berry confirmed the validity of these correlations in the 1960s by means of multivariate analyses. Principal component analyses add to the demonstration by hierarchizing the three main "factors", each of which corresponds to a different explanatory logic for the variation in social composition between urban neighborhoods. The mapping of neighborhood coordinates also allows us to compare the explanatory value of the different spatial models. *Socioeconomic status* (described by variables such as the share of residents' occupations, household income and education, or rent) represents the most important divide between the city's neighborhoods. It is divided into sectors, thus validating Hoyt's model of a monopolization by the wealthiest of the corridors of best accessibility, from the CBD towards the periphery in the same direction during the spatial expansion of the city. The *family status* factor, also known as the *life cycle factor* (described by data such as the age and number of persons in households and the size and age of dwellings), is arranged, for both rich and poor sectors, in concentric rings following the expansion of the urban area, validating Burgess's model for US cities. One- and two-person households, whether immigrants or students, occupy older, smaller dwellings near the city center. They then move away to newer, larger buildings as families grow and return to the center to take advantage of the proximity of urban facilities after the children have left the nest – the average age of residents is thus higher in the city center and younger on the outskirts. Smaller, older dwellings in the city center and larger dwellings in the suburbs are the rule in both the poor and rich sectors of cities. The *ethnic factor*, which describes populations grouped according to their declared origins, has more sporadic locations. With the sociologist John Kasarda, Brian Berry carried out systematic factorial analyses of American metropolitan areas which found everywhere the same three factors of social differentiation of urban neighborhoods as well as their logic of spatial arrangement (Berry and Kasarda 1977). These patterns have been tested in almost every country in the world and are of some relevance, for instance, to the analysis of European cities, as shown by the test carried out on a set of French cities (Figure 1.4) by Markus Schwabe (2007).

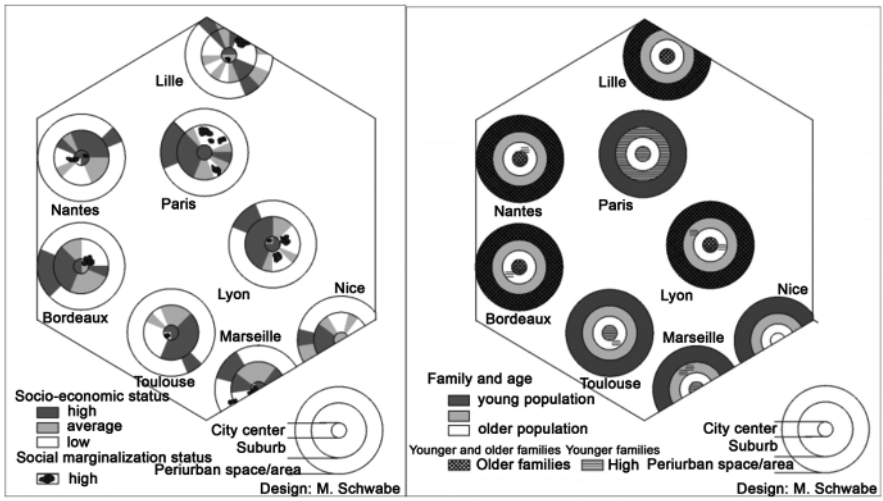

Figure 1.4. *Configurations of economic status (left) and family status (right) factors in eight French cities. Source: Schwabe (2007). For a color version of this figure, see www.iste.co.uk/cottineau/cities.zip*

The synthetic and schematic representation of the composition of urban societies through multivariate analysis has been called "urban factorial ecology" (Grafmeyer and Joseph 1979). The term ecology refers to the inspiration that Chicago School sociologists found in plant ecologists who described invasions and successions of plant species over time. The wording of this stream of research instituted by the method of analysis has been criticized for the weakness of its theoretical assumptions, which are based on a simple multivariate statistical description, and the eclecticism of its applications to a wide variety of nomenclatures and categories. However, these simple models make it possible to highlight and analyze differences that reveal opposing cultural appreciations of the desirability of urban locations, between cities of the Old World, Europe and Asia, and cities of the New World. Broadly speaking, while the affluent populations of American cities have a preference for suburban locations away from the congestion and decay close to the city center, clearly separating the prestigious places for work and business in the CBD from those coveted for family life and proximity to nature in the outer suburbs, those in European cities maintain a very strong attachment to central locations, in which they continue to invest in historic sites and buildings. The distrust of the center and its high density certainly has a European origin, but it is rather limited to Great Britain, where the aristocracy maintained their preference for rural residences away from the urban miasma and high proletarian density in very early industrialized cities (Hancock 1993). The fear of a degradation of morals associated

with urban life manifested itself even more intensely among Puritan settlers in the United States, while at the same time highly egalitarian forms of the checkerboard layout of urban neighborhoods and their regular orthogonal grid of service networks were advocated and materialized in the spatial organization of cities (other consequences of this "Hippodamian" layout are discussed in Chapter 2). It is also in certain cities in the United States, such as Detroit, that gigantic social contrasts are sometimes observed between the two sides of the same street, whereas inequalities are often expressed by gradual transitions between the richest and poorest neighborhoods in European or Asian cities. The famous 8 Mile Road, immortalized in Curtis Hanson's film of the same name (2002), separates the part of Detroit populated mostly by Black Americans from the part populated mostly by White Americans (Figure 1.5).

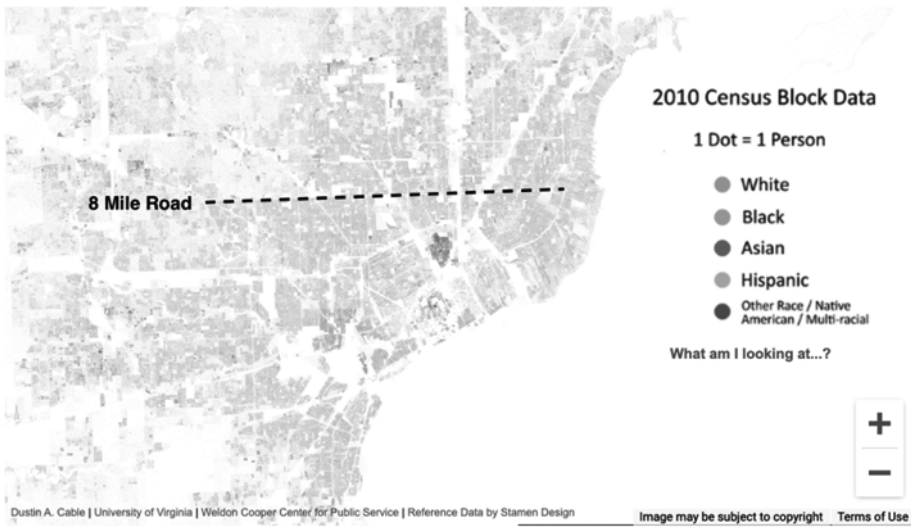

Figure 1.5. *Dot map of the city of Detroit. Source: https://demographics.virginia.edu/DotMap/. For a color version of this figure, see www.iste.co.uk/cottineau/cities.zip*

These observations should warn against the temptation to consider explanatory theories of the organization of societies in urban space as universal. Too often the "evidence" imported from the United States has been mistaken as the reference towards which other cities in the world would tend to conform (see a critical discussion of the role of these models in the construction of methods and theories of segregation in Chapter 5), which leads, for example, to inversions of the

connotations associated with the suburbs that may lead to irrelevant recommendations for urban planning (Fassin 2006; Body-Gendrot 2011). Thus, even the models that seem to be most rooted in the supposed neutrality and universality of market mechanisms were mostly designed with American preferences in mind. William Alonso's (1964) model, discussed in more detail in Chapter 2, is based on a household trade-off between rent costs and transportation expenditures. But the spatial pattern that emerges from this model, when its equations are put into a simulation model, reflects that of US cities, with poorer neighborhoods in the center and richer neighborhoods on the periphery, the opposite of the pattern observed in most European cities (Delloye *et al.* 2020). Urban vocabulary also deserves "translations" that are very strongly contextualized (Depaule and Topalov 1998). In a recent debate on the "dualization" of societies in the world's largest metropolises, which opposes the very rich and the very poor, two social classes radically differentiated with respect to their integration into globalization, their degree of wealth and the degree of precariousness of their socio-professional status, according to the hypothesis of Saskia Sassen (1991), Edmond Préteceille (2006) offers a much more nuanced view. Using the example of Paris, he emphasizes the importance of neighborhoods with an "average-mixed" profile, which are home to 45% of the population, and of an evolution that results in "both [the] maintenance of a mixed central part of the socio-spatial distribution and [the] increase in the social distance between the two extremes of this distribution" (p. 60).

In fact, by suggesting the multiplicity of processes that contribute to the differentiation of urban neighborhoods, urban models invite us to examine the diversity of actors and the political and social mechanisms that are responsible for them. The processes of real estate speculation and the relegation of the poorest populations through major urban renewal operations such as Haussmannization were well analyzed by Halbwachs in 1909. It is no coincidence that the market asymmetries of city making and its locations have been analyzed, often based on Marxist theses, on the European continent. Such cities have a development constrained by the importance and value of their historical heritage and high densities. Land ownership differs from other traded goods in that it is not substitutable[1] (Topalov 1973; Guigou 1982) and in these situations of relative scarcity, free market rules are much less often observed than monopoly effects. The

1 In economics, two substitutable goods are perfectly interchangeable for consumers. Indeed, they not only have the same utility but also identical characteristics. This is not the case for real estate, which, because of its location, history and conditions of sale, is imperfectly substitutable. Real estate thus generates significant transaction costs and is subject to strong information asymmetries.

cadastral forms of urban land appropriation are therefore a first factor of discrimination in access to the city (Lipietz 1974). Wealthy populations have greater freedom in their location strategies and prefer to cluster together in selected neighborhoods (Pinçon and Pinçon-Charlot 2009). Actors other than property owners also often have very unequal weight, whether they are real estate developers (Topalov 1977) or the urban entrepreneurs studied by Manuel Castells and Francis Godard (1984) in Dunkirk under the revealing title of "Monopolville". Chapter 2 offers a more detailed analysis of the inequalities that urban land and property prices reveal and give rise to in order to explain the almost universal center–periphery gradient in urban monetary values, while Chapter 5 explores in greater detail the models and theories proposed by the social sciences to explain how the tendency to separate social groups in today's large cities is expressed.

1.2. Slums, informal settlements and shanty towns

Because it raises deep emotions, because it persists in renewed forms even in the cities of the richest countries and also because it becomes much more visible in the city than in the countryside where it is more dispersed, urban poverty is the subject of numerous analyses (Da Cunha *et al.* 2008).

First of all, it is important to remember that poverty is a *multidimensional* concept, which for the populations concerned translates into a deficit of capital, in all its forms: less income, less wealth, less cultural, relational, spatial capital, etc. than the population as a whole. The United Nations lists the consequences both at the individual level in terms of "lack of basic human capabilities: illiteracy, malnutrition, reduced longevity, poor maternal health, preventable disease" and at the collective level in terms of social discrimination and exclusion (UN 2020). Poverty is also a *relative* concept, resulting from a comparison of the situation of households at a given time and in a given territory. For example, 40% of poor households in the United States own a car, which is obviously not the case in many African or Asian countries. When international comparisons are made, the notion is often reduced to *monetary poverty*, which is supposed to summarize an array of multiple deprivations. An international extreme poverty line, designed to assess poverty in developing countries, is set at $1.90 per day per person. Globally, nearly 10% of the population, or 736 million people, lived below this line in 2015 (World Bank 2018). The proportion has declined since the 1990s, mostly due to economic development in Asia, but absolute numbers are still increasing due to population growth. Most importantly, the COVID-19 pandemic has reversed the trend of

poverty rate reduction that had prevailed for at least two decades. While four-fifths of the poor resided in rural areas, the pandemic has created a category of "new poor" in urban areas, whose number the World Bank estimates at between 87 and 114 million people (World Bank 2020). Variable thresholds have been set by the World Bank to assess relative poverty in emerging countries ($3.20 per day in lower- to middle-income countries, and $5.50 per day in upper- to middle-income countries). But poverty is also measured by the lack of basic infrastructure: 2 billion people worldwide lack access to clean water and adequate sanitation (UN 2019).

1.2.1. *Specificities of urban poverty*

Globally, poverty rates remain higher in the countryside, but as urbanization progresses, it is in cities that poverty situations become increasingly visible (Damon 2014). It is through built infrastructure and especially housing that urban poverty is most commonly observed. While defective or degraded buildings can be found everywhere, it is in cities that 19th-century hygiene concerns led to the refinement of vocabulary designating unhealthy housing, slums, characterized by inadequate facilities and unfit housing conditions (Fijalkov and Maresca 2020). The United Nations defines a "slum household" as a group of people living in the same urban dwelling that lacks one or more of the following: permanency of its building material, sufficient living space, availability of clean water, access to sanitation and security of tenure (UN-Habitat 2003).

Historical neighborhoods, as well as working-class suburbs, concentrate these "slums", occupied and sometimes squatted in by low-income populations, composed mainly of recent migrants to the city. It is debated to what extent these locations are temporary and could "promote" the gradual integration of these new populations into the urban world. The reappearance of visible poverty in the cities of rich countries is a recurrent phenomenon. In a country like France, for example, the shantytowns that had emerged in several large cities as a result of the post-war housing crises, or during the influx of repatriates from the colonies, housing some 100,000 people in the early 1960s, were eliminated in the 1970s. They reappeared in the 1990s for a population 10 times smaller, mainly made up of foreign migrants awaiting integration, some of whom came from countries at war (the example of Syrian migrants since 2015 is probably the most striking) or from the least wealthy countries recently integrated into the European Union, as well as from sub-Saharan Africa. These precarious camps are periodically destroyed by the authorities. Similar developments have been observed in other Western European countries. The homeless population, which is difficult to count, is nevertheless estimated by statistical services to be about 140,000 people in France (Marpsat 2008), the

numbers being of the same order of magnitude in European countries. However, Maryse Marpsat considers that these people constitute "the tip of the iceberg of precarious situations". This form of extreme social exclusion has appeared more recently in urban public space and in less visible forms in the more developed Asian countries (Kennett and Mizuuchi 2010).

1.2.2. *Increased importance of informal settlements in cities of poor, rapidly developing countries.*

However, the majority of the urban poor live in slums, which are home to about 1 billion people worldwide, or just under one-third of the world's total urban population. The current increase in this number in the regions where urban growth is most rapid, such as sub-Saharan Africa, certain regions of Latin America and certain countries in South and Southeast Asia, raised the fear that it will be impossible to reduce this form of precarious housing, which could lead to the eventual creation of a "planet of slums" (Davis 2006). The term refers to vast areas of slums, built with repurposed materials, in areas poorly serviced by technical networks and transportation, often in flood-prone areas or on difficult terrain (such as the hills of Port au Prince or the favelas of Rio de Janeiro). The definition of a slum (or shantytown) used in international publications is sometimes vague, associating several types of criteria. It includes not only the fragility or poor quality of the construction materials but also overcrowding, lack of access to or difficulty in accessing drinking water, absence of connection to sanitation networks and most often a precarious occupation status, according to a variety of degrees between illegal occupation, renting at sometimes high prices and more or less uncertain ownership, hence the sometimes synonymous names of informal, irregular or self-built housing (UN-Habitat 2003). The degree of poverty of the inhabitants, their participation in the formal or informal economy, their access to water (Zerah 1999), electricity or information networks and the form of the buildings are also extremely variable in these districts (Figure 1.6).

Satellite imagery analysis allows for pinpointing the location and extent of slums, which are scattered throughout the urban fabric of most large cities in poor countries. They are most often located in the interstices of the urban fabric, on the outskirts of the city but in the immediate vicinity of wealthier neighborhoods to which their residents offer their labor for handicrafts or domestic services (Baud *et al.* 2009). An analysis of their morphology in large cities on different continents (Rio de Janeiro, Mumbai, Manila and Cape Town) reveals many similarities in the physical and spatial organization of these neighborhoods. They are very uneven in

size within a single city, occupying on average just over one and a half hectares (Friesen *et al.* 2018). Although made up of much lower-rise buildings, slums are much denser than surrounding neighborhoods. They are often hidden from view in cul-de-sacs or vacant lots subsisting between transport or industrial structures, but they are also objects of curiosity, for a variety of reasons, from international tourists who develop a voyeuristic "taste for slums" (Dovey and King 2012).

Figure 1.6. *Habitat variety and fire vulnerability scene in Guguletu Township, South Africa. Source: Photos by Denise Pumain, March 2011. For a color version of this figure, see www.iste.co.uk/cottineau/cities.zip*

Because they represent the most extreme and blatant form of urban misery and social exclusion in the city, slums and shantytowns are the subject of many forms of intervention by governments and associations. Demolitions and evictions are frequent, such as the one that occurred several times in Otobo Gbame, on the Lagos lagoon in Nigeria, or in Jakarta, resulting in the fragmentation of smaller precarious areas scattered throughout the city. According to UN-Habitat (2003), there are still 10 or so very large slums in the world, each with more than 1 million inhabitants,

such as Orangi Town in Karashi, Pakistan, Pikine in Dakar, Senegal, Ezbet-el-Haggana in Cairo, Egypt, and Neza-Chalco-Itza in Mexico City. Long stigmatized for the illegal nature of their settlements and the marginal nature of their activities, these populations have seen a clear evolution in the social representations associated with the informality of their activities, which are now considered to make a positive contribution on the one hand to the city's economy and on the other hand to the trajectories of integration of their inhabitants into city society (Chéneau-Loquay 2008; Clerc 2008; Barthel and Jaglin 2013; Ribardière 2017). However, the popular habitat of cities in developing countries is not reduced to informal housing. A diversity of situations and occupancy statuses largely co-exist.

All over the world, the socio-economic dynamics of the 21st century, after having seen a relative reduction in the most extreme situations of poverty, have seen an increase in urban inequalities, due to the financial crisis in 2008 and then to the COVID-19 pandemic. High densities and the lack of sanitary facilities have had a very strong impact on the slum areas. Patel (2020) gives the example of the gigantic slum of Dharavi in Mumbai (India), one of the largest in Asia with 800,000 inhabitants and a population density of more than 300,000 inhabitants/km^2, that is, 12 times higher than that of the already very dense central city of Mumbai nearby. According to the Census of India, 43% of Dharavi's households have no direct access to water and 45% of homes have only one room, which makes the effectiveness of isolation measures for infected people illusory. Above all, the limitation of mobility has deprived of resources the majority of these populations which depend on urban service jobs that are often informal. Admittedly, the populations of these neighborhoods are often younger than those of the cities where they live, which may reduce the severity of the disease, but it is likely that the complex effects of the pandemic will lead to excess mortality and accentuate the precariousness of the inhabitants' economic survival. The foreseeable crises linked to climate change could, in different ways, contribute to maintaining the exclusion of the most vulnerable populations in these urban neighborhoods, which are still stigmatized and relatively abandoned.

1.3. Institutional segregation

The distribution of social groups in urban space is not only the result of economic center–periphery logics. It can also, by becoming a normative model, result from political and administrative prescriptions, of which we shall see two aspects: colonial segregation on the one hand, which aimed to separate human groups on a racist and discriminatory basis, and "rational" zoning resulting from functionalist theories on the other.

1.3.1. *Colonial segregation*

> From Rangoon to Cairo, Luanda to Singapore, cities were laid out by the rulers, not the ruled. Here, juxtaposed in the environment of the colonized society, were the urban forms of East and West, a unique type of social, physical and spatial organization which this study identified as colonial urban development. (King 1976, p. xii)

European colonization in America, Asia and Africa was most often inscribed in space through the process of urbanization. Whether they chose to settle in existing cities and settlements or created new ones, the colonizers established a separate and discriminatory organization of urban space, with some places reserved for the European population and others for the Indigenous population. Sometimes incorporated into state law, the expression of a segregationist ideology may also have been achieved through the imposition of European urbanistic models on the organization and functioning of the colonized city. L. Beeckmans (2013) thus notes that despite their many differences, the British colonization in Dar es Salaam, the French colonization in Dakar and the Belgian colonization in Kinshasa all had in common the establishment of a physical distance (in the form of a *cordon sanitaire*, a neutral zone or buffer) between the colonizer and the colonized with the aim of creating a comfortable home for the colonizer in the colony while asserting his dominance in and through the urban space. Whatever the style of urban planning (garden city, housing estate), its imposition in the colonial city was intended to accommodate the colonizer and keep the colonized at bay.

The case of South African apartheid can be seen as a historical extension and legacy of British colonization, which was resistant to the idea of integration in its colonies, from Ireland to its overseas empire (Christopher 1983). During the apartheid regime, the organization of urban space and transportation networks was instrumentalized to funnel Black labor into the White city while ensuring maximum separation between the two populations (Baffi 2016). The result was the construction of townships ever further from urban centers as dedicated rail lines were built (Nightingale 2012). The "tree" rail network attests to its extractive purpose, while the infrastructure itself (i.e. the rails) serves as a physical demarcation and separation between Black and White neighborhoods, rendered inaccessible to each other (Davies 1981). The townships (Soweto or Kathlehong in Johannesburg, Langa or Nyanga in Cape Town), heirs to previous segregation logics in the form of compounds or locations at the beginning of the 20th century (Houssay-Holzschuch 1997), were as isolated as they were ill-equipped and rapidly

saturated by demographic growth. They provided deplorable residential and sanitary conditions for the Black population, which was legally assigned to these neighborhoods in order to institute and spatially reproduce the segregationist and unequal social order promoted by the apartheid state. At all scales, the processes of colonization and segregation have constructed singular forms that make South Africa a country of "hybrid" urbanization (Vacchiani-Marcuzzo 2016).

The urban outcome of the institutional separation of populations under colonial regimes can be seen in the spatial organization of cities with a colonial past. In the city of Delhi, for example, to the historic center (Shahjahanabad, renamed Old Delhi), which was tortuous, multifunctional and surrounded by walls, British colonization juxtaposed the new garden city (New Delhi), which was vast and sparse, with no concern for integration, harmony or continuity with the old center (King 1976; Evenson 1989). Precisely, built by and for British settlers in the early 1910s, according to imported and imposed social and sanitary rules, the new city was deliberately separated from the old center to avoid its contagion, both aesthetic and social (Gupta 1981; Dupont 2004). The duality of the city has persisted (Vhai 1993) while becoming more complex after Indian independence. This duality characterizes in the same way and for the same reasons, most of the colonial cities of Algeria (Chaouch 2013) and Morocco: "[the colonial city in Morocco] is part of a logic of juxtaposition, duality and in a logic of separation of two spatial orders, which are the expression of unequal social relations (cultural distance / physical distance)" (Arif 1994, p. 155).

Conversely, in some cities, settlers proceeded to relocate existing Indigenous inhabitants by appropriating their land, as in British Columbia (Edmonds 2010), or to occupy existing neighborhoods, as in Shanghai (Figure 1.7). In the French and international "concessions" from 1843 to 1942 in Shanghai, Lee and Li (1999) note that the functional and urbanistic separation between Chinese and foreigners was less strong, given the presence of mixed communities and the connection between the concessions and the rest of the city by bus lines, streetcars and bridges. However, these authors note on the one hand that the walled Chinese city and the Chinese district of Zhabei were disconnected by the presence of the concessions and on the other hand that the Western presence in the space of the concessions was expressed by numerous spatial markers, such as the presence of churches, clubs, cinemas, racetracks, banks, hotels, etc.

Even today, the legacy of colonial separation of human groups in urban space has significant consequences, foremost among them economic segregation where

ethnic and racial discrimination previously existed. Indeed, whether in South Africa or the United States, the structure of the housing market reflects, for example, the inherited association between White space and high land prices, and unequal access to credit and homeownership by Black residents continues through new market devices (like credit scoring), due to formerly institutional segregative practices, partly camouflaged under sociotechnical devices (Nightingale 2012; Gibbons 2018; Migozzi 2020).

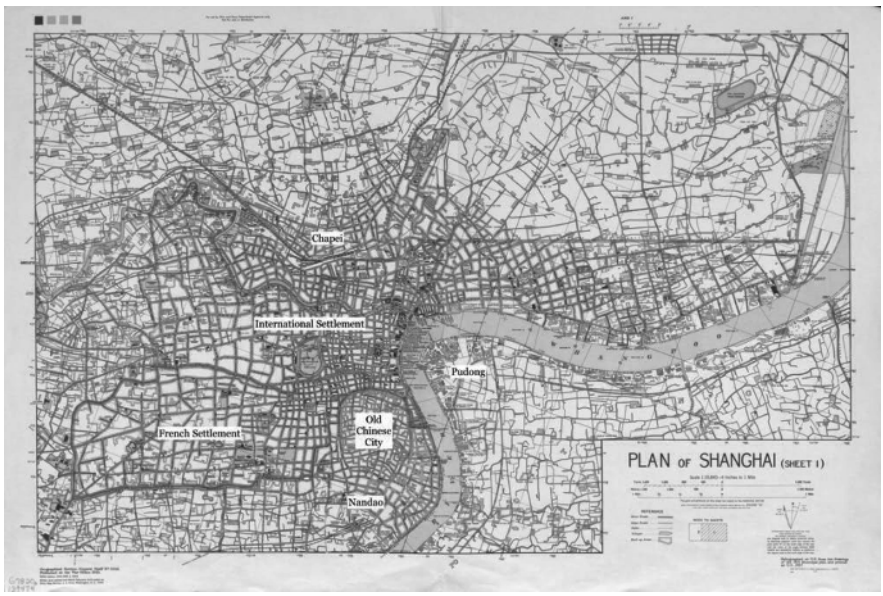

Figure 1.7. *Foreign concessions in Shanghai in 1935. Source: United States Army Map Service, University of Texas Perry-Castañeda Library Map Collection, Wikicommons. For a color version of this figure, see: www.iste.co.uk/cottineau/cities.zip*

1.3.2. *Rational urbanism*

The creation of Abidjan was accelerated by a series of epidemic catastrophes. Indeed, from 1899 to 1903, three attacks of yellow fever decimated Grand-Bassam, the capital of the Ivory Coast. It was decided to evacuate and to build a new city, which would be Abidjan. At least, that was the ideal program. In practice, there was no agreement: some merchants wanted to keep Grand-Bassam at all

> costs; the local administration wanted to create a city in a site considered healthier – this was Bingerville; a third group preferred to gather all activities immediately in Abidjan, from where the railroad would start and where a port was planned. No one won out absolutely; there were three agglomerations very close to each other: Grand-Bassam, Bingerville, Abidjan. (Le Pape 1985, p. 295)

The city of Abidjan itself was separated into three zones: the "Plateau", benefiting from favorable topographical conditions, intended for the residence of Europeans and for productive and military functions (railroad, offices, camp); the lagoon, intended for commerce and the "indigenous city, distinct from the European city and placed downwind of the latter on the eastern slopes of the Abidjan Plateau" (Thomasset 1909; cited by Le Pape 1985). The division of urban space, thus enshrined in Ivorian law, assigned individuals to unequal spaces (particularly in the face of epidemic risk) and separated them according to their ethno-racial origin alone, with the aim of maximizing commercial profits and colonial domination. The case of Abidjan illustrates the interweaving of segregationist, commercial and sanitary objectives in the colonial organization of settlement points. This logic can be found in many colonial cities (Nightingale 2012).

In European cities, it was the institutional functionalism of the 19th century that led to the separation of populations along socio-economic lines, by moving many poor and working-class inhabitants to the (poorly equipped) peripheries of the industrial city, according to *urban zoning* plans. In Paris, Haussmann's strategic use of expropriation measures, under the guise of a sanitary need for urban renewal, indeed led to this first separation of social groups in urban space, fueling speculation on central land and rising prices, forcing the poorest to relocate to the peripheral arrondissements and then to the peripheral communes (Ceaux 1975, cited by Faure 2008).

From the 1930s to 1940s, rational urbanism, supported by the Charter of Athens and the writings of Le Corbusier, proposed to improve the quality of urban life (through aeration, access to light and green spaces in particular) by spatially separating urban functions through zoning, that is, by exclusively reserving different areas of the city for infrastructure, leisure, work and "life" (Merlin 2018). The urban planners' invocation of sanitation would have promoted the creation of large exclusively residential complexes on the outskirts of cities, which would subsequently become important places of concentration of the working-class, poor and immigrant population, especially when these large complexes were isolated

from more mixed urban spaces (Chamboredon and Lemaire 1970; Dufaux and Fourcaut 2004). More recently, the hygienist current of Brazilian planning has promoted the same type of movement, by evicting the inhabitants of central *favelas* to relocate them in large peripheral complexes (Augusto Souto-Maior Fontes 1991). Reporting from the perspective of spatial injustice on *déguerpissements*, that is, the forced displacement by a public authority of vulnerable populations often living in informal housing in urban centers to more remote areas, under the guise of restoring sanitation and improving the city's image, Spire *et al*. (2013) find contemporary processes of institutional urban separation in Johannesburg, Lomé, Maputo and Nairobi.

All these institutional operations of zoning and separation of social groups in the city are imposed on the dominated populations affected by the relocations and prohibitions. On the other hand, some socio-spatial separations can result from choice and be claimed by populations in both dominant and dominated positions.

1.4. Separations by choice

Among urbanites with control over their residential (im)mobility, because they possess sufficient economic and/or social capital to select their residence and the composition of their neighborhoods, there are individuals and households whose strategy is to voluntarily embed themselves into homogeneous and separate areas. We analyze three categories of separation in the remainder of this section: local and symbolic separation resulting from processes of gentrification; physical separation of gated communities; and certain clustering[2] on a national, racial, linguistic, cultural and gender basis in separate neighborhoods.

1.4.1. *Widespread gentrification processes following urban renewal*

The concentration of disadvantaged residents in neighborhoods can have negative consequences for their socioeconomic prospects and those of their children, as the literature on neighborhood effects indicates (Wilson 1987; van Zanten 2012). Indeed, socialization with similarly situated peers, a lack of casual ties important for job searches, distance to employment areas, as well as stigmatization and exposure to a more dilapidated environment are among the candidate mechanisms

2 "We should always hesitate before we equate the spatial tactics of anti-racist movements with 'voluntary' segregation – let alone assert the 'goodness' of any form of 'self-segregation' – even if it creates successful cultural havens" (Nightingale 2012, pp. 11–12).

for explaining the negative effect of the concentration of poverty on poor residents' individual socioeconomic trajectory, independent of the effects of their own poverty (Galster 2010). While public intervention is difficult in the case of social and representational processes, authorities have often favored urban renewal, that is, action on the physical environment to which individuals are exposed, as well as on the social composition of the neighborhood when the renewal is accompanied by an upgrade of the housing stock and associated facilities (notably shops). When the neighborhood in question is sufficiently accessible to the rest of the urban area, and in particular to employment areas, it is often subject to a process of gentrification (Glass 1964). This process is linked to a double movement of residential (Jones and Dantzler 2020) and commercial (Lees *et al.* 2013) mobility: on the one hand, the departure of disadvantaged populations and businesses present before the renovation, pushed by the destruction/conversion of buildings and the increase in rents, and on the other hand, the arrival of homeowning middle-class households and of "trendy" businesses (van Criekingen and Fleury 2006) in the renovated sectors. Despite the apparent mix of neighborhoods undergoing gentrification, there is often a symbolic separation between old and new residents, sometimes hidden and sometimes displayed, sometimes on the scale of entire blocks and sometimes on a very local level. For example, in the South London neighborhood of Peckham Rye, which underwent gentrification in the 2010s, we see in Figure 1.8 that the separation between old and new businesses (and their customers) is either side of a simple alley. Indeed, a renovation project for the train station implies the upcoming destruction of the building on the right, and the forced relocation of the businesses occupying it (including an evangelical church, Black and Caribbean hairdressers and multiple cellphone stores). In the meantime, the dilapidated building remains occupied by very small businesses (Young 2012) serving the population that already resided in Peckham prior to gentrification. Conversely, the building on the left to be retained in the project underwent a physical renovation and change of businesses. In 2018, a burger restaurant, a gourmet bistro and a pricey bakery occupied the first floor while an art gallery and then a co-working space occupied the second floor. These new businesses are clearly aimed at the new residents of Peckham.

The socio-economic separation of populations through gentrification is also strongly expressed in the schooling choices of "gentrifying" parents, who tend to avoid schools that bring together the children of new and old residents. Educational separation is, indeed, the only separatist discourse openly supported by most of the dominant classes in the city, from Paris to New Delhi or São Paulo (Paugam *et al.* 2017).

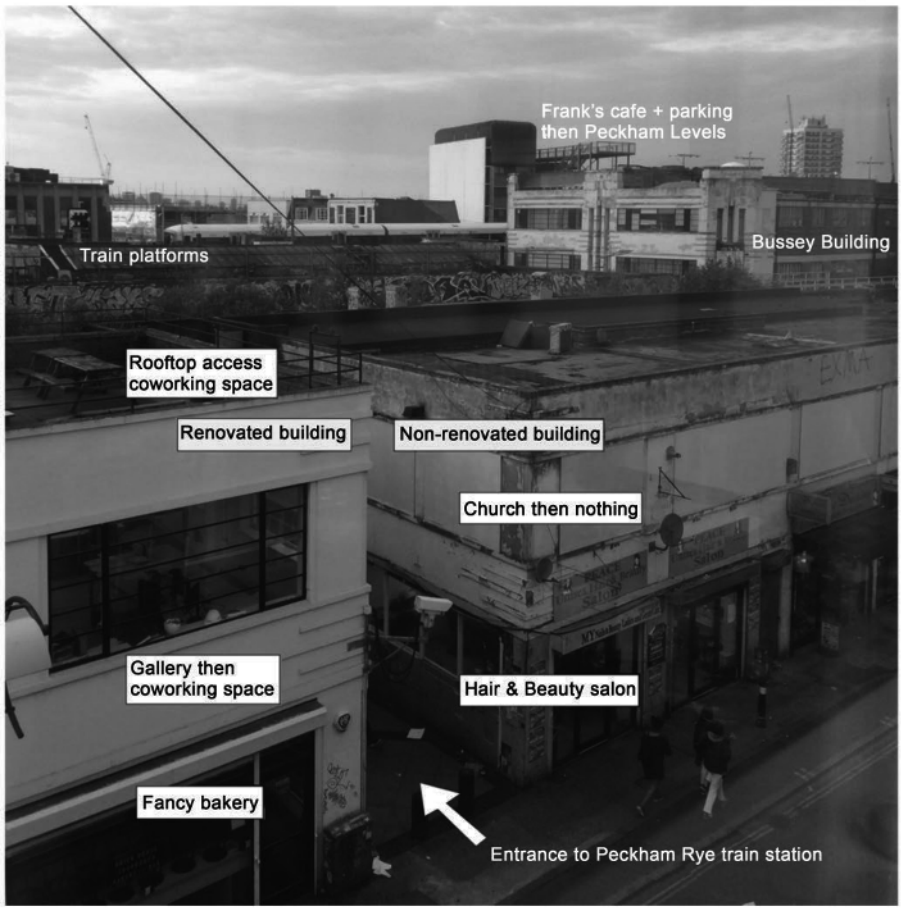

Figure 1.8. *Local signs of ongoing gentrification in Peckham Rye (London, UK), Source: C. Cottineau, May 2018. For a color version of this figure, see www.iste.co.uk/cottineau/cities.zip*

1.4.2. *Gated communities: privatization of public spaces and collective functions.*

While gentrification sometimes promotes the meeting of diverse populations in public space and the frequentation of shared institutions and events, the design of gated communities tends instead to favor the intermingling of inhabitants within the community and their separation from neighboring communities.

Following Le Goix and Webster (2008), gated communities can be defined as club properties, that is, "public" spaces whose usage is restricted to club members. Indeed, these residential developments are characterized by a governance by contract, whose rules apply to member owners over the space managed by the community (e.g. roads and street furniture) in exchange for a fee. The condominium contract may stipulate conditions for joining the community, such as age or minimum income. Whether physically closed by gates or legally protected from outsider incursion, gated communities serve to ensure the safety of residents, to exclude and control the use of land and commonly owned facilities and to secure the investment and market value of the residences. The movement to close and privatize (White) communities in the United States as a result of the impossibility of maintaining *de jure* racial segregation in the second half of the 20th century is certainly the best known and most striking example of such practice (Gibbons 2018). However, Le Goix and Webster (2008) point out that the phenomenon already existed in 19th-century France and the United Kingdom, and it also occurred in South America, Asia and South Africa for local reasons (related, for example, to the organization of work units in China or to the violence of post-apartheid race relations in South Africa).

Closing off residential developments through privatization has two types of consequences. On the one hand, property prices increase or remain stable, while burglary and traffic decrease locally (Landman 2006). However, Helsley and Strange (1999) show that crimes are only shifted to other spaces and Le Goix and Vesselinov (2013) observe that surrounding real estate prices can be negatively affected. The second type of consequence is the homogenization of residents in the community, and thus the fragmentation of the city along reinforced socioeconomic lines by choice.

> Market-driven cities tend to filter people by income or race into well-defined areas. Micro-regulation through private covenants and exclusionary zoning is likely to amplify segregation tendencies. […] One of the intriguing features of gated-style urban development is that the club factor changes the spatial scale of the filter. Gentrification, mixing and separation processes will be shaped by the scale at which groups act collectively. (Le Goix and Webster 2008, p. 1206)

1.4.3. *Cultural and identity-based segregation*

Although residential segregation is generally considered to be detrimental to the residents of cities that experience it (leading to lower life expectancy, health,

employment and income for all; cf. Wilkinson and Pickett 2001), some voluntary segregations may be exceptions: these include cultural and identity-based neighborhoods in which minority and discriminated groups create the spatial conditions for becoming a majority.

Peach (1996) distinguishes, in the American migratory context, between the "bad segregation" of the ghetto, in which one ethno-racial group (Black people in this case) is almost exclusively concentrated, and the "good segregation" of the ethnic village, such as San Francisco's Chinatown, in which the local population is overwhelmingly Chinese, while the Chinese population is not overwhelmingly concentrated in this neighborhood. "While ghettos should be unacceptable to planners, it seems that we should be much more tolerant of ethnic areas" (Peach 1996, p. 393). According to the author, the segregation of ethnic groups in residential and commercial space makes it possible to preserve the integrity of the group and its social and cultural cohesion in a migratory context. He cites the example of Orthodox Jews in American cities, who by their clustering in distinct neighborhoods, create the conditions (i.e. sufficient size) to maintain religious institutions and ethnic businesses, as well as the spoken language and norms of the group. Another reason for the voluntary clustering of minorities suffering discrimination (racist, homophobic or transphobic in particular) in more homogeneous spaces can be the defensive aspect, as in the case of the Catholics of Belfast in the 1970s (Peach 1996), or of sexual minorities in contemporary metropolises. The visibility and mutual aid of the group can thus have a dissuasive effect on the insults and hostilities of potential aggressors. In his analysis of New York, Yuan (1963) considers these reasons as stages in the formation of the Chinatown neighborhood. Indeed, the author considers the segregation of this neighborhood as initially "strictly involuntary" (i.e. under the constraint of prejudice and discrimination against the Chinese population), then defensive (i.e. involuntary but responding to the choice of a collective strategy), then voluntary, before assimilation, that is, the departure of minority inhabitants to other neighborhoods and the arrival of new residents. Thirty years later, Zhou and Logan (1991) confirmed that such a process is indeed underway in New York's Chinatown, driven by gentrification linked to the increase in Manhattan's land supply, as well as by the enrichment of Chinatown's Chinese residents over the period. In the case of the Parisian Marais analyzed by Giraud (2009), the clustering of homosexuals in "Le Village" at the end of the 1970s accompanied and then reinforced the gentrification process. In both cases, the very central position of the neighborhoods should be noted to explain their recent economic revaluation.

1.5. Mobility and unequal accessibility in urban space

The segregation suffered by certain groups or individuals in the city constrains their access to residential space in an institutional, symbolic or economic manner. Daily circulation in the city and the encounters permitted during this mobility are also subject to significant differences according to the social position of urban dwellers and the spatial organization of the city. We address these topics here by varying the temporal scale of observation, from daily mobility to residential and intergenerational mobility, taking into account both mobile and immobile people whose access to urban space is influenced by the mobile.

1.5.1. *Residential mobility*

In 1991, Long estimated that people change residence between 5 and 20 times on average over the course of a lifetime in industrialized countries: about 6 or 7 times in small European countries (Ireland, Belgium, Austria, the Netherlands); about 9 times in France, Sweden, the United Kingdom or Japan; between 10 and 15 times in Israel, Puerto Rico, Switzerland or Hong Kong and more than 17 times in Australia, Canada, the United States and New Zealand (Long 1991, p. 137). Within countries and at any given point in time, the individuals most likely to change residence are young adults (Hassan *et al.* 1996), especially when they do not have children (Lee and Waddell 2010); renters (Hassan *et al.* 1996), especially when they occupy small areas (Dieleman 2001; van de Vlist *et al*. 2002); residents with the longest and most expensive commutes and residents of dense areas (Kim *et al.* 2005). These attributes thus intersect with life cycle positions, socioeconomic characteristics and characteristics of cities, places and neighborhoods (i.e. the geographic location of the residence one leaves). The distance between the points of departure and arrival depends on the time period and national context, but it is generally short: for example, the median moving distance was 3 kilometers in the United Kingdom and 10 kilometers in the United States in the 1980s (Long 1991). Indeed, the vast majority of residential moves are short-range, that is, they remain within the same region (Van de Vlist *et al.* 2002) or urban area: 45% in the United States (Weisbrod *et al.* 1980, p. 2) and about three-quarters in the Netherlands or Australia (Clark and Everaers 1981; Hassan *et al.* 1996). These estimates may, of course, vary according to the urban (and regional) definition used. However, the individual characteristics of the inhabitants lead to differences in the direction of mobility, its frequency and whether it is chosen or not. For example, the presence of two working adults in a household reduces the frequency of residence changes (van Ommeren *et al.* 1998) compared to a household in which only one adult is active. On the other hand, an

increase in the proportion of dual-working households increases the probability of assortative matching (i.e. similarity in education and income level between members of a couple) and, hence, the overall level of economic inequality (Greenwood *et al.* 2014), particularly in the housing market. Indeed, the competition between unequal budgets induces an allocation of households by type of residence (house, apartment, etc.) and by neighborhoods according to their means (Maher 1994). Finally, this socio-economic sorting depends on the housing market itself, that is, its activity (turnover), the presence of social housing and the regulations in place on real estate transactions. Dieleman (2001, p. 252) proposes a model to account for the impact of multiscalar factors on the decision of individual households to move houses. At the metropolitan level, the decision to move is influenced by tenure composition, the turnover rate and price level. At the national level, it is influenced by inflation, the mortgage rate, demographic change and economic fluctuations. At the international level, it is influenced by housing policies, variations in wealth and tenure structures.

1.5.2. *Daily mobility*

Whether in terms of international migration, residential migration or daily spatial interaction, one of the most commonly used models to represent and estimate these flows is the gravity model. Inspired by Newton's gravitational model, according to which the force of attraction between two bodies in space is the product of their mass P, the gravitational constant g and the inverse of their squared distance d, Reilly took up this formulation in 1931 by replacing the gravitational constant by a simple constant k and the square of the distance by a power n to be determined. The flow between two zones i and j can then be written:

$$F_{ij} = k\, P_i\, P_j / d_{ij}^{n}$$

Many geographers following him have used this model, interpreting the power n as a measure of the importance of distance in reducing spatial interactions (or frictional force). Fotheringham's (1981) review of the literature on the subject indicates that empirical estimates of this parameter generally support the hypothesis of distance friction, up to the power of 5 in the work of Frost (1969) and Chisholm and O'Sullivan (1973), while estimates of negative parameters (reflecting a higher flow between two areas as the distance between them increases) are rarer and do not exceed -0.5. In an application to residential migration between French cities between 1982 and 1990, Baccaïni and Pumain (1998) obtain an estimate of this parameter of between 0.56 and 0.96, depending on the migrants' occupational categories. While the model and its estimation (Wilson 1973) have undergone numerous refinements and questioning since the 1930s, it is recognized that

> [in] general, it [this model] summarizes well the essential movements that occur in an environment where mobility and accessibility are relatively homogeneous. For example, it predicts fairly well the magnitude of commuter flows in an urban employment area, based on the distribution of residential and employment areas, or the pattern of interregional or interurban population migration in the medium term in a given country. (Pumain 2004, §8)

The other classic approach to daily mobility is that of time-geography developed by Hägerstand (1985). It consists of analyzing the joint movements of individuals and their encounters both in time and in space. This approach has influenced many transportation models (Chardonnel 2007; Ellegård and Svedin 2012) and analyses of urban interactions in the context of socio-spatial segregation (Netto *et al.* 2018). Indeed, consideration of travel schedules (through surveys, for example) is essential in the analysis of daily segregation since some spaces are frequented by different social groups during the day, without these individuals necessarily meeting each other (Wang *et al.* 2012; Le Roux *et al.* 2017). Thus, mobile individuals do not face the influence of their residential environment throughout the day, while immobile individuals see their usual social environment change due to the mobilities of other individuals to and from their neighborhood of residence (Vallée 2018). The use of individual data from digital traces left by different sensors allows for an even finer examination of these social interactions in space and time. This is particularly the case for cell phone data, which can reveal socio-economic (Dannemann *et al.* 2018; Cottineau and Vanhoof 2019; Moro 2020) and ethnic (as in Estonia, cf. Järv *et al.* 2015) separations and differences in spatial occupation.

Daily mobility is very significant and growing. In 2008 in France, there were on average 177 million trips per working day for 62.1 million inhabitants, that is, 3.15 trips per person per day on average (Armoogum *et al.* 2010). They are also unequal: while 85% of French people were mobile in 2008, people living in large cities, those aged 26–45 and employees in the Paris region have a higher number of trips per day. Moreover, the distance, time, motivation and mode of transport vary greatly according to age, gender and socio-professional status.

> For poor households as a whole, lower car ownership and lower car use combine to result in lower annual travel distances. In particular, these households limit the scope of their trips by choosing closer destinations for daily activities other than work. […] The mobility disparities experienced by poor households can translate into significant inequalities in access to resources that are decisive for individuals, particularly for households located in less densely equipped territories. (Jouffe *et al.* 2015, §6)

People with disabilities often suffer from difficulties in their mobility in urban public space and therefore in their integration into urban society. Following the recommendations of the United Nations and since the 1980s, it is mostly in the field of accessibility for pedestrian travel that the diversity of *de facto* segregations by disabilities has been taken into account (Victor *et al.* 2016). Specific accommodations have been produced to adapt the environment to the physical, sensory or cognitive deficits of people who would otherwise find themselves excluded from urban life. But in return, this work has contributed to broadening the conception of the experience of moving around the city (e.g. highlighting the soundscape of visually impaired people) and demonstrated that "the very notion of disability is disappearing in favor of that of disabling urban situation. The latter refers less to the idea of an organic deficiency of the individual than to an unsuitability of the built environment for action" (Thomas 2004, p. 240).

1.5.3. *Social mobility vs. immobility through the city*

Finally, individuals do not simply move through the physical city during the day, they also navigate its social space. Over the course of a lifetime, the influence of one's place of residence on their socioeconomic trajectory can be very important. Fielding (1992) and Champion (2012) have thus revealed the importance of moving to London at the beginning of one's career and moving to the Southeast of the United Kingdom at the end of one's career in order to achieve positive and significant social and economic mobility. The capital city plays the role of elevator (continuous increase of the salary with the length of stay in the city) and escalator (sudden and unique increase following the move) by the opportunities it offers in terms of employment, social network and cultural development. At a finer geographic scale, the neighborhood of residence and activity space are also considered crucial in defining the opportunities for upward mobility offered, through the nature of the social ties forged locally, exposure to the institutional environment, the presence of role models or access to particular resources (Roscigno *et al.* 2006; Vallée *et al.* 2010; Chetty *et al.* 2014; Bell *et al.* 2019). For example, a longitudinal study of pairs of individuals who are equivalent in terms of disadvantaged residential context during childhood (Manley *et al.* 2017) shows that they tend to have later residential trajectories that are more different than those of siblings, but more similar than those of individuals who grew up in other residential contexts, all else being equal with respect to their personal characteristics. This study indicates the combined role of family and residential environment on individual social mobility trajectories.

Indeed, not all territories are equally conducive to social mobility. Chetty *et al.* (2014) and Dherbécourt and Kenedi (2020) thus show very significant differences between regions, cities and neighborhoods in terms of the living standards attained in adulthood by the children of poor American families and French working-class families, respectively. In the Atlas of Opportunities[3] for the United States, the Midwest (North and South Dakota, Nebraska, Wyoming, Minnesota, Iowa) appears to be five to six times more favorable to social and economic advancement than the South (Mississippi, Alabama, Georgia, Florida, North and South Carolina), a ratio that can be found more locally, between North and South Atlanta for example. It is these very tangible consequences of urban space on the lives of their inhabitants that push the public authorities to provide corrections and remedies to these urban inequalities.

1.6. Corrections and remedies

Policies that attempt to address urban inequalities are inspired by interests and ideologies that remain at least partially contradictory. As noted in the introduction, social diversity is constitutive of cities, where new forms of activity or lifestyles are constantly being invented. Cities are constantly attracting a variety of new populations, and the larger the city, the greater the range of attraction, which is growing with the increasing power and universality of means of communication. The cosmopolitan character of cities and the freedom that comes from accepting multiple identities are most often valued in contemporary societies, just as the increased likelihood of interactions with people who bring diverse sources of inspiration is exploited by businesses in all industries, whether they are involved in scientific and technological innovation or artistic creation in all its forms (Florida 2003). However, while social differences are better accepted and valued in the city, the risks of tension, conflict, violence and crime are often denounced when spatial segregation is significant. The separation in urban space of ethnic groups with strong identities can lead to "communitarianism" and is considered likely to exacerbate conflicts (Monet 1992; Bui-Trong 2003; Folio 2007). However, corrective policies are defined according to the context of national cultures and legislation. They sometimes favor the integration of minorities into a common civic identity, as in the French tradition for the past two centuries, and sometimes the preservation of the diversity of origins, as in the cities of India where the so-called "personal law" does not impose a single civil code (Marius 2017).

Inequalities of wealth are considered, sometimes as an inevitable if not necessary condition, and sometimes as a denial of humanity or respect for people's rights. The comparison of extremely contrasting socio-economic situations in the limited space

3 https://www.opportunityatlas.org/.

of the city explains why the notion of "spatial justice" was first formalized in geography and sociology in an urban context (Harvey 1973; Lefebvre 1974). However, it is not easy to determine at what point differences become inequality and at what point inequality becomes a source of social injustice. Nor is it easy to know how to balance the benefits and risks of encountering the diversity and heterogeneity of urban neighborhoods. In other words, the issue, as is often the case in land-use planning, is the confrontation between the notion of efficiency and that of equity. Once it has been established, thanks to a great deal of empirical research, that the shape of cities does indeed play a role in reducing the equality of opportunity offered to residents according to the neighborhood in which they live, the current debate is most often based on discussions of urban social diversity, without always being able to determine what degree of social diversity to advocate and how to promote it.

For a very long time, the scientific literature has been full of reflections on cities, on their optimal organization and their desirable appearance. Urban utopias (Choay 1965; Eveno 1998; Rabot 2019) have accompanied the history of all societies. Many "ideal cities" have been conceived, some of which were experimented with, often within the framework of egalitarian ideologies, such as the American achievements of Charles Fourier's phalanstery or Etienne Cabet's Icaria. The successive models of garden cities or new towns included urbanistic as well as social considerations (Hall 2014), and the contemporary avatars of the urban utopia could be these "green cities", "eco-neighborhoods" or even the "smart cities" (Caragliu *et al.* 2011; Batty *et al.* 2012). While citizen participation in decision-making is often invoked as an important condition for the transition to more "sustainable" cities, its implementation within and between urban neighborhoods often remains the weakest point of urban policies. In fact, the "smart city", when thought of in its inclusive social complexity and not just from its standard engineering point of view, would be a form of ideal city less conceived as a model to follow than as an approach to explore (Pfaenzer *et al.* 2014).

Among the general principles of the socio-spatial organization of cities that underlie effectively implemented achievements, we can identify the fractal patterns revealed by the geometry of urban technical networks for the supply of water, energy and resources for mobility and information to homes (Tannier 2009, 2020; West 2017). Recent research on scaling laws has confirmed that this form of organization, more or less directed or self-organized, is a source of economies of scale for the daily functioning of cities (Kühnert *et al.* 2006). However, it is not entirely clear that this theoretical arrangement is also conducive to a reduction of the ecological footprint of cities. On the one hand, urban metabolism is highly complex (Barles 2002), and on the other hand, assessments of it have so far taken little

account of the shape of cities, with rare exceptions (Kennedy *et al.* 2011; Le Néchet 2011). Moreover, the spatial organization observed in today's cities is much more the result of successive approximations, a kind of self-organization based on partial engineering calculations and adaptations of existing structures, than of the application of these models considered as optimal. The current debates on the material layout of urban spaces are mainly concerned with the greater or lesser compactness of urban morphologies, in relation to the level of energy consumption, and in the relationship with "natural" space, which tends to be reintroduced among the built environment in an attempt to reduce excessive land artificialization.

With regard to the distribution of social categories, there is no well-defined spatial model that is considered optimal for the sustainable functioning of cities. Instead of activity zoning that separated different urban functions, as the Charter of Athens advocated in the 1930s, polycentrism and the association of different functions – and thus less homogeneous social categories – in the same urban neighborhoods are now preferred – as advocated, for example, by the New Urbanism movement in the United States. Policies aimed at correcting excessive inequality initially focused on building low-cost housing to keep the urban poor in neighborhoods that would otherwise have been inaccessible to them under market conditions, and then extended to all the functions of a neighborhood. Advocacy began at the local level, then came from national governments and finally from international organizations.

1.6.1. *Local and national policies, from social housing to* politique de la ville

The history of social housing dates back to philanthropic entrepreneurs such as the Fuggers of Augsburg who, as early as the 16th century, wanted to provide the workers in their mines with decent and accessible housing conditions. Towards the end of the 19th century, concerns about urban health led municipalities to finance more airy neighborhoods for workers, in garden cities (Magri and Topalov 1987), but these neighborhoods remained socially very homogeneous. The policy of producing or financing housing for the urban poor is a recurrent concern of national public authorities, which oscillates between place-based and people-based actions. In the first case, interventions consist of financing the construction or renovation of housing reserved for the poorest categories in the population, which were initially installed in new towns, often in the suburbs or even in large housing estates. However, this corrective measure does not solve the problem of the excessive social homogeneity of poor neighborhoods. The *politique de la ville* has been developed in France since the 1970s as a more integrative approach to social, economic and urban

planning issues, by means of contracts signed between the State and local actors. As early as 1996, a few hundred neighborhoods in difficulty were targeted as "sensitive urban zones", whose perimeter and names have since changed (free zones, urban renewal zones). This policy includes the creation of a specialized agency to finance these operations and an observatory to measure and evaluate these territorialized public policies. Recent developments have tended to put social housing up for sale and to promote home ownership as an insurance mechanism for old age, but these new policies tend to generate greater inflation in real estate prices and to put households in debt. However, the reference to social mix remains omnipresent in housing policies and then the *politique de la ville* in France, as it is in the Netherlands for housing and in the United States for education (Kirszbaum 2008). In the Netherlands, a systematic policy of land reserves has made it possible to keep social housing near the heart of the cities, while in Quebec, social housing is also inserted in a more dispersed manner into the urban fabric, so as to promote social mixing. Over time, these policies have been refined and included the incentive to mix age groups as well, for example. However, the inspiration behind the notion of social mix and the redistribution of populations has not been received uncritically (Charmes 2009). The big question that remains in most of the world's major cities is that of how to best integrate recent migrants into the city, which is reflected in a wide variety of initiatives depending on the country and the city (Body-Gendrot and Martiniello 2016).

These operations are now framed by a pyramid of institutions, regulated by the recommendations of major international organizations such as the United Nations and the World Bank.

1.6.2. *The objectives of international organizations*

Since at least the early 2000s, all international institutions have taken up the subject of urban inequalities. There are several ways of understanding this trend. The first is globalization, which is spreading information about cities faster and further, in a multitude of networks, for the strategies of large multinational companies as well as at the level of individual migrants and tourists (Rozenblat *et al.* 2018), and which amplifies in real time the repercussions of major disasters or urban movements. A second factor is related to the progress of the social sciences and the "spatial turn" that has gripped them in recent decades, leading to the view that, for many economic or social issues, space matters (Barnett and Parnell 2016). A third reason comes from the global awareness of environmental issues and climate change, promoting the important notion of sustainable development. Since the 1987 Bruntland Report, "social equity" constitutes one of the three pillars of measures

advocated to "meet the needs of the present generation without compromising the ability of future generations to meet their own needs", thus bringing issues of inequality and governance alongside economic growth and resource conservation into sustainable development policy.

The European Union did not mention the term "territory" in its initial treaty and, partly out of respect for a principle of subsidiarity, did not intervene directly in the specific problems of cities until the series of URBAN Community Initiative programs launched between 1994 and 2006 and since integrated into regional policy and the Structural Funds. These measures help finance specific urban renewal and industrial conversion projects, with the aim of increasing social cohesion.

The OECD, which was concerned early on with harmonizing definitions and delimitations of urban areas and promoting their economic development in a 1988 report, now displays environmental and social concerns for reducing inequalities in several recent reports with very telling titles ("Making Cities Work for All" in 2016, "Divided Cities: Understanding Intra-urban Inequalities" in 2018).

In fact, these "institutional convergences" have been orchestrated by a succession of conferences organized at the initiative of the United Nations by its Habitat agency, created in 1978 and headquartered in Nairobi, Kenya. UN-Habitat has organized three successive major conferences at 20-year intervals: Habitat I in Vancouver in 1976, Habitat II in Istanbul in 1996 and Habitat III in Quito in 2016 (Clerc and Deboulet 2018). Since the 2000s, The United Nations Millennium Declaration "recognizes the dire situation of the world's poorest urban populations. It articulates the commitment of member states to improve the lives of at least 100 million slum dwellers by 2020". A World Urban Forum has met every second year since 2002 to assess progress towards this goal. Hundreds of states have ratified the "Quito Declaration on Sustainable Cities and Human Settlements for All" (UN-Habitat 2017). Above all, important networks of local urban actors have been formed that share information and initiatives in favor of the resorption of precarious neighborhoods and better social inclusion (Clerc and Deboulet 2018). However, land issues and their financing remain stumbling blocks to the effective implementation of these policies (Denis 2014).

The World Bank has only recently endorsed the significant contribution of cities to economic development, starting with its 2009 annual report (Girault 2009; Kilroy 2009). The Bank assumes that spatial inequalities are a structural cause of their perpetuation and that they require interventions at a scale larger than neighborhoods: "urban problems are often made worse when they coexist and overlap in space. It shows how spatial inequalities are a structural cause of their own perpetuation, and to

suggest policies that go beyond neighborhood interventions" (World Bank 2009). It advocates a better use of funding by targeting local rather than national governance.

1.7. Conclusion

The overview presented in this first chapter shows, first, the recurrent nature of inequalities in urban societies and of public policy interventions that attempt to conceal or correct them, and sometimes to mitigate their most unfortunate or unbearable consequences. But the other observation is that of the extreme diversity of processes that maintain and develop new forms of social difference and status distinctions in the space of cities throughout their history. The following chapters of this book will analyze more precisely how the production and reproduction of these inequalities have been explained by the social sciences.

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