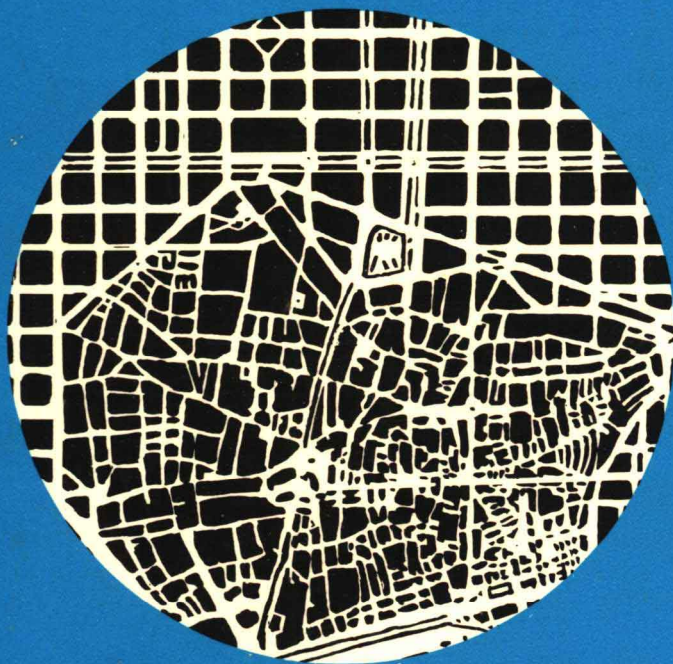# The Metropolis Era

Volume 2

Mega-Cities

EDITORS

Mattei Dogan

John D. Kasarda

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Metropolis
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This book is dedicated to the beautiful metropolis
of Barcelona

Contents

Introduction:

Comparing Giant Cities

Mattei Dogan and John D. Kasarda

Volume I (*The Metropolis Era: A World of Giant Cities*) described contemporary demographic, economic, and technological forces around the globe that have dramatically altered the location, scope, and pace of giant city growth. A number of chapters highlighted how large urban agglomerations in developing nations have expanded beyond their absorptive capacities, in terms of formal sector employment, housing, infrastructure, and the provision of essential public services. These chapters further described the innovative ways by which migrants to these cities have adapted to conditions confronting them.

An overarching conclusion was that despite the hardships greeting new urban arrivals, they consider themselves better off in the city than remaining in rural areas where chances of economic success are slim. Not only do cities offer better employment prospects, but they also provide cultural amenities, stimuli, and some very basic services lacking in most rural regions. As a result, the flood of urban migrants continues, typically to a demographically exploding primate city whose transportation and communication linkages and corresponding accessibility to domestic and foreign markets give it a substantial economic edge over smaller urban centers.

The largest metropolitan areas of developed nations are also continuing to expand, albeit at a much slower pace. Indeed, in contrast to those in developing nations, it was shown that many of their central cities are actually declining in total population size and jobs. For example, between 1970 and 1980 London lost 750 thousand residents and 430 thousand jobs, while New York City lost 820 thousand residents and nearly half a million jobs (though

both cities have since rebounded). Nevertheless, as George Sternlieb and James W. Hughes demonstrate in this volume, large blue-collar job losses are still occurring in cities like New York, while their lower-income minority populations are growing. London, as Emrys Jones shows, likewise experienced a growth of over 150 thousand immigrant minorities between 1970 and 1980, despite the city's overall population and job loss.

Along with selective demographic decline, many U.S. and Western European cities that expanded rapidly during the 19th and first half of the 20th century as industrial giants, are functionally transforming from centers of producing, storing, and transporting material goods to centers of producing, storing, and transmitting information. This change in function is altering the historic roles these cities performed as economic assimilators and springboards for social mobility for their disadvantaged residents. As white-collar information-processing jobs are replacing blue-collar and other entry-level jobs in the cities, skill requirements for employment have risen substantially. With many urban minorities lacking such skills, their unemployment rates have risen significantly since 1970 as did social problems associated with their deteriorating prospects (e.g., drug abuse, violent crime, family dissolution).

Exacerbating the problems of economically transforming industrial cities has been the movement of middle- and upper-income residents to outlying areas which has drained urban tax bases, weakened secondary labor markets, and led to increased isolation and segregation of low-income minorities in the urban cores. Other outcomes of urban deconcentration are increased commuting distances, highway congestion, air pollution, and energy use. Large cities in advanced capitalist nations are particularly prone to such problems where technological innovations, especially in transportation and communication, have allowed industry and middle-income people to become increasingly footloose. The selective redistribution of industry and population has led to a fundamental spatial restructuring of these metropolises from monocentric to polycentric, as outward sprawl continues and core densities decline. We will return to this issue shortly.

Comparative Case Studies

Assessing demographic, environmental, economic, and social conditions of giant cities around the world reveals numerous similarities and differences. In this volume, these similarities and differences are highlighted through case studies of ten giant cities: Mexico City, Tokyo, São Paulo, New York, Shanghai, Los Angeles, London, Cairo, Delhi, and Lagos. The first five cities, respectively, represent the five largest urban agglomerations in the world in 1985 (United Nations, 1985). We include Los Angeles because it is the exemplary motorized metropolis. London, tenth largest in 1985, was selected because of its historical (pre-World War II) position as the world's largest urban area. Cairo, Delhi, and Lagos are included because of their phenomenal

growth and interesting contrasts. Of course, many other important giant cities could have been selected, but space constraints precluded their inclusion. A number of them, such as Moscow, Calcutta, Seoul, Jakarta, and Beijing are treated in volume 1.

A wealth of data on giant cities is diffused throughout monographs, government reports, and independent studies. It is underexploited for comparisons except in some publications of the World Bank, the Population Division of the United Nations, the World Health Organization, and the Food and Agriculture Organization. Yet, these institutions do not collect the data themselves. They usually rely on what national governments are able to gather and willing to release. For this reason, statistical data are too often inaccurate or noncomparable and, therefore, must be used critically. While keenly aware of these shortcomings, we have attempted to distill information from the variety of sources mentioned above and synthesize it along a number of comparative dimensions with that from the chapters contained in the two volumes of *The Metropolis Era*.

Urban Growth and Decline

We have just noted that most giant metropolises in the advanced countries have experienced an aggregate decline of the population in their core areas since 1960. For some economically distressed core cities such as Detroit and Manchester, the annual rate of decline during the past 25 years has been between 1 and 2 percent, which means the loss of at least a quarter of their populations over this period. Loss in the central city has often, though not always, been compensated by an increase of the population living in the suburbs as is the case of New York, London, Paris, Madrid, and Rome. Similarly, for Tokyo, Hachiro Nakamura and James W. White show that residential locations of inner city workers have been spreading out (primarily because of transportation improvements and rising core land prices). As a result, suburbanization has accelerated in recent decades as residential densities in a number of its core areas have declined. Finally, Ivan Light describes how, in Los Angeles, the core has remained stable, while the suburbs have expanded dramatically.

In developing countries, the population of core city and suburbs have both increased at impressive rates: Baghdad has grown at an annual rate of 10 percent during the last quarter of a century and Lagos at 9.4 percent annually. The average rate for greater Kinshasa is over 15 percent a year; for Addis Ababa 11 percent; for Bangkok 12 percent in the core city and 10 percent in the suburbs. The annual rate of growth of the city itself has been over 5 percent for Khartoum, Dacca, Bogota, São Paulo, Delhi, Santiago, Pusan, and Seoul; the peripheries of these cities have increased, simultaneously, at more or less the same rate. In some cases, growth of the central city results from annexation, but in general the expansion results from an increasing density of the population in the central city and suburban rings.

Shanghai, assessed in this volume by Rhoads Murphey, is a special case since the Chinese government directly intervened during the 1950s and 1960s to slow this city's growth. Murphey describes government attempts at urban population redistribution in mainland China and why such redistributional policies were eventually circumvented.

Models of City Growth and Decline

There has been considerable debate as to whether the process of urban growth in today's Third World cities is similar to or qualitatively different from that which took place in Europe and the United States during the 19th and 20th centuries. Some who stress similarities have developed sequential stage models of urban population growth and suggest it is possible to classify city growth over time and space. One of the best known is that of Peter Hall (1984).

Hall proposes a five-stage model of urban population evolution. The first stage (under conditions of limited economic and technological development) entails substantial rural-to-urban migration toward a primate city where the bulk of the nation's industrial activity is located. With the spread of transportation arteries, the second stage brings heightened industrialization throughout the region and results in the formation of secondary cities as alternative magnets for rural migrants, though the primate city continues to grow rapidly. Eventually the primate city core becomes so densely settled that "spillover" to the suburban rings begins. In the third stage, suburban spillover accelerates and the peripheral areas begin to grow faster than the urban core. In the fourth stage, the primate city core actually begins to lose population while its suburbs continue to grow. The city's degree of primacy declines as secondary cities become increasingly attractive to industry and migrants. Finally, during stage five, population loss of the primate city core accelerates and its immediate periphery suffers relative (though not absolute) population losses to secondary cities and nonmetropolitan areas, constituting an end to the urban life cycle.

Hall argues that many of the least developed countries are in stages one and two, newly industrializing countries such as Mexico, Brazil, and Korea and those of southern and eastern Europe are in stages two and three; most northern and Western European countries in stages four or five, and the United States and Great Britain clearly in stage five. His model is consistent with traditional regional growth theory in that it posits that eventual declines in primate cities translate into gains by subordinate urban agglomerations.

In like manner, Richardson (1980) proposes a process of "polarization reversal" whereby urban disparities are gradually reduced through population deconcentration which results from diseconomies of scale in the largest agglomerations and technological innovation, especially in transportation and communication. The expected outcome, according to traditional regional growth theory, is a full integration of the national economy through an

evolving hierarchy of urban places and corresponding reduction in income inequalities across cities and regions (Berry and Kasarda, 1977:277-81).

Such models of urban growth and decline have been sharply criticized by neo-Marxian and other class-based theorists who contend that the evolution of Third World cities constitutes a unique pattern of urban development unparalleled in the Western experience. Colonial heritages, extreme poverty, ruling class hegemony, rapid population growth, and dependency on the economies of capitalist nations generate hugh primate cities which dominate Third World economies and discourage or prevent indigenous development of secondary cities (Castells, 1977; Portes and Walton, 1981; Wallerstein, 1974). The result, they argue, is increasingly greater spatial inequalities in Third World nations as their primate cities disproportionately grow at the expense of other parts of the country.

Industry and Employment

Even though there are numerous ways to define *urban*, cities are most frequently defined as places where residents are primarily engaging in nonagricultural activities. Most giant cities today, as Mattei Dogan describes in volume 1, evolved through their favorable location for domestic and, especially, international trade. London, New York, Los Angeles, Tokyo, Lagos, and Shanghai are excellent examples. They are situated on or near habors which economically link them to the rest of the world. Likewise, Mexico City, Delhi, and São Paulo were important trading centers during their respective colonial eras.

As with population growth, it is possible for comparative purposes to develop a sequential typology of industrial and employment transformation in which many cities can be placed. This typology typically follows economic stages from a handicraft and lower-order service structure to a more formal commercial-industrial based structure, eventually reaching an information-processing, higher-order service structure. In the first stage, informal economic activities dominate with low costs of entry, family ownership of enterprises, and labor-intensive technologies. During this preindustrial phase, urban economic activities are confined to traditional sectors such as crafts and food distribution by small family enterprises (Beavon and Rogerson, 1986). The urban employed consist primarily of artisans, petty traders, food vendors, and other lower-order service providers.

In the second stage (where many giant cities of the Third World today are), economic activities are partially transformed from family enterprises to corporate production units, capital grows in importance relative to labor, and wage and salary employment expands. With technological advancement and capital accumulation, development of an extended trading network and industrial concentration further stimulates urban growth, often creating a primate city (Golden, 1981). In this industrialization stage, cities specializing in manufacturing activities expand rapidly. The manufacturing sector as a

powerful export-base industry has multiplier effects, creating new job opportunities and attracting waves of rural migrants seeking employment.

With mechanization of industrial production and a growing capital-to-labor ratio, a substantial increase in manufacturing output can be achieved with small increments in the manufacturing labor force. Because of the reduced labor absorption capacity of more capital-intensive manufacturing activities, the informal sector becomes increasingly important in providing employment opportunities. This sector often has advantages compared to the formal sector, including (1) a higher potential for absorbing migrant labor, (2) higher real wages for unskilled workers, (3) less sex discrimination, (4) better opportunities for upward mobility through entrepreneurship with limited capital, and (5) no involuntary unemployment (Beavon and Rogerson, 1986; Hackenberg, 1980; Tailhet-Waldorf and Waldorf, 1983).

As the national economy matures and transportation networks expand, competition from lower-cost outlying sites reduce urban manufacturing employment. During this third stage, large-scale production units move to peripheral areas and smaller cities and are replaced by knowledge-intensive firms in the core employing well-educated, skilled persons. Higher-order, knowledge-based services are exported nationally and internationally as the functions of major cities gradually transform from goods-processing and lower-order services to information-processing and higher-order services. Although this sequential model represents the historical pattern of Western urban industrial and employment transformations, there is evidence from case studies in this volume that Mexico City, São Paulo, Cairo, Delhi, and Tokyo are following similar sequences.

Stage models of economic transformation, like models of population redistribution, are questioned on the basis of the differing circumstances of developed and developing nations and their consequences for a unified evolutionary scheme. It is argued that factors such as burgeoning labor pools, excessive unemployment, technological diffusion, colonial heritages, and the relatively smaller sizes of some Third World countries dictate different urban economic development patterns from those experienced by developed countries. For example, that Third World urban populations are supported by relatively small industrial bases has led many researchers to assume that cities in developing countries suffer from inflated tertiary sectors; such cities might be considered "overurbanized" because their populations are not justified on the basis of their formal economies. It has been assumed, moreover, that these large tertiary sectors consist of a disproportionate number of "dead-end" job opportunities. Such considerations would suggest that Third World cities suffer "abnormal" economic transformation and, furthermore, that this abnormal growth fundamentally differentiates urban industrial processes of developed and developing nations.

Our conclusion, however, is that the substantial growth in informal sector employment in Third World cities should not be considered "abnormal" since it provides vital opportunities to new urban arrivals and often serves as a springboard for economic success by those excluded from the formal sector.

Moreover, research by Preston (1979) suggests that where service-sector employment is substantially outgaining industrial employment in Third World cities, such service-sector growth has typically resulted from rising proportions of professional, technical, and administrative employees in these cities.

Demographic Density and Crowding

The number of people per square mile is an indicator frequently used to compare cities, but it is often misleading, because density depends on how administrative borders of the central city are drawn. In general, European major cities are more compact than American cities. Certainly, when one reads that the density in the central city is, for instance, 2 thousand per square mile in Indianapolis against 33 thousand in Manchester, or 15 hundred in Kansas City against 27 thousand in Naples, or 3 thousand in Dallas against 57 thousand in Athens, or 23 hundred in San Diego against 47 thousand in Barcelona, one perceives behind these figures different types of cities on the two continents.

Nevertheless, with some exceptions, this indicator does not discriminate between giant cities in industrially advanced countries and in developing countries, although the word *crowded* is usually applied to Third World cities. In this regard, it is surprising that for very different types of cities the density in the central part is approximately the same. A series of pairs of cities, one from an industrially advanced country, the other from a developing country, shows the misleading character of the indicator "persons per square mile in the central city":

- Tokyo and Bombay (about 42 thousand per square mile)
- Athens and Madras (55 thousand)
- Osaka and Bangalore (33 thousand)
- Barcelona and Ahmedabad (46 thousand)
- Milan and Hyderabad (24 thousand)
- Moscow and Istanbul (21 thousand)
- Leningrad and Alexandria (16 thousand)
- Chicago and Pusan (14 thousand)
- San Francisco and Karachi (14.5 thousand)
- Madrid and Recife (13 thousand)
- Detroit and Belo Horizonte (9.5 thousand)
- Kiev and Baghdad (6 thousand)
- Bremen and Bogota (4 thousand)

"Density" does not help us to perceive the contrast between Tokyo and Bombay, even if both cities are enormous seaports, or between Athens and Madras. Thus, this indicator, like others, should not be used in isolation from other indicators in comparative urban research.

Cities, or districts in cities, may have a high density without being crowded, and vice-versa may be crowded even if the density is comparatively low. With

most of its buildings having between five and eight floors, Paris has a high density but it is not now considered a crowded city, except for a few areas. Lagos is a good opposite example. According to an urban planning report, 83 percent of the population lives in "rooming houses," a kind of small building of one or two floors. On each floor there are some ten rooms along a central corridor; 72 percent of Lagos families live in a single room, and the average size of the family is eight persons! (Lengellier, 1978:61). Like many other Third World cities, Lagos is a relatively flat city.

Density of people in some cities may also be low simply because cars take up a lot of space. A person who lives in an apartment of 50 to 55 m^2 (about 538 to 592 square feet) in a building of seven floors, occupies about 8 to 9 m^2 (about 86 to 97 square feet) of the land. The car of this person also occupies 8 to 9 m^2, either in a parking lot or in the street (Sauvy, 1968:153). And one often needs a second parking lot for the car at the office or factory and a third lot at the market, stadium, or theater. In cities where there is a high proportion of households owning an automobile, like American cities, the density of people is necessarily reduced accordingly. That cars require a substantial amount of space at a variety of locations is an important, but frequently overlooked, basic fact in comparative studies of urban density.

Transportation and Traffic Congestion

Related to the discussion above, one might ask if traffic congestion is different in nature or in degree in the giant cities of advanced and of developing countries? The literature on urban transportation is enormous. Several international conferences have been organized on this topic in recent years, gathering hundreds of experts and generating reports on transportation problems in a large number of major cities. Statistical data are available on number of automobiles per 100 households; number of persons per 100 cars; percentages of commuters using public transportation; and passenger journeys by subway, tramcar, railway, and bus. The statistical information is richer for American, European, and Japanese major cities than for Third World ones, but this imbalance does not prevent comparisons. The difficulty comes from the fact that the indicator "number of persons per car" or "automobiles per household" measures affluence or access to private motorized transportation, or simply the need to own a private car rather than actual traffic congestion (Fried, 1981, chap. 4).

Statistical data on commuters using public transit systems (subway, railway, or bus) do not control other variables, and so we find similar percentages for cities of very different sizes and wealth: greater Bombay and smaller Göteborg; Teheran and Bremen; Istanbul and Stuttgart; Madras and Berne. If we limit the sample to giant cities, a clear dichotomy appears: on one side, the American major cities, on the other the giant cities of the rest of the world. In American metropolitan areas, most people seem to have four wheels instead of two legs and they eschew public transit. More than 90 percent of

commuters use private cars in Los Angeles, Denver, Houston, Dallas, Miami, Atlanta, Minneapolis, Detroit, St. Louis, Buffalo, and Seattle. The proportion is between 75 and 90 percent in the metro areas of San Francisco, Chicago, Washington, Boston, Philadelphia, New Orleans, Pittsburgh, Baltimore, and Cleveland.

At the opposite pole, more than 85 percent of commuters use public transportation in Moscow, Calcutta, Tokyo, Bombay, London, Cairo, and Paris. Some of the remaining 15 percent usually walk from home to place of work. In almost all non-American-Canadian-Australian giant cities, a large proportion of people living within the central city use public transportation; the most notorious exceptions are the two giant conurbations in West Germany and Holland: Rhine-Ruhr and Randstad. But these are not real exceptions: within each of these two megalopolises, people use private cars because they travel from small towns or from semiurban areas to cities, or even between neighboring cities.

There is also a significant difference between most of the European-Japanese metropolises and the Third World metropolises. In Moscow, Paris, London, Tokyo, Leningrad, Osaka, and to a lesser degree in Milan, Brussels, and other cities, the subway system carries most commuters, while buses and trolley-buses provide most transportation in Cairo, Seoul, Havana, Bombay, Delhi and most of the Indian major cities, and so on (Tokyo Metropolitan Government, 1985:76).

In Chinese cities, the bicycle is the primary transportation mode. Rhoads Murphey notes in his chapter on Shanghai that bicycles have created serious congestion problems in this crowded city, yet the demand for them still far exceeds the supply. Attempts to further develop mass transportation are proceeding in Shanghai with the construction of a subway system to alleviate the city's bicycle congestion and overcrowded buses.

Some cities have a balanced system of subway and buses: Rome, Madrid, Kiev, Budapest. In other cities, the railway plays an important role, particularly in Mexico City, Tokyo, Yokohama, Osaka, London, and Paris for commuting between central city and suburbs.

Simplifying, one might say that the predominant transportation vehicle in most American giant cities is the private car; in most European metropolises, the subway; in most Third World major cities, the bus; and in most Chinese cities, the bicycle.

Automobiles and Cities

Everything has already been said in recent years about the advantages and disadvantages of public transportation and private cars. Suffice it here to quote an observation about America made by Ivan Illich (1973):

The average American devotes more than one thousand five hundred hours per year to his car. He works to buy it, to pay for gasoline, tires, tolls, insurance, taxes, tickets, parking rent, not to

mention accidents. He devotes four hours per day to his car by using it or by earning the money to support it. This American spends one thousand five hundred hours in order to be able to travel ten thousand kilometers. That means that he spends one hour per six kilometers.

Many sociologists have a contemptuous view of the American's love affair with the automobile. For the American, the private car is a rational choice if public transportation is not efficient enough, or it brings certain personal freedom or social status. Moreover, it is impossible to conceive of a city of several million inhabitants where the traffic depended on horses. The automobile played a vital role in the horizontal expansion of cities. But after a certain level of growth, the car can play a negative role as well, to such a degree that some commentators have argued that the automobile has "destroyed" quite a number of central cities, especially in the United States.

One can, in fact, build a sequential model describing the decay of the cores of cities as a result of the multiplication of automobiles. (1) The increase in the number of private automobiles leads to congestion of the streets in the center of the city. (2) Public transportation (especially buses) functions less effectively because of the increased concentration of private cars. (3) Automobile bottlenecks, noise, and exhaust pollution lead to declines of property value in some areas, reduced maintenance of housing, and so on. (4) The initial center, which had a diameter of perhaps one, two, or three kilometers, expands so much that it is no longer possible to circulate on foot. (5) This situation favors the creation of a new center at a relatively large distance from the original one. (6) The car then becomes indispensable, and the increasing number of automobiles causes further decline of the central city as middle-class people migrate to suburbs to avoid the congested core and be closer to their deconcentrating jobs.

This model can be applied to many cities. For instance, the center of Athens, the typical old Mediterranean monocentric city, has been seriously affected by automobile growth in recent years. Until 1970, the number of private cars in Athens was limited. Transportation was provided by a network of buses radiating from the center to a distance of about 10 kilometers. The increasing number of cars has created severe congestion on the streets in the center. Many inhabitants have fled the degradation of the environment caused by traffic jams, pollution, and noise. Property values have declined; renovation has stopped. Air pollution has worsened. Decay of the historical center has proceeded. New commercial centers have been developed at a distance (Prevelakis, 1984:122-24). From a *city* in the old Greek sense of the word, metropolitan Athens has been transformed into an amorphous sprawl.

In Paris, for example, there are 2.1 million cars, half in the city and half in the suburbs, and about 200 thousand are in circulation simultaneously much of the time, except during the rush hours in the morning or evening when there are more. If there is a strike of the public transportation system, or if it rains heavily, the number of cars in circulation increases dramatically. If it increases by 5 percent—10 thousand more cars—the speed of circulation decreases by 20 percent.