



INTERNATIONAL HANDBOOK OF URBAN SYSTEMS

**STUDIES OF URBANIZATION
AND MIGRATION
IN ADVANCED AND
DEVELOPING COUNTRIES**

**Edited by
H.S. Geyer**

International Handbook of Urban Systems

Studies of Urbanization and Migration in
Advanced and Developing Countries

Edited by

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Chapter 16

Evolution and Maturing of the Mexican Urban System

A. G. Aguilar and B. Graizbord¹

INTRODUCTION

Urbanization associated with developing countries over the last five decades has been one of rapid urban growth and rural to urban migration flows. In the larger developing countries urban concentration accelerated after the Second World War, due to advances in the industrialization process. Industrialization, considered to be an indispensable factor for the 'take off' in economic development, tends to concentrate in a limited number of cities, if not in one only, and urban primacy became a common feature, particularly in Latin America.

However, after the 1970s signals of a new stage in the evolution of the urban system from a very concentrated pattern to decentralization and polarization reversal started to appear in certain countries in Latin America. As Leven (1990:182), suggested 'the advantages of larger size are not limitless; eventually certain disadvantages of size would emerge and, depending on circumstances, the net advantages of scale would be reached at some finite population.'

The theoretical insight offered by Leven in such a parsimonious statement justifies an investigation into (i) changes in the Mexican urban system, (ii) the way cities have changed in size and function, and (iii) how the urban

¹ The authors gratefully acknowledge the contribution of Irma Escamilla, Clemencia Santos, and Milton Montejano in the analysis of the data and in the compilation of the figures.

population has evolved in terms of its socio-economic and demographic attributes. As technological and organizational changes occur in the production process, geographic responses can be seen not only through time but through space as well. Thus, our analysis of the Mexican urban system is organized not only in terms of city sizes, but also by geo-economic regions and from a centre-periphery point of view.

Our interest will be: (i) to discuss the stages of evolution and signs of maturation of the Mexican urban system; (ii) to find out if cities by size are becoming similar in terms of their population attributes (Leven 1990:189); (iii) to describe how the urban system and some particular cities have experienced the transition from a more industrial to a more service-oriented economy; (iv) to examine the relative importance of and differences between core and periphery and among the main urban subsystems in Mexico. The framework for analysis is the proposal of 'differential urbanization' (Geyer and Kontuly 1993) that recognizes a cyclical process in which the timing whereby different city size ranks are to change and become recipients of main and subsidiary migration flows (streams) follows a sequence starting from the centre and highest rank size and spreading to the periphery and lower rank sizes.

This process of city and population growth is explained by migration or population decentralization, but also by economic activities and market developments, as was pointed out recently by Fujita, Krugman, and Venables (1999:128-129). The idea is based on the central-place hierarchy concept, and not only on some special natural locational advantages such as ports as transportation hubs (*op. cit.*:129). According to them increasing population density in a territory plays a significant role in an urban system's evolution.

The chapter is divided into five sections. This short introduction sets the framework for the analysis. The second section, based on historical events, describes how the Mexican urban system was structured, emphasising the 'outset of rapid urbanization' and concentration, a process that prevailed throughout most of the first half of the twentieth century. The third refers to the development of the 'modern' urban system in more detail, mainly through a review of the literature. The fourth section analyses the specific changes in the urban system occurring during the second half of the twentieth century through socio-economic and demographic variables by city-size categories. Finally, some perspectives on the urban future are offered in the last section.

THE EARLY DEVELOPMENT OF THE MEXICAN URBAN SYSTEM

The aim of this section is to highlight historical events that shaped the early formation of the Mexican urban system, particularly from pre-colonial times up to the first half of the twentieth century. Three main stages can be

identified: (i) the *Pre-Colonial and Colonial Period*, referring to the time before the Spaniards conquered Mexico in 1521 to the year of Mexican Independence in 1810; (ii) the *Independent Era*, from the early nineteenth century up to the beginning of the Mexican Revolution in 1910; and (iii) the *Outset of Rapid Urbanization*, comprising most of the first half of the twentieth century, from 1910 up to 1940.

(1) The Pre-Colonial and Colonial Period.

Just before the Spanish conquest in the sixteenth century, Tenochtitlan, in the valley of Mexico, with about 300,000 inhabitants, was the most important urban settlement of an empire² that extended over a large portion of the Meso-american region.³ Simultaneously, there were also important settlements associated with the *Maya* people in the Yucatán Peninsula; the *Tarascos* in the present states of Michoacán, Jalisco, Colima, and Guanajuato; and the *Zapotecs* and *Mixtecs* in the state of Oaxaca. Two aspects have to be emphasised. Firstly, these large-scale communities adopted the political form of 'city-states' where a large commercial and religious settlement tended to dominate several agricultural localities and small political-religious entities; apparently, there was very little economic interaction between the different cultures and entities (Scott 1982: 25). Secondly, large-scale urban cultures were particularly important in the central region of Mexico,⁴ which played an historical role in the formation of future urban agglomerations as Spaniards consolidated most of the pre-colonial spatial order. The best example is Tenochtitlan, later re-founded as Mexico City, the capital of New Spain.

During the 300 years of the colonial period, the urban development axis moved to the North and towards the Gulf of Mexico. Cities were mainly developed to perform political and administrative functions and to provide trading partners with Spain, as well as to exploit mineral resources.⁵

Two main trends can be identified: (i) consolidation of former inhabited spaces and (ii) the foundation of dispersed new settlements (see López Austin and López Luján 1996; García Castro 1993: 133-134). In the first place, the

² An empire called Culhua-Mexica, also known as Aztec.

³ The region covers the area from the northeast of Central America to the present Mexican states of Sinaloa, San Luis Potosí, and Tamaulipas

⁴ It is estimated that by 1521, the population in central Mexico was 2.5 million in a highly-dispersed pattern (Unikel et al. 1976: 17).

⁵ The same sort of economic functions were distinguished for other colonial towns in Latin American countries (see Castells 1973: 19).

early distribution of cities largely coincided with that of Indian settlements. The best example is Mexico City, which, as the seat of government and ecclesiastical authorities, consolidated a pre-eminent role in this period as a political, administrative, and financial centre for Spain's large colonial territory in the Americas. In other words, Colonial Mexico inherited and maintained the central region (or *altiplano*) as an historical and geographical nucleus. In several regions, old Indian pueblos co-existed with the new Spanish settlements, mainly in the central portion of the country and in the lowlands of the Yucatán Peninsula, where the Maya groups developed.

Secondly, mining towns (*reales de minas*) were established close to important silver mining sites; among those were Taxco, Pachuca, Zacatecas, and Guanajuato. They acted as 'company towns' and are good examples of an enclave economy. The mining centres served as a first phase of the colonization of the northern part of the country. One region structured during the colonial period with an important agricultural and cattle-raising sector was the *Bajío*; the discovery of rich mineral resources in this region, its fertile soils on a large plain, and the support of the colonial government were fundamental incentives for colonizing this territory and setting the conditions for further urban growth.

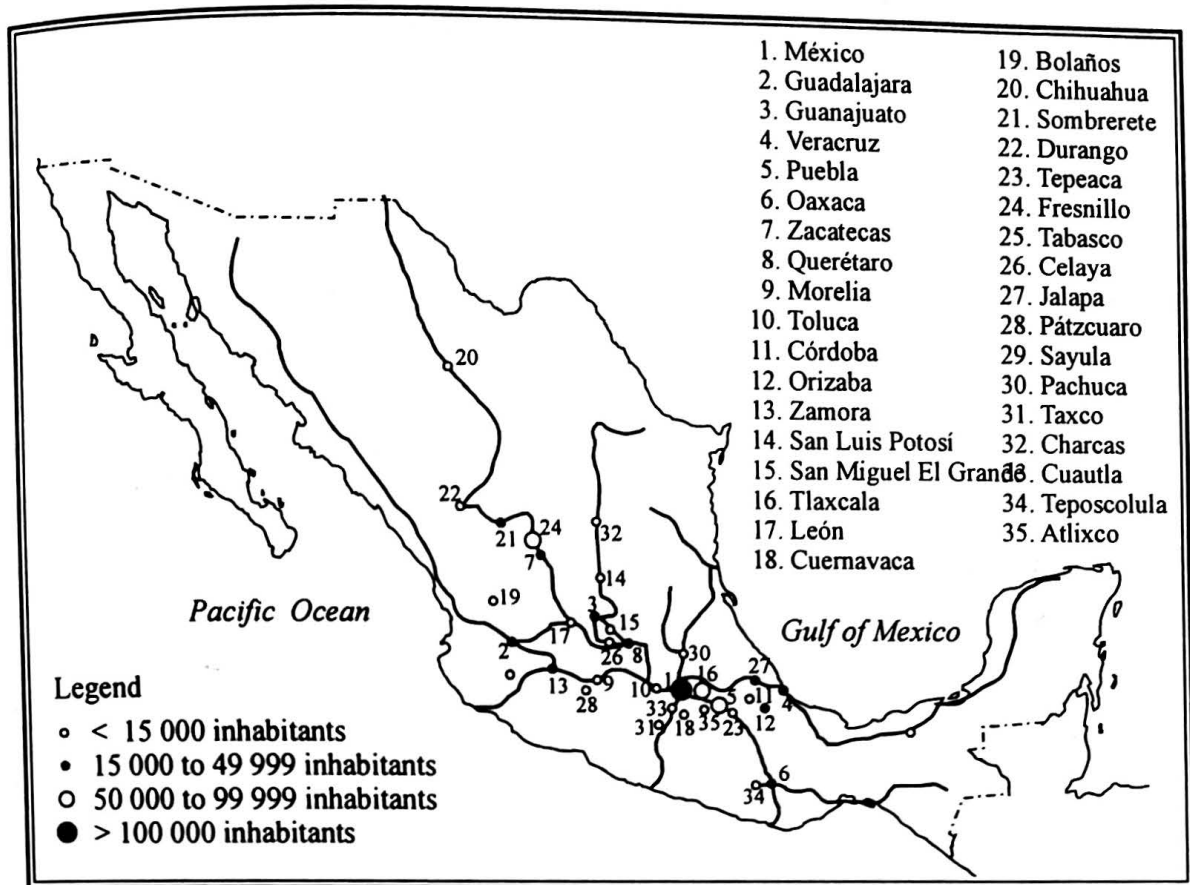
In the eighteenth century, the colonial urban network presented all the characteristics of an 'immature' urban system.⁶ The lack of a good road infrastructure inhibited the development of interurban links, resulting in a weak commercial exchange among urban areas, and one city, the capital, dominated the area. The high cost of transport was an important barrier for commercial activities between regions,⁷ reflecting a predominant agricultural economic base and a rural society. Secondly, 90 per cent of the population lived in settlements with less than 10,000 inhabitants. Therefore, the 'urban' concentration of commercial activities and mining was dominated by five or six main cities (see Figure 16.1) in a milieu of unarticulated and weak regional markets.⁸ Migration to cities occurred, but Mexico City absorbed most of it, particularly from the central region of the country. In the second half of the eighteenth century, at least 40 per cent of its inhabitants had been born outside the city limits (Pescador 1993: 115-117). By the same date its population reached more than 100,000 inhabitants.

⁶ This statement is put forward by Pescador (1993: 112).

⁷ For example, a caravan of horses could take six weeks to go from Mexico City to Guadalajara or to Zacatecas; and no less than nine weeks to go from Tula to Monterrey or Parral (Pescador 1993: 109-110).

⁸ The presence of merchants and commercial activities was particularly important in Guadalajara and Veracruz; Puebla was a textile centre with half of its population employed in this industry by 1793; and the *Bajío* manufactured mainly cotton, wool, and leather (Morse 1973: 22; Moreno Toscano 1973: 178-179).

Figure 16.1 Main cities and roads in the eighteenth century



Source: Pescador, 1993, p. 111

(ii) The Independent Era

It was not until the second half of the nineteenth century, during the *Porfiriato*, that important changes occurred and new regional centres emerged. In the second half of the nineteenth century moderate economic growth was facilitated by foreign investment and the development of the transport network, particularly railroads.⁹ The development of ports linked to the railroad network and the proliferation of mining towns in the North led to the expansion of regional markets and urban growth.

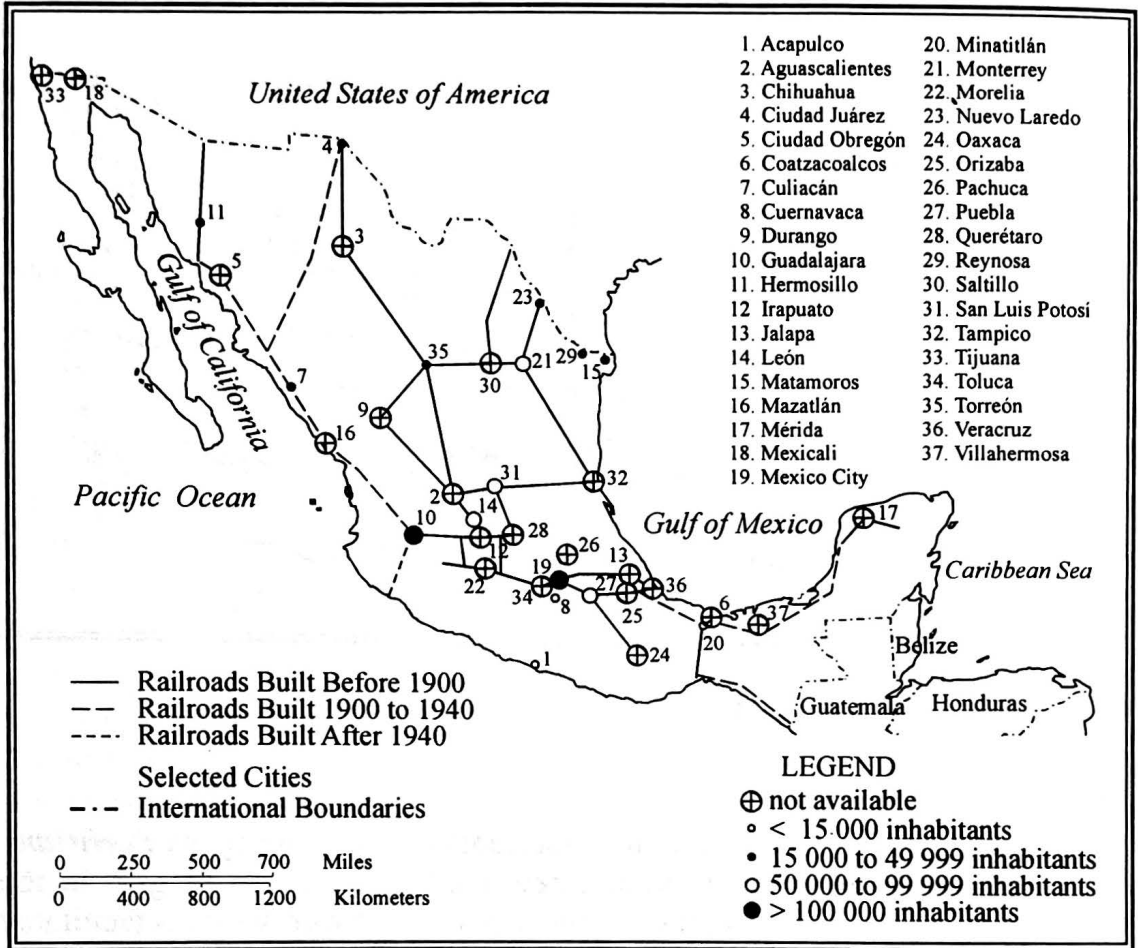
Railroad expansion played an important role in stimulating the growth of cities at a higher pace than Mexico City in the central and northern part of the country (Guadalajara, Veracruz, Monterrey, San Luis Potosí, and even Mérida in the South).¹⁰ Old mining towns in the North gave way to new

⁹ Before the Revolution, 33 per cent of foreign investment was in railroads, and 24 per cent was in extractive industries (Scott 1982: 31).

¹⁰ San Luis Potosí prospered due to its commercial links with the port of Tampico, which had a significant number of U.S. merchants; Mérida experienced rapid growth because of the commercial plantations of sisal (Moreno Toscano 1973: 186).

centres in Coahuila, Durango, and Sonora, Torreón-Gómez Palacio in *La Laguna*, and Monterrey, which became a traditional heavy-industry location. Veracruz, one of the main railroad network nodes, concentrated almost all export and import maritime freight (see Figure 16.2).

Figure 16.2 The railway network before and after 1900



Source: Scott, 1982, 0.29

At this stage, Mexico City became the predominant city in the urban system, increasing its population from 200,000 in 1877 to 400,000 in 1910. In other words, whereas the primacy index between the two main cities in the early nineteenth century was slightly over 2, by the end of that century the same index was well above 3, more closely approaching a pre-eminent condition (see Unikel et al. 1976: 24). Macro-economic and spatial changes during the *Porfiriato* had a lasting effect on the structure of the Mexican urban system. A communications network was established, facilitating interactions between the centre and the northern regions. The heavy dependence on exports to the United States inhibited to a great extent the formation of a balanced urban system, and cities which were the largest at the beginning of the twentieth century, were to retain their prominence thereafter.

(iii) *The Outset of Rapid Urbanization*

The first decades of this period were characterized by relatively slow urban growth, due to domestic and external events. The 1910-21 Revolution and the 1929 world economic depression had negative impacts on exports and affected the pace of urban growth. After the 1920s, in a period of reconstruction, consolidation, and institution building, the largest cities, particularly Mexico City, diversified and strengthened their social, economic, and cultural functions and accelerated their urbanization trends.

Urban population grew at a more rapid rate than the total population between 1900 and 1940, from 1.4 to 3.9 million inhabitants. But the number of cities increased from 33 in 1900 to 55 in 1940. Most of the urban growth was concentrated in the larger cities. While in 1900 there were only two cities with over 100,000 inhabitants concentrating 33 per cent of the total urban population (representing 10.5 per cent of the total), by 1940 there were 6 cities of the same size concentrating 12 per cent of the total urban population (20.0% of the total) (Unikel et al. 1976: 30-31). By 1940, Mexico City had reached a population of 1.5 million and the primacy index increased to 6.65 (for two cities).

Improved accessibility reinforced the main cities. During the first half of the twentieth century the railroad network remained roughly the same, but road transport grew significantly. Both the national road system and the railroad network emphasized North-South linkages, hindering East-West movements. This structure reflected both physical-geographic conditions and inertial forces from the *Porfiriato* period (Scott 1982: 42). Cities located along the transport network were favoured in terms of their functions, experiencing urban growth and reinforcing their linkages with Mexico City. Two main regions where this process occurred can be identified: (i) the central portion of the country connecting cities like Guadalajara, Aguascalientes, San Luis Potosí, the *Bajío*, and those along the roads to Veracruz (East) and Acapulco (West); (ii) those comprising the North-Central and north-eastern corridors in a comprehensive network including Tampico, Monterrey, Torreón, Chihuahua, and border towns to the Northeast, fairly distant but potential market towns. On the other hand, two main regions remained isolated. One comprised the North-western states, since the Sonora-Baja California road system was not connected to the main network until 1942. The other to the Southeast, including the Yucatán Peninsula, remained isolated until 1938 when the railroad system was linked to the central network.¹¹ Maritime transport was significant and remained so for cities along the Gulf of Mexico.

¹¹ Referring to this aspect, Scott (1982: 41) points out that the national road network linked only thirty-three of the fifty largest cities in 1940. The Northwestern and Southeastern regions having fewer roads than other areas.

Table 16.1 Urban population by urban size groups, 1910 and 1940

Size of settlement	Number of urban places		Population of urban places			
	1910	1940	1910	1940	1910	1940
2,001-2,500	396	n.a.	1,313,794	n.a.	8.67	n.a.
2,501-5,000	n.a.	438	n.a.	1,486,648	n.a.	7.56
5,001-10,000	123	165	848,124	1,101,778	5.59	5.61
10,001-20,000	40	55	518,124	757,170	3.42	3.85
20,001-50,000	22	29	714,786	876,281	4.71	4.46
50,001-100,000	5	9	362,845	672,552	2.39	3.42
100,000+	2	4	590,534	2,002,240	3.9	10.19
Total	588	700	4,348,341	6,896,669	28.68	35.09

Notes: n.a. = not available

Source: Scott (1982, p. 48)

THE DEVELOPMENT OF THE MODERN URBAN SYSTEM, 1950-2000

URBANIZING TRENDS 1950-1970: CONCENTRATION AND METROPOLITAN GROWTH

In the late 60s, Unikel (1971) initiated systematic studies of urbanization and city growth in Mexico. His work was permeated by ideas which were paramount at that and earlier times in developed countries: primate city growth as a fact and 'concentrated decentralization' (Rodwin 1972) as a wish.

By the 1950s, Mexico City already had 3 million inhabitants, while only Guadalajara and Monterrey surpassed the 250,000-population mark. Industrialization policies were publicly supported and industrial growth was

accompanied by population concentration in Mexico City, with heavy periphery-to-centre migration flows.

It was in the 1970s that a metropolitan growth trend as a form of urbanization began, affecting Mexico City and a few secondary cities. Unikel (1971) and other authors (e.g., Carrillo Arronte 1971) were able to identify main trends: rural-urban migration flows, mostly to the country's capital as of the 1940s and to very few other cities later on, and concentrated efforts, both public and private, but mainly by the State, to trigger an industrialization process in the country by taking advantage of scale and external economies in Mexico City. Unikel referred to a massive rural-urban flow (3 million migrants during the 1960s) to Mexico City which experienced an average annual growth rate of 5.7 per cent (5.5 per cent during 1950-60), an historical peak. He was also able to trace signs of contiguous peripheral growth in twelve urban centres (Unikel et al., 1976:135): Mexico City, Monterrey, Guadalajara, Puebla, Orizaba-Córdoba, Veracruz, Chihuahua, Tampico, León, Torreón, Mérida, and San Luis Potosí. The first three had over 500,000 inhabitants. Three additional cities (Tijuana and Mexicali in Baja California and Ciudad Juárez in Chihuahua) were experiencing growth followed by intensive linkages with their twin cities across the border, rather than expanding physically to other contiguous municipalities on the Mexican side.

In the early eighties, an extensive review of the literature¹² constituted a good starting point to speculate on the possibilities of decentralized urban growth in the Mexican urban system (Graizbord 1984). It was expected that intermediate-sized cities would show a relative growth rate surpassing that of the large metropolitan centres in the country. Stage models by Hall (1980), Drewett (1980), Berry (1980), and Berry and Dahman (1977) provided a framework to explain general sequences in urban development. They visualized a 'U'-shaped trend, – first rural-to-urban, then urban-to-urban, and finally urban-to-rural migration. Later on, the stage model was conceptually expanded to include the possibility of more than one cycle of stages,¹³ not only nationally and internationally but also at the regional and local level (Geyer and Kontuly, 1993; Geyer, 1996, 1998). Population redistribution patterns at the latter levels could be described as 'similar migratory modes involving different regions in the country or different migration modalities in

¹² Including several papers referring to urbanization and counter-urbanization (Berry 1976), a 'clean break with the past' (Vining and Strauss, 1977), 'deconcentration without a clean break' (Gordon, 1979), the halt in the metropolitan phenomenon (Alonso, 1978), polarization reversal (Richardson, 1980), etc..

¹³ In addition to mainstream migration patterns implied in earlier stage models, the concept of 'differential urbanization' included sub-stream migration flows that either serve as an early indication of a new phase of urban development that is about to begin, or as an indication of the last traces of a past phase. Six stages of urban evolution are suggested in the model.

one region' (*op. cit.* 1984: Figure 1 on page 44 and page 46). Contrary to what was initially considered as a concentrating tendency *ad infinitum*,¹⁴ deconcentrating trends in urban growth patterns were seen as more than a possibility.

With the onset of deconcentration, defined as 'polarization reversal' in the Third World environment (Richardson, 1980) and as 'counter-urbanization' in the First World¹⁵ (Vining and Strauss, 1977), the urbanization process acquired a new dimension. Some (Gordon, 1979) thought at the time that no such break was evident, but rather that an undulatory process in metropolitan growth affecting other cities within the regional influence of dynamic urban centres was more likely under way. In fact, inspired by Berry (1972), both processes were recognized as parallel and it was speculated that, in the case of the Mexican urban system, hierarchical diffusion within the urban system, as well as a contiguous process taking advantage of opportunities offered by location relative to the main metropolitan centres, was a possible scenario for the near future (Graizbord, 1984). The idea of a 'U' shape (Alonso, 1980) describing the evolutionary process in mobility over time, as was pointed out by Zelinsky (1971) and considerations by Rutledge Vining twenty or more years earlier, were sufficient references as a basis for such an hypothesis. In fact, Ledent (1982) had identified a point of inflection in rural-urban migrations for Mexico for the 1975-80 period which was also a good reason to consider the possibilities of a rather new approach to the Mexican urbanization process by looking at small- and intermediate-sized cities in the national urban system (see Aguilar, Graizbord and Sánchez-Crispín, 1996 and 1997).

What was treated as a remote possibility for an underdeveloped country was later stated as a generalization by Gilbert (1993). This author identified five basic trends characterizing more recent urbanization processes in developing countries: (i) urbanization rates were increasing in most of the African and Asian countries, but decreasing in Latin America; (ii) migration trends had been modified as the possibilities for long-distance daily commuting to work have increased;¹⁶ (iii) suburbanization and spatial deconcentration have resulted in a polycentric urban structure in most of the metropolitan areas; (iv) primate cities and old metropolitan areas reduced their population growth rates; (v) last but not least, Gilbert was convinced that those changes have not necessarily been deliberate, since explicit urban

¹⁴ By Garza (1980) in the case of Mexico.

¹⁵ At the time Vining and Strauss referred to migration deconcentration in the USA as 'a clean break' with past trends.

¹⁶ That is the case for Mexico City (Acuña and Graizbord, 1999; Graizbord and Molinatti, 1998), but also for Guadalajara, Monterrey, Puebla, and other cities along the León-Querétaro industrial corridor in the Central-Western region of Mexico.

policies had not been effective or have disappeared from the developing countries' political agendas.

In the case of Mexico rapid population growth at average annual rates of 2.8 per cent during 1950-95 reached a peak of 3.2 per cent in 1950-70. During these two decades, the urban population grew at almost 5 per cent annually, while the rural population (in settlements with 2,500 or fewer inhabitants) was growing at an average rate of 1.5 per cent. At that pace, 8 out of every 10 new inhabitants ended up as urban dwellers. Thus, in terms of demographic growth, the second half of the twentieth century can be divided into two periods: 1950-70 and 1970-95 (Cabrera 2000). From 1950 to 1970 most of the demographic factors experienced positive changes: life expectancy rose from 51.9 years to 63.1; infant mortality was cut back from 116 one-year-old deaths per thousand to 73 (albeit with big differences persisting between urban and rural figures) and so on. But the main factor was rural-to-urban migration, with numerous origins and very few destination points. Nearly 50 per cent of total rural migration ended in Mexico City and 20 per cent in Monterrey and Guadalajara. Due to these migration flows, by the year 1970, Mexico's rural population increased much faster amongst younger people (15 years and less) and slightly faster amongst the older people (65+) than the urban population. The country also became predominantly urban, still exhibiting great differences between the rural and urban populations and increasing inequalities by region.

DECENTRALIZATION 1970-95. EARLY STAGES OF INTERMEDIATE-SIZED CITY GROWTH

The country's population reached 91.2 million in 1995. According to the latest census data, Mexico today has a population of 100 million people. Demographic planning (i.e., 'family planning', as birth control was euphemistically termed), with the main objective of reducing the country's very high fertility and birth rates, was institutionalised by law and by the creation in 1974 of CONAPO (*Consejo Nacional de Población*, or National Population Council). From then on, growth rates were reduced to reach 2.6 per cent in 1995 for the country's total, 0.8 per cent for the rural and 3.5 per cent for the urban population. Population growth slowed down, inhabitants became relatively older, and the younger cohorts shrank. Fertility for both the rural and the urban populations dropped substantially from 6.3 children per woman to 3.1 for the country as a whole and from 7.7 to 4.4 and from 5.7 to 2.8 for the rural and urban populations, respectively. The country is now almost 70 per cent urban, but still bears witness to wide social differences not only between central and peripheral regions but also by sectors and between ethnic groups. A greater number of people living in more and bigger cities seems to be a continuing trend (see Figures 16.4 and 16.5). At the same time, growth rates are being reduced in every rank-size group, especially in those

with over one million inhabitants, which, since the seventies, have been exhibiting rates similar to the country's total (see Figures 16.3 and 16.4).

The faster growth of middle-size cities in the 1980s and early 1990s demanded attention not only from the government sector in the form of urban-regional policies, but also new interpretations and emphasis from academic works on this particular urban level of the hierarchy. Several analyses highlighted the process of urban dispersion in the country (see Aguilar, 1992; Aguilar and Rodríguez, 1995), and the promotion and growth of intermediate-sized cities (see Aguilar, Graizbord and Sánchez-Crispín, 1996 and 1997).

Later in the 1990s, while in Mexico a counter-urbanization tendency was seen as temporary with strong agglomeration forces acting in favour of the primate city (Garza 1999), some signs of differential urbanization were highlighted. This phase apparently corresponds to the following one defined by Geyer (quoted in Geyer and Kontuly, 1993): 'early signs of deconcentration being apparent while concentration forces are still dominant and signs of continuing concentration after dispersion has set in as the predominant migration pattern'. At the same time 'the sequence of tendencies observed in the development of urban systems, first toward concentration and then toward dispersion or deconcentration is not limited to systems at the national level, but can also manifest itself at each of the lower levels of territorially organized subsystems because the same spatial forces operate at both national and subnational levels' (Geyer and Kontuly *op. cit.* p. 160). In fact, a deconcentration of urbanization in the functional region of Guadalajara (Mexico's second largest metropolitan area) was reported with intermediate- and small-sized cities growing at faster rates (Arroyo and Velásquez 1992).

DECONCENTRATION OR COUNTER-URBANIZATION 1985-2000

Recently, Tuirán (2000) was able to identify differential growth in Mexico's larger metropolitan areas. After referring to the controversy and analysing migratory trends in two periods based on general information, he was able to report that Mexico City 'observed an unfavourable migratory balance' in both the 1987-92 and 1992-97 periods. The net migration balance of Guadalajara, Puebla, and Torreón 'was positive during 1987-1992 but changed to negative during the second period'. Toluca, 'with a positive balance in the 1987-92 period registered a balance close to 0 in 1992-1997'. Monterrey 'was the only one of the six selected cities with a positive balance in both periods' (Tuirán 2000:56). His conclusions are relevant to the present discussion. He reported the following tendencies:

- i Migration towards the metropolitan peripheral rings of the selected cities originating in the 'rest of the country',¹⁷ slowed down in both five-year periods analysed. The size of those flows decreased both in absolute numbers and in rates in all cases. Puebla was the only city in which a small positive increment was observed.
- ii Migration from the metropolitan peripheral rings towards 'the rest of the country' increased between the first and second periods. This flow increased in all six cases. With the exception of Mexico City, larger numbers of migrants resulted in higher migratory rates.¹⁸
- iii Migration to central cores originating in the 'rest of the country' diminished from 1987-92 to 1992-97. Except for Monterrey, all cities experienced a drop in the number of migrants and in migratory rates.
- iv Migration from the central cores to the 'rest of the country' slowed down in both periods. Except for Puebla, the other cities experienced a decreasing migratory flow reflecting a phase out of this decentralizing process.
- v Metropolitan mobility between central core and peripheral rings also slowed down between the 1987-92 and 1992-97 periods.

In short, except for Monterrey, where migratory flows from the 'rest of the country' to both the central core and the peripheral rings were still prevalent in both periods, in the other cities considered movements from the central core to the peripheral rings decreased and those to the 'rest of the country', either from the central core or from the peripheral rings, got stronger and in some cases quite significant.

Mexico City, the primate city, experienced the three stages of the first urbanization phase as proposed by Geyer and Kontuly (1993). During the third stage, when the city's mono-centric urban structure could no longer sustain and diseconomies (congestion) appeared, Mexico City developed into a typical multi-centered structure. This complex structure reached a 'megalopolitan' status once its peripheral rings merged to the metropolitan area of Toluca, a city 60 km away. As pointed out by Graizbord and Mina (1994) and Aguilar (1999 and 2000), as well as by Garza (1999) and Negrete (1999), during the eighties the central region showed signs of rapid growth; some intermediate-sized cities within the region grew rapidly, reaching the

¹⁷ Based on Berry and Dahman's center-periphery migration model (1977), Tuiran divided the country into metropolitan (central core and peripheral rings), and non-metropolitan (urban and rural) areas. For simplicity we refer to 'central core', 'peripheral rings', and 'rest of the country'.

¹⁸ Average annual rate per thousand inhabitants. These rates result from dividing the number of migrants by the total population at the beginning of the respective period.

500,000 inhabitants mark due to migratory flows originating in both the primate city and their contiguous regions.

One can, of course, view Mexico's differential urbanization process as being at the 'concentrated dispersion' or intermediate-sized city phase because some typical signs of this phase are emerging. 'Urban growth [is taking] place [not only] in intermediate-sized cities fairly close to the primate cities' (Geyer and Kontuly 1993), but also in independent cities in distant regions far away from the primate city, which by now is growing at a much slower rate than most (if not all) intermediate-sized cities of the Mexican urban system. The fact that Mexico City's manufacturing employment is decreasing is a clear indicator of this phenomenon. In this sense, the country's urbanization process cannot be categorized as continuing urban sprawl, not even on a regional (central-region)¹⁹ scale.

EVOLUTION OF THE MEXICAN URBAN SYSTEM IN THE SECOND HALF OF THE 20th CENTURY DEMOGRAPHIC GROWTH BY CITY-SIZE AND CORE- PERIPHERY CATEGORIES

In the second half of the twentieth century population growth by city-size categories shows three main periods: concentration in the primate cities; first trends of polarization reversal to a reduced number of urban centres; and a dominance of intermediate-sized cities and regional metropolitan areas.

In the period 1950-70, the largest metropolitan areas established overall dominance, registering the highest growth in the system with rates of approximately 5 per cent, and concentrating 25 per cent of the total population at the end of the period. Those metropolitan areas were attracting a large percentage of migrants, with Mexico City metropolitan area at the forefront (see Figures 16.3 and 16.4). A weak urban hierarchy developed with intermediate-sized and large cities concentrating a small proportion of the population (about 10 per cent in each category), while small-sized cities concentrated more than 20 per cent.

The above mentioned trends are good enough to accept that this period corresponds to the primate city stage with a clear dominance of the core, represented by the three main metropolitan areas, over the periphery (see Table 16.2).

Between 1970 and 1990 the most important changes occurred in the main metropolitan areas. Growth slowed down in large cities and intermediate-sized cities started growing faster. Migratory flows led to both economic

¹⁹ The central region comprises the *Distrito Federal* and the states of Mexico, Morelos, Hidalgo, Tlaxcala, Puebla, and Querétaro; an area of nearly 100,000 square kilometers.

diversification and changes in their urban spatial structure. Those urban centres closer to the main metropolitan areas responded first to polarization reversal. In fact, the outer cores of Mexico City, Guadalajara and Monterrey grew much more rapidly than their inner cores, reaching a more 'mature' phase in the following decade (see Table 16.2). Thus, intermediate-sized cities adjacent to the primate cities, and also those with exceptional locational attributes or the presence of natural resources (oil or tourism) in some distant regions, had better chances to develop, showing features of the 'advanced primate city stage'.

After 1990, the pace of growth in all the urban categories and main metropolitan areas continued to slow down. Large cities consolidated their position as regional centres and their growth tended to accelerate during the last period with intermediate-sized cities following very close by. On the other hand, small-sized cities are maintaining their non protagonist role. In general, the basic trend in the urban system is a larger concentration of population in outer cores (metropolitan peripheral rings) and an expansion of metropolitan areas.

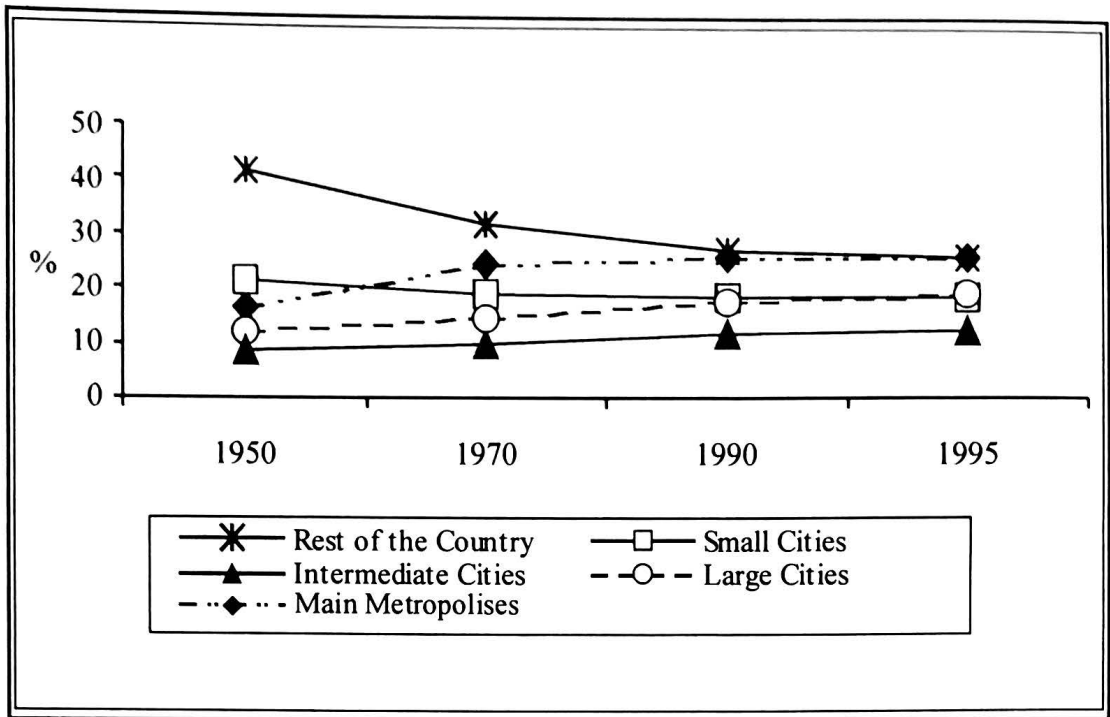
These recent trends in the Mexican urban system tend to coincide still with the 'intermediate-sized city stage' of the Geyer-Kontuly model. But the primate city is losing population vis-à-vis the large and intermediate-sized cities, while urban centres within the main metropolitan regions are now growing faster than the central city. One main difference from the model is that small-sized cities have been growing steadily at low rates and do not show signs of accelerating their growth in the short term.

SOCIO-ECONOMIC CHANGES BY CITY-SIZE CATEGORIES

Our aim in this section is to show to what extent the redistribution of urban growth (concentration to deconcentration) in the period 1950-90 has produced changes in some socio-economic variables by city size. Five variables were selected for analysis: employed population by income, economic sector, and qualification levels, educational levels and age groups (see Figure 16.5). To the extent that there has been a deconcentration process, the socio-economic characteristics of the main metropolitan areas tended to spread out to the urban periphery, and trickle down the Mexican urban system hierarchy.

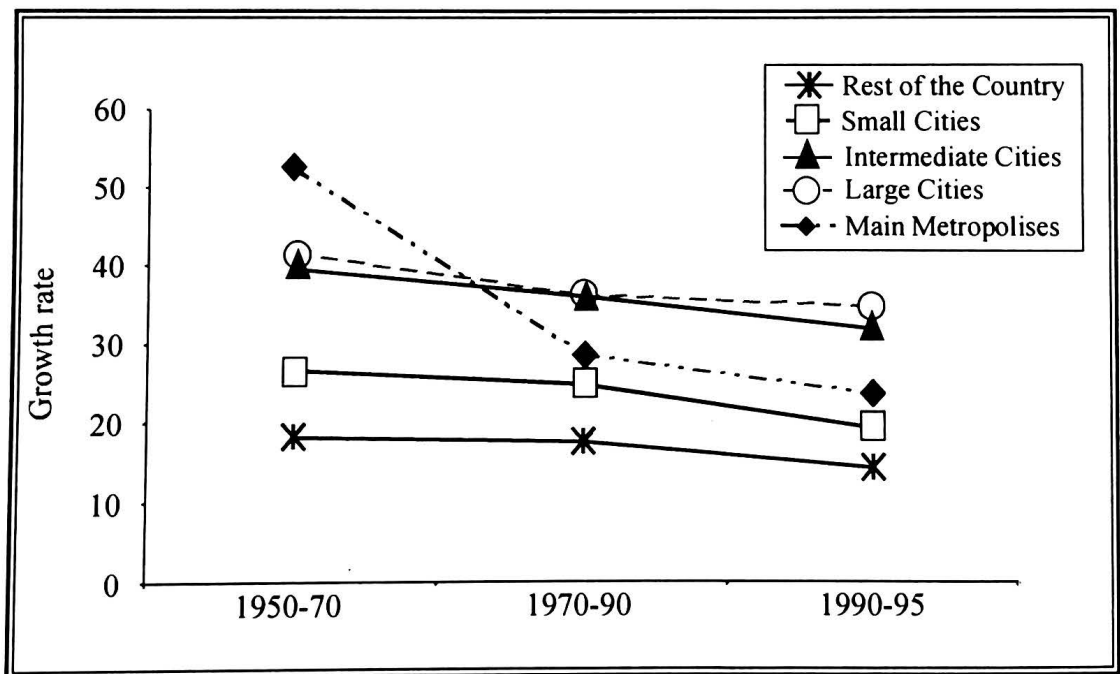
During the 1940s Mexico adopted an economic model that stimulated import-substitution industrialization (ISI) which mainly affected large cities. By 1950 this process was under way and its effect was already present. The main metropolitan areas attracted most of the main urban productive activities, concentrating 61 per cent of government functions, more than 35 per cent of all commercial and service activities, and 38 per cent of manufacturing activities. The next level of cities in the hierarchy (large cities)

Figure 16.3 Population change by rank-size, 1950-95



Source: Bureau for Geographical and Statistical Data: Mexico

Figure 16.4 Evolution of population by rank-size, 1950-95



Source: Bureau for Geographical and Statistical Data: Mexico

Table 16.2 Population 1950-70-90 and growth rates 1950-70 and 1970-90 by rank size*

	1950		1970		1990		Growth rate		
	Total	%	Total	%	Total	%	50-70	70-90	
Main metropolises	4,264,906	16.54	11,879,365	24.63	20,787,521	25.58	5.26	2.84	
		(100.00)		(100.00)		(100.00)			
ZMCM	3,391,602	(79.52)	9,091,189	(76.53)	15,226,800	(73.25)	18.74	5.05	2.61
Inner core (DF)	3,050,442	89.94	6,874,165	75.61	8,235,744	54.09		4.15	0.91
Outer core (MMEM)	341,160	10.06	2,217,024	24.39	6,991,056	45.91		9.81	5.91
ZMG	483,675	(11.34)	1,533,485	(12.91)	2,987,194	(14.37)	3.68	5.94	3.39
Inner core (MG)	380,226	78.61	1,199,391	78.21	1,650,205	55.24		5.91	1.61
Outer core (MMG)	103,449	21.39	33,094	21.79	1,336,989	44.76		6.04	7.18
ZMM	389,629	(9.14)	1,254,691	(10.56)	2,573,527	(12.38)	3.17	6.02	3.66
Inner core (MMO)	339,282	87.08	858,107	68.39	1,069,238	41.55		4.75	1.11
Outer core (MMMO)	50,347	12.92	396,584	31.61	1,504,289	58.45		10.87	6.89
Large cities	3,137,660		7,060,983		14,320,997		17.63	4.14	3.60
Intermediate cities	2,172,962		4,708,021		9,520,806		11.72	3.94	3.58
Small cities	5,386,666		9,314,399		14,967,708		18.42	2.78	2.40
Rest of the country	10,817,060		15,262,470		21,652,613		26.65	1.74	1.76
Mexico	25,779,254	100.00	48,225,238	100.00	81,249,645	100.00	3.18		2.64

Notes:

* Main Metropolises: ZMCM (Metropolitan Area of Mexico City), ZMG (Metropolitan Area of Guadalajara), ZMM (Metropolitan Area of Monterrey).

Large Cities: more than 500,000 excluding the three main metropolises. Intermediate Cities: 100,000 to 499,999.

Small Cities: 15,000 to 99,000. Rest of the Country: all municipal units not included in the above categories.

Source: National Bureau for Statistics and Geographical Information, Mexico.

also attracted a significant proportion of these activities, almost a quarter of the total. On the other hand, many small-sized cities were closely linked to agriculture and mining and provided commercial goods to the local communities.

Larger urban centres present obvious comparative advantages. They contained the highest proportion of the most educated and qualified section of the population, i.e. those with secondary, high school and university education, and contained the highest percentage of specialized professional and technical personnel. In fact, there was a direct relationship between the level of education of the population and urban size. In contrast, the higher proportion of illiterate and lowly qualified people was concentrated in rural areas and small-sized cities (65 per cent of the population with a low levels of qualification).

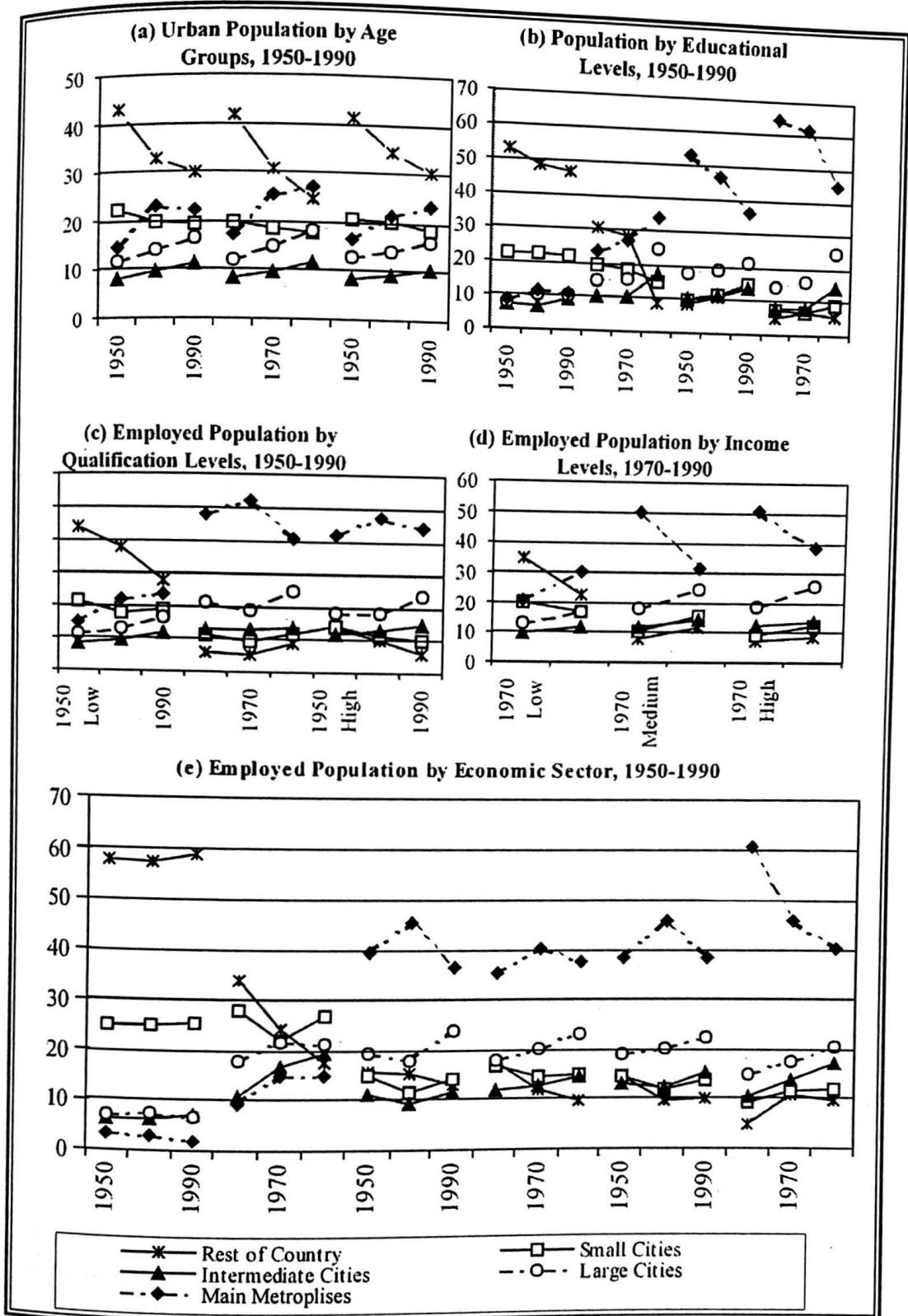
By 1970 the level of economic concentration in the largest city of the Mexican urban system reached its peak. In the context of rapid urbanization some economic sectors became more concentrated in the main metropolitan areas. Examples of the latter were manufacturing and commercial activities: more than 40 per cent. Although large and intermediate-sized cities lost some industrial vigour, they increased their share of other important urban functions like wholesale and retail, services, and government. Signs of an urban-based economy were already under way in larger cities that were performing central place functions and their bureaucratic sector expanded significantly.

Of the three main urban subsystems, of which Mexico City, Guadalajara and Monterrey formed the gravity points, Mexico City was the unchallenged 'core' with about 37 per cent of the manufacturing activity, and a similar proportion of retail and service activities. Their inner cores concentrated more than 75 per cent of these economic activities.

Urbanization increased the provision of formal schooling through vast investments in education. Secondary high school and university graduates contributed to the country's social development as their total numbers increased substantially in the urban hierarchy as a whole. Even so, main and large cities still held the larger proportion. In general, provision of education to the middle classes benefited and enhanced their social mobility. But rural migration to these centres increased their percentage of illiterate population while rural areas experienced a small reduction in its non-educated population.

At the stage of high concentration, the main metropolitan areas were showing unequivocal signs of economic development with a substantial consumer market, and a larger proportion of medium and high-income groups as well as the largest percentage of highly skilled and highly paid work force in them. Their national share of medium and highly qualified

Figure 16.5 Socioeconomic changes by city-size categories



Source: Based on official figures of Census Population Data. National Bureau of Geographical and Statistical Data. Mexico.

An expanding medium stratum in those cities (more than 50 per cent of the country's total) was indicating rising income levels and a possible reduction of inequality as the more skilled workers responded positively to employment opportunities. The main metropolitan areas were also the places of residence of the richest people as 51 per cent of the population with the highest income were concentrated there. However, at the time when larger cities attracted the best-qualified population, they were also receiving a high proportion of the least qualified migrants. These groups were less and less incorporated into the formal productive sector and remained involved in marginal activities, increasing the income inequality effect. On the other hand, small-sized cities and rural areas exhibited high levels of inequality during rapid urbanization. Not having produced on a significant scale the agglomeration economies offered by larger cities, they were not able to offer substantial employment opportunities. A large proportion of the labour force in small-sized cities and rural areas in 1970 were people that fell in the low income and low qualified groups. As a consequence, a clear polarization in the urban hierarchy was observed during the period, i.e. concentration of more affluent people in the main metropolitan areas and poorer people in the smaller urban centres and rural areas. Large and intermediate-sized cities showed some economic expansion but their proportion was far from that of the rest of the urban hierarchy.

The main metropolises showed an increasing share of all age groups, particularly the youngest group (0-11 years), due to high urban growth rates. Also the increase in the economically active group (12-64 years) reveals strong employment generation during the phase of economic expansion.

The data for 1990 show how the process of urban deconcentration has had a positive socio-economic effects on the Mexican urban system. Main metropolitan areas lost their preponderance in the urban system, benefiting the rest of the urban hierarchy in terms of productive activities, population with higher incomes, and more educated and qualified urban residents. All economic sectors became less concentrated in the main metropolitan areas and lost relative weight. The cases of manufacturing and government are particularly notable because these sectors decreased by approximately 9 and 6 per cent respectively from 1970 to 1990. Two important factors contributed to this process: an economic crisis in the early 1980s, and the adoption of an export-oriented model that culminated in the North American Free Trade Agreement (NAFTA) with the United States and Canada, resulting in a more open economy.

The loss of relative economic importance of the three main urban subsystems speaks for itself. The economic concentration of manufacturing, retail and services in the main metropolitan areas lost between 4 and 9 percentage points in the period 1970-90, in favour of the rest of the urban hierarchy. In terms of metropolitan expansion, the outer core in each

metropolis increased its concentration of productive activities significantly, reaching more than half the city total, as in Monterrey in 1990 (see Table 16.2).

Direct foreign investment, diseconomies of scale in the largest cities, and the provision of infrastructure, made other urban centres good alternatives for industrial relocation. Large and intermediate-sized cities expanded their concentration of manufacturing as well as of commercial and service activities. Large cities increased their share of manufacturing by 5.5 per cent. Small-sized cities and rural areas were apparently poorly affected by economic redistribution as they presented a very insignificant change in their share of these economic growth sectors. Some even showed a decrease.

The urban periphery increased its share of highly educated people due to the demands of the new specialized economic activities. This was not only a result of new higher education facilities but also due to receiving urban migrants with good education that responded to the employment opportunities in these urban centres. In contrast to the previous years, these large, intermediate-sized and small-sized cities also attracted non-educated migrants, increasing their share of illiterate people. These processes provide evidence of how the 'pull' factor of the main metropolitan areas diminished, and how middle classes left the largest cities for alternative destinations.

The economic deceleration in the main metropolitan areas caused a reduction in the proportion of medium and high-income population, and an increase of low-income groups. Data tend to indicate a social polarization in these urban agglomerations: at the time they became the residence of many highly paid employees like corporate executives and financial leaders, but informal activities and poorly paid occupations proliferated.²⁰

Economic expansion spread out to the lower levels of the hierarchy and caused an important incremental increase in the medium and high-income groups particularly in small-sized cities. This was highly related to rapid urban growth and the arrival of new productive enterprises. But interestingly enough small-sized cities and rural areas lost a certain proportion of their more qualified people, who surely migrated to larger urban centres. This converted the former locations into reserves of cheap labour force for particular labour-intensive industrial activities, as in the case of assembly plants (*maquiladoras*) that have recently started to establish in them.

In this period, the distribution of all age groups apparently entered a phase of decelerating concentration. Rural areas continued their diminishing trend in all the age groups while intermediate-sized and large cities showed an

²⁰ On the expansion of the informal sector, social polarization, and increased instability of the labour force in Mexico City, Guadalajara, Monterrey and Puebla, see Aguilar (1997).

incremental increase in the proportion of all the age groups, and the working population in the large cities went up by 4 per cent. With a slower growth rate in the main metropolitan areas, the share of the youngest population dropped, but their proportion of working and older age groups reached the highest values in the period: 27 per cent of the working population concentrated in these cities, the highest share in all categories.

CORE-PERIPHERY MIGRATORY STREAMS

Additional signs of the Mexican Urban System (MUS) entering a 'mature' phase of dispersion or deconcentration are given by recent migratory flows. Contrary to a bottom-up flow pattern (from smaller to bigger urban centres) as in the 1950s and 1960s, new patterns of migration that differ from traditional rural-urban or peripheral-core trends have emerged during the 1980s and 1990s.

From a counter-urbanization and differential urbanization perspective, main migratory streams that are either horizontal, i.e. from one centre to another of the same size, or from the largest cities down the urban hierarchy, have been observed in recent years. Subsequent to the rural to urban migration phase, flows followed intra-regional decentralization trends. This has been experienced in Mexico in the '70s and '80s. During that time Mexico City's urbanized area expanded significantly. Also, some small-sized settlements in the vicinity grew enormously as population moved from the central city inner core to the metropolitan fringe and beyond. More municipalities were added and an extensive metropolitan area developed during this period. This trend is still continuing today and more and more municipalities 30-40 and even more kilometers away from the central city are incorporated into the larger metropolitan area, in a contiguous or a functional manner (Graizbord and Mina 1994). By the late '80s the inner core of the metropolitan area lost population, and became the most important origin of migratory flows to the metropolitan fringe or to destinations within the Central Region, but also to the rest of the country as well.

Based on a census that was held in 1990, an account of regional and urban migration flows during 1985-90 is given in Figures 16.6 and 16.7.²¹ Almost 3.5 million people moved across state boundaries to change their place of residence.²² Most important of those movements are those related to the primate city's inner core (Distrito Federal or Federal District). In fact, a little

²¹ We have divided the country in a Core Region Subsystem (which includes the non-contiguous Central, Western, and Northeast regions) and a Peripheral Region Subsystem (including the Central-Northern, Northern, Southeast, and the Yucatan Peninsula).

²² Information of such moves within state boundaries (inter-municipal) was not captured in the census.

more than a million people (1,035,758) left the Federal District. This is a totally unexpected phenomenon. The central city districts (or *delegaciones*) Mexico City did not lose population in absolute terms during this time; most residential movements stayed within its boundaries. Having received no more than 300,000 new residents during the period (half of those originating from within the Central Region), Mexico City's inner core lost population in absolute terms for the first time in history. It became an important origin rather than the most important destination for people that are changing their place of residence.

On the other hand, of a total of 1,035,758 people leaving Mexico City's inner core (Federal District), 66 per cent stayed within the Central Region, half of whom ended up in municipalities of the Mexico City metropolitan area's (MCMA) peripheral rings. The remaining 34 per cent settled in other regions and urban subsystems: 7 per cent in other regions within the Core Region Subsystem, and 27 per cent in the Peripheral Central-Northern region's²³ large, medium sized and small-sized cities, and in the Northern region's²⁴ larger cities.

Although small, the Central Region (i.e. the main agglomerated region) also showed a slight negative balance. More than 1.6 million people left while slightly less than 1.5 million moved into this region. Of those, 298,235 settled in Mexico City's inner core (Federal District), and 731,705 in its peripheral rings. Of the remaining immigrants, 209,805 settled in the four large urban centres within the region (i.e. the metropolitan areas of Puebla, Toluca, Cuernavaca, and Querétaro), 42,533 in intermediate-sized cities (Tehuacán and the metropolitan area of Cuautla, Pachuca and Tlaxcala), more than 77,601 in small-sized cities of 15 to 100 thousand inhabitants, and 112,315 in rural communities in the rest of the region.

Two other regions, the Central Northern and the Southern showed a negative migration balance. In contrast, the Northern gained around 230,000 migrants, attracted by *maquiladoras* activity. The Yucatan Peninsula also ended up with a positive migration balance, due mainly to the urban expansion and development of Cancun, the most important tourist destination pole in the region and the country.

It is interesting to look at the state and regional migration O-D matrix.²⁵ It reflects the strong and weak attraction forces operating within each region.

²³ Includes the states of Aguascalientes, Guanajuato, San Luis Potosí, Zacatecas, Michoacán and Veracruz.

²⁴ Includes the states of Baja California, Sonora, Chihuahua, Sinaloa, and Durango.

²⁵ The matrix shows the probability of a migrant to change his/her residence in the 5-year period, crossing regional boundaries or not, and end up in a particular city size or in another central (core) or peripheral region.

These forces affect interstate migration and cause people to remain in, or leave their 1985 residences. Despite the changing trends, it is still the Central Region that shows strong attraction for cross-state migration (42 per cent of all migrants). Next are the Northern and the Central-Northern regions with 16 and 15 per cent, in that order. All the rest received less than ten per cent each.

Many migrants to the Yucatan Peninsula, the South East, the North, Central North, Northeast, and the West originated in the inner core (Federal District), displaying not only polarization reversal tendencies but also signs of counter-urbanization and differential urbanization processes.

The balance by core and peripheral regions subsystems then is as follows (see Figure 16.6a, b, c):

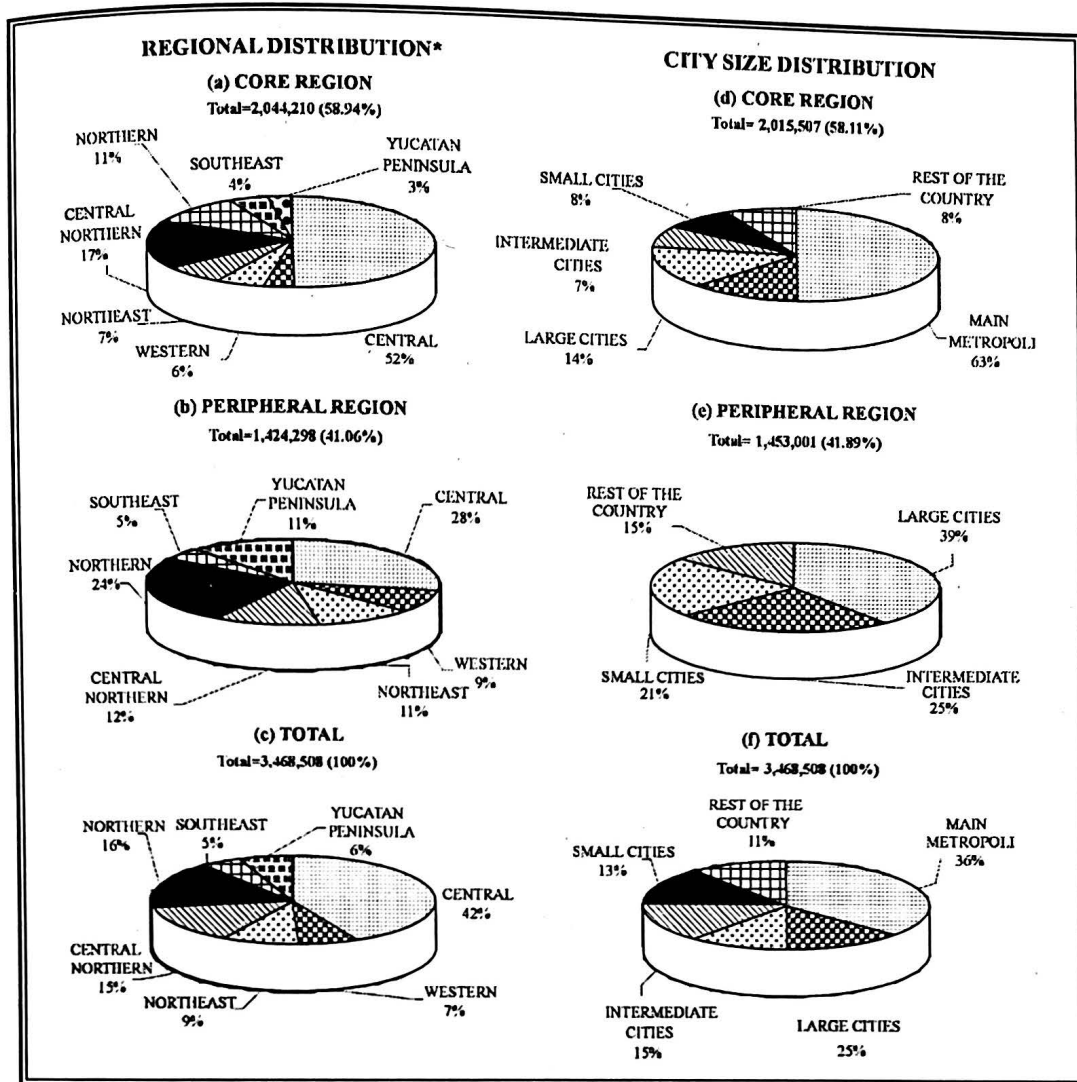
- ❑ Fifty eight per cent of the total number of migrants from 1985 to 1990 settled in the Core Region and 42 per cent in the Peripheral Region Subsystem. A one percent difference, or 28,703, constituted the balance in favour of the periphery, in terms of immigrants versus out-migrants.
- ❑ Of those migrants that left the core (2,044,210 in all), 65.6 per cent stayed within the core and 34.4 per cent ended up in the periphery (a ratio of 1.9), while of those leaving the periphery 52.7 per cent remained in the periphery and 47.3 were attracted by the core (a ratio of 1.1).

Recently, the Mexican Urban System (MUS) shows signs of maturity. The main metropolis (MCMA) in the Central Region and the other two in the Western (GMA) and the Northeast (Monterrey metropolitan area), as well as large urban centres show negative population growth rates as well as negative migration balances in favour of intermediate-sized and small-sized cities and rural settlements in both urbanized and rural areas in the Core and in the Peripheral Region subsystems. Compared to the 1970s and previous decades, this is clearly a reversal of past trends.

In terms of city size distribution (see Figure 16.6d,e, f), the three main metropolitan areas (Mexico City, Guadalajara, and Monterrey) received 36 per cent of the total number of migrants. Suburban and metropolitan peripheral ring locations were preferred by the majority. On the other hand, one out of four of the total settled in large cities of more than 500,000 inhabitants (excluding the three largest metropolitan areas), 15 per cent in medium-sized urban centres (100,000 to 499,999) and 13 per cent in small-sized cities (15,000 to 99,999). These three categories amounted to more than half of all migratory flows over the period. The remaining 11 per cent, or 382,480 migrants, choose rural areas as a destination: 4.3 per cent or 165,311 in the Core and 5.7 per cent or 217,169 in the Peripheral Region Subsystem.

Most migrants to the Core Region concentrated mainly in the main metropolis (63 per cent), while large and medium-sized cities in the core region were the final destination of 21 per cent and only 16 per cent settled in small-sized cities and in rural areas. Thirty nine percent of migrants to the

Figure 16.6 Regional and city size distribution of migration flows originating in core and peripheral regions, 1985-90



Source: National Bureau for Statistics and Geographical Information (INEGI), Mexico, 1991: XI Censo General de Población y Vivienda, 1990, Tomo I.

Notes: *Regions of Mexico display as follows:

CORE REGION: Central Region, Western Region, and Northeast Region.

PERIPHERAL REGION: Central Northern Region, Northern Region, Southeast Region and Yucatan Peninsula Region.

CENTRAL REGION: Distrito Federal, México, Puebla, Morelos, Tlaxcala, Hidalgo, Querétaro.

WESTERN REGION: Jalisco, Colima y Nayarit.

NORTHEAST REGION: Coahuila, Tamaulipas, Nuevo León.

CENTRAL NORTHERN REGION: Guanajuato, Aguascalientes, San Luis Potosí, Zacatecas, Veracruz, Michoacán.

NORTHERN REGION: Baja California Norte, Baja California Sur, Sonora, Chihuahua, Sinaloa, Durango.

SOUTHEAST REGION: Guerrero, Oaxaca, Chiapas

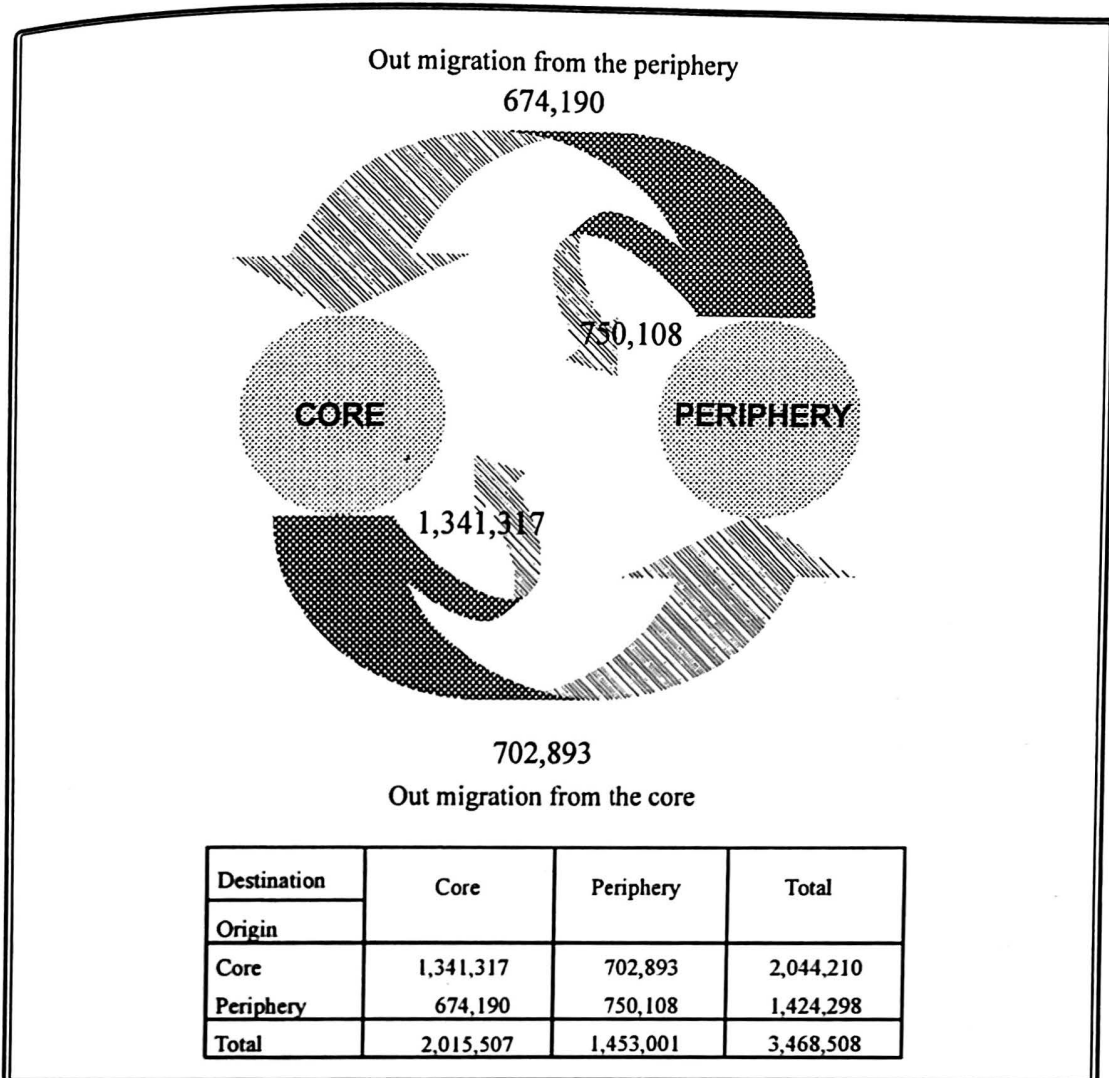
peripheral region chose large cities as their destination, 25 per cent decided on medium-sized cities, 21 per cent preferred small-sized cities, and 15 percent rural settlements as destinations.

The balance by city-size categories is, therefore, the following (see Figures 16.6d, e, f and 16.7).²⁶

- 1) The distribution of the 3,468,508 cross-state migrants for the period 1985-90 still favoured the three metropolitan areas and the large cities in the country (36.1 and 24.7 per cent, in that order). Despite this fact, almost 4 out of 10 migrants settled in decentralized locations (medium, small and rural settlements).
- 2) From a total of 1,341,317 migrants with an origin inside the Core Region, 287,209 (21.4 per cent) resettled in decentralized locations, and 162,569 (12.1 per cent) in large cities, while the remaining 891,539 (66.5 per cent) preferred a metropolitan area within the core. Of 674,190 migrants from outside the core, 185,688 (27.5 per cent) chose a decentralized location as a destination, 127,876 (19 per cent) a large city, and 360,626 (53.5 per cent) a metropolitan area.
- 3) From a total of 702,893 migrants with an origin in the Core Region 58.9 per cent settled in a decentralized location, and 41.1 in a large city in the Peripheral Region. Of 750,108 originating within the periphery 62.8 per cent decided for a decentralized location and only 37.2 per cent for a large city.
- 4) Another feature of these recent migration trends is that related to out-migration from Mexico City's inner core (Federal District). A total of 1,035,758 people moved out during the five-year period from 1985 to 1990. Seven out of ten preferred to stay within the Core Region. A total of 519,477 changed from an inner core residence, probably without changing work, to a peripheral ring location within the MCMA. Three out of ten moved into the Peripheral Region. Of those, four out of ten preferred to move to large cities, one out of four to medium-sized cities,

²⁶ We have divided both the core region subsystems and the peripheral region subsystems into the following city-size categories according to their 1995 municipal population (see Figure 16.6): main metropoli (Mexico City Metropolitan Area, Guadalajara Metropolitan Area, and Monterrey Metropolitan Area); large cities (all 500,000 plus, excluding the above category); intermediate-sized cities (all 100 to 499,999); small cities (all settlements with 15 to 99,999 inhabitants); and the rest (all municipalities not included in the above categories). The reader should be aware of the difference when we refer to the country's totals by category or the core region and peripheral region subsystem's totals. The main metropoli is a category pertaining only to the Core Region Subsystem: Central region (Mexico city metropolitan area), Western region (Guadalajara metropolitan area), and Northeastern region (Monterrey metropolitan area).

Figure 16.7 Total migration flows between core and peripheral regions, 1985-90



Source: National Institute of Statistics, Geography and Informatics (INEGI). XI Censo General de Población y Vivienda, 1990, Tomo I, Mexico, 1991.

two out of ten to small-sized cities, and the remaining 15 per cent settled in rural areas.

Of all the human settlements in the MUS (almost 200,000), small-sized rural settlements are becoming an important destination to urban and metropolitan migrants. A systematic study is necessary to determine the particular characteristics of these trends, but it is expected that these rural areas and small settlements are close to urban and metropolitan origins. The medium-sized and large cities as well as the metropolitan areas are attracting population, the latter at a very slow rate between 1970 and 1990. On the other hand, the share of migrants to small-sized cities and rural areas is relatively small and their growth rates are below the national urban growth rate. This is

also the case for the inner cores of the main metropolitan areas for the last two decades (0.91, 1.61 and 1.11 per cent for Mexico City, Guadalajara and Monterrey, respectively).

While Mexico City maintained an annual average growth rate of 5.05 per cent during the 1950s and 1960s, compared with the country's 3.18 per cent, Guadalajara and Monterrey were growing above the national average at 5.94 and 6.02 per cent, respectively (see Table 16.2). From 1970 to 1990 all inner cores were losing population in relative terms. Their growth rate was below the national average of 2.64 per cent per year. Still, the average annual growth rate of Guadalajara and Monterrey metropolitan areas, as well as that of their and Mexico City's suburban and metropolitan peripheral rings were above the national annual growth rate. This implied a decentralization trend within metropolitan areas with rates of up to 7.18 per cent for Guadalajara, 6.89 per cent for Monterrey, and 5.91 per cent for Mexico City metropolitan municipalities in their respective peripheral rings.

A deconcentration trend is becoming apparent also if we look at the large and intermediate-sized cities. Both groups of cities experienced a lower annual growth rate than Mexico City during the first period (1950-1970). Even compared to the main metropolitan areas (2.84 per cent) the annual growth rate of larger and intermediate-sized cities was high, 3.60 and 3.58 per cent respectively. Not so for small-sized cities. Compared to the national average, they have lagged behind with relatively low rates of growth during the 1950-70 and 1970-95 periods. The growth of this urban category, indicative of a more advanced phase of urban maturity, has not yet 'taken off', and it looks far away as local governments are still politically and economically weak without being able to play their role as providers of public goods and services, and effectively create agglomeration economies and competitive advantages.

PERSPECTIVES ON THE URBAN FUTURE

In this chapter we have tried to demonstrate how the Mexican urban system has expanded and matured, especially since the 1970s. New urban centres have been added to the lower ranks while many of those that already existed, developed and moved up through higher ranks. During the process of expansion various layers of territorially organized core-peripheral subsystems developed in the urban system from the macro-level through the regional to the sub-regional and local levels. Examples of different constellations of polarized regions, each one at a different level of spatial aggregation, are to be seen in Mexico City together with Guadalajara and Monterrey at the national level, and the latter two, in turn, as central nodes in lower order subsystems. The development of the urban system since the middle of the 20th century occurred in different phases. First concentration, then a limited degree of urban dispersion or polarization reversal and, finally, more

widespread urban deconcentration that apparently corresponds to an intermediate-sized city stage of urban development.

There are several reasons why it is believed that the Mexican urban system will remain in the current intermediate-sized city stage, and will not move on to the counter-urbanization phase in the short and medium terms.²⁷ The first group of factors to consider is the prevailing government internal economic policy and the external factors that potentially impact upon it. During the 1990s, urban deconcentration was accelerated as a result of the adoption of an export-oriented economic model that favoured foreign investment, the beginning of new manufacturing and new large scale migration towards secondary cities and some regional metropolitan areas.

The proximity to, and commercial relationship with the United States have induced rapid urban growth in the north of the country and are likely to continue to do so in the future. Good examples of this are the two north-south oriented development axes that both start in Mexico City, the one connecting San Luis Potosí, Monterrey and Laredo and the other San Luis Potosí, Torreón, Chihuahua, and Ciudad Juárez. Large investments in manufacturing such as large automobile assemblies have started along these economic corridors in recent years.

In addition, all the cities along the northern border, each one representing a potential source of cheap labour, have started to develop as favourable locations for assembly plants in an east-west direction. The neo-liberal orientation of the new government that took office at the end of 2000 makes domestic businesses and regional trade markets accessible to foreign business people. This makes urban locations and subsystems with exceptional locational attributes and good infrastructure in the central and northern regions more favourable than locations deeper into the country. It will also consolidate the process of concentrated deconcentration in the largest city subsystems as they become spatially and economically more integrated.

Another element is the lack of proper attention to the rural sector in large parts of the country, notably in the regions with high rainfall. Since the Import Substitution Industrial model has been phased out, many workers have left this sector, some moving into the cities, others migrating to the United States. As a result the rural areas have run out of their former strong work force. In addition, the rural areas do not offer good quality services, which contributes to their problems. Unfortunately there are no signs that this process will be reversed in the near future or even the medium term. In view of this, wide sweeping counter-urbanization from the main metropolitan areas to the impoverished rural areas and small-sized towns looks highly unlikely.

²⁷ An important factor in this statement lies in the large core-periphery sub-systems that have developed in Mexico in a remarkable way.

Counter-urbanization might happen in the near future but mainly in locations relatively close to the primary city or other large metropolitan areas.

The Mexican population has been growing since the 1950s. The fastest growth since the Second World War was recorded from 1950 to 1970 when the Mexican population doubled. Due to a declining growth rate it took another 30 years to double again. Over the last two decades (1970-90) the Mexican population growth rate kept reducing while the urban population continued to grow. In 1970 the total population grew at a rate above 3 percent; in 2000 it was 1.7 per cent. Although the rate at which the population of the country grows is likely to keep declining, the population will continue to concentrate in urban areas. According to projections there will be 125 million people in the country by 2025 and by 2050 more than 130 million (CONAPO, 1998: 18). It is difficult to project 50 years ahead but it is likely that at least 75 per cent of the population will be living in cities (not necessarily in large or metropolitan urban areas) and that migration, already showing counter-urbanization trends, will still be playing an important role in the distribution of the urban population.

So far, the preliminary results of the 2000 Census provide an indication of what urban development trends could be expected in the future. Most people (26 per cent) held residence in cities with more than 500 thousand inhabitants, followed by urban centres between 100 and 500 thousand (21 per cent). This is an indication that intermediate-sized cities and regional metropolitan areas will continue to attract large numbers of people in years to come. The metropolitan character of many of them is expected to be reinforced and the urban system will reach an advanced intermediate-sized city stage.

Another remarkable feature of urban development is the increasing demographic and economic concentration that occurs in the large central area of the country, covering 13 states.²⁸ In 2000, 58 per cent of the total population and 60 per cent of the GDP occurred in this region (Puig Escudero, 2001: 5). One of the important implications of this is that urban agglomeration in the core region sub-systems of Mexico City and Guadalajara will intensify. This should augment their polycentric metropolitan character resulting in further suburbanization and urban growth along the metropolitan fringe. Also, the states of Nuevo León (Monterrey metropolitan area) and Baja California (with some important border cities) in the North will stand out as important activity centers in the future.

Referring to the impact of technology on urban development it is Berry's (1996: 684) contention that '[t]he underlying process that has driven the

²⁸ These states are: Aguascalientes, Colima, Distrito Federal, Estado de Mexico, Guanajuato, Hidalgo, Jalisco, Michoacan, Morelos, Puebla, Queretaro, Tlaxcala and Veracruz.

accompanying transformation of urban structure is endogenous (i.e., internally driven). In developing countries this mostly does not apply. In such countries technological innovations are in most cases adopted first and sometimes only in the primate cities. Usually they are externally initiated, either through branches of multinational corporations that are established in the country or by means of pressure by the State to innovate and to adopt (imported) technologies in its efforts to industrialize the country and to keep up with the 'rest of the world'.

In a globalized economy²⁹ all sources of technological innovation are internal. However, the initiating sources are often located in the developed world. It appears to us as an imperative to focus our research efforts on assessing the capacity or 'ability of cities' to adjust to changes in demand derived from technological innovations and, in the framework of differential urbanization, to identify changes in intercity migratory flows within the 'maturing' urban system related to economic, social, and/or environmental variables.

Whether Mexico's urban system will enter the more mature counter-urbanization phase, in which small-sized cities, not only those closer to the primate city or the large secondary urban centres, experience relatively faster growth rates and attract migrants from local regions and higher-ranked cities remains to be seen. So far, only large and medium-sized cities have experienced a higher population growth relative to the rest of the urban system. The fact is that rural-to-urban migration in Mexico has ceased to be a major contributing factor to urbanization. Urban-to-urban migratory flows are already apparent and the still weak urban-to-rural or metropolitan-to-small-sized cities migration is becoming more evident through the increasing population growth rates in small-sized cities, as well as by the increasing proportion of manufacturing jobs and the changing sectoral structure of employment in small-sized cities. Another sign, as depicted in Geyer and Kontuly (1993: Figure 2, p. 165), is apparent in the slowing-down of general urban growth rates for all cities in the Mexican Urban System.

²⁹ The consolidation of global or world cities (Friedmann 1995) does not preclude differential urbanization processes. Such processes refer to the functional role of some cities in economic globalization that the world has been experiencing at the end of the twentieth and beginning of the twenty-first centuries.

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