Chapter 20

Socioeconomic Segregation in Mexico City: Scale, Social Classes, and the Primate City

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Abstract Mexico City is known as one of the largest cities in the world and thought by many to be one of the most unequal. Not surprisingly, it has received more attention than other Mexican urban areas. However, the city's internal social organization is often misunderstood. Mexico City stands out as a city where segregation is relatively low, and levels of inequality are actually lower than perceptions. Moreover, between 1990 and 2010, both segregation and inequality have declined. This chapter examines these changes. We report on changes in occupational structure and patterns of segregation by educational level. Educational level is different from income or occupation, but these three dimensions of socioeconomic conditions are closely linked. While the overall level of segregation between educational groups in the city has slightly decreased, residential patterns of educational groups have changed significantly. The number of neighborhoods with high concentrations of highly educated people increased significantly and expanded geographically. At the same time, the prevalence of neighborhoods with residents with low and middle educational attainment has diminished and neighborhoods that house people of all educational categories or high and middle categories are more numerous. This chapter illustrates the complexity of segregation patterns in such a large metropolitan area, as well as the challenges of determining why patterns have changed.

Keywords Segregation · Inequality · Education · Neighborhood · Mexico City

“Juntos pero no revueltos” [Together but not mixed]

Mexican proverb

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20.1 Introduction

Mexico City is one of the largest cities in the world and by far the largest in Mexico. One in six Mexicans live in the Mexico City Metropolitan Area (MCMA). It also has one of the longest histories of large-scale urbanization in the Americas, giving the sprawling metropolis multiple personalities. The patchwork of neighborhoods that have developed over centuries form the economic hub of the country, the center of the federal government, and a concentrated cultural repository. Cities that dominate their national urban system—primate cities like Mexico City—tend to be richer but also more unequal. Yet, the MCMA is not as unequal as one might expect. More surprisingly, given the popular understanding of the city, levels of social segregation are relatively low in the MCMA when measured using available data.

The perception of Mexico as an extremely unequal country is widespread. It does have a high rate of inequality compared to OECD countries, with a Gini coefficient¹ in 2016 of 0.43 being 25% higher than the OECD average. Yet it is less unequal than most other Latin American and many middle-income countries. For example, its Gini coefficient was lower than Brazil, Colombia, and South Africa, which all had GINI coefficients over 0.5 (OECD 2019b; World Bank 2019). Income inequality in Mexico increased in the 1990s before declining after 2000 to levels below those of 1990 (Cortés 2013). Though income inequality may be lower than expected, there are multiple aspects of social inequality in Mexican society, with dramatic differences in access to education, health services, housing, safety, and overall quality of life.

In this chapter, we assess income inequality and the levels and patterns of residential segregation in the MCMA. We focus on segregation by educational achievement because it is the only variable for which data are available. Education is also a proxy for socioeconomic status and a critical aspect of social inequality. One distinction is that unlike income, educational attainment of a person cannot go down. In Mexico, educational achievement has increased over time, while incomes have remained relatively stagnant. Nonetheless, they are strongly linked. Our central research question fits within the questions of socioeconomic segregation this book deals with. We ask how and to what extent levels of segregation by education and the residential patterns of educational groups have changed in the MCMA during the last two decades.

The answer to that question addresses a debate over the relationship between inequality and spatial segregation. Researchers in high-income countries have found a correlation between socioeconomic inequality and residential segregation (Reardon and Bischoff 2011), but evidence for this relationship in Mexico is mixed. This chapter details this connection by first describing the complex spatial and economic structures of the region. The next section provides an overview of inequality and its connection to segregation in the context of Mexico City. The fourth section presents the empirical results and illustrates the main patterns visually. The final two sections provide a discussion of the results and possible futures for the city.

¹ All GINI estimates presented in this chapter are calculated using after tax income.

20.2 Background: The Great Tenochtitlan

Mexico City has long been the site of one of the most populous cities in the world. When Hernan Cortés and his soldiers reached Tenochtitlán in 1519, they were amazed about its size, infrastructure, and cleanliness. Estimates of its population are around 250,000, larger than any other European city at that time, except for Paris or Istanbul (then Constantinople) at that time.

The growth of Mexico City and its metropolitan region has been a continuous process since the founding of Tenochtitlán in the fourteenth century. However, the rural-to-urban migration of the second half of the twentieth century and the subsequent acceleration of suburbanization are the most consequential urbanization periods for the region. They led the MCMA to be one of the most populated and largest urban areas in the world. It currently has a population of about 22 million in a territory covering 7,866 km² (INEGI 2011), making it the largest urban area in Latin America.

The MCMA is composed of dozens of local jurisdictions spanning three states. At the core is Mexico City (formerly known as the Federal District and currently as CDMX), which is divided into 16 *Delegaciones* (similar to municipalities). Mexico City is the urban core of the region and for the remainder of the paper, we use MCMA to denote the region and Mexico City to refer to the core area. The remainder of the MCMA spills into two adjacent states—nearly 60 municipalities in the State of Mexico and one in the State of Hidalgo (SEDESOL et al. 2012). Figure 20.1 illustrates the location of the MCMA in the national context, as well as its political jurisdictions.

Fig. 20.1 Geography of Mexico City Metropolitan Area (MCMA)

The population of the metropolitan area used to be more concentrated in Mexico City itself, but after it urbanized most available land, Mexico City has had a lower growth rate than the adjacent municipalities of State of Mexico and Hidalgo. In 1990, over 50% of the population of the MCMA was in Mexico City (about eight million people), whereas in 2015 Mexico City's nine million residents are only 40% of the larger metropolitan region (INEGI 2015a, b). The government officially defined the current MCMA (also known as *Zona Metropolitana del Valle de México*) in 2004 (SEDESOL et al. 2012). At this time, 36 additional municipalities were added, practically doubling the metropolitan region's territory.

Most of the population growth of the metropolitan area is the result of this territorial annexation and of the high population growth rates in the municipalities belonging to State of Mexico, rather than population growth within Mexico City. Nonetheless, the MCMA stands out for its slower rate of population growth as compared to the national average. Between 2000 and 2010, the MCMA had one of the slowest urban growth rates (0.9%) in the country. The national average was 1.4% and other metropolitan areas grew at 2.0%. However, given the size of the region, this lower rate still means large population changes in absolute numbers. Mexico City is also the densest urban area in the country with about 6,000 inhabitants per square kilometer (INEGI 2015a, b). Many peripheral areas have also become densely populated (see Figure in supplementary material online).

The urban primacy of the MCMA is unquestionable: it is the most populated and economically competitive city in Mexico. In 2009, the MCMA housed about 19% of the country's population, 25% of national gross domestic product (GDP), and 23% of jobs (Trejo Nieto 2016). Mexico City is not only an important global financial center, it is also widely recognized as the cultural capital of Latin America. Mexico City has the oldest university in the continent, two world heritage sites, and more museums than any other city in the world. This status, combined with the continued internal migration of people moving from rural-to-urban areas in search of better economic opportunity, has privileged low-skilled manufacturing and (informal) service jobs in the city's occupational makeup (García et al. 1978; Zenteno and Solís 2006). Thus, despite its slowing growth rate, the city continues to attract people from within Mexico and the rest of the world.

20.2.1 Occupational Characteristics of the Metropolitan Area

Compared to the other large metropolitan areas in Mexico, the MCMA has a more specialized occupational profile. It has a large share of jobs in the service sector—45% compared to 30% in the average city (Montejano et al. 2019). Its population has among the highest educational attainment and a high level of productivity per capita, though perhaps not as high as one might expect. The MCMA is home to the country's largest corporate headquarters but has such a large labor force that the average statistics overwhelm these high-level jobs.

This productivity lag connects to the slow rate of change in the occupational composition of the MCMA. Figure 20.2 shows the distribution of occupational groups in 2005, 2010, and 2015. About 30% of the employees are in the bottom occupation groups and less than 20 percent are in the top category. As a node of attraction for both firms and workers, the MCMA hosts both a highly skilled labor force and a large group of low-skilled workers. However, the stable share of occupations reflects a stagnation in the specialization of the region—all sectors are expanding at similar rates. Greater productivity growth would be consistent with a shift toward a concentration in certain industries or at least an expansion of people in the top occupational category, which has not been the case in the MCMA.

The stability of the occupational profile stems from the rigid occupational stratification in Mexico. Intergenerational occupational mobility is lower in Mexico than in the rest of Latin America (Zenteno and Solís 2006), especially in the upper classes (Torche 2014). Occupational mobility is limited in spite of significant improvements in educational outcomes. It would seem that educational attainment in Mexico is not a determining factor in facilitating upward occupational mobility or preventing downward occupational mobility, i.e., higher levels of education do not ensure the entry or stay in the highest occupational groups (Zenteno and Solís 2006).

Additionally, educational reforms have mostly improved the intergenerational educational attainment at the lower levels (switch from primary to secondary) where there is a bigger increase in years of education compared to switch from secondary to

Fig. 20.2 Distribution of occupational groups in the MCMA and change over time. The Top category is comprised of Professionals, technicians, and art workers (PRO), Education workers (EDU) and Public officials and managers (POM). The Middle category includes Clerks (CLE), Industrial workers, craftsmen and assistants (IND), and Merchants (COM). The Bottom category consists of Transport operators (TRANS), Workers in personal services (SERV), Workers in protection and security surveillance (PROT), Agricultural workers (AGRO), and the Unemployed (UNE). *Source* INEGI (n.d.). *Notes* The occupation categories are derived from the standard North American Industry Classification System (NAICS) whose classifications are used in the Mexican National Occupation and Employment Survey (ENOE) conducted by INEGI. We used sample data for the fourth trimester of years 2005, 2010, and 2015 for the States of Mexico, Hidalgo, and Mexico City (which in censal terms functions as a state)

tertiary education. Reforms have not improved positive effects in terms of employment. In other words, a move in average completion from grade three to grade nine has a greater numerical impact when it comes to years-in-education than a move from grade nine to grade 12, but the latter has stronger positive effects on individuals' labor market outcomes. This greatly limits the impact of reforms when high-wage jobs require a college degree or graduate diploma.

The link between education and occupation is also visible across neighborhoods. Residents of Mexico City have higher education and are more likely to be in the top occupational category (23%) than residents of the States of Mexico and Hidalgo (only 13%). This concentration also translates to local clustering. The clustering of high-skilled jobs in and around the central business district of Mexico City is mismatched with the location of workers (Trejo Nieto 2016). Spatial mismatch of high-status jobs results partly because people with greater resources also have greater ability to commute longer distances.

20.2.2 The Mexican Housing System and Segregation

Housing occupies an uneasy position in relation to the welfare system (Malpass 2008). The state tends to intervene systematically in the housing sector, especially in middle-income countries. Like other Latin American countries, Mexico has embarked on an ambitious policy agenda to increase access to formal housing. The Mexican program has shaped cities perhaps even more than in its southern neighbors. Until recently, Mexican cities have had a spatial structure similar to that of the rest of Latin America. This structure has three elements: (1) low-income households mostly clustered to low-density peripheral areas, usually with limited or no urban services; (2) high-income households concentrated in certain areas of the city, usually starting near the historic center and move outward in one direction; and (3) a greater socioeconomic homogeneity in low-income neighborhoods (Griffin and Ford 1980; Sabatini 2003).

During recent decades, however, the peripheral areas of cities in Mexico, including the MCMA, have changed dramatically. Numerous large, homogeneous housing developments for the working class were built in cities across the country, driven by the reform and expansion of a federal housing fund (named INFONAVIT for its initials in Spanish) beginning in the early 1990s. The boom in financing transformed the way housing is produced and acquired (Monkkonen 2011). Prior to the year 2000, individuals built the majority of housing in an incremental, self-help manner on plots of land they purchased. Since then, federal mortgages enabled private developers to build large tracts of formal housing for purchase and now a majority of housing is built by developers and purchased with a mortgage. The federal mortgage fund is generated through a 5% payroll tax and has greater resources than other welfare sectors in Mexico. The share of public expenditure is still relatively low, at around 1% of GDP.

Housing provision through this fund has some significant shortcomings. First, workers in the informal sector, whose housing need is often most severe (OECD 2006), cannot access this government program which is available only to salaried employees. Second, the housing offered is of a very small size, low quality and generally has a peripheral location often far from jobs. The changes to the government's housing fund without concurrent changes in municipal planning practice meant that developers also became *de facto* urban planners, with certain freedoms in deciding where, what, and how to build (Libertun de Duren 2018). New housing developments are homogenous, which means potential buyers are of a similar socioeconomic status. This has exacerbated residential segregation between socioeconomic groups (Monkkonen 2012a) and is connected to problems of housing vacancy (Monkkonen 2019).

20.3 Socioeconomic Segregation and Income Inequality in Mexico City

Recent work on segregation in Mexico shows that larger and higher cost cities are more segregated, though there are some regional differences across the country (Monkkonen 2012b, 2018). Cities in the northern region of Mexico have a larger presence of formal workers and high-income households, while the cities in the south have a much higher proportion of lower-income households and indigenous population. These two findings align with the general regional development trends in Mexico, i.e. the industrialization of northern cities and the persistent poverty in the south (Garza 1999; Trejo Nieto 2019). Nonetheless, the median city in the south is roughly 10% less segregated than the median city in the north.

The MCMA, located in the central region of Mexico, has the highest proportion of workers in the informal sector (54%) in the country. At the same time that it houses the most affluent households in the country, the federal government, and the nation's most prominent cultural institutions, the MCMA also has a high proportion of low-income households (38%), a share only surpassed by the Southern region (Monkkonen 2012b). The MCMA also has a disproportionate share of high-income households—using a separate dataset from 2015 (INEGI 2015a, b), we find roughly 18% of the households in Mexico City fall into the top decile of earners nationwide. This number is only 15% for the entire MCMA.

The MCMA is relatively unequal but not socially segregated. In 2014, compared to the country's states, Mexico City had the fifth highest GINI coefficient (0.48), and the states of Hidalgo and Mexico State had GINI coefficients of 0.48 and 0.44, respectively (OECD 2019a). Apart from income inequality and occupational profile, city size and urban growth are fundamental drivers of socioeconomic segregation (Monkkonen 2012a; Rubalcava and Schteingart 2000; Ariza and Solis 2009). As cities expand their territories, commuting distances and disparities in land values

increase, which leads to more differentiated neighborhoods (Mills and Hamilton 1994).

The rapid population growth of the MCMA took place in the form of densification of the existing urban area as well as expansion into neighboring municipalities by both migrants moving from other states as well as from Mexico City to the metropolitan periphery. The horizontal expansion is consistent with patterns of spatial differentiation as new neighborhoods are developed.

20.4 Measuring the Relationship Between Income and Socioeconomic Composition

The decennial census of Mexico does not inquire about occupation. Data on occupation is, therefore, only partially available through the Mexican National Occupation and Employment Survey (ENOE). The statistical design of the ENOE produces precise estimates at the national level and by state, but not for municipalities and the smaller geographical units required for analyzing segregation. Therefore, we use educational groupings as a proxy for socioeconomic status. Education correlates with income and socioeconomic status (Caragliu et al. 2012), and residential segregation by income correlates with residential segregation by education (Monkkonen et al. 2018). We are, therefore, confident that our measures capture the main underlying spatial patterns of inequality. However, education differs from income or occupation in that education is not as much a product of market forces and does not determine the residential choice of people directly. Therefore, it does have a different relationship to spatial residential patterns.

Using education as the main variable changes the comparison of segregation patterns over time. For example, the education reform of 1993 established compulsory secondary education.² As such, children in school in the 1990s will automatically have on average higher educational achievement than people who finished school before the reform. Additionally, educational achievement is more permanent than income. Most people do not go back to school later in life, but their income can change every year, increasing or decreasing. This has different implications for changes in social mix.

Throughout this analysis, we use education attainment at the level of the basic geo-statistical area (known as AGEb for its initials in Spanish), which is equivalent to a census tract. We use data from the census of 1990, 2000 and 2010 carried out by the National Institute of Geography, Informatics and Statistics (INEGI). We use all urban AGEbs in the 76 municipalities of the MCMA in the year 2010.³ That is, we apply the 2004 MCMA boundaries to the years 2000 and 1990. A large share of

²In Mexico, secondary education refers to *secundaria*, which is equivalent to years 7, 8 and 9 of schooling.

³The MCMA has 5,605 AGEbs. They have mean and median population of 3,485 and 3,171.

Table 20.1 Indices of dissimilarity (DI) for the MCMA

	Low to middle	Middle to high	Low to high
1990	0.12	0.25	0.34
2000	0.14	0.32	0.45
2010	0.07	0.27	0.31

tracts outside Mexico city itself do not have data in 1990 because they had not been urbanized yet.

We categorize educational attainment in three levels: Low (complete or partial elementary education only, i.e. *primaria*, up to six years of schooling); Middle (complete or partial middle school education, i.e. *secundaria*, or seven to nine years of schooling); and High (complete or partial high school, college, or a higher degree, from 10 to more years of schooling).⁴ In some cases, we discuss the differences between Mexico City and the MCMA because its 16 municipalities are more consolidated and its population characteristics are different. We calculate the dissimilarity index (DI) using the three pairings of educational categories (Low-Middle Middle-High, and Low-High) for each year. Following the study by Marcińczak et al. (2015), we interpret DI values below 20 as low, and DI values above 40 as high. Table 20.1 presents the results.

Two patterns stand out. First, in parallel with income inequality, the DI increased from 1990 to 2000 and then dropped, to levels lower than 1990 in 2010. The second striking result is that in no year and category is the segregation level higher than 0.4, except for the low to high segregation in 2000. The DI for the low to high category is always the highest, and the Low-to-Middle category is the lowest. This is consistent with theories of segregation that predict growth in residential separation with increasing social distance (e.g. Caldeira 2012).

In order to depict the concentration of these groups across the MCMA, we calculated the location quotient (LQ) using the High and Low educational categories. Figure 20.3 presents these maps. For the three points in time, Mexico City has an above average concentration of people with higher education, while the surrounding municipalities in Mexico State and Hidalgo State have a lower than average concentration. We find an above average concentration of groups with a lower educational attainment outside of Mexico City, and this concentration tends to increase as we move further away from the center.

We then classified neighborhoods in seven categories using the composition criteria laid out by Marcińczak et al. (2015). A significant share of tracts (over 40 percent in some years) remained unclassified using their exact criteria, which limited the comparative power of this calculation. Therefore, we modified the formula used by Marcińczak and his colleagues. Table 20.2 summarizes the categories after these changes.

Using the modified formula, we categorized all but a handful of tracts. Table 20.3

⁴Unfortunately, because of changes in the classification of education, we cannot distinguish beyond high school as a group consistently over the three decades.

Fig. 20.3 Location quotient maps for the High and Low educational groups in the MCMA

Table 20.2 Criteria used for the classification of neighborhood types using to educational attainment

Type	Percentage of educated population by AGEB		
	High (%)	Middle (%)	Low (%)
High	>50	<30	<30
Middle to high	25–55	25–60	<25
Middle	<30	>50	<30
Low to middle	<25	25–60	25–55
Low	<30	<30	>50
Mixed	25–50	25–50	25–50
Polarized	25–60	<25	25–60

Table 20.3 Percent of tracts categorized by neighborhood type, 1990–2010

Type	1990	2000	2010
High	0.1	1.3	7.5
Middle to high	21.7	17.6	30.2
Middle	16.7	14.4	1.7
Low to middle	59.5	64.8	44.2
Low	0.1	1.2	0.5
Mixed	1.9	0.7	15.8
Polarized	0.1	0.0	0.1

presents the percent of tracts in each of the categories. The majority of neighborhoods fall into the Low-to-Middle category until 2010 when the second largest category, Middle to High, converges. The small share of the Low category areas sheds light on the larger pattern of segregation. In many parts of the world the lowest socioeconomic group is the most isolated and, along with the highest category, drives overall levels of segregation. This is not the case of the MCMA. Very few areas of concentrated Low education neighborhoods exist.

Although the 1993 education reform, which established secondary education as compulsory, may have contributed to the absence of concentrated areas of low education, it is unlikely to be the main factor. The reform only affected children attending school in the years after 1993 thus had no effect on the adult population. A bigger influence could be the continued migration from rural areas. However, there is no clear evidence on the relationship between in-migration and segregation.

The share of High education neighborhoods was very small in the years 1990 and 2000, but increased to 8% by 2010. At the same time, the Middle education neighborhoods nearly disappeared. The concurrent changes in the paired category (Middle-High and Low-Middle) and Mixed category reflect a dramatic shift in the neighbourhoods' educational structure. The most common neighborhood groups are Low-to-Middle (decreasing) and Middle-to-High (increasing) neighborhoods.

We cannot identify the role of the residential mobility of different educational groups (e.g. people with high education entering High education neighborhoods) in segregation from our data. However, the role of residential mobility is likely to be modest in these neighborhood changes since the mobility of Mexican families is low, and family members tend to remain together until children are older. Rather, as each new generation is better educated compared to their parents, neighborhoods become educationally more mixed as a result of in situ intergenerational improvements in education.

We also found significant changes in the spatial distribution of neighborhood types given the educational composition of their residents. Figure 20.4 shows the distribution of each type of neighborhood in the MCMA. Mexico City consistently has more higher attainment neighborhoods than the rest of the metropolitan region. In 1990, the vast majority of High neighborhoods in the MCMA were in Mexico City, along with about 81% of the Middle-to-High neighborhoods, but only 32% of the Middle neighborhoods. In 2010, 84% of High neighborhoods and 55% of Middle-to-High neighborhoods were located in Mexico City.

Between 1990 and 2010, the number of Middle, Low-to-Middle and Mixed neighborhoods decreased significantly in Mexico City. The share of Middle neighborhoods decreased from 32 to 5%, the share of Mixed neighborhoods from 92 to 46%, and the share of Low-to-Middle neighborhoods from 52 to 29%. It also had all of the few polarized neighborhoods.

Mexico City has an over-representation at the higher end of the neighborhood distribution by education, but the trend points to an equalization with the rest of the region. The share of Middle-to-High and Middle neighborhoods decreased significantly in the urban core, while the north and northwestern areas directly adjacent

Fig. 20.4 Classification of neighborhoods by educational attainment in the MCMA

to Mexico City saw an increment in Middle-to-High and Mixed neighborhoods in 2010.

To determine whether the population with the highest educational attainment clustered in specific areas, we first sort neighborhoods by the absolute number of High category households, and then group neighborhoods into quintiles. Figure 20.5 shows neighborhoods based on the quintiles they belonged to. The top quintile remains concentrated in the core of Mexico City through time, with a few newer clusters appearing in the North and Northwestern areas outside the Mexico City limits. This may be caused partly by the dispersion of the MCMA: in 1990 the urban core of Mexico City had about 55% of the AGEs of the metropolitan area, while in 2010 it had only 43% of the AGEs. Even so, the location of the top quintile (Q1) has

Fig. 20.5 Location of the highest educational group in the MCMA

changed significantly through time. In 1990, 41% of the Q1 neighborhoods were concentrated in Mexico City. By 2010 that share dropped to 28%.

The distribution of the lowest quintile (Q5) also changed, but not as drastically (from 65% in 1990 to 60% in 2010). While urban expansion is sometimes thought to be fueling the displacement of specific groups, a large proportion of the expansion is actually the appearance of Middle and Low-to-Middle income neighborhoods in the periphery (due to the social housing finance program that started in the 1990s).

The new clusters of Q5 located to the north and northwest areas outside of the urban core (Mexico City) signals a reorganization of the urban hierarchies of the past. The National Population Council [CONAPO] categorized these areas with a much lower

degree of marginalization (measured by level of education, access to health, housing characteristics, and availability of household goods); the eastern and southeastern areas where older incremental housing developments of Neza and Chalco are located, remain poor and with a higher degree of marginalization (CONAPO 2012).

20.5 An Uncertain Trajectory

Inequality is a necessary condition for socioeconomic segregation, but decreases in inequality do not always lead to lower levels of residential segregation, i.e., to higher levels of residential integration. When assessing social segregation using education levels, it is important to consider that a more systematic link between educational improvements and wage improvements would have likely led to greater segregationist pressures at the same time that it reduced inequality in the short term. According to the Mexican National Evaluation Council [CONEVAL], all municipalities within the MCMA experienced a reduction in inequality between 1990 and 2010—the average GINI coefficient dropped from 0.44 in 1990 to 0.40 in 2010. Mexico City had a Gini coefficient of 0.49 in 1990, 0.48 in 2000, and 0.42 in 2010. At the metropolitan level, inequality increased slightly between 1990 and 2000 for the municipalities outside of Mexico City (GINI coefficients of 0.41–0.44 for Mexico State and of 0.42–0.45 for Hidalgo⁵), but then dropped to below 0.40 in 2010 (CONEVAL 2017).

The decrease in segregation between 2000 and 2010 points to other factors influencing the spatial structure of the MCMA. The economic structure of the MCMA is stable and incomes have gone up. The number (though not the share) of people in high-wage occupations has increased. The large-scale provision of housing has likely contributed to the sorting of people and a selection process that affects segregation. Many of the people moving to the peripheries are doing so because of the government's housing fund, available only to formally employed, salaried workers. This leaves different types of people in the core city, including those with informal employment (and likely lower levels of educational achievement), as well as high income but non-salaried workers, and salaried workers who do not want to commute to jobs in the core city.

Mexico City is changing. Larger Middle and High-income enclaves and secondary business districts have emerged in the peripheries, especially at the edge of the urban core of Mexico City. The city's development is more fragmented and there

⁵These GINI coefficients are only for those municipalities that are part of the MCMA, not for the State of Mexico and Hidalgo.

are more differentiated spaces: gated communities of different income levels and internationally oriented districts. This is likely to accelerate the process of residential segregation yet it has not, at least in the way we can measure it.

20.6 Conclusion

The spatial complexity of the Mexico City Metropolitan Area, the vast amalgam of neighborhoods that make up its dozens of municipalities, does not translate to high levels of segregation. This fact contrasts with Mexico's rigid economic and social structures and underlying inequalities, which are likely why many observers—and experts—assume the city and the country are highly segregated. In this analysis, we find that the spatial distribution of people of different educational levels is relatively even across the city. Most neighborhoods have at least two groups (usually Low and Middle or Middle and High educational attainment), with an increasing number having representation of all educational groups.

There is an increase in the number of neighborhoods where one group dominates, most notably in neighborhoods where people with high education are clearly over-represented. This suggests distinct processes shaping economic returns to education and residence. Despite localized changes, citywide changes in education outcomes have not translated to increased segregation as measured by the dissimilarity index. The improved education of people living in Mexico City has not improved labor market outcomes, however. This, we hypothesize, has led to a city where people stay in place (including children with improved education still staying in parental home) to maintain access to family members, community, and jobs.

With the improvement of education but modest residential mobility, in situ education change in neighborhoods has been important, and we assume drive the decrease of city-wide levels of segregation between 1990 and 2010. Separation is most systematic between those with the highest level of education and those with low educational attainment. This separation has translated into a rapid increase in the number of neighborhoods dominated by highly educated individuals. At the same time, mixed neighborhoods and areas where people with middle and high levels of education have become the norm, replacing the long dominant mix of low and middle educational attainment.

These shifts, while not increasing segregation, are reshaping the spatial structure of the MCMA. Newly built neighborhoods in the peripheries are receiving large numbers of residents, who risk being locked in places that lack access to quality education and jobs. People with high educational attainment are moving into newer developments that might afford them greater opportunities to isolate themselves from the rest of population compared to the traditional core areas that used to be the home of most highly educated residents. These changes were clearly visible in 2010.

Mexico City's new administration has already proposed new approaches to housing, including the idea of inclusionary housing⁶ that may allow it to counter tendencies of social segregation in the core of the metropolitan area. Concurrent improvements in social services and educational opportunities in the State of Mexico and Hidalgo will reduce the disadvantage of the metropolitan periphery, but the tendency of employment centralization will be more difficult to change. The 2020 census will shed important light on which trajectory the city is following.

References

- Ariza M, Solís P (2009) Dinámica socioeconómica y segregación espacial en tres áreas metropolitanas de México, 1990 y 2000. *Estudios sociológicos* 171–209
- Caldeira TP (2012) Fortified enclaves: the new urban segregation. *The urban sociology reader*. Routledge, London, pp 419–427
- Caragliu A, Del Bo C, Nijkamp P (2012) Smart cities in Europe. *J Urban Technol* 18:65–82
- Consejo Nacional de Población [CONAPO] (2012) Índice de marginación urbana, 2010. [PDF document]. http://www.conapo.gob.mx/work/models/CONAPO/indices_margina/marginacion_urbana/AnexoA/Mapas/01_Zona_Metropolitana_del_Valle_de_Mexico.pdf
- Consejo Nacional de Evaluación [CONEVAL] (2017) Indicadores de pobreza, pobreza por ingresos, rezago social y gini 2010 (municipal). [Data file]. <https://datos.gob.mx/busca/dataset/indicadores-de-pobreza-pobreza-por-ingresos-rezago-social-y-gini-2010-municipal>
- Cortés F (2013) Medio siglo de desigualdad en el ingreso en México. Seminario “Las desigualdades y el progreso en México: enfoques, dimensiones y medición” COLMEX/INEGI México D.F. 20 y 21 de marzo de 2013. [PDF document]. <https://www.inegi.org.mx/eventos/2013/Desigualdades/doc/P-FernandoCortes.pdf>
- García B, Muñoz H, De Oliveira O (1978) Migraciones internas y grupos populares urbanos: Ciudad de México (1950–1970). *Revista Mexicana de Sociología* 107–129
- Garza G (1999) Global economy, metropolitan dynamics, and urban policies in Mexico. *Cities* 16(3):149–170. [https://doi.org/10.1016/S0264-2751\(99\)00013-X](https://doi.org/10.1016/S0264-2751(99)00013-X)
- Griffin E, Ford L (1980) A model of Latin American city structure. *Geogr Rev* 70(4):397–422
- Instituto Nacional de Estadística y Geografía [INEGI] (n.d.) Encuesta Nacional de Ocupación y Empleo (ENOE). [Data file]. <https://www.inegi.org.mx/programas/enoe/15ymas/default.html#Microdatos>
- Instituto Nacional de Estadística y Geografía [INEGI] (2011) Censo de Población y Vivienda 2010. <https://www.inegi.org.mx/programas/ccpv/2010/>
- Instituto Nacional de Estadística y Geografía [INEGI] (2015a) Encuesta Intercensal 2015. [Data file]. <https://www.inegi.org.mx/programas/intercensal/2015/default.html#Tabulados>
- Instituto Nacional de Estadística y Geografía [INEGI] (2015b) Encuesta Nacional de Ingresos y Gastos de Hogares 2015. [Data file]. <https://www.inegi.org.mx/programas/mcs/2015/default.html#Microdatos>
- Libertun de Duren N (2018) Why there? Developers' rationale for building social housing in the urban periphery in Latin America. *Cities* 72:411–420. <https://doi.org/10.1016/j.cities.2017.10.006>
- Malpass P (2008) Housing and the new welfare state: wobbly pillar or cornerstone? *Hous Stud* 23(1):1–19. <https://doi.org/10.1080/02673030701731100>

⁶For more, see the program announcement <https://www.cdmx.gob.mx/portal/articulo/programa-especial-de-regeneracion-urbana-y-vivienda-incluyente> (last accessed 12/19/2019).

- Marcińczak S, Tammaru T, Novák J, Gentile M, Kovács Z, Temelová J, Valatka V, Kährik A, Szabó B (2015) Patterns of socioeconomic segregation in the capital cities of fast-track reforming post-socialist countries. *Ann Assoc Am Geogr* 105(1):183–202. <https://doi.org/10.1080/00045608.2014.968977>
- Mills ES, Hamilton BW (1989) *Urban economics*, Glenview, IL: Scott, Foresman and Co
- Monkkonen P (2011) The housing transition in Mexico: expanding access to housing finance. *Urban Affairs Rev* 47(5):672–695
- Monkkonen P (2012a) Housing finance reform and increasing socioeconomic segregation in Mexico. *Int J Urban Reg Res* 36(4):757–772
- Monkkonen P (2012b) La segregación residencial en el México urbano [Residential Segregation in Urban Mexico]. *EURE - Revista Latinoamericana de Estudios Urbano Regionales* 38(114):124–146
- Monkkonen P, Comandon A, Montejano Escamilla JA, Guerra E (2018) Urban sprawl and the growing geographic scale of segregation in Mexico, 1990–2010. *Habitat Int* 73:89–95. <https://doi.org/10.1016/j.habitatint.2017.12.003>
- Monkkonen P (2019) Empty houses across North America: housing finance and Mexico's vacancy crisis. *Urban Stud* 56(10):2075–2091
- Montejano J, Monkkonen P, Guerra E, Caudillo C (2019) The costs and benefits of urban expansion: evidence from Mexico, 1990–2010. [PDF document]. https://www.lincolnst.edu/sites/default/files/pubfiles/montejano_wp19jm1.pdf
- Organisation for Economic Co-Operation and Development [OECD] (2006) Policy note: poverty alleviation. [PDF document]. <http://www.oecd.org/social/soc/38120467.pdf>
- Organisation for Economic Co-Operation and Development [OECD] (2019a) Regional well-being: regional income distribution and poverty. Mexico. [Data file]. <https://stats.oecd.org>
- Organisation for Economic Co-Operation and Development [OECD] (2019b) Society at a glance—2019: OECD social indicators. OECD Publishing, Paris [PDF document]. <http://www.oecd.org/mexico/sag2019-mexico-en.pdf>
- Reardon SF, Bischoff K (2011) Income inequality and income segregation. *Am J Sociol* 116(4):1092–1153
- Rubalcava RM, Schteingart M (2000) Segregación socio-espacial en el Área Metropolitana de la Ciudad de México en G. Garza (Ed) *La Ciudad de México en el fin del segundo milenio*. Mexico, El Colegio de México-Gobierno del Distrito Federal
- Sabatini F (2003) The social spatial segregation in the cities of Latin America. Documento de Estrategia para el Desarrollo Social. Banco Interamericano de Desarrollo, Washington, DC
- Secretaría de Desarrollo Social [SEDESOL], Consejo Nacional de Población [CONAPO] and Instituto Nacional de Estadística y Geografía [INEGI] (2012) Delimitación de las zonas metropolitanas de México 2010. [PDF document]. http://www.conapo.gob.mx/ES/CONAPO/Zonas_metropolitanas_2010
- Torche F (2014) Intergenerational mobility and inequality: the Latin American Case. *Ann Rev Sociol* 40:619–642
- Trejo Nieto A (2016) A spatial analysis of urban labour markets and submarkets in the metropolitan area of Mexico City. In: Paper presented at the 56th congress of the European regional science association, 23–26 August, Vienna, Austria
- Trejo Nieto A (2019) *Metropolitan economic development: the political economy of urbanisation in Mexico*. Routledge, New York, NY
- The World Bank (2019) World development indicators. [Data file]. <http://datatopics.worldbank.org/world-development-indicators/>
- Zenteno R, Solís P (2006) Continuidades y discontinuidades de la movilidad ocupacional en México. *Estudios demográficos y urbanos* 515–546

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