

The location of the upper socioeconomic stratum of Santiago's population in the period 1977–2017: deconcentration or expansion of its traditional habitat?

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Abstract

The appearance of suburbs inhabited by the upper socioeconomic stratum in Santiago suggests a dispersion of this group and a loss of importance for the *barrio alto*, the area in the east of the capital that is its traditional habitat. However, the *barrio alto* has continued to grow upward and outward in both demographic and real-estate terms. Migration is decisive in this process. Therefore, this paper conducts a detailed and rigorous investigation of its role in the location and redistribution of the socioeconomic strata in Santiago, using microdata from Chile's last four official censuses. The conclusion drawn is that the territorial dispersion of the upper socioeconomic stratum has not been reducing the attractiveness of the *barrio alto* and that, rather than deconcentration, this spread could actually be giving rise to an expansion of the geographical scale of the *barrio alto*, considering its contiguity with the new suburbs inhabited by this group.

Keywords

Upper class, cities, population distribution, urban population, internal migration, segregation, education, social conditions, land use, Chile

JEL classification

R23, O15, J10, J11, R12

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I. Introduction

Santiago has been a pioneer in what has been called “metropolitan mutations” (De Mattos, 2010; Buzai, 2016; Rodríguez Vignoli and Rowe, 2019; Rodríguez Vignoli, 2013 and 2019). This is because many of these mutations have formed part of the process of capitalist globalization and the extension to the rest of the world of the model of society and the city prevailing in the United States (Hall, 1996; Ingram, 1998; Soja, 2008; Pacione, 2009; Brenner, 2014; Harvey, 2014; Cunha, 2018), trends that Chile joined early and wholeheartedly, largely because it did so in the context of a military dictatorship which imposed a neoliberal model of society and the economy.

One of these mutations concerns the location of the population of high socioeconomic status. A trend towards the suburbanization of this stratum (gentrifying suburbanization) resembling that in United States cities has been detected, and this phenomenon might be expected to erode the traditional habitat of this group and also reduce socioeconomic residential segregation, at least geographically, owing to physical convergence between the population of low socioeconomic status formerly inhabiting the areas of gentrifying suburbanization and the population of high socioeconomic status that has moved into these areas. In Santiago, the historical habitat of the upper socioeconomic stratum is the so-called *barrio alto*.

Microdata from population and housing censuses, and in particular the latest census carried out in 2017, are the only source available for conducting a rigorous if somewhat limited assessment of the hypothesis that the upper socioeconomic stratum in Santiago has deconcentrated territorially. Census microdata can also be used to assess whether deconcentration, if it has occurred, has been random in territorial terms or rather selective and, in the latter case, whether selectivity has had any consequences for the configuration of the process. Lastly, census microdata can be used to quantify the effect of migration on the dispersion of the upper socioeconomic stratum and on the socioeconomic composition of the city's different zones or communes and the socioeconomic inequalities between them. This last calculation can be refined by making key substantive and policy distinctions, for example between different types of migration (intra- and extrametropolitan) and between the effects of in-migration and out-migration.

The present analysis therefore aims to intensively exploit census microdata in order to describe changes and continuities in the settlement pattern of the upper socioeconomic stratum in the city of Santiago, and to estimate the role that internal migration has played in the changes.¹

II. Background

Where residential segregation is concerned, Santiago has two characteristics that set it apart in the region. The first is the historically large scale of segregation, which has had the character of a deformed centre-periphery model. There is a high-income cone that starts in the eastern part of the centre and extends out to much of the city's east, forming the so-called *barrio alto*. This cone coexists with the rest of the city, where the middle and low socioeconomic groups predominate, the latter being traditionally located on the periphery (Arriagada Luco and Rodríguez Vignoli, 2003; Roberts and Wilson, 2009; ECLAC, 2012 and 2014; Rodríguez Vignoli, 2001 and 2013; Rodríguez

¹ Out of theoretical and methodological considerations and for reasons of space, this study will not systematically address international migration, which is of growing importance in Chile in general and Santiago in particular.

Vignoli and Espinoza, 2012). The second salient feature is the large geographical extent of the *barrio alto*, its substantial demographic size and, above all, the virtual absence of poor residents. The area was actually homogenized during the military dictatorship by means of evictions, a process later continued by less drastic urban interventions and, above all, by market forces, with high land prices largely driving out poor tenants and encouraging owners of low socioeconomic status to sell up and leave the area.

For various reasons, it was hypothesized that the *barrio alto* would begin to lose its residential importance for affluent families, particularly as these suburbanized (Galetovic and Jordán, 2006; Sabatini and others, 2009; Ortiz and Escolano, 2013; Agostini and others, 2016). The appearance of affluent suburbs in other parts of the city since the end of the last century seemed to support this prognosis (Sabatini, Cáceres and Cerda, 2001; Galetovic and Jordán, 2006; De Mattos, 2010; Rodríguez Vignoli and Rowe, 2019).

Notwithstanding, the *barrio alto* has continued to expand territorially and demographically, despite the limitations of space and the high land and property prices that characterize it (Rodríguez Vignoli and Espinoza, 2012; Rodríguez Vignoli and Rowe, 2019). Moreover, this area has consolidated as a continuation of the commercial centre, and various secondary hubs of activity have appeared there, creating employment in the service sector particularly (Rodríguez Vignoli, 2012; De Mattos, Fuentes and Link, 2014; Trufello and Hidalgo, 2015; Bergoeing and Razmilic, 2017).

In short, there are more complex processes going on than just the suburbanization of the upper socioeconomic stratum. Moreover, if this suburbanization is taking place in areas that are contiguous and well connected to the *barrio alto*, it could represent a territorial and social expansion of the upper stratum's habitat, which would reinforce rather than diminish its dominance.

Accordingly, questions about the extent, territorial configuration and characteristics of the suburbanization of the upper socioeconomic stratum, on the one hand, and the attractiveness to migrants and growth in the population and area of the *barrio alto*, on the other, should be addressed jointly to avoid biased conclusions. Bias could arise from considering only one process when there are actually two closely connected ones, and when it is not clear whether this connection takes the form of concomitance, alternation or opposition. Nor is it known for certain whether the two processes produce aggregate territorial effects. This is one of the weaknesses of the few studies, such as that of Ortiz and Escolano (2013), which have carried out an empirical analysis of migration in the suburbanization of affluent families in the *barrio alto*. The present study aims to address this weakness, without overlooking the contributions of earlier research.

III. Theoretical discussion

Most studies on urban segregation have focused on the location of poor groups. There have been two main reasons for this. The first is that these groups have fewer location options because of budget constraints and other adverse factors such as unawareness of the choices available and discrimination, both institutional (by financial institutions, developers, housing intermediaries, local authorities, etc.) and social (by neighbours, social networks and the press) (Zubrinsky, 2003). The second is that the location of these groups is associated with a set of cumulative disadvantages which tend to reproduce poverty and social and territorial inequality in cities (Torres, 2008; Roberts and Wilson, 2009; Sampson, 2012; ECLAC, 2014; Aguilar and López, 2016).

Affluent groups, meanwhile, have been studied on more of a case-by-case basis, even though standard indicators of segregation (such as the dissimilarity index) show that they are the most segregated in all Latin American cities for which recent measurements are available (Arriagada Luco and Rodríguez Vignoli, 2003; Roberts and Wilson, 2009; ECLAC, 2014; Parrado, 2018). To be sure, an essential qualitative difference underlies this quantitative value: in the case of these groups, segregation is normally a freely taken decision often associated with the quest for distinction, exclusivity, identity and ties, and also for more convenient and safer surroundings. The decision also reflects an underlying economic advantage that enables people to afford this location and entails objective and subjective advantages in relation to it (ECLAC, 2014, p. 213).

Leaving aside these differences in the ability to exercise choice and the effects of the location and territorial agglomeration patterns of poor and rich groups, the location of affluent groups can exert a powerful influence on the city because the demand they generate, their lobbying capacity and the positions of power they hold all affect a range of public and private decisions, particularly in relation to the location of investment, employment and services, as well as the level of local taxes (Graham and Marvin, 2001; Dureau, 2014; Dureau and others, 2002; Zubrinsky, 2003; Jaillot, Perrin and Menard, 2008; Rodríguez Vignoli, 2012; Pacione, 2009; Roberts and Wilson, 2009; Ortiz and Escolano, 2013; Truffello and Hidalgo, 2015; Buzai, 2016; Duhau, 2016; Bergoing and Razmilic, 2017).

At the same time, the encapsulation and isolation of the upper socioeconomic stratum can reinforce social inequality in cities, whether on a large or small scale (Sabatini, 2006). They can also reinforce this stratum's disconnectedness from and ignorance of other socioeconomic groups and add to the sociocultural distance that usually fuels discrimination and prejudice, along with a lack of empathy and unawareness of the situation of others. In other words, they represent a risk to the social cohesion of the city (Kaztman, 2001 and 2009; Dureau and others, 2002; Dureau 2014; Roberts and Wilson, 2009; Donzelot, 2013; Ruiz Tagle, 2016; Godoy, 2019).

For the reasons given, studying the location of the upper socioeconomic group is important for understanding and acting on the development, functioning and social interaction of large cities.

To date, most of the few studies that have examined the location of the upper socioeconomic stratum have focused on the emerging phenomenon of suburbanization based on relocation to peripheral areas or even suburbs outside the city with the specific residential formats of condominiums or enclosed housing complexes, known by different names (*countries*, gated communities, walled condominiums, *alfavilles*, etc.) (Roberts and Wilson, 2009, p. 207; ECLAC, 2014, p. 205). Such suburbanization entails affluent people, and especially affluent families, leaving their traditional housing niches and gradually dispersing to areas on the periphery where this group formerly had a limited presence or none, which undeniably reduces the geographical distance between social groups. But the way they settle there does not seem the most conducive to social interaction and cultural integration in situ, instead generating controversy because it reproduces the models of encapsulation, isolation and exclusion that characterize the historical pattern of settlement of high-income groups in cities and the way they relate to other socioeconomic groups (ECLAC, 2014, p. 205).

In the case of Santiago, as already indicated, the historical niche of the upper socioeconomic stratum is well identified (Ducci and González, 2006, cited in Galetovic and Jordán, 2006, p. 140; Rodríguez Vignoli and Espinoza, 2012, p. 108; Ortiz and Escolano, 2013, p. 81; Fuentes and others, 2017, p. 106).

It is clear that since the end of the last century there has been migration from that area and others in the city to the periphery, where residential complexes have been built for families of high and medium-high socioeconomic status, in the gated community format mentioned above (Sabatini and others, 2009, pp. 130–131; Agostini and others, 2016, p. 179; Fuentes and others, 2022).

The key conceptual and policymaking aspect of these migrations is that some of the literature has treated them as a decisive turning point in the traditional location pattern of the upper class, in the context of a city which seems to increasingly resemble those of developed countries in both its form and its dynamics and whose economic activity and population alike are projected to become more and more spread out and deconcentrated (Galetovic and Jordán, 2006, pp. 57 and 59).

On the assumption that suburbanization has been substantial, which is supported by data on settlement and housing construction, but not by data on migration, let alone migration by socioeconomic group, the conclusion is drawn that Santiago now evinces the stylized location patterns of the upper socioeconomic groups of the developed world, which are increasingly decentralized and suburbanized. The upper- and upper-middle-class suburbs of metropolitan areas in the United States are the emblematic case here, to the point where centralization is one of the five dimensions of residential segregation listed by Massey and Denton (1988). This centralization is derived from the fact that a crucial counterpart in the standard city of the United States is a concentration of poverty (and disadvantaged ethnic groups) in central or inner-city areas. Wealth is thus relatively dispersed in suburbs that are some distance from the centre but generally well connected to it by highways and other modes of transport (Sabatini and others, 2009, p. 127; Harvey, 2014, p. 11).

However, it may be risky to conclude that Santiago now evinces the stylized location patterns of upper socioeconomic groups in the developed world. The relationship between upper-class dispersion, polycentrism and the expansion of infrastructure and car ownership, although held to be well-established (Galetovic and Jordán, 2006, pp. 57 and 132), may be more complex in highly unequal cities and societies, where there are territorial inequality reproduction mechanisms grounded in the following factors: the transfer of capital in its multiple forms from one generation and one social class to another through territorially structured networks; the huge asymmetry, which clearly favours the affluent, between the public services provided by the State and private services offered at different prices; high levels of violence, insecurity, fear and distrust that also follow spatial patterns; and the long history of denial, discrimination and stigmatization of “others” and the places where they live (Zubrinsky, 2003; Jaillet, Perrin and Menard, 2008; Roberts and Wilson, 2009; Sampson, 2012; ECLAC, 2014). Indeed, some researchers have recently raised doubts about this projection of rapid and massive deconcentration (Bergoing and Razmilic, 2017, p. 34; Fuentes and others, 2022).

In any case, except in a few studies (Rodríguez Vignoli and Espinoza, 2012; Rodríguez Vignoli, 2013; Ortiz and Escolano, 2013; De Mattos, Fuentes and Link, 2014; Fuentes and others, 2022), internal migration has gone virtually unmentioned in empirical analysis. In addition, key distinctions, such as those between intrametropolitan, extrametropolitan and international migrants (Rodríguez Vignoli, 2012 and 2019) have been virtually absent from the categories used in empirical analyses. Similarly, the literature lacks a medium-term comparative examination of the location pattern of the upper class, and there is a tendency to concentrate on recent phenomena and to adopt a fragmented perspective focused on the housing dimension rather than the demographic one. Lastly, no study other than Rodríguez Vignoli and Rowe (2019) has exploited migration microdata from the 2017 census, so that this is another novel feature of the present research.

With a view to providing systematic and theoretically organized data to help fill all the gaps mentioned above, this text seeks to answer the following four questions:

- (i) How has the location pattern of the affluent population in Santiago changed over the last 40 years?
- (ii) How has the attractiveness to migrants of the *barrio alto* changed over the last 40 years, considering the selectivity of migration by socioeconomic status and taking into account the suburbanizing flows out of the area?
- (iii) What effect has migration had on the socioeconomic composition of the *barrio alto* and on the areas to which suburbanization flows have gone?
- (iv) What effect has migration had on socioeconomic inequalities between the communes that make up the *barrio alto* and the rest of Santiago's communes, particularly those of the areas where the suburbanization of the upper socioeconomic stratum has taken place?

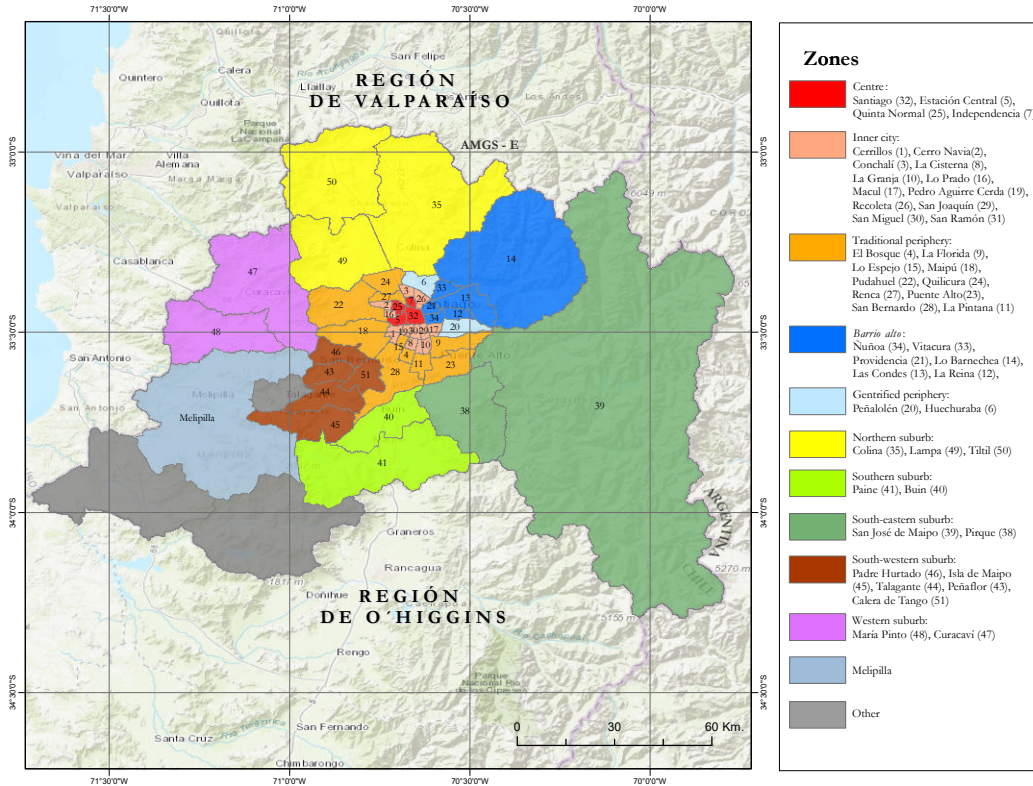
It should be noted that this research has direct links and accordingly shares content with a number of previous studies, particularly Rodríguez Vignoli and Rowe (2018 and 2019), providing continuity with these. At the same time, it also links to the research of Ortiz and Escolano (2013), which is perhaps the closest in terms of the material studied. However, the differences from the latter are significant, since different sources, socioeconomic indicators and methods are used to estimate the effect of migration on the socioeconomic composition of the areas analysed. Discrepancies in the results could be due to these differences, but similarities would suggest that the findings are robust.

IV. Methodological framework

Microdata from the last four official censuses in Chile (1982, 1992, 2002 and 2017) are used, together with questions about people's commune of usual residence and commune of residence five years before the census, to construct both traditional matrices (population origin-destination) and innovative ones (flow indicator matrices) of migration between communes and between groups of communes, as explained below. The traditional matrices are used to calculate standard indicators of attractiveness to migrants and the effect on population growth (CELADE/PROLAP, 1998; Rodríguez Vignoli, 2013). The innovative matrices are used to calculate the effect of migration on the socioeconomic composition of zones and the socioeconomic inequality between different communes and different zones, applying the methodology developed by CELADE-Population Division of ECLAC, which is based on comparisons between the actual value of the socioeconomic indicator at the time of the census (column marginal of the flow indicator matrix) and the counterfactual value in the absence of migration (row marginal of the flow indicator matrix) (Rodríguez Vignoli, 2013; Rodríguez Vignoli and Rowe, 2018 and 2019).

With respect to the delineation of territories, we employ that of the Extended Greater Santiago Metropolitan Area (GSMA-E) used in the study by Rodríguez Vignoli and Rowe, which includes 49 communes and 11 zones, as shown in map 1. The three zones on which the analysis will concentrate are the *barrio alto*, the gentrified periphery and the northern suburb, the latter two because they are the main destinations for outflows of people belonging to the upper socioeconomic stratum who leave the *barrio alto* (Rodríguez Vignoli and Rowe, 2019).

Map 1
 Extended Greater Santiago Metropolitan Area (GSMAE):
 communes forming the major zones



Source: J. Rodríguez Vignoli and F. Rowe, “Efectos cambiantes de la migración sobre el crecimiento, la estructura demográfica y la segregación residencial en ciudades grandes: el caso de Santiago, Chile, 1977-2017”, *Population and Development series*, No. 125 (LC/TS.2018/110), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2019.

Socioeconomic status is measured by schooling, specifically cumulative years spent in the education system, from which four socioeconomic strata are identified: very low (0–4 years), lower-middle (5–8 years), middle (9–12 years) and upper (13 years or more). Exceptionally, other educational thresholds (18 years or more) are used to identify the upper socioeconomic stratum and to examine the evolution of its pattern of territorial concentration. The focus of the analysis will be on the upper socioeconomic stratum, but the other strata will regularly be considered as well.

Using schooling as the sole indicator of socioeconomic status has several limitations, but it is the only option available given the necessary assumptions of the methodology used to estimate the effects of migration on territorial composition and inequality (Rodríguez Vignoli and Rowe, 2018 and 2019). This limitation is compounded by a number of others connected to data sources and the loss of cases that results from using retrospective questions to estimate migration (Bilsborrow, 2016). The exclusion of international migration is also a weakness. Furthermore, migration is just one of the forces affecting population growth, changes in socioeconomic composition and trends in territorial inequality, so that the final values of all these processes may be different from those identified in this research. Lastly, this study is just one more step in a long-running effort to improve and extend our understanding of ongoing metropolitan mutations, a subject that requires further research.

V. Results

1. The concentration pattern of the upper socioeconomic stratum

Tables 1 and 2 show how the relative frequency and concentration pattern of the population in the upper socioeconomic stratum have evolved on different geographical scales relevant to the study. Before explaining the scales and analysing the results, it is worth noting that two thresholds are used to define the upper socioeconomic stratum with a view to gauging the sensitivity of the findings to the way this is defined: (i) the population aged 25 and over with 13 years of schooling or more; (ii) the population aged 25 and over with 18 years of schooling or more. A minimum age of 25 is taken so that it is practicable for the whole universe considered to have had 18 years of schooling or more, and because this is the universe that will be taken when the effect on composition is estimated, in order to ensure that the assumption of attribute invariance required by the procedure applied is (almost completely) fulfilled.

Table 1

Chile and Santiago: relative frequency and concentration patterns of the very highly educated population aged 25 and over (18 years of schooling or more), 1982 and 2017
(Percentages)

Zones and indicators	1982	2017
Chile: Population with 18 years of schooling or more	1.0	2.2
GSMA-E: Population with 18 years of schooling or more	1.6	3.4
<i>Barrio alto</i> : Population with 18 years of schooling or more	6.1	13.5
Gentrified periphery + northern suburb: Population with 18 years of schooling or more	0.3	3.7
Share of national population with 18 years of schooling or more living in GSMA	61.1	57.7
Share of national population with 18 years of schooling or more living in GSMA-E	62.2	62.1
Share of national population with 18 years of schooling or more living in:	<i>Barrio alto</i> (1)	41.6
	Gentrified periphery (2)	0.5
	Northern suburb (3)	0.1
	Extended <i>barrio alto</i> (1 + 2 + 3)	42.2
Share of GSMA-E population with 18 years of schooling or more living in:	<i>Barrio alto</i> (1)	66.8
	Gentrified periphery (2)	0.8
	Northern suburb (3)	0.1
	Extended <i>barrio alto</i> (1 + 2 + 3)	67.8

Source: Prepared by the author, on the basis of special processing of the Chilean population and housing censuses of 1982 and 2017.

Note: GSMA: Greater Santiago Metropolitan Area; GSMAE: Extended Greater Santiago Metropolitan Area; *barrio alto*: area of eastern Santiago traditionally inhabited by the upper socioeconomic stratum.

Table 2

Chile and Santiago: relative frequency and concentration patterns of the very highly educated population aged 25 and over (13 years of schooling or more), 1982 and 2017
(Percentages)

Zones and indicators	1982	2017
Chile: Population with 13 years of schooling or more	7.2	29.2
GSMA-E: Population with 13 years of schooling or more	9.2	35.5
<i>Barrio alto</i> : Population with 13 years of schooling or more	27.7	73.2
Gentrified periphery + northern suburb: Population with 13 years of schooling or more	2.8	32.6
Share of national population with 13 years of schooling or more living in GSMA	49.1	44.7
Share of national population with 13 years of schooling or more living in GSMA-E	50.4	49.2

Table 2 (concluded)

Zones and indicators		1982	2017
Share of national population with 13 years of schooling or more living in:	<i>Barrio alto</i> (1)	25.7	14.4
	Gentrified periphery (2)	0.7	2.2
	Northern suburb (3)	0.1	1.5
	Extended <i>barrio alto</i> (1 + 2 + 3)	26.5	18.0
Share of GSMA-E population with 13 years of schooling or more living in:	<i>Barrio alto</i> (1)	51.0	29.2
	Gentrified periphery (2)	1.4	4.4
	Northern suburb (3)	0.2	3.0
	Extended <i>barrio alto</i> (1 + 2 + 3)	52.6	36.6

Source: Prepared by the author, on the basis of special processing of the Chilean population and housing censuses of 1982 and 2017.

Note: GSMA: Greater Santiago Metropolitan Area; GSMAE: Extended Greater Santiago Metropolitan Area; *barrio alto*: area of eastern Santiago traditionally inhabited by the upper socioeconomic stratum.

Six geographical scales are used in tables 1 and 2: (i) the whole country, (ii) GSMA-E, (iii) the traditional *barrio alto* (six communes), (iv) the gentrified periphery, (v) the northern suburb and (vi) the sum of (iii), (iv) and (v), constituting a sort of extended *barrio alto* of 10 communes, namely the 6 traditional ones plus Peñalolén to the south-east and Huechuraba, Colina and Lampa to the north. The indicators used are of two types: (i) prevalence, i.e., the percentage of all residents in each area who belong to the upper socioeconomic stratum, and (ii) distribution, i.e., the percentage of the upper stratum population living in each area.

An initial finding regarding the prevalence of the upper socioeconomic stratum is its significant increase on both definitions (13 and 18 or more years of schooling). At the national level, the population aged 25 and over with 13 years of schooling or more rose from 7.2% of the total in 1982 to 29.2% in 2017. The increase was from 9.2% to 35.5% in GSMA-E, from 27.7% to 73.3% in the *barrio alto* and from 2.8% to 32.6% in the gentrified periphery and the northern suburb. The biggest jump was in the latter area (a more than tenfold increase in the percentage), which is fully consistent with the socioeconomic reconfiguration that has recently taken place there, as mentioned in the previous sections. It is also possible that the size of this jump was due to the initial percentage being low. Indeed, the fact that the increase in the *barrio alto* was the smallest is largely explained by mathematical construction: under no circumstances could the percentage multiply more than fourfold, because in 1982 it was already above 25%. Another important fact is that this is the area where the upper socioeconomic stratum has by far the largest proportional presence. This being so, leaving aside the characteristics of the level and change indicators used, the final percentage in the *barrio alto* is striking, since it suggests a virtual universalization of higher education among residents, which is an indisputable indicator of homogeneity, at least where education is concerned. This progress can also be seen when a more demanding criterion is used to define the upper socioeconomic stratum, namely 18 years of schooling or more, a criterion that implies a completed (or almost completed in the case of medicine) traditional university degree, or postgraduate studies with approved years. The increase is less sharp in this case, and the 2017 levels suggest that this group is indeed a very select one and a small minority. The increase is from 1% to 2.2% nationally, from 1.6% to 3.4% in GSMA-E, from 6.1% to 13.5% in the *barrio alto* and from 0.3% to 3.7% in the gentrified periphery and northern suburb. Again, the largest increase by far was in this last area, although the current value is still much lower than in the *barrio alto*. Thus, the data go to confirm what was stated earlier about the general increase in the educational level of the population aged 25 and over in Chile, and thence the growth of the upper socioeconomic stratum as measured by the schooling variable with its two thresholds.

As regards the distribution indicators, the concentration of the upper socioeconomic stratum in GSMA-E held steady over the observation period: the proportion of people with 13 years of schooling or more living there declined very slightly from 50.4% in 1982 to 49.2% in 2017, while the proportion of those with 18 years of schooling or more living there remained unchanged at 62%. In tables 1 and 2, these indicators are also shown for GSMA, where the concentration of the upper socioeconomic stratum shows a downward trend: from 61% to 58% when the threshold is 18 years of schooling or more, and from 49% to 45% when the threshold is 13 years of schooling or more. These figures reveal that a large proportion of the country's upper socioeconomic stratum lives in GSMA-E (as it does in GSMA) and that the proportion of this group living in GSMA-E and GSMA far exceeds their share of the country's population, which is some 40%.

However, the expansion of the upper socioeconomic stratum nationally does have an impact on the location pattern of that stratum in the *barrio alto*, especially when the traditional geographical definition of the latter is used. In fact, 41.6% of the country's population aged 25 and over in the upper socioeconomic stratum (18 years of schooling or more) resided in the *barrio alto* in 1982, while only 35.4% did so in 2017. If the threshold of 13 years or more is taken, the drop is from 25.7% to 14.4%. There is no doubt that there has been a marked redistribution of this population, but if we return to the distinctions about the causes of the distribution, the key force has been the in situ increase in higher education throughout the country as a result of the expansion of university education coverage in the country's major cities. If the expanded definition of the *barrio alto* including the gentrified periphery and the northern suburb is taken, there is still a reduction, but a lesser one, particularly in the case of those with 18 years of schooling or more, since the proportion of the country's population aged 25 and over with that level of schooling living there fell only from 42.2% in 1982 to 40.8% in 2017. In the case of the threshold of 13 years of schooling or more, the proportion fell from 26.5% in 1982 to 18.0% in 2017.

As regards the distribution of the upper socioeconomic stratum at the GSMA-E level, the share of the *barrio alto* also shows a large decline, from 66.8% in 1982 to 56.9% in 2017 in the case of those with 18 years of schooling or more. This decline moderates significantly when the extended *barrio alto* is considered, with the proportion falling from 67.8% to 65.7%. As for those with 13 years of schooling or more, the decline is more marked, from 51.0% in 1982 to 29.2% in 2017, although it is somewhat attenuated when the extended *barrio alto* is considered, with a drop from 52.6% to 36.6%.

Thus, the main conclusion to be drawn from tables 1 and 2 is that the *barrio alto* has indeed become less preponderant as a habitat for the upper socioeconomic stratum, but that the decline varies greatly depending on the type of concentration (national or metropolitan), the threshold (18 years or more or 13 years or more of schooling) and the definition of the *barrio alto* (traditional or extended) taken.

2. The attractiveness of the *barrio alto* to migrants by schooling level

Tables 3 and 4 present net migration for the 11 major zones of GSMA-E, segmented by socioeconomic stratum (years of schooling criterion) and migration type (total and intrametropolitan and, by difference, extrametropolitan). Table 3 shows total net internal migration rates, which are crucial to determine the effect of migration on the socioeconomic composition of the zones.

Table 3
Major zones of the Extended Greater Santiago Metropolitan Area (GSMAE): total domestic net migration and migration rates, by schooling level, 1977–1982, 1987–1992, 1997–2002 and 2012–2017

Zone	Net migration (Number of people)															
	0–4 years of schooling				5–8 years of schooling				9–12 years of schooling				13 years of schooling or more			
	1977–1982	1987–1992	1997–2002	2012–2017	1977–1982	1987–1992	1997–2002	2012–2017	1977–1982	1987–1992	1997–2002	2012–2017	1977–1982	1987–1992	1997–2002	2012–2017
Centre	-9 591	-8 261	-9 614	-5 647	-15 609	-19 119	-19 494	-12 125	-21 971	-35 736	-37 072	-35 155	-10 737	-17 310	-24 464	-13 803
Inner city	6 052	-6 923	-4 314	-2 157	7 750	-18 431	-10 200	-5 227	9 739	-25 778	-24 285	-12 265	2 506	-6 538	-19 955	-2 053
Gentrified periphery	3 678	1 557	-287	-309	5 155	3 078	-965	-996	4 431	3 729	-1 530	-2 387	1 149	1 951	6 379	2 419
Traditional periphery	11 149	15 227	9 404	-56	16 766	41 091	18 918	-3 350	18 315	66 095	39 842	-10 043	4 580	19 698	19 079	-18 688
North-east (barrio alto)	-2 426	-1 732	-668	-697	-1 696	-4 525	-125	-834	2 875	-7 464	505	-4 179	5 847	2 467	6 668	153
Northern suburb	821	744	1 145	936	897	1 355	1 694	2 325	612	1 025	2 064	8 511	62	224	2 358	14 133
South-eastern suburb	-41	-22	76	123	-20	78	184	244	135	230	396	1 200	114	330	675	899
Southern suburb	307	352	363	317	246	647	685	1 031	204	389	1 159	4 228	32	153	937	5 127
South-western suburb	856	515	1 112	511	1 067	807	2 059	1 155	735	687	4 362	5 920	211	267	3 691	4 892
Western suburb	122	109	157	130	1	82	308	303	37	74	411	1 141	19	54	365	953
Melipilla	-91	116	94	335	-174	50	99	705	-159	30	190	2 010	-47	-45	229	615

Table 3 (concluded)

Zone	Total domestic net migration rates (Percentages)															
	0–4 years of schooling				5–8 years of schooling				9–12 years of schooling				13 years of schooling or more			
	1977–1982	1987–1992	1997–2002	2012–2017	1977–1982	1987–1992	1997–2002	2012–2017	1977–1982	1987–1992	1997–2002	2012–2017	1977–1982	1987–1992	1997–2002	2012–2017
Centre	-30.0	-39.4	-57.4	-50.0	-27.0	-39.2	-58.2	-47.0	-31.3	-45.7	-51.7	-37.7	-65.2	-60.7	-42.5	-13.6
Inner city	7.5	-10.4	-7.8	-6.1	6.3	-14.2	-11.0	-7.1	9.9	-16.8	-14.9	-6.5	15.6	-16.3	-23.3	-2.0
Gentrified periphery	28.2	12.7	-2.4	-3.5	33.6	15.5	-5.2	-5.8	61.6	21.0	-5.4	-5.9	122.3	49.4	37.0	7.3
Traditional periphery	17.1	22.4	12.1	-0.1	19.1	31.2	13.2	-2.4	28.5	41.9	14.5	-2.5	45.0	46.8	12.7	-8.4
North-east (barrio alto)	-13.3	-13.7	-6.6	-10.7	-5.7	-16.3	-0.6	-6.4	3.9	-9.6	0.9	-7.1	13.5	3.1	4.7	0.1
Northern suburb	15.3	12.9	16.1	14.6	21.9	18.2	17.9	18.2	32.9	19.3	18.8	31.5	36.9	27.6	52.9	74.8
South-eastern suburb	-2.3	-1.6	5.7	11.7	-1.4	4.1	9.5	11.8	15.0	13.3	15.1	23.9	66.1	62.7	35.2	22.5
Southern suburb	4.9	6.0	6.2	6.4	4.7	7.9	7.4	9.5	7.2	6.6	11.7	21.1	8.1	13.1	21.1	47.1
South-western suburb	9.2	5.9	12.2	6.8	11.0	5.9	14.3	7.2	14.0	5.9	22.0	15.4	24.3	9.7	35.9	24.7
Western suburb	5.3	4.9	7.5	8.2	0.1	3.0	10.4	9.0	5.4	4.3	14.1	20.1	27.8	18.8	30.5	36.8
Melipilla	-1.5	2.0	1.7	7.7	-3.4	0.7	1.3	8.4	-5.4	0.5	2.1	12.9	-11.5	-3.9	6.2	8.6

Source: Prepared by the author, on the basis of special processing of census microdata.

Table 4
Major zones of the Extended Greater Santiago Metropolitan Area (GSMAE): net intra- and extrametropolitan migration, by schooling level, 1977–1982, 1987–1992, 1997–2002 and 2012–2017

Zone	Net intrametropolitan migration (Number of people)															
	0–4 years of schooling				5–8 years of schooling				9–12 years of schooling				13 years of schooling or more			
	1977–1982	1987–1992	1997–2002	2012–2017	1977–1982	1987–1992	1997–2002	2012–2017	1977–1982	1987–1992	1997–2002	2012–2017	1977–1982	1987–1992	1997–2002	2012–2017
Centre	-7 543	-4 456	-2 823	-639	-12 848	-11 525	-6 705	-1 013	-17 770	-22 477	-11 216	-3 690	-7 631	-10 239	-6 705	-171
Inner city	1 433	-7 967	-4 837	-1 719	1 185	-21 174	-21 200	-3 663	2 490	-29 927	-26 313	-10 361	887	-8 029	-21 200	-3 892
Gentrified periphery	2 395	1 096	-525	-183	3 736	2 137	5 564	-577	3 380	2 752	-2 206	-1 754	876	1 621	5 564	1 869
Traditional periphery	7 123	12 858	7 553	967	11 738	35 846	16 408	390	13 417	59 295	35 934	-2 037	3 452	17 364	16 408	-16 913
North-east (<i>barrio alto</i>)	-4 249	-2 524	-1 426	-682	-4 845	-6 960	-1 494	-956	-2 360	-11 244	-3 533	-4 453	2 218	-1 502	-1 494	-5 413
Northern suburb	487	491	801	872	604	924	2 135	2 248	450	790	1 734	8 104	42	184	2 135	12 839
South-eastern suburb	-92	-44	39	105	-75	7	635	273	75	221	326	1 202	97	312	635	924
Southern suburb	50	118	226	344	38	313	836	1 024	80	242	868	4 089	7	91	836	4 633
South-western suburb	547	296	827	535	721	429	3 386	1 299	452	350	3 927	6 041	94	231	3 386	4 717
Western suburb	18	74	121	108	-43	45	298	289	-2	51	286	1 040	14	37	298	885
Melipilla	-169	58	44	292	-211	-42	137	686	-212	-53	193	1 819	-56	-70	137	522

Table 4 (concluded)

Zone	Net extrametropolitan migration (Number of people)															
	0–4 years of schooling				5–8 years of schooling				9–12 years of schooling				13 years of schooling or more			
	1977–1982	1987–1992	1997–2002	2012–2017	1977–1982	1987–1992	1997–2002	2012–2017	1977–1982	1987–1992	1997–2002	2012–2017	1977–1982	1987–1992	1997–2002	2012–2017
Centre	-2 048	-3 805	-6 791	-5 008	-2 761	-7 594	-12 789	-11 112	-4 201	-13 259	-25 856	-31 465	-3 106	-7 071	-17 759	-13 632
Inner city	4 619	1 044	523	-438	6 565	2 743	11 000	-1 564	7 249	4 149	2 028	-1 904	1 619	1 491	1 245	1 839
Gentrified periphery	1 283	461	238	-126	1 419	941	-6 529	-419	1 051	977	676	-633	273	330	815	550
Traditional periphery	4 026	2 369	1 851	-1 023	5 028	5 245	2 510	-3 740	4 898	6 800	3 908	-8 006	1 128	2 334	2 671	-1 775
North-east (<i>barrio alto</i>)	1 823	792	758	-15	3 149	2 435	1 369	122	5 235	3 780	4 038	274	3 629	3 969	8 162	5 566
Northern suburb	334	253	344	64	293	431	-441	77	162	235	330	407	20	40	223	1 294
South-eastern suburb	51	22	37	18	55	71	-451	-29	60	9	70	-2	17	18	40	-25
Southern suburb	257	234	137	-27	208	334	-151	7	124	147	291	139	25	62	101	494
South-western suburb	309	219	285	-24	346	378	-1 327	-144	283	337	435	-121	117	36	305	175
Western suburb	104	35	36	22	44	37	10	14	39	23	125	101	5	17	67	68
Melipilla	78	58	50	43	37	92	-38	19	53	83	-3	191	9	25	92	93

Source: Prepared by the author, on the basis of special processing of census microdata.

Tables 3 and 4 yield nine findings:

- (i) The *barrio alto* presents a marked polarity throughout the observation period, as it expels population belonging to the lower socioeconomic stratum (fewer than 9 years of schooling), registers erratic net migration in the case of the population with secondary education (9 to 12 years) and, by contrast, unequivocally attracts the population with a high level of schooling (13 years or more). In other words, in net terms, the *barrio alto* does not experience a loss of population from the upper socioeconomic stratum due to migration.
- (ii) This does not mean that there are no outflows of people belonging to the upper socioeconomic stratum from the *barrio alto*. In fact, except in the period 1977–1982, the *barrio alto* displays a negative intrametropolitan outflow for this stratum (see table 4). Moreover, the flows leaving the *barrio alto* for the gentrified periphery and the northern suburb are significant and rather recent, and the upper socioeconomic stratum is clearly overrepresented in them.² In the case of the *barrio alto* and the northern suburb, these flows totalled 317 persons (from the *barrio alto* to the northern suburb) and 162 persons (from the northern suburb to the *barrio alto*) between 1977 and 1982, implying net bilateral migration for the *barrio alto* of -155 persons; between 2012 and 2017, the totals were 8,383 persons (from the *barrio alto* to the northern suburb) and 1,847 persons (from the northern suburb to the *barrio alto*), implying net bilateral migration for the *barrio alto* of -6,536 persons. If only the upper socioeconomic stratum is considered, these flows amounted to 22 persons (from the *barrio alto* to the northern suburb) and 27 persons (from the northern suburb to the *barrio alto*) between 1977 and 1982, implying net bilateral migration for the *barrio alto* of 5 persons, and to 7,212 persons (from the *barrio alto* to the northern suburb) and 1,495 persons (from the northern suburb to the *barrio alto*) between 2012 and 2017, implying net bilateral migration of -5,717 persons for the *barrio alto*. In the case of the *barrio alto* and the gentrified periphery, these flows totalled 3,278 persons (from the *barrio alto* to the gentrified periphery) and 78 persons (from the gentrified periphery to the *barrio alto*) between 1977 and 1982, implying net bilateral migration of -3,200 persons for the *barrio alto*, and 12,727 persons (from the *barrio alto* to the gentrified periphery) and 6,355 persons (from the gentrified periphery to the *barrio alto*) between 2012 and 2017, implying net bilateral migration of -6,372 persons for the *barrio alto*. Considering only the upper socioeconomic stratum, these flows were 300 persons (from the *barrio alto* to the gentrified periphery) and 4 persons (from the gentrified periphery to the *barrio alto*) between 1977 and 1982, implying net bilateral migration of -296 persons for the *barrio alto*, and 7,385 persons (from the *barrio alto* to the gentrified periphery) and 4,918 persons (from the gentrified periphery to the *barrio alto*) between 2012 and 2017, implying net bilateral migration of -2,467 persons for the *barrio alto*.
- (iii) The reduced attractiveness of the gentrified periphery is due to a combination of migration factors, including the rise of the northern suburb. Indeed, while in the twentieth century bilateral movement between the two areas was almost negligible, in the period 2012–2017 it was more vigorous and clearly favourable to the northern suburb: the figures for that area and the gentrified periphery were, respectively, 2,238 and 563 people in the case

² Data from the cells of the respective migration matrices for the population aged 25 and over. The matrices are available on request.

of the population aged over 25, and 1,115 and 278 people in the case of the population aged over 25 from the upper socioeconomic stratum. A role has also been played by the increase in out-migration from the gentrified periphery to the *barrio alto*, as discussed in the previous paragraph, which may be a subject for future research to find out whether this is return migration.

- (iv) When age is considered (this variable is not shown in the present article but is available on request), a very clear profile emerges: there are highly educated families in the child-rearing phase who move out of the *barrio alto*, where housing prices are significantly higher and most dwellings are flats, to the new developments in the northern suburb, which are still expensive compared to the average, but less so than those of the *barrio alto*, and which consist of houses with large plots and more convenient conditions for parenting and family life.
- (v) The fact that the *barrio alto* is losing upper socioeconomic stratum population in its exchanges with the other two areas of interest but still shows a positive balance for that stratum indicates that there are other flows into the *barrio alto* in which highly educated people are overrepresented, more than offsetting the drain of such people from the *barrio alto* to the northern suburb and the gentrified periphery. Table 4 suggests that extrametropolitan in-migration of members of the upper socioeconomic stratum to the *barrio alto* is a decisive factor in this. However, it is important not to draw hasty conclusions about the effect of this migration on the composition of the *barrio alto* population, which will be examined in the next section using the appropriate methodology.
- (vi) Extrametropolitan migration to the *barrio alto* is also distinguished, albeit decreasingly and with a change of trend in 2012–2017, by a seemingly surprising feature: it wins out in all other socioeconomic strata, which is contradictory given the high cost of living there. Three explanations, of different kinds and with different implications, can be offered. The first is the attractiveness of the area for domestic and home service workers who have to reside in homes or workplaces. The second is the possibility that immigrants of low socioeconomic status might be locating in the few places of that status which still exist in the zone. And the third is that extrametropolitan migration to all areas other than the centre is biased by the systematic underestimation of out-migration, this being the obverse of the overestimation of extrametropolitan out-migration from the centre, an issue that has been noted and explained in previous research (Rodríguez Vignoli, 2012 and 2019). In view of this last point, more substantive analysis of the effects of migration on the growth and composition of the population will focus on intrametropolitan migration,³ with extrametropolitan migration considered to a lesser degree.
- (vii) In the gentrified periphery, the expected behaviour is observed: the most educated group presents exceptional net migration rates. However, this is found in the first three censuses, which bears out the finding of Rodríguez Vignoli (2019) that the “colonization” of this periphery by the population of high socioeconomic status began earlier than suggested in the literature or was encouraged by road connections, regarded as crucial for the movement of upper socioeconomic stratum families out to this periphery (Rodríguez Vignoli and Rowe, 2019). However, inspection of the matrices makes it clear that the mass exodus from the *barrio alto* to the gentrified periphery began only in the

³ Also termed “residential mobility” in the specialized literature (Wright and Ellis, 2016, p. 14).

late 1990s (with Américo Vespucio Norte providing a road connection that had already been built in the case of Huechuraba). This exodus has continued, notwithstanding the decrease in the net migration rate of the group with 13 years of schooling or more revealed by the 2017 census.

- (viii) The fall in the net migration rate of the upper socioeconomic stratum in the gentrified periphery is mainly due to the emergence of the northern suburb (which borders part of this periphery, particularly the commune of Huechuraba). This suburb emerged as an alternative for upper socioeconomic stratum families living in the *barrio alto*. However, it should be stressed that there are still no signs of a return to the *barrio alto* from the gentrified periphery, with net upper socioeconomic stratum migration continuing to favour the latter in the period 2012–2017.
- (ix) The gentrified periphery and the *barrio alto* are the only areas to show a classic gentrification pattern (Pacione, 2009; Pereira, 2014), i.e., attraction of population of high socioeconomic status and expulsion of the rest, but particularly that of low socioeconomic status (or educational status, strictly speaking). However, there is an important difference between the two areas when it comes to the attraction of people belonging to the upper socioeconomic stratum: while in the case of the gentrified periphery the bulk of this is explained by intrametropolitan migration, in the case of the *barrio alto* it is explained by extrametropolitan migration. This means that the consolidation of the *barrio alto* as an upper socioeconomic stratum niche is due to the arrival of highly educated people from outside GSMA-E.

3. The effects of migration on the socioeconomic composition of the zones of interest

Tables 5 to 8 show the estimated effects of total and intrametropolitan net internal migration and total and intrametropolitan internal in-migration and out-migration on the socioeconomic composition of the major zones in GSMA-E, and in particular of the three zones being studied here.

Table 5
Major zones of the Extended Greater Santiago Metropolitan Area (GSMAE): relative effect of net internal migration on educational composition, 1977–1982, 1987–1992, 1997–2002 and 2012–2017
(Percentages)

Zone	0–4 years of schooling				5–8 years of schooling				9–12 years of schooling				13 years of schooling or more			
	1977–1982	1987–1992	1997–2002	2012–2017	1977–1982	1987–1992	1997–2002	2012–2017	1977–1982	1987–1992	1997–2002	2012–2017	1977–1982	1987–1992	1997–2002	2012–2017
Centre	1.4	3.2	-3.5	-10.2	2.9	3.3	-3.9	-8.8	0.8	-0.1	-0.6	-4.4	-15.2	-7.4	4.1	7.9
Inner city	-0.4	2.2	3.6	-0.4	-0.9	0.3	1.9	-0.9	0.9	-1.0	-0.1	-0.5	3.8	-0.8	-4.2	1.7
Gentrified periphery	-5.5	-3.2	-3.5	-1.1	-2.9	-1.8	-4.8	-2.2	11.9	0.9	-4.9	-2.3	54.3	16.5	17.6	4.4
Traditional periphery	-2.6	-6.4	-0.7	1.9	-1.6	-2.2	-0.2	0.8	3.2	3.3	0.5	0.7	12.1	5.8	-0.4	-2.3
North-east (<i>barrio alto</i>)	-7.7	-3.9	-4.6	-4.3	-4.2	-5.2	-1.7	-2.2	0.6	-1.9	-0.9	-2.5	5.5	4.5	1.0	1.0
Northern suburb	-2.7	-2.2	-3.2	-11.9	0.5	0.5	-2.4	-10.3	6.2	1.0	-1.9	-4.1	8.4	5.3	16.4	19.6
South-eastern suburb	-3.3	-6.1	-5.5	-4.2	-2.9	-3.4	-3.7	-4.2	5.5	1.1	-1.0	1.8	36.5	29.8	9.6	1.1
Southern suburb	-0.2	-0.6	-2.2	-7.9	-0.3	0.3	-1.6	-6.5	0.9	-0.3	0.5	-0.9	1.4	3.0	5.3	13.0
South-western suburb	-1.1	-0.2	-4.3	-4.1	-0.2	-0.1	-3.3	-4.0	1.3	-0.2	0.5	0.1	6.7	1.8	7.8	4.9
Western suburb	0.8	0.2	-3.0	-5.3	-1.9	-0.8	-1.5	-4.9	0.8	-0.1	0.3	0.5	12.8	7.4	8.9	9.3
Melipilla	0.9	0.6	-0.3	-1.3	-0.1	0.0	-0.5	-1.0	-1.1	-0.1	-0.1	1.3	-4.1	-2.3	1.9	-0.9
Rest of Metropolitan Region	0.5	0.7	1.5	1.1	0.6	0.9	3.0	2.3	-2.1	-3.4	-0.8	2.6	-6.5	4.9	-8.4	-10.8
Rest of country	0.5	0.1	-0.3	-0.2	0.0	-0.1	0.0	0.1	-0.7	0.0	0.3	0.4	-0.7	0.0	-0.1	-0.7

Source: Prepared by the author, on the basis of special processing of census microdata.

Table 6
 Extended Greater Santiago Metropolitan Area (GSMAE) (3 major zones of interest): relative effect of total internal in-migration and out-migration on educational composition, 1977–1982, 1987–1992, 1997–2002 and 2012–2017
 (Percentages)

Three zones of interest	0–4 years of schooling								5–8 years of schooling							
	1982 (1977–1982)		1992 (1987–1992)		2002 (1997–2002)		2017 (2012–2017)		1982 (1977–1982)		1992 (1987–1992)		2002 (1997–2002)		2017 (2012–2017)	
	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration
Gentrified periphery	-5.7	0.1	-8.9	5.7	-11.8	8.3	-11.2	10.1	-3.0	0.1	-4.0	2.1	-8.9	4.1	-10.2	8.0
North-east (<i>barrio alto</i>)	1.4	-9.1	0.6	-4.5	-0.8	-3.8	-4.7	0.4	3.1	-7.3	3.4	-8.6	1.4	-3.1	-2.5	0.3
Northern suburb	-5.8	3.1	-6.8	4.6	-8.0	4.7	-17.5	5.6	-0.1	0.7	-2.0	2.4	-5.0	2.6	-14.7	4.4
Three zones of interest	9–12 years of schooling								13 years of schooling or more							
	1982 (1977–1982)		1992 (1987–1992)		2002 (1997–2002)		2017 (2012–2017)		1982 (1977–1982)		1992 (1987–1992)		2002 (1997–2002)		2017 (2012–2017)	
	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration
Gentrified periphery	12.3	-0.4	4.7	-3.8	-3.8	-1.1	-3.6	1.3	54.9	-0.5	29.4	-12.9	27.0	-9.4	13.2	-8.8
North-east (<i>barrio alto</i>)	-1.1	1.7	-0.3	-1.6	0.2	-1.2	-1.3	-1.2	-0.9	6.4	-1.0	5.5	-0.3	1.2	0.7	0.3
Northern suburb	14.7	-8.5	7.2	-6.2	0.1	-2.1	-4.4	0.3	34.2	-25.8	20.3	-15.0	25.3	-8.8	25.7	-6.2

Source: Prepared by the author, on the basis of special processing of census microdata.

Table 7
Major zones of the Extended Greater Santiago Metropolitan Area (GSMMAE): relative effect of intrametropolitan internal migration on educational composition, 1977–1982, 1987–1992, 1997–2002 and 2012–2017
(Percentages)

Zone	0–4 years of schooling				5–8 years of schooling				9–12 years of schooling				13 years of schooling or more			
	1977–1982	1987–1992	1997–2002	2012–2017	1977–1982	1987–1992	1997–2002	2012–2017	1977–1982	1987–1992	1997–2002	2012–2017	1977–1982	1987–1992	1997–2002	2012–2017
Centre	1.5	3.8	-1.2	-1.9	2.3	2.5	-1.0	-0.9	0.3	-0.6	-0.5	-0.9	-12.3	-5.6	1.6	1.3
Inner city	-0.1	2.8	3.8	0.0	-0.5	0.5	2.2	0.0	0.3	-1.2	-0.1	-0.3	2.0	-1.6	-4.5	0.6
Gentrified periphery	-5.1	-2.6	-3.2	-0.7	-2.1	-1.7	-4.6	-1.4	10.4	0.7	-4.9	-1.9	44.5	15.4	17.0	3.3
Traditional periphery	-2.5	-6.3	-1.1	1.9	-1.3	-2.2	-0.2	1.2	2.9	3.3	0.7	0.8	10.7	5.7	-0.4	-2.8
North-east (<i>barrio alto</i>)	-8.9	-4.5	-5.2	-3.3	-5.6	-7.2	-4.0	-1.7	1.3	-1.7	-1.1	-1.8	5.8	5.1	1.4	0.7
Northern suburb	-2.4	-2.0	-3.9	-11.5	0.5	0.0	-2.4	-9.7	5.8	1.4	-1.5	-3.6	6.9	6.0	16.8	18.1
South-eastern suburb	-2.7	-6.0	-5.6	-5.4	-2.7	-4.3	-4.6	-3.8	4.4	2.1	-0.8	1.7	36.1	31.0	10.6	1.4
Southern suburb	-0.2	-0.8	-2.2	-7.3	-0.2	0.1	-1.7	-6.1	0.9	0.3	0.4	-0.6	0.3	2.4	5.8	11.9
South-western suburb	-0.7	-0.1	-4.7	-4.2	0.1	-0.2	-3.2	-3.7	0.8	-0.3	0.7	0.2	2.1	2.6	7.9	4.6
Western suburb	0.5	0.2	-2.2	-5.4	-1.2	-0.7	-1.4	-4.6	0.0	0.0	-0.1	0.4	12.0	5.8	8.4	9.2
Melipilla	0.9	0.8	-0.5	-1.4	0.2	0.0	-0.5	-0.7	-1.5	-0.2	0.3	1.2	-5.1	-2.9	1.1	-1.0

Source: Prepared by the author, on the basis of special processing of census microdata.

Table 8

Extended Greater Santiago Metropolitan Area (GSMAE) (3 major zones of interest): relative effect of intrametropolitan internal in-migration and out-migration on educational composition, 1977–1982, 1987–1992, 1997–2002 and 2012–2017 (Percentages)

Three zones of interest	0–4 years of schooling								5–8 years of schooling							
	1982 (1977–1982)		1992 (1987–1992)		2002 (1997–2002)		2017 (2012–2017)		1982 (1977–1982)		1992 (1987–1992)		2002 (1997–2002)		2017 (2012–2017)	
	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration
Gentrified periphery	-5.2	0.1	-8.0	5.3	-11.1	7.9	-10.4	9.7	-2.2	0.0	-3.6	1.9	-8.6	4.0	-9.4	8.0
North-east (<i>barrio alto</i>)	0.5	-9.4	0.3	-4.8	-1.0	-4.2	-3.5	0.2	1.9	-7.5	1.2	-8.4	-0.6	-3.3	-2.2	0.5
Northern suburb	-4.9	2.5	-5.5	3.5	-7.5	3.6	-16.4	4.8	-0.1	0.6	-1.7	1.7	-4.9	2.5	-13.9	4.2
Three zones of interest	9–12 years of schooling								13 years of schooling or more							
	1982 (1977–1982)		1992 (1987–1992)		2002 (1997–2002)		2017 (2012–2017)		1982 (1977–1982)		1992 (1987–1992)		2002 (1997–2002)		2017 (2012–2017)	
	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration	In-migration	Out-migration
Gentrified periphery	10.7	-0.3	4.3	-3.5	-3.7	-1.2	-3.3	1.4	44.9	-0.4	27.1	-11.7	26.0	-9.0	12.1	-8.8
North-east (<i>barrio alto</i>)	-0.3	1.5	0.2	-1.8	0.3	-1.4	-0.5	-1.3	-1.2	7.0	-0.6	5.7	0.0	1.4	0.4	0.3
Northern suburb	12.8	-7.1	6.2	-4.7	0.2	-1.7	-4.2	0.6	28.8	-21.9	17.4	-11.3	24.5	-7.7	24.4	-6.3

Source: Prepared by the author, on the basis of special processing of census microdata.

The results extend, develop, refine and clarify the findings presented in the previous section, and the nine points that follow are of particular interest:

- (i) The effects of migration are generally large, considering that the socioeconomic composition of the population changes gradually and usually over a long period, so that a shift of 5% or more in the proportion of one stratum or another in the course of only five years represents a rapid and significant change.
- (ii) By far the largest effects of migration on socioeconomic composition occur when it involves groups of a high socioeconomic status (the population with 13 years of schooling or more). In several cases, migration has led to a change of 10% or more in the proportion of the population aged 25 and above belonging to the upper socioeconomic stratum over the course of five years. An extreme case is that of the gentrified periphery in the period 1977–1982, when migration caused this proportion to rise by more than 50% (see table 5), although it remained small, increasing only from 1.98% to 3.06%.⁴
- (iii) Net internal migration increases the already very high percentage of the upper socioeconomic stratum in the *barrio alto* and decreases that of the rest; these increases are modest, but the sign is more important than the magnitude since, as shown in table 2, residents' socioeconomic status is much higher in this area than in the rest of GSMA-E. More specifically, total net internal migration increased the proportion of the upper socioeconomic stratum from 72.5% in 2012 (counterfactual value in the methodology applied) to 73.3% in 2017 (factual value in the methodology applied); these figures do not appear in table 5, but underlie the 1% increase shown there.
- (iv) The effect described is mainly due to out-migration, with the lower socioeconomic strata moving out of the *barrio alto* in the last quarter of the twentieth century (see table 6). In-migration only started to lift the share of the upper socioeconomic stratum in the twenty-first century (see table 6). Intrametropolitan out-migration and in-migration work in the same direction as total out-migration and in-migration (see table 8).
- (v) As already emphasized, the period 1977–1982 saw a very significant increase in the share of upper socioeconomic stratum residents in the gentrified periphery, an increase that slowed considerably in the period 2012–2017, when total net internal migration lifted the proportion by only 4.4% (see table 5). In this latter case, however, the counterfactual and factual values for the group, -32.3% and 33.7%, respectively (the data are not shown, but are available on request), were much higher than those for the period 1977–1982, revealing the compositional change of this zone, i.e., its “gentrification”.
- (vi) Most of the increase in the share of the upper socioeconomic stratum in the gentrified periphery came from in-migration (see table 6). In addition to the substantive factor (in-migration of affluent families from the *barrio alto*), this effect was influenced by a methodological factor: the low proportion of this stratum in the non-migrant population, especially in the twentieth century measurements. In fact, this methodological factor is crucial to understanding why the net out-migration of the population with low educational attainment from this zone, identified in the previous section, did not translate into a migration-induced effect on the proportion of this stratum. For this to occur, the socioeconomic status of out-migrants must be lower than that of non-migrants, a difficult condition to fulfil given the low socioeconomic status of the latter, particularly in the 1982 and 1992 censuses.
- (vii) Most of the growth of the upper socioeconomic stratum in the gentrified periphery was due to intrametropolitan migration (see table 7), although extrametropolitan migration also contributed, except in the period 1997–2002, when its effect was almost

⁴ The data are not shown but are available on request. A number of the results presented in this section that originate in or are derived from the migration matrices have been left out of the text for reasons of space but can be made available if required.

zero.⁵ This confirms that the crucial forces in the socioeconomic transformation of this zone are to be sought in the selectivity, quantity and asymmetry of migratory exchanges with the rest of the zones of GSMA-E (i.e., intrametropolitan migration), and in particular with the *barrio alto*.

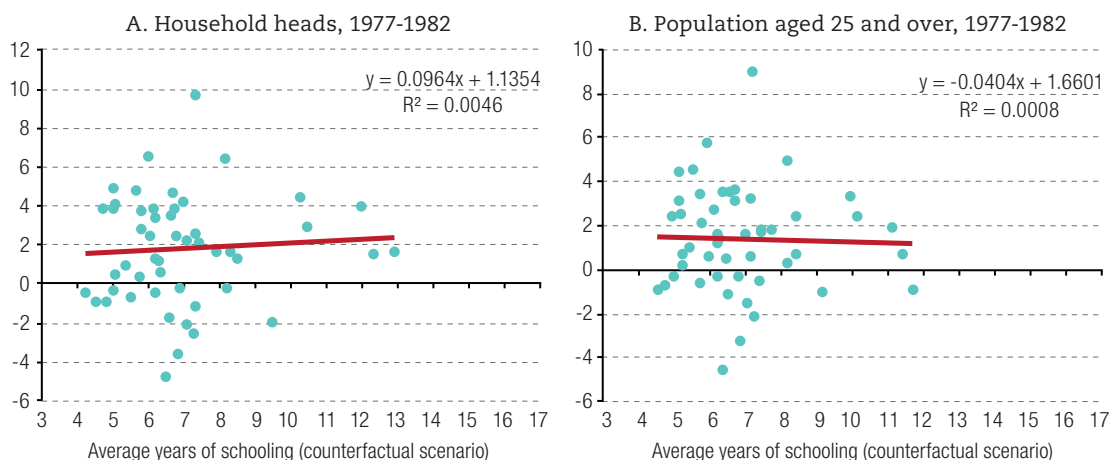
- (viii) The emergence of the northern suburb as a destination for suburbanizing flows of affluent households is clearly reflected in the trend of the migration effect on the socioeconomic composition of that suburb: the share of the upper socioeconomic stratum began to increase significantly in the late twentieth century, rising by almost 20% in the period 2012–2017 (see table 5). More specifically, total net internal migration caused the share of that stratum to increase from 26.2% in 2012 (counterfactual value) to 31.3% in 2017 (factual value). This was almost entirely due to intrametropolitan migration, which led to the share of the upper socioeconomic stratum increasing by 18.1% between 2012 and 2017 (see table 7).
- (ix) Consequently, the northern suburb, which was semi-rural at the beginning of the observation period and whose proportion of upper socioeconomic stratum inhabitants was a tiny 1.4% (counterfactual) in the period 1977–1982, has become a zone with a high percentage of upper socioeconomic stratum inhabitants. This proportion, however, is still very different from that in the *barrio alto*, because this stratum falls well short of being a majority, and at least a third of the population that it lives alongside belongs to the lower socioeconomic stratum (fewer than 9 years of schooling).

4. Migration and socioeconomic inequalities between communes

Lastly, figure 1 presents an estimate of the effect of internal migration on educational inequalities between the communes of GSMA-E, including the six *barrio alto* communes, which are sharply differentiated from the rest by their higher level of schooling, as clearly shown in tables 1 and 2.

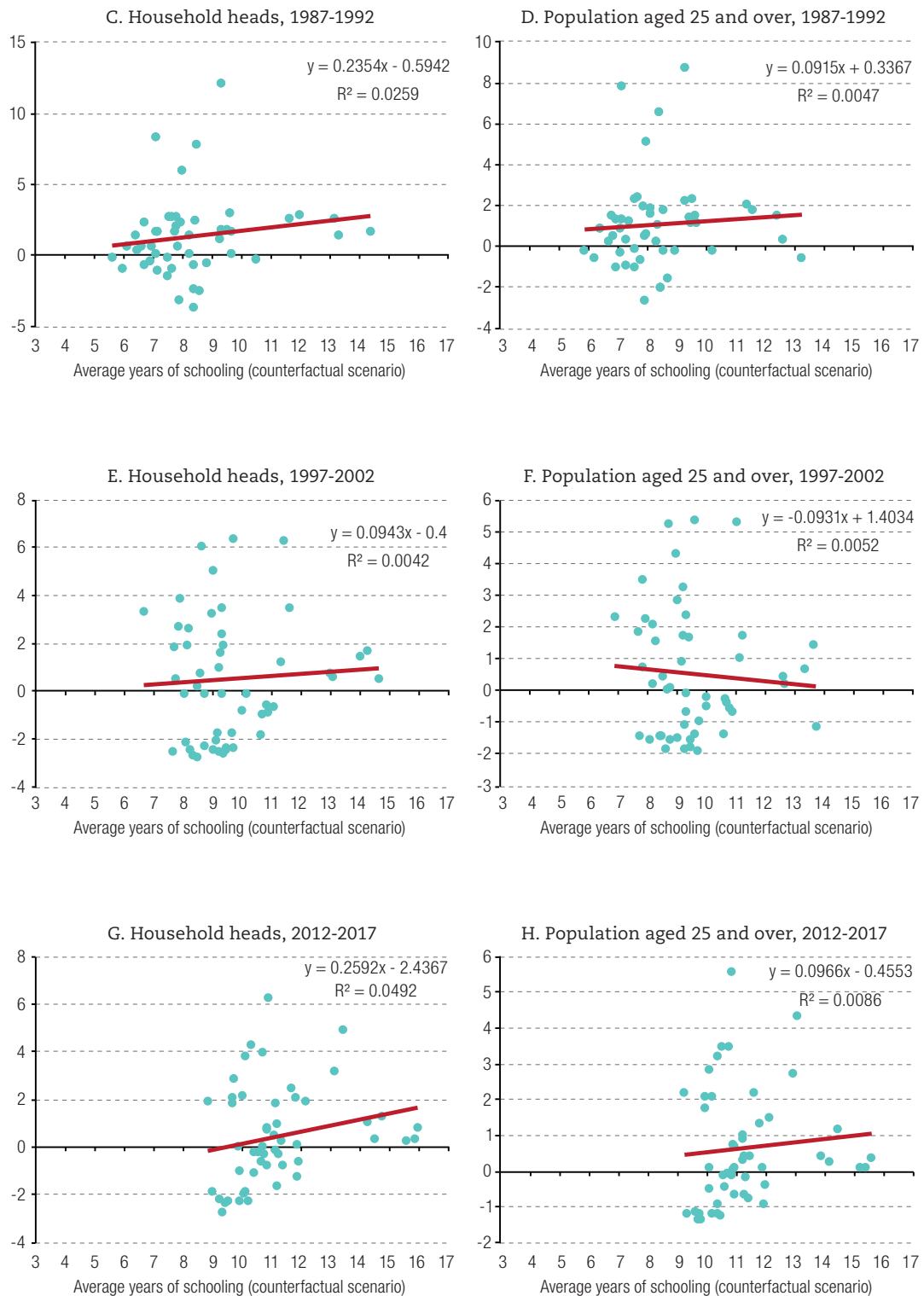
Figure 1

Communes of the Extended Greater Santiago Metropolitan Area (GSMAE): relative effect of total internal migration on the average schooling of the population aged 25 and over and heads of household, by the educational level the two groups would have had without migration, 1977–1982, 1987–1992, 1997–2002 and 2012–2017 (Percentages)



⁵ In the period 1997–2002, total internal migration led to a 17.6% increase in the share of the upper socioeconomic stratum, and intrametropolitan migration resulted in a 17% increase; the remainder was due to extrametropolitan migration.

Figure 1 (concluded)



Source: Prepared by the author, on the basis of special processing of census microdata.

The procedure applied in this study does not use the standard or best-known indicator of residential segregation (Duncan's dissimilarity index, mentioned above), but rather the average schooling of two groups: heads of household and the population aged 25 and over, for both of which the assumption of invariance of the attribute (years of schooling) in the reference period is almost certainly met. Thus, figure 1 shows all communes in GSMA-E according to the values of two variables: first, the effect of migration on the average schooling of the population aged 25 and over and heads of household, and second, the counterfactual for that schooling level, i.e., what it would have been in the absence of migration (which can also be interpreted as the average level of schooling at the outset, i.e., five years before the census). The resulting point cloud is fitted with a line to estimate the relationship between the two variables. A positive relationship, i.e., a positive slope, indicates that migration tends to raise schooling on average in the communes with a higher counterfactual schooling level, i.e., it widens educational inequalities between communes; a negative slope indicates the opposite.

These graphs generally show a rather flat slope, with a coefficient that is positive in the vast majority of cases, but only marginally so. Thus, the hypothesis that migration helps to reduce social inequalities can be ruled out.

However, as the focus of interest is on the communes of the *barrio alto* and its extensions, what is striking is that in the communes where the level of schooling is highest (towards the right of the x-axis), which always include the commune of Santiago and at least five communes of the *barrio alto* (because the level of schooling in Lo Barnechea was low until the 1992 census), that level, without exception, rises as a consequence of migration, which is certainly not compatible with the argument made in the last decade that this zone has become less important for the elite (Galetovic and Jordán, 2006).

This systematic pattern is totally different from the much more random effect observed in the rest of the communes, the vast majority of GSMA-E, where there is a very heterogeneous pattern that is undoubtedly associated with the location and residential function these communes have in the city. Thus, in the outlying communes where the initial level of schooling was low, schooling increased thanks to migration, and this helped to narrow the territorial gap between communes. However, in the poor communes of the inner city and traditional periphery, where the initial level of education was also low, the inverse relationship (migration reducing the level of schooling) is seen, the result being a widening of territorial disparities.

In this context, the communes of the gentrified periphery and the northern suburb are certainly outliers, since migration has had a much greater effect in raising the socioeconomic level there than elsewhere, while the schooling level is lower than in the communes of the *barrio alto*. To a large extent, these communes neutralize the effect of migration in levelling out inter-commune inequalities by raising the socioeconomic level of the *barrio alto* communes and reducing that of the poor communes in the inner city and much of the traditional periphery.

Thus, underlying the apparently neutral effect of migration on socioeconomic inequalities between the communes of GSMA-E is a much more complex reality with very clear and significant effects that tend to cancel out when averaged.

VI. Final reflections

In the late 1970s, the freeing up of land for commercial use had significant effects on the horizontal expansion of the city, as it allowed, facilitated and even encouraged the use of land around the city for residential purposes. The opportunity was taken both by the private sector, which set out to provide housing of various types to meet the diverse demands of social groups, and by the public sector, which opted to locate social housing in lower-priced outlying areas, thereby increasing its own

construction capacity and helping to reduce the housing shortage. The result was a rapid horizontal expansion of the city that left a permanent mark on its structure and functioning and on people's and institutions' perceptions of how to live and survive in it (Ducci, 1998; Galetovic and Jordán, 2006; Rodríguez Vignoli and Espinoza, 2012; De Mattos, Fuentes and Link, 2014; Dureau, 2014; Rodríguez Vignoli and others, 2017).

The strengths and limits of the city's horizontal extension began to become evident at the end of the last century. While there was a leap in formal housing construction and a reduction in the housing deficit, especially from 1990 onward, it also became clear that this horizontal growth was often unaccompanied by connectivity and amenities, resulting in "housing without a city". In addition, a number of the "residential" interventions of the period, particularly during the military dictatorship (1973–1989), involved population displacements and relocation of socioeconomic groups that exacerbated residential segregation. This was due to the expulsion of the poor population from the *barrio alto* to different sites on the periphery that usually lacked amenities and had inadequate general connectivity, and were far from the workplaces of those affected. This expulsion, which in some cases was literal and formed part of large-scale compulsory clearance operations and in others was encouraged by housing subsidies, obviously disadvantaged the poor, even though they often settled in housing complexes that were solid in terms of materials and basic services and generally of a higher standard than in the places where they originally lived.

These problems have meant that the logic of *laissez-faire*, a deregulated market and horizontal expansion has been criticized since its implementation, in relation both to affluent private sectors and to low-income sectors and their cityless expansion. Criticism increased in the early 1990s because of evidence of the adverse effects of this logic and the advent of democracy (Ducci, 1998). Some of the criticism was reflected in new policies and programmes of different types, which, however, were generally aimed not at limiting the expansion of the periphery, but rather at improving it (in particular by providing connectivity and services) or formally combating segregation, which was actually strengthened by public action.

In addition to the above, the relationship between housing, road infrastructure, and transport and urban amenities was strengthened and privatized, and in general contributed to the horizontal expansion of the city and the socioeconomic diversification of the periphery. This encouraged hypotheses about the reduction of socioeconomic residential segregation through the market, on the basis of a gradual deconcentration of the upper socioeconomic stratum population and a concomitant progressive replacement of the *barrio alto* by alternative locations, in particular emerging affluent suburbs. Counter-trends or at least major qualifications have been identified for all three of these processes (Rodríguez Vignoli, 2012), and the present study provides fresh data undermining the case for the last of them.

Indeed, the most important result of this study is to qualify the hypothesis that the suburbanization of the upper socioeconomic stratum, real though it is, entails a kind of decline of the *barrio alto*. This is questioned here not only because of the evident signs of buoyancy in the area, but also because, despite the barriers to access, it continues to draw in members of the upper socioeconomic stratum and to expel people of other strata, with the result that it is retaining its status as a habitat for a high percentage of the upper socioeconomic stratum.

Another important finding is that, although the expansion of connectivity by means of new road arteries (many of them toll roads, as mentioned above) was decisive in allowing other large zones to receive the upper socioeconomic stratum suburbanization flows originating in the *barrio alto*, the process began before this expansion, which means that the "technology" or "infrastructure" explanation cannot be cited as a cause in this case, although it has been a key factor in the mass relocation of the population in general and of the upper socioeconomic stratum in particular.

In view of these results, it is clear that the *barrio alto*, far from being diminished as a habitat for the upper socioeconomic stratum, has been reinforced, has expanded horizontally and vertically, and has also added investments, businesses, offices and corporate installations of all kinds that have also consolidated it as an extension of the traditional centre and as a secondary hub of economic activity and employment. This has reinforced the autarchy of the zone and its insulation from the rest of the city, and has contributed to the disconnection of its inhabitants from the reality of other areas, a disconnection whose effects are amplified by the fact that the residents of this zone form the group exercising most of the city's command and control functions, particularly in the private sector, which is by far the most important economically. There is a great risk that decisions will be disconnected from the needs of the majority because they are based on an endogamous experience and understanding of the world (an outlook based on privilege, advantage and dominant interests), and the consequences of such decisions may be serious.

There is no doubt that the dispersion of some residents of the *barrio alto* to outlying areas has helped to improve the indicators for these areas and to reduce socioeconomic residential segregation from a geographical point of view. However, this has not necessarily been the case with regard to social interaction and integration, as this population has settled in exclusive, closed formats that tend to exclude and keep out of sight the longer-standing and generally poor inhabitants of these areas (even if they might employ them to perform subordinate functions).

Lastly, despite these sociospatial reconfigurations, Santiago remains a highly segregated metropolitan area, and this segregation has been consolidated in multiple dimensions, including health, as evidenced by the unequal impact that the coronavirus disease (COVID-19) pandemic had on the different areas of the city (Canales, 2020). Physical separation and social differentiation tend to undermine Santiago's social cohesion, to foment distrust and mutual ignorance between different areas, and to reproduce and heighten the social inequalities that have historically characterized the city.

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