Opting out of neighbourhood schools: The role of local education markets in student mobility

Rosario Scandurra, Adrián Zancajo, Xavier Bonal

Opting out of neighbourhood schools: The role of local education markets in student mobility

Article *in* Population Space and Place · December 2021

DOI: 10.1002/psp.2542

Rosario Scandurra
Autonomous University of Barcelona

Adrián Zancajo
The University of Manchester

Xavier Bonal
Autonomous University of Barcelona

Received: 3 August 2021 | Revised: 25 October 2021 | Accepted: 12 November 2021

DOI: 10.1002/psp.2542

RESEARCH ARTICLE

WILEY

Opting out of neighbourhood schools: The role of local education markets in student mobility

Rosario Scandurra[1] | Adrián Zancajo[2] | Xavier Bonal[1]

[1]Department of Sociology, Globalisation, Education and Social Policies (GEPS) Research Center, Universitat Autònoma de Barcelona & Centro de Estudos Globais, Universidade Aberta, Barcelona, Spain

[2]Manchester Institute of Education, University of Manchester, Manchester, UK

Correspondence

Rosario Scandurra, Department of Sociology, Globalisation, Education and Social Policies (GEPS) Research Center, Universitat Autònoma de Barcelona & Centro de Estudos Globais, Universidade Aberta, Barcelona 08193, Spain.
Email: rosario.scandurra@uab.cat

Funding information

Juan de la Cierva Incorporación Programme (Ref. IJC2019-040056-I); British Academy Postdoctoral Fellowship (PF2\180006)

Abstract

Open enrolment policies assume that students living in disadvantaged areas can access better schools outside their neighbourhood. However, characteristics of individuals, quality of schooling and neighbourhood characteristics interact in very complex ways to produce heterogeneous patterns of school choice in local educational markets. This article analyses how the geography of educational opportunities, the socioeconomic background of students' families and the characteristics of their residential areas, impact on the travel-to-school distance in Barcelona. Based on a unique data set of school and student registers from Barcelona's local education authority, our study shows that distances travelled by students with the same social background vary depending on the characteristics of educational supply and the income of the neighbourhood. While socially advantaged students tend to travel longer distances than their peers from lower socioeconomic backgrounds, geographical and educational factors mediate to produce high heterogeneity in mobility patterns. Our findings cast doubt on the supposed virtue of school choice to reduce education inequalities and underline the need to consider the diversity of local microeducation markets in policymaking and planning.

KEYWORDS

distance, educational opportunity, school choice, school composition, spatial inequality

1 | INTRODUCTION

A recent report by the OECD shows that despite the fact that private schooling has not increased substantially in most of the countries that participated in PISA between 2000 and 2015, systems of student allocation to schools based on their place of residence are increasingly less frequent (OECD, 2019). By decoupling place of residence from schooling, educational reforms have increased families' capacity for choice and increased competition between schools, changes that are positively seen by some authors as a more efficient and equitable policy (Chubb & Moe, 1990; Chumacero et al., 2011; Hoxby, 2003). The liberalisation of access to public services, irrespective of residential location, is understood as an important strategy in overcoming social barriers and promoting patterns of social mobility (Ferrari & Green, 2013). Thanks to open enrolment policies, it is assumed that students living in disadvantaged areas may access better schools outside their neighbourhood. By moving out, they can improve their educational opportunities and life chances.

Breaking the link between place of residence and schooling was the objective of desegregation policies after *Brown vs Board of Education* in 1954, when the US Supreme Court prohibited Southern States from separating students by race. *Busing* (transporting students to different school districts from their residence) became the strategy for detaching housing and schooling and ensuring that equality of opportunities did not depend on income or race (Cascio et al., 2008). Certainly, the geography of education has demonstrated that socio-spatial differences in the structural concentration of poverty and disadvantage has an impact on educational outcomes (Butler & Hamnett, 2007; Kuyvenhoven & Boterman, 2020; Sykes, 2011; Sykes & Musterd, 2011). The quality of schooling in poor areas depends on the number of resources and the learning opportunities available. There are usually fewer resources and opportunities than in wealthier neighbourhoods (Ledwith & Reilly, 2013; Lubienski & Dougherty, 2013). Beyond human and material resources, the quality of schooling and the lower performance of students in socially disadvantaged areas are also affected by school composition (Dumay & Dupriez, 2008; OECD, 2012). The concentration of vulnerable children in certain schools neutralises the benefit of the peer effect and impacts negatively on their learning experience and performance.

From this perspective, open enrolment systems, which allow families to choose beyond their neighbourhood, would result in more opportunities for children living in disadvantaged areas. However, other factors challenge the theory of change of this policy option. Individual factors, quality of schooling and neighbourhood characteristics interact in very complex ways to produce different patterns of school choice in local educational markets. Indeed, several studies have shown that school choice rationalities do not respond to single and simple factors. ‘Choosers’ differ in their perceptions of school quality (Schneider et al., 2000), in the importance given to other school characteristics (security, values, school size, and composition) (Bonal et al., 2017), in their opportunity and willingness to travel greater distances (Easton & Ferrari, 2015; He & Giuliano, 2018), or in the restrictions they must face (economic, geographical, discriminatory) when deciding their choice set (Bell, 2009; Ben-Porath, 2009; Bonal & Zancajo, 2018).

It is highly relevant to understand the expected and unforeseen effects of certain education policies, especially since policymakers promote choice and competition as drivers of school reform. International literature on school choice has widely demonstrated that choice strategies are socio-spatially diverse and unequal. These differences are not only vertical but also horizontal, as research on middle-class strategies of school choice has demonstrated (Benson et al., 2015; Boterman, 2013; Lareau, 2014). Diverse strategies may alter the expected effects of open enrolment policies, which can increase school segregation by means of different mechanisms (Boterman, 2020; Makris, 2018; Zancajo & Bonal, 2020).

This article analyses how the geography of educational opportunities, the socioeconomic background of students' families and the characteristics of their residential areas, impact on the travel-to-school distance in Barcelona. The school admissions policy of the city is characterised by a controlled school choice system. However, with many choice options and many publicly subsidised private schools, the study of student mobility is particularly interesting. Travel-to school distance is a good proxy on the families' capacity to ‘exercise’ choice and the extent to which this capacity is influenced by individual and family factors, by the characteristics of educational supply and by the neighbourhood context (Andersson et al., 2012). While more affluent students have the ability to travel longer distances to avoid local schools, others do not have this possibility or might not need to travel because they have ‘good schools’ near their homes. Analysing which factors explain travel-to-school distance and how mobility patterns impact on the socioeconomic composition of schools reveals how school choice shapes education inequalities in Barcelona.

Examining the sources of heterogeneity in selecting geographically ‘convenient’ schools and its implications is crucial for a better understanding of how people conceptualise and enact place and space in education settings. In this sense, even in European countries where residential segregation is deemed moderate (Musterd, 2005), school choice policy shifts might impinge on families' microdecisions and reflect or magnify potential gaps in accessing to education provision. As we will show, these effects vary largely depending on the neighbourhood and educational characteristics, resulting in unequal geographical differences in access to schooling. Furthermore, the analysis of students' mobility patterns also provides useful insights to assess whether school choice policies contribute to reducing school segregation and social stratification between schools or, on the contrary, the higher capacity of choice increases education inequalities.

The article is structured as follows. The following section reviews key aspects of the literature on socio-spatial inequalities and school choice and formulates the research questions regarding the drivers of home-to-school distance in Barcelona. The third section of the article describes the school admission system of Barcelona and the main inequalities in the geography of educational provision. The fourth section describes the data and methods used in the analysis, with particular attention given to the strategies used to characterise school supply in areas of close proximity. The fifth section presents the results of our analysis of the patterns of student mobility in Barcelona. The last section concludes and discusses the policy implications of our findings.

2 | SOCIO-SPATIAL INEQUALITIES AND SCHOOL CHOICE

The literature on school choice has shown that proximity plays an important role in parental decisions when selecting a school for their children (Alegre & Benito, 2012; Bosetti & Pyryt, 2007; Butler & van Zanten, 2007; Schneider et al., 2000). Proximity is regarded as one of the main factors that conditions the school choice decisions of most disadvantaged families, who may face greater economic and geographical constraints and are less likely to travel longer distances (Andersson et al., 2012). However, proximity is never a nonsignificant factor in relation to school choice, regardless of socioeconomic background, especially in preschool or primary education. Even in open-enrolment systems, most parents make their decisions in a two-stage process. First, they construct a choice set of those schools they are willing to consider. Second, they make the final decision within this smaller choice set (Bell, 2009; Burdick-Will et al., 2020). The limits of this choice are the result of an interaction between geographical factors (e.g., accessibility or travel costs), the institutional design of admission policies, and the educational preferences of individual choosers.

The different geographies of education generate dissimilar schooling opportunities for children from different neighbourhoods. Research has shown that schooling options are not homogeneously spatially distributed. The number of schools available and their characteristics vary depending on the social and economic characteristics of the territories (Bayona-i-Carrasco & Domingo, 2021). Families residing in the most disadvantaged areas tend to live close to schools of lower quality with a higher proportion of disadvantaged students (Burgess et al., 2011; Elacqua et al., 2011; Fjellman et al., 2019; Holt et al., 2019). The configuration of local education markets confirms a strong hierarchical ordering of urban spaces. The best performing and most attractive schools are frequently concentrated in the most affluent areas, while the most deprived neighbourhoods have less access to quality educational resources (Oberti, 2007). There are several reasons to explain why geographical market imperfections of educational provision cannot easily be corrected. First, the regulation of educational markets is insufficient to guarantee a balanced territorial and social distribution of educational provision. They may refer to systems of authorisation of providers or accountability mechanisms, but have limited capacity to determine where schools are open (Bonal et al., 2020). Second, schools with low demand and poor academic performance rarely disappear from the market (Burgess et al., 2011). Third, schools respond differently to attract the best students who are less costly to educate and may contribute to increasing the school's reputation (van Zanten, 2009). Therefore, their geographical location is also a competitive factor (Gulosino & Lubienski, 2011).

This unequal distribution not only generates unbalanced educational markets from the supply side, but also conditions the school choice decisions of families and students. Some families can develop different strategies to maximise their opportunities in the local education market. They may have incentives to select where they live based on the location of the best schools (Ely & Teske, 2015; Ramond & Oberti, 2020), they might develop *white flight* strategies to avoid those schools with a higher concentration of disadvantaged students (Billingham & Hunt, 2016; Kye, 2018) or they may even adopt strategies of social closure to prevent the participation of more disadvantaged students (Ichou & van Zanten, 2019; Zancajo et al., 2021).

As Wilson and Bridge (2019) have shown, school choice increases school segregation independently of the choice mechanism in place. However, the factors causing observed increases are localised and contextual. The 'size of school districts/catchments, the number of schools and degree of competition in the area, and the existing socio-economic geographies of the neighbourhoods involved' (Wilson & Bridge, 2019, p. 14) are among the causes of school segregation. Urban gentrification has made school choice strategies even more complex, as socio-spatial strategies of school choice of newcomers and residents are affected by the social composition of the neighbourhood and the schools' characteristics. Parents enrol their children in very different types of schools even if they live in the same neighbourhood in a process of 'disaffiliation and selective belonging' (Boterman, 2020, p. 1). White flight strategies and colonisation strategies may coexist in gentrified neighbourhoods and produce different patterns of mobility and different effects on school segregation (Candipan, 2019, 2020; Mordechay & Ayscue, 2020; Pearman, 2019).

The extent to which families are able to activate these strategies is closely related to families' cultural or economic capital, but these practices are not independent of context or location. Building on the Bourdieusian concept of forms of capital, Jacques Lévy (1994) defined *spatial* capital as those resources that actors can accumulate related to space to develop specific strategies. Spatial capital is, therefore, an unequally distributed asset, which provides different resources and capacities to different individuals to use space in their own interest. According to Lévy, spatial capital has two components: positional and situational. Position capital is related to a place, whilst situation capital is related to an area.

> In the first case [position capital], it is the inclusion in a space (a residential place or a place of work) that provides an individual with spatial assets. In the second case [situation capital], it relates to a space that the individual appropriates globally via a complete range of mobilities, in which distance, though still a factor, is controlled (Barthon & Monfroy, 2010, p. 178).

Applied to school choice, these concepts of position capital and situation capital express the relative advantage that some actors enjoy with respect to where they live and their mobility in specific local education markets. Therefore, it is not only the way actors are positioned in the space that is important in understanding urban education inequalities, but also the ways in which these actors appropriate the space.

The socio-spatial dimension of educational inequalities enriches the idea of the different 'circuits of schooling' that are configured by class, cultural capital and choice (Ball et al., 1995). By considering the spatial resources that individuals and groups may activate, it is possible to identify differences in the school choice processes among individuals that share the same class position. The spatial limits of their choice set and the distance they are willing to travel to school, will vary depending on the educational opportunities available in their neighbourhood, the access restrictions to certain schools, and their education preferences. School choice policies are affected by both the characteristics of the available proximity schools and the distance students are willing to travel. The capacity of open enrolment schemes to provide better schooling options (particularly for socially disadvantaged students) depends largely on the extent to which unequal educational geographies impinge on their potential and actual choices.

This body of research inspires the research questions of this study. These are:

(1) What are the characteristics of the proximity schools available for different social groups of students? Do more socially advantaged students tend to select more distant schools?

(2) Is distance travelled to school related to the socioeconomic characteristics of the students, neighbourhood characteristics and the characteristics of proximity schools? Do socially advantaged students travel higher distances to access schools with more affluent populations?
(3) What are the main factors that have an influence on the distance to school? What are the roles of individual characteristics, educational effects, and neighbourhood effects?

3 | THE LOCAL EDUCATION MARKET OF BARCELONA

In Spain, families apply for a school place in preschool education during the year in which the child turns 3 years old.[1] Parents freely express a set of school preferences, including any public or subsidised private schools, and students are allocated a school using an immediate acceptance algorithm (also known as the Boston mechanism).[2] While families are free to apply to any public or private subsidised school in the city, in cases of oversubscription, applications are prioritised using three main criteria that were established by the 8/1985 Education Reform Act on the Organic Law of the Right to Education. These criteria include residential proximity, the enrolment of siblings at the school and household income.[3]

The case of Barcelona as a local education market has two interesting characteristics that make the study of school choice and socio-spatial inequalities particularly interesting. First, there are many private schools, most of them publicly subsidised. The private subsidised sector enrols 55% of primary and lower secondary students in the city, while 43% go to public schools and only 2% of students are enroled in independent private schools (CEB, 2020). These numbers are significantly different from those of the rest of Catalonia or Spain, where only 35% and 28.2% of students are enroled in private subsidised schools, respectively (MEFP, 2019). Second, the city is divided into 29 catchment areas or school districts. All residents have priority access to all public and subsidised private schools within their catchment area. However, in 2012, the *Consorci d'Educació de Barcelona* (CEB), the local education authority in charge of the city's educational planning, changed the school admissions system to increase school choice. With the reform, families could have priority access to more schools than just those included in the catchment areas, under the following conditions:

(1) All schools located in the same catchment area where the cluster of houses is located.
(2) The three public schools and three privately subsidised schools closest to the cluster of houses.
(3) All schools less than 500 m from the cluster of houses.
(4) If necessary, all the closest schools to achieve a minimum choice set of six public schools and six private subsidised schools.

As a consequence of these new criteria regarding proximity priority and considering the oversupply of schools in certain areas of the city, the estimated average number of schools for which families had geographical priority increased from 7.9 to 16.7 in 2012 (CEB, 2012). Regarding the type of educational institution, the average number of local public schools by cluster of houses was 9.0, while in the case of privately subsidised schools it was 9.6. By shifting school choices through these criteria, the CEB tried to compensate for the unequal internal distribution of the different catchment areas. These areas differ in the overall number of schools and in the provision of public and privately subsidised schools.

However, while the reform ensured a minimum number of potential schools as proximity schools, geographical differences in the proximity schooling options remain significant. Figure 1 shows the unequal distribution of choice opportunities in the territory per cluster of houses (the territorial unit used by the CEB to calculate local schools). There are significant differences in supply between the centre of the city and the periphery. Overall, there are fewer schools in peripheral areas than in the city centre. In addition, there are notable differences in the density of schools between and within catchment areas. The density of schools is particularly high in some areas in the north and northwest parts of the city. Moreover, access to a public or a private subsidised school is unevenly distributed geographically. Figure 2 divides the supply of public and private subsidised schools available in a 500-m range for each cluster of

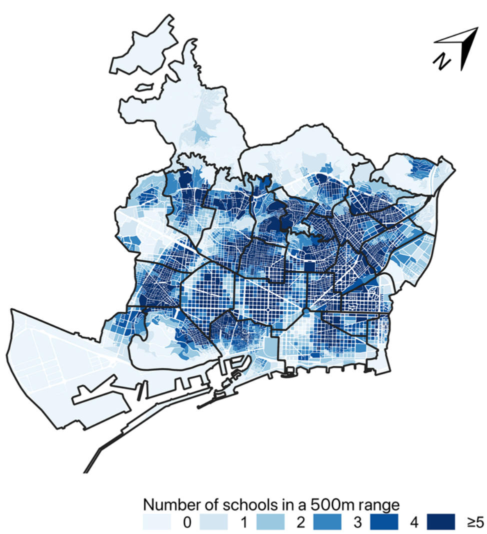

FIGURE 1 Number of schools in a 500 m range per cluster of houses in Barcelona. *Source*: Own elaboration based on CEB register data

[1] In Spain, compulsory education starts at the age of 6, when children begin primary education. However, most applications take place at the age of 3, since the system universally provides 3 years of preprimary education. Indeed, the net rate of enrolment at 3 years old is 96.8% (INE, 2020).

[2] The immediate acceptance algorithm or 'Boston mechanism' is a student placement procedure, through which students (families) list their preferences. Given the reported preferences, the allocation of school places follows an algorithm that maximises students' preferences, subject to the prespecified priorities of students at each school. Places at each school are allocated based on students' rank calculated from the algorithm (Cantillon, 2017).

[3] While these general criteria are set as a national regulation, regional and local educational authorities can establish their own indicators to define residential proximity and thresholds for household income.

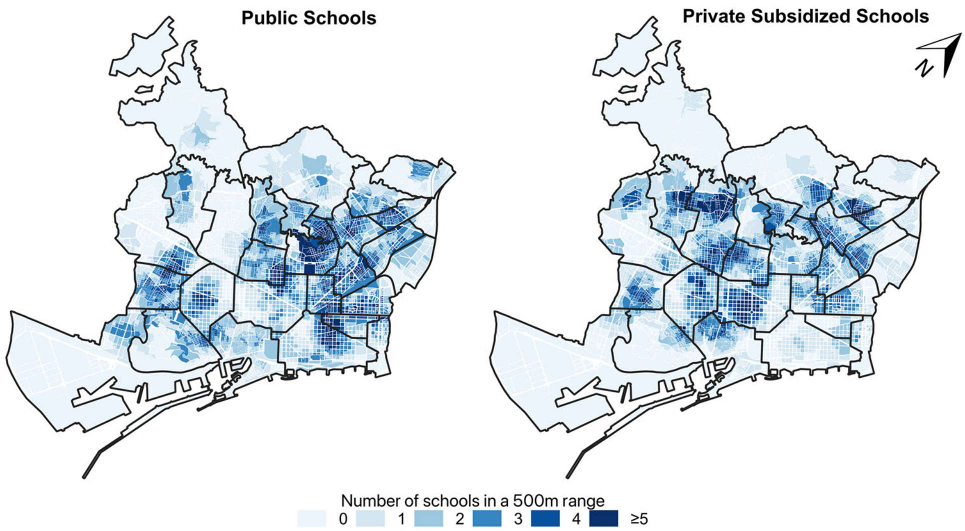

FIGURE 2 Number of public and private subsidised schools in a 500 m range per cluster of houses in Barcelona. *Source*: Own elaboration based on CEB register data

houses. The maps reveal that both public and private schools are unequally distributed in the city. The territorial imbalance is particularly marked in the case of private subsidised schools. Supply is concentrated in the centre and northwest parts of the city where the wealthier districts are located and where there are fewer public schools. In contrast, private subsidised schools are almost non-existent in peripheral areas of the city. This includes some catchment areas in the north that have a low population density.

How this unequal distribution of school supply is translated into inequalities of schooling depends on a complex interaction between several factors. Whether families opt for their children to attend the closest school, a school in the catchment area, or commute to a school outside their area may depend on the geographical distribution of schools in the city, the spatial distribution between public and private subsidised schools, the level of oversubscription of proximity schools and parental preferences for a certain type of school.

Thus, Barcelona's local education market is based on a controlled choice policy, but the particular way of considering proximity and the unequal geography of public and private schools may potentially generate high levels of student mobility and impact on the socio-economic composition of schools. The combination of residential segregation, the unequal geography of education, the presence of high number of private subsidised school (mainly Catholic) and the described institutional school choice arrangement produce a specific educational landscape of high school segregation in the city and significantly greater than residential segregation, especially with regard to the ethnic dimension (Bonal et al., 2019). Differently from Northern European or US cities, Barcelona has relatively low levels of residential segregation (as is the case of other Southern European cities). However, 'the combination of catchment areas, school choice mechanisms and segmentation of the school supply into public and private makes the system relatively segregated, even in the face of low levels of residential segregation' (Boterman et al., 2019, p. 3065).

In this context, the high diversity of the education system and the marketisation of the educational landscape given by an almost de facto open enrolment policy makes the study of the travel to school distance particularly interesting.

4 | DATA AND METHODS

The data used in the analysis are retrieved from several sources. First, information from students and schools comes from the school register of the CEB. This information is compiled from 11,557 students in their first year of school in 325 schools in the academic year 2017–2018. Variables include a wide range of individual characteristics, including the student's country of birth, whether the student is a recipient of Free School Meals (FSM) or Social Allowances (SA),[4] and the geographic coordinates of the household. We extract the geolocation of schools from the open data service (*Servei de dades obertes)* of the Barcelona City Council. Second, the education register is linked to 1068 census tracts, 233 statistical unit areas,[5] 73 neighbourhoods and 29 catchment areas in the city of Barcelona. Contextual data on the neighbourhoods come from the open data service of the Barcelona City Council, while data on 29 catchment areas come from the CEB. Third, CEB data are matched with parents' place of birth and parents' education level using city council and population registers.

Moreover, information on socioeconomic census tracts was retrieved from the Spanish Bureau of Statistics (INE, for its Spanish acronym). This bureau collects information concerning the average

[4]SAs include students in a situation of severe poverty, who receive cash transfers from the City Council.

[5]Statistical Unit Area (AEB by its acronym in Catalan), is a population, urban and socioeconomic uniform unit area in which each of the 10 districts are divided. This is composed of at least 500 voters.

income of the census tracts (*secciones censales*), which are the smallest administrative units in Spain. Barcelona is divided into 1068 census tracts, which range between 1000 and 2500 inhabitants.

The exclusion of missing and unclassifiable data left 11,168 cases; this loss represents 2.1% of student records. This is due to incomplete information mainly on parents' education records and geolocation of the household. Additionally, for students who live outside the city and who are enroled in a school in Barcelona, data are incomplete, and the inclusion could have biased the results. Thus, these records are excluded from the analysis.

4.1 | Dependent variable

This article analyses the distance to school travelled by 3-year-old preprimary students in Barcelona. Distance from home to school is an indicator of the use that families give to open enrolment schemes, and a good way to assess whether the enactment of school choice policies increases or reduces education inequalities. To examine educational choices, we calculate Euclidean and Manhattan distances from households to school.[6] Since the difference between Euclidean and Manhattan distance is not relevant, we use the Euclidean distance travelled between home and school by 3-year-old students enroled in Barcelona city schools. Thus, we only use one address for each student-school entry in our data. A shortcoming of drawing on distance is that our data might not accurately reflect the student's typical distance from school if a student frequently travels from a different address (e.g., from the home of another custodial parent or guardian). Additionally, for those students who made a permanent change to their address during the school year, but remained enroled in the same school, our results cannot reflect the distance they travel to school since their parents might not report the address change until the following school year.

4.2 | Independent variables

We use a set of individual and contextual data such as educational resources available in the neighbourhood (e.g., the number of schools within a given area) and various school composition measures which are detailed below. To have a more accurate description of the proximity area in which the students and families operate, we take advantage of the geolocation of the household to construct a proxy within 500 m from the household. The main characteristics of the variables used in the analysis are summarised in Table 1.

As the table presented above shows, the variables used in the analysis can be grouped into three different categories:

(a) *Students' socioeconomic background*. We use two proxies of the social and cultural characteristics of students. These are: foreign origin (having both parents foreign-born), and parents' education level (having at least one parent with secondary or lower education or having at least a parent with upper secondary education or higher). All these are measured as dummy variables.

(b) *Neighbourhood educational resources*. We use three variables to account for educational resources near the student's residence: number of schools within 500 m of the household, the share of public-school places within 500 m of the household, and an index of school socioeconomic composition. The total number of schools and the number of public schools within 500 m are included to account for the difference in the number of proximity school options across the different areas of the city, which can influence the distance to school travelled. The index of school socioeconomic composition relies on four underlying variables: the proportion of FSM receivers, the proportion of SA receivers, the proportion of students with foreign parents, and the proportion of students with parents with at most lower-secondary education (ISCED 2). The index includes data for only 3-year preprimary students. These indicators are combined through an iterated principal-factor method and the resulting factor is max/min transformed and changed in sign. The indicator ranges between 0 and 1.[7] Higher values of the index mean better social composition of the school.

(c) *Neighbourhood socioeconomic characteristics*. We use three proxies of neighbourhood socioeconomic characteristics: census tract median income, the coefficient of variation of the census tract median income by statistical unit area,[8] and the school composition of the proximity area, which is the average of the school composition index within 500 m range of the student's residence.[9] The census tract of median income is based on the 2017 Spanish Bureau of Statistics estimate. This defines a family as two or more related persons living in the same residence. A household includes all residences, even those with single people or unrelated groups of two or more. As for the school composition index within 500 m range, using the geolocation of schools and households, we take the average of the school composition index of those schools within 500 m of the student's residence. Thus, the resulting item indicates the school composition in the proximity area and we interpret this as an indicator of the schools' socioeconomic characteristics available within a proximity area.

[6] Euclidean or Pythagorean distance is the smallest distance between two points, while Manhattan is a distance metric between two points in an *N* dimensional vector space. It is the sum of the lengths of the projections of the line segment between the points onto the coordinate axes.

[7] Moreover, we perform exploratory and confirmatory analysis and several sensitivity analyses using different factor iteration methods, principal component and maximum-likelihood factor method. In the annexe we report the result of the factor analysis and a correlation matrix using four different specifications of the factor using principal components, iterated factor analysis and geometric mean and standard and robust Benefit of the Doubt weighting. Results show the reliability of the derived construct.

[8] This measure indicates the variability of the census tract median income within the Statistical Unit Area.

[9] School composition of proximity schools can also be understood as a variable related to educational resources. However, in our analysis we consider it as a proxy of the socioeconomic composition of the neighbourhood.

TABLE 1 Variables description

	Variables	Definition	Nature	Transformation	Source
	Distance in metres	Distance home to school	Continuous	Log	CEB, register
Students' socioeconomic background	Secondary of lower education	One of the parents has secondary or lower education (ISCED 2<)	Dummy		Census data
	Upper-secondary education	One of the parents has at least upper secondary education (ISCED 3-5B)	Dummy		Census data
	Tertiary University Degree	One of the parents has at least university certificate (ISCED 5A-8)	Dummy		Census data
	Both parents foreign	Both parents are foreigners	Dummy		CEB, register
Educational resources	Schools in 500 m	Number of Schools in 500 m range of the residence	Continuous		Own elaboration
	Public school places	Share of public-school places within 500 m range of the residence	Continuous		Own elaboration
	Public school	Student enroled in public school	Dummy		CEB, register
	School composition	Factor of school composition: the share of FSM, the share of RSA and the share of students with parents with tertiary education	Continuous	Min/max	Own elaboration
	Public supply	Total public schooling supply in the catchment area	Continuous	Log	CEB, register
Neighbourhood characteristics	Census tract household income	Census track residence median household income	Continuous	Share of the city average	INE
	CV Census tract household income	Coefficient of Variation of the Census tract household income in the statistical units' areas	Continuous		Own elaboration, based on INE
	School composition proximity area	Mean of the school composition of the schools in 500 m range of the residence	Continuous	*z* score	Own elaboration

5 | UNEQUAL OPPORTUNITIES IN THE EDUCATION MARKET

What are the characteristics of the proximity schools for different types of students? (Research question 1). Table 2 presents the average number of schools within 500 m of the student's residence, as well as the characteristics of their population. The table, inspired by Burgess et al. (2011), describes the characteristics of schools that are located near different types of families. As the table shows, the number of schools available within 500 m of the residence is very similar for all the groups of students considered (on average 4.69). This is similar across the groups analysed, although a slight difference is observed across income census tracts. On average, around 5.0 schools are located within 500 m in low- and middle-income areas, while in the richest areas, this is 3.8. In this regard, it is important to consider that, in Barcelona, the richest census tracts are generally less densely populated compared to the rest of the city. Moreover, as the second column shows, they have fewer public-school places and a higher number of private subsidised schools. On average, 31.6% of the schools in a 500-m range are public in the richest census tracts, while in the rest of the city, this percentage is greater than 56%.

Although the number of schooling options does not vary significantly with students' characteristics, there are important differences regarding the socioeconomic composition of the schools available in the proximity area. For instance, students with secondary (or lower) educated parents have proximity schools where the average percentage of secondary-level educated parents is 31.3%; for students with upper secondary or higher-level educated parents, this share is 17.7%. Similar differences are observed regarding other socioeconomic characteristics of proximity schools. Proximity schools of those students with secondary educated parents tend to concentrate higher percentages of SA, FSM and foreign students than proximity schools of students with upper secondary or higher-level educated parents.

Similarly, if we consider the characteristics of proximity schools of foreign students, SA and FSM recipients, we see

TABLE 2 Characteristics of schools within 500 m of the household

		Schools in 500 m	% of public schools in 500 m	% of school population: Lower Secondary or less parental education	SA	FSM	Foreigners
All students		**4.69**	**52.3**	**20.1**	**10**	**21.3**	**19.1**
Lower secondary or less parental education	No	4.7	51.2	17.7	8.3	18.9	17.6
	Yes	4.66	57.1	31.3	16.8	31.7	25.6
Social allowances	No	4.69	51.6	18.9	9.2	20.2	18.4
	Yes	4.58	58.7	33.4	19.3	34.1	28.3
Natives parents	No	4.66	51	18.3	8.7	19.7	17.2
	Yes	4.73	55.2	24.5	13.1	25.3	24.2
Both parents foreigners	No	4.67	51.6	9.4	9.4	20.7	18.3
	Yes	4.77	57.5	14.9	15	27.1	27.3
Free school meals	No	4.67	51.2	17.9	8.6	19	18
	Yes	4.73	56.7	30.1	16.5	31.9	24.9
Census tract income quantiles	Bottom	4.68	56.9	41.7	23.7	41.3	33.2
	2	4.87	56.7	20.9	10.5	23.8	18.8
	3	5.09	57.8	16.3	7.6	19	16.5
	4	4.95	57.8	14.3	5.7	15.3	16
	Top	3.8	31.6	7.27	2.4	7.1	11.5

Source: Own elaboration based on CEB register and INE data.

dramatic differences. The proximity schools in the areas where SA recipient students live enrol on average 28.3% of foreign students compared to the average of 19.1% in the whole city, and the proximity schools of those who are not SA recipients enrol on average 18.4% of foreigners' students. Likewise, the characteristics of the proximity schools of SA students' place of residence have a high proportion of SA students (as well as a high proportion of FSM students), significantly higher than the city's average. Differences follow the same pattern for all variables, with FSM beneficiaries' proximity schools enroling an average of 31.9% FSM students.

The unequal distribution of schools with children whose parents are upper secondary level educated, receive SA or FSM, or are foreign students, is remarkable across the income quintiles of the census tracts. For students from the lowest income quintile, the average FSM rate is 41.3%, compared to 7.1% in the richest quintile. A similar but slightly less stark difference is reported for SA and foreign students.

Figure 3 complements the information in Table 2 by plotting the average socioeconomic composition of schools within 500 m of a household per block of houses. The figure shows the highly unequal distribution of schools composition in the city. This is the result of both the unequal spatial distribution of social groups and their school choices, which results in highly unequal school characteristics within proximity areas. The darker areas in the figure show that in the northwest of the city, which is also the more affluent area, the school composition is very high and homogeneous. Additionally, the maritime area (shown in the bottom-right of the map), is one of the more recently developed city districts and is becoming increasingly gentrified. This area also shows

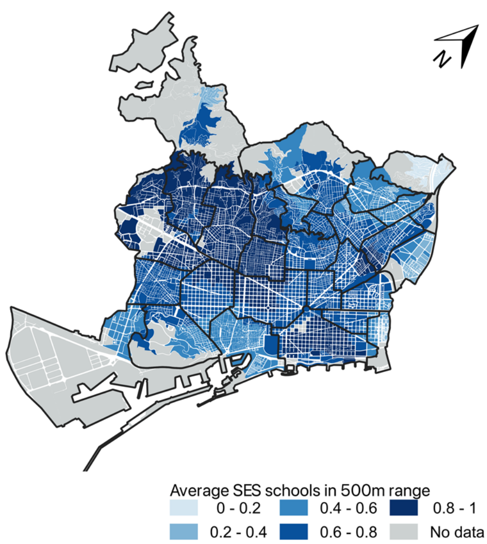

FIGURE 3 Average SES schools in a 500 m range per cluster of houses in Barcelona. *Source*: Own elaboration based on CEB register data

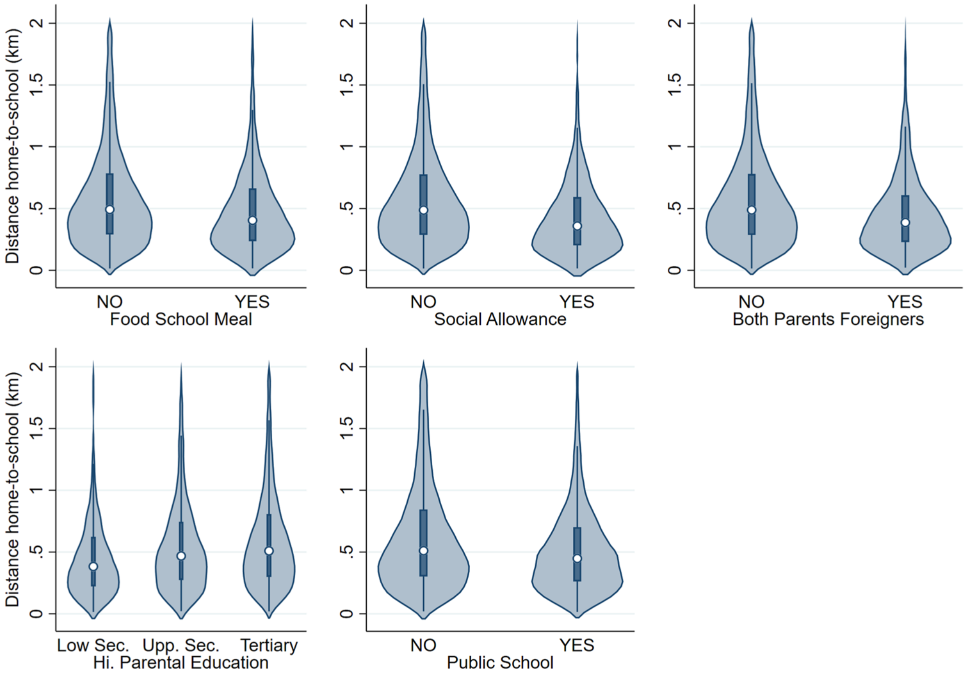

FIGURE 4 Distance travelled to school in kilometres by individual characteristics. *Source*: Own elaboration based on CEB register data

high and homogeneous school composition. In contrast, the old inner city of Barcelona (shown in the centre-bottom of the map), together with more peripheral areas, are the poorest in terms of school composition.

To summarise, we find stark differences between social groups in the composition of proximity schools and related educational supply in the local area. The figures presented in this section together with related evidence (Bonal et al., 2019) suggest that unequal distribution of school supply regarding its socioeconomic composition is considerably higher than residential segregation in Barcelona.

5.1 | Describing the drivers of mobility to school

Given the unequal distribution of educational opportunities in the city associated with the spatial differences in school composition, in this section we assess whether distance travelled to school is related to students' socioeconomic characteristics, neighbourhood socio-economic characteristics or the characteristics of proximity schools (Research question 2). As reported in Figures 4 and 5,[10] different individual and context characteristics are associated with the distance travelled to school. The figures show distance in kilometres against student characteristics using eleven violin plots.[11] The median distance travelled by students who have both parents born abroad is 0.41 km compared with 0.53 km travelled by those with at least one native parent. Additionally, the length of the bar inside the violin indicates the interquartile range, which provides a measure of the spread of the distribution. We find that the interquartile range is smaller for students with foreign-born parents indicating that these families also have smaller variability compared to those with at least one native parent. Students from families with a tertiary-level education tend to travel further (median 0.56 km) compared to those from families without tertiary-level education (0.40 km). Similar differences are observed for FSM and SA recipients compared to their peers who do not receive these social benefits. The median distance travelled by students who attend public schools is 0.47 km, which is lower than the median of those students enroled in an independent private or a private subsidised school (0.58 km). Once again, the variability is smaller for those who attend a public school.

Figure 5 analyses the relationship between the distance travelled to school against each of the independent variables included in the analysis. In the case of the social composition of the school where the student is enroled, the figure shows a positive difference across school composition deciles, indicating that those who attend schools with higher school composition travel longer distances than their peers enroled in more disadvantaged schools. For instance, the median distance travelled by students who attend schools in the bottom decile of school composition is 0.34 km, whereas for those at the top the median is 0.84 km. Interestingly, the relationship is positive with the dispersion of the distance travelled: the higher the school composition, the larger the variability in the distance travelled.

[10]Table A3 in the annex provides descriptive statistics for Figures 4 and 5, while A1 provides univariates statistics for all the variables.

[11]We choose this way to report more clearly the shape of the distribution of each variable used in the analysis. We cut the plot at 2 km distance to increase readability. The full tables are reported in A3.

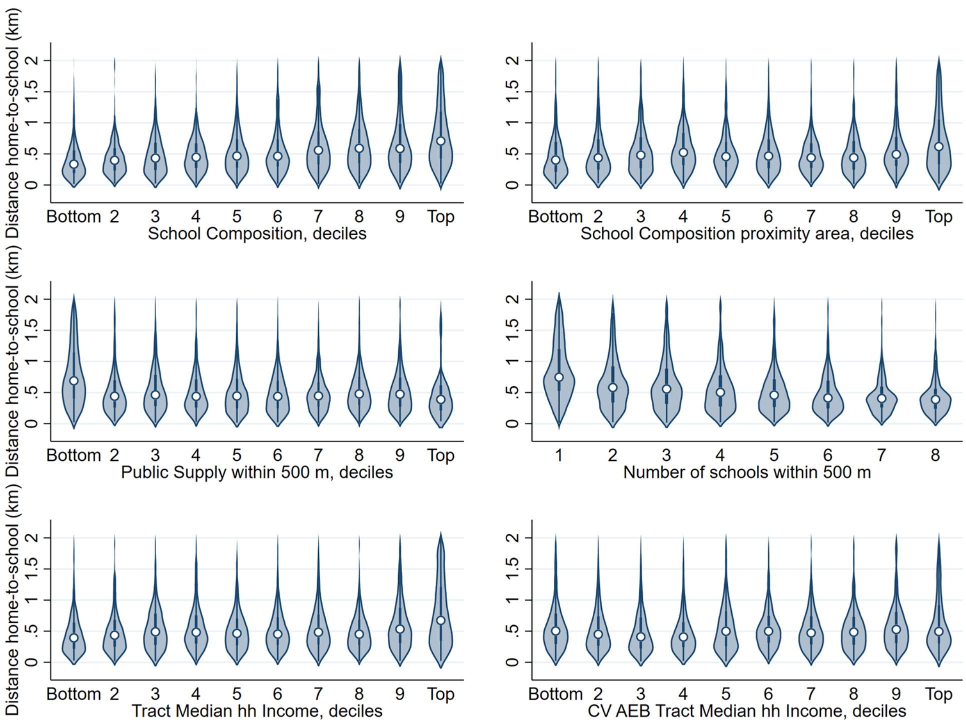

FIGURE 5 Distance travelled to school in kilometres by contextual characteristics. *Source*: Own elaboration based on CEB register and INE data

The school composition of the proximity schools (within 500 m of their place of residence) is also positively related to the distance travelled. However, the average of school composition in the proximity area captures all the available options of schooling within the area of residence and therefore discriminates less compared to the actual school where students are enroled. This difference underlines the fact that while family preferences reveal a linear relationship between distance travelled and school composition, school choice varies depending on the specific characteristics of microlocal education markets. Interestingly, the variability is higher in the 9th and 10th deciles, and also in the 3rd and 4th deciles of the average social composition of proximity schools. Likewise, we find stark differences when examining the average distance to school across deciles of income of the census tracts. Additionally, when examining the public-school supply within 500 m of the household, we find that the median distance travelled by those who live in the bottom decile is higher by approximately 0.3 km compared to the rest. Finally, there is a negative relationship, as might be expected, between the distance to school and the number of schools available in the local area. Those who have one school within 500 m of their home travel 0.84 km, whereas the median home-to-school distance of the normative group (i.e., those who have five schools within 500 m) is 0.49 km. At descriptive level, there is not clear difference in distance to school travelled among deciles of the coefficient of variation of the median household income.

5.2 | Estimating the effect of socioeconomic, educational, and neighbourhood characteristics on mobility to school

To carry out an in-depth analysis of the individual, neighbourhood educational resources and neighbourhood socioeconomic characteristics that influence the distance travelled to school (third research question), we have estimated six multilevel models in which the distance travelled to school is the dependent variable (Table 3). Such models are well equipped to consider the nested structure of the data, since in our case, students are grouped into 325 schools. The analysis starts by estimating the unconditional model to show the relevance of using such a framework. The intraclass correlation (ICC) measures the ratio of between-school variation to the total variation. We find that variance in the mean distance travelled across students, but within schools, is higher than between school variance. The total variance attributable to differences between schools accounts for 34.5% of the total variance.

Regarding socioeconomic and educational individual characteristics (Model 2), results show that having both parents from a foreign country is significantly and negatively related to the distance travelled to school. The estimate is consistent across all the models, but it is mediated by the socioeconomic composition of the school where the student is enroled, and the composition of the schools located in his/her residential neighbourhood. Indeed, there is a reduction in the size of the estimate between Models 3 and 6 of 21%. Parents' education does not appear to be related to the home–school distance

TABLE 3 Multilevel model of individual and local education market drivers of distance to school

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Both parents foreign		−0.103***	−0.0942***	−0.0953***	−0.0949***	−0.0864***	−0.0753**
		−0.0261	−0.0259	0.0254	0.0253	0.025	0.0249
Parental education							
Secondary or lower		−0.00176	−0.0159	−0.0519**	−0.0522**	−0.0674**	−0.0489**
		−0.023	−0.0229	0.0226	0.0226	0.0223	0.0223
Upper secondary		0.028	0.0217	0.00699	0.00585	−0.00837	−0.0023
		−0.0189	−0.0187	0.0184	0.0183	0.0181	0.0181
Tertiary		ref.	ref.	ref.	ref.	ref.	ref.
Attending public school		−0.230***	−0.273***	−0.337***	−0.340***	−0.359***	0.0872
		−0.0626	−0.0636	0.0724	0.0729	0.0813	0.0751
Schools in 500 m							
1			0.293***	0.398***	0.395***	0.348***	0.352***
			−0.0439	0.0435	0.0434	0.0429	0.0427
2			0.188***	0.231***	0.238***	0.203***	0.204***
			0.0303	0.0298	0.0298	0.0294	0.0293
3			0.114***	0.122***	0.133***	0.116***	0.116***
			0.027	0.0264	0.0265	0.0261	0.0261
4			0.0465	0.0598*	0.0616*	0.0563*	0.0576*
			0.026	0.0255	0.0255	0.0251	0.025
5			ref.	ref.	ref.	ref.	ref.
6			−0.0324	−0.0313	−0.0302	−0.0311	−0.0314
			0.0253	0.0248	0.0248	0.0244	0.0244
7			−0.0509	−0.051	−0.0486	−0.0388	−0.0393
			0.0282	0.0276	0.0276	0.0272	0.0271
8 or more			−0.0993**	−0.0965**	−0.0952**	−0.0794*	−0.0779*
			0.0332	0.0326	0.0325	0.032	0.032
Ratio of public supply			0.337***	0.216***	0.214***	0.101**	0.0827**
			0.0318	0.0319	0.0319	0.0322	0.0321
Tract hh Income				−0.655***	−0.644***	−0.451***	−0.452***
				0.0336	0.0337	0.0356	0.0355
Tract hh Income, cv AEB					−0.724***	−0.595***	−0.590***
					0.163	0.161	0.16
School comp.						−1.269***	2.114***
						0.0765	0.167
School comp. proximity area							−1.392***
							0.0772
Constant	6.194***	6.317***	6.293***	6.298***	6.295***	6.294***	6.147***
	−0.032	−0.046	0.0495	0.0553	0.0557	0.0615	0.0527
sd(schools)	0.550***	0.536***	0.545***	0.626***	0.631***	0.710***	0.575***
	−0.0234	−0.023	0.0235	0.0269	0.0271	0.0307	0.0247

(Continues)

TABLE 3 (Continued)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
sd(residuals)	0.756***	0.752***	0.742***	0.726***	0.726***	0.714***	0.714***
	−0.00513	−0.00523	0.0052	0.00509	0.00508	0.005	0.005
ICC	0.3464	0.3364	0.3499	0.4264	0.4307	0.4972	0.3938
	0.0195	0.0195	0.0199	0.0214	0.0214	0.0219	0.0208
N	11,168	10,644	10,527	10,527	10,527	10,527	10,527

Note: All the variables are mean centred apart from both parents foreigner and parental education.

Source: Own elaboration based on CEB register and INE data.

travelled when only socioeconomic and educational characteristics are taken into account. However, in Model 4, when we account for neighbourhood socioeconomic characteristics, the distance travelled by students with low educated parents (secondary or lower) is statistically significantly lower than students with higher educated parents. Model 2 also shows a significant negative effect of attending a public school. However, when school and neighbourhood educational and socioeconomic characteristics are included (Model 7), its effect size is sharply reduced, and it is no longer statistically significant.

In Model 3, we add a set of dummy variables indicating the number of schools available within 500 m of the student household. The category of reference is the normative one having five schools within a 500-m range. We find a positive and significant association with the distance travelled to school among students with four or fewer schools available compared to those with five available in a 500-m range. Nevertheless, only those who have eight or more schools available within their proximal area show a statistically significant reduction in the distance travelled compared to the reference category. The ratio of public supply is also positively associated with the distance travelled to school. However, its size effect is significantly reduced when neighbourhood characteristics are taken into account. This can be explained by the fact that neighbourhood characteristics not only affect the distance travelled to school, but also the possibility of accessing the most socially advantaged schools within the public sector. Furthermore, we find a negative effect between the level of tract median household income and the distance travelled. This shows that people living in more affluent areas tend to travel shorter distances to school. As shown in Models 5, 6, and 7, the effect of the tract median household income is mediated by the composition of the proximity school area, since the size of this coefficient diminishes by 30% in Model 6 compared to Model 4. We find also that those living in areas with higher dispersion of income tend to travel shorter distance to school (Model 5). This effect is mediated by the school composition and the school composition of the proximity area, which reduce a 19% its effect size.

When we introduce the composition of the attended school in Model 6, we find a strong and positive correlation between this variable and the distance travelled to school. This shows that those students attending more socioeconomically advantaged schools are more likely to travel longer distances, which demonstrates the role that schools' composition plays in attracting students and influencing their mobility patterns. However, when introducing the neighbourhood's school composition (Model 7), this variable mediates and strongly reduces the attraction effect of the composition of the school attended. In fact, living in a more affluent educational area produces a 66% reduction in the effect exerted by school composition to travel long distances.

To sum up, and in response to the third research question, the results of the multilevel model show that the distance travelled to school is certainly affected by students' socioeconomic characteristics (immigrant origin or level of parental education). However, the social composition of the attended school and the neighbourhood characteristics have a stronger effect on student mobility patterns. What these results show is that high choice of schools (as in the case of Barcelona) does not translate automatically into higher levels of mobility. Distance travelled to school is mediated by the educational and social contexts of the areas where students reside.

6 | DISCUSSION AND CONCLUSION

Research has provided significant evidence on how unequal geographies of educational supply and demand interact to produce different choice opportunities and different student mobility patterns (Burgess et al., 2017; Kuyvenhoven & Boterman, 2020; Oberti & Savina, 2019). This body of evidence has challenged the supposed virtues of open enrolment policies, and it has highlighted the difficulties in balancing school choice and equity (OECD, 2019). However, for more accurate explanation of how spatial education inequalities are reproduced, we need to understand the interaction between student social background and the characteristics of the school and the neighbourhood. This article has demonstrated how this interaction produces highly heterogeneous mobility patterns. Distance travelled to school certainly depends on the social characteristics of choosers and their bounded rationalities of school choice. Socially advantaged students tend to travel longer distances compared to their peers from lower socioeconomic backgrounds. However, this relationship is significantly mediated by educational and neighbourhood factors. For instance, living in wealthier areas eliminates mobility incentives, as schools around residential areas have socially advantaged and more homogeneous social composition than average. Likewise, students facing more mobility restrictions (either geographical or economic) may have fewer mobility opportunities, despite living in areas with a more disadvantaged school composition. Together, these situations produce many combinations resulting from the neighbourhood characteristics, the provision of public schooling options, the type of school supply, and the socioeconomic status of the student. Since families' choice sets are geographically constrained, microlocal educational markets produce high heterogeneity in mobility patterns. Our findings are aligned with several studies that have underlined the crucial role of the geography of education to understand school choice and distances travelled to school in other cities. Access to good schools combined with mobility restrictions are key factors to understand choice opportunities (Andersson et al., 2012; Burgess et al., 2011; Hamnett & Butler, 2011; Oberti, 2007). Certainly, people's place of residence is a determinant of educational opportunities, but the neighbourhood and the educational characteristics close to where people's live may activate different strategies of school choice that add high complexity to the relationship between choice and distance (Malmberg et al., 2014). The capacity of parents to work the school admissions system or the information or transport costs of exercising choice enable some families better than others to bypass local schools (Burgess & Briggs, 2010, p. 647).

The interaction between individual, educational and neighbourhood characteristics and distance is complex and is influenced by many mediating factors. Factors that appear significant in a bivariant analysis lose their effects when included together with the educational and social characteristics of proximity schools, and vice versa. This reveals the crucial role of family strategies in school choice. Different rationalities of school choice (Bosetti, 2004) are activated depending on people's social position and specific socialisation strategies in specific urban settings (Lareau, 2014). These differences make people to activate their spatial capital in different ways, and opt in or opt out of local school accordingly.

Although Barcelona adopts a controlled system in an attempt to equalise school choice options, educational opportunities and travel-to-school patterns are far from being equally distributed among social groups. These mobility patterns generate higher levels of school segregation than would result from choosing neighbourhood schools or schools within the catchment area (Bonal et al., 2020). Exerting school choice increases education inequalities and at the same time generates conditions for its reproduction. As our analysis shows, the search for better school composition drives decisions on travel-to-school distance. These decisions, in turn, increase segregation processes that influence subsequent school choice processes.

The concepts of positional and situational capital coined by Lévy (1994) appear to be relevant to interpret our findings. The unequal geographies of education, as shown in Figure 3, provide choosers with different positional opportunities. In addition, differences observed in mobility patterns illustrate how situational capital is also unequally distributed. There is, therefore, a double spatial inequality derived from the different possibilities to mobilise both sorts of capital. Paradoxically, while open enrolment policies may attempt to neutralise inequalities in positional capital, different situational assets end up making inequalities even greater.

The unequal capacity to mobilise spatial capital become even more determinant in contexts of increasing gentrification. However, the relationship between student mobility and neighbourhood gentrification is not a linear one. While some studies show higher levels of white flight in gentrified neighbourhoods (Candipan, 2019; Pearman, 2019), others provide evidence of simultaneous processes of white flight and 'integration' in local schools by middle classes in gentrified neighbourhoods (Boterman, 2020; Posey-Maddox et al., 2016). These complex responses are contingent on the neighbourhood and educational resources, a result that is better aligned with the many mediating factors that we find in our study.

Our findings are undoubtedly relevant for educational policy and planning. First, ensuring a minimum number of schools as 'neighbourhood' or proximity schools to equalise choice opportunities does not improve education equity. Differences in the spatial distribution of schools and differences in spatial capital increase the polarisation of the social composition of schools. If schools are not equivalent in their quality and social composition, having a minimum number of options appears to be insufficient as a fair policy. Second, and as a consequence, policies that boost market mechanisms in education, such as increasing school choice opportunities, would need to take into account key aspects that are rarely included when policies are designed, such as the heterogeneous geographies of education, the unequal spatial capital of the choosers and the different school choice rationalities. If equity and school choice have to be balanced, then other variables must be accounted for in the policy design equation. Finally, the heterogeneity of educational geographies, the microdecisions of choosers and the cleavage between social groups puts into question the appropriateness of unique policy instruments for different local educational markets within the same city. The diversity of mechanisms that drive choosers to opt out of neighbourhood schools, choose a public or private school, or travel longer distances, explains why the same policy devices impact differently in different territories and for different social groups. The fact that choosers behave in many ways under the same policy conditions underlines the need for more flexible and context-sensitive policy designs to neutralise or compensate for the unintended effects on education inequalities. This flexibility may affect decisions that alter educational supply or constrain or widen school choice when needed (e.g., by designing catchment areas under different criteria).

This article shows the potential of spatial analysis to better understand how the interaction between educational supply and demand produce different mobility patterns. Despite some limitations to our approach (such as the absence of data on transportation costs), our findings underline the complex effects of controlled choice systems and their shortcomings as a policy strategy to achieve education equity. As recent evidence indicates, the combination of more freedom for families to choose a school and different opportunities to access different school types can negatively impact on equity, particularly in terms of school segregation (Eurydice, 2020, p. 15). This combination is clear in the case of Barcelona, where high levels of school choice coincide with significant diversity of schools regarding their public or private ownership and their social composition. Therefore, the success of market-led educational reforms as a path towards equity is not supported by evidence. This finding indicates that policymakers should reconsider what have become mainstream policy options over the past decades.

ACKNOWLEDGEMENTS

We would like to thank the Consorci d'Educació de Barcelona for their support and access to databases. Rosario Scandurra also acknowledges the support of the Juan de la Cierva Incorporación Programme (Ref. IJC2019-040056-I). Adrian Zancajo also acknowledges the support of the British Academy Postdoctoral Fellowship (PF2\180006).

AUTHOR CONTRIBUTION

All authors contributed to the manuscript equally.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from Consorci d'Educació de Barcelona. Restrictions apply to the availability of these data, which were used under license for this study. Data are available upon request to the authors with the permission of Consorci d'Educació de Barcelona.

ORCID

Rosario Scandurra http://orcid.org/0000-0003-1756-2694
Adrián Zancajo http://orcid.org/0000-0002-4431-8155

REFERENCES

Alegre, M. A., & Benito, R. (2012). 'The best school for my child?' Social geographies of school choice in Barcelona. *British Journal of Sociology of Education*, *33*(6), 849–871.

Andersson, E., Malmberg, B., & Östh, J. (2012). Travel-to-school distances in Sweden 2000–2006: Changing school geography with equality implications. *Journal of Transport Geography*, *23*, 35–43.

Ball, S. J., Bowe, R., & Gewirtz, S. (1995). Circuits of schooling: A sociological exploration of parental choice of school in social class contexts. *The Sociological Review*, *43*(1), 52–78.

Barthon, C., & Monfroy, B. (2010). Sociospatial schooling practices: A spatial capital approach. *Educational Research and Evaluation*, *16*(2), 177–196.

Bayona-i-Carrasco, J., & Domingo, A. (2021). School segregation of migrants and their descendants in a dual school system: The case of Barcelona. *Population Space and Place*, *27*. https://doi.org/10.1002/psp.2446

Bell, C. (2009). Geography in parental choice. *American Journal of Education*, *115*(4), 493–521.

Ben-Porath, S. R. (2009). School choice as a bounded ideal. *Journal of Philosophy of Education*, *43*(4), 527–544.

Benson, M., Bridge, G., & Wilson, D. (2015). School choice in London and Paris—A comparison of middle-class strategies. *Social Policy and Administration*, *49*(1), 24–43.

Billingham, C. M., & Hunt, M. O. (2016). School racial composition and parental choice. *Sociology of Education*, *89*(2), 99–117.

Bonal, X., Verger, A., & Zancajo, A. (2017). Making poor choices? Demand rationalities and school choice in a chilean local education market. *Journal of School Choice*, *11*(2), 258–281. https://doi.org/10.1080/15582159.2017.1286206

Bonal, X., & Zancajo, A. (2018). Demand rationalities in contexts of poverty: Do the poor respond to market incentives in the same way? *International Journal of Educational Development*, *59*, 20–27. https://doi.org/10.1016/j.ijedudev.2017.10.001

Bonal, X., Zancajo, A., & Scandurra, R. (2019). Residential segregation and school segregation of foreign students in Barcelona. *Urban Studies*, *56*(15), 3251–3273. https://doi.org/10.1177/0042098019863662

Bonal, X., Zancajo, A., & Scandurra, R. (2020). Student mobility and school segregation in an (un)controlled choice system: A counterfactual approach. *British Educational Research Journal*. https://doi.org/10.1002/berj.3694

Bosetti, L. (2004). Determinants of school choice: Understanding how parents choose elementary schools in Alberta. *Journal of Education Policy*, *19*(4), 387–405.

Bosetti, L., & Pyryt, M. C. (2007). Parental motivation in school choice: Seeking the competitive edge. *Journal of School Choice*, *1*(4), 89–108.

Boterman, W., Musterd, S., Pacchi, C., & Ranci, C. (2019). School segregation in contemporary cities: Socio-spatial dynamics, institutional context and urban outcomes. *Urban Studies*, *56*(15), 3055–3073.

Boterman, W. R. (2013). Dealing with diversity: Middle-class family households and the issue of "Black" and "White" schools in Amsterdam. *Urban Studies*, *50*(6), 1130–1147.

Boterman, W. R. (2020). School choice and school segregation in the context of gentrifying Amsterdam. *Housing Studies*, 1–22. https://doi.org/10.1080/02673037.2020.1829563

Burdick-Will, J., Grigg, J. A., Nerenberg, K. M., & Connolly, F. (2020). Socially-structured mobility networks and school segregation dynamics: The role of emergent consideration sets. *American Sociological Review*, *85*(4), 675–708.

Burgess, S., & Briggs, A. (2010). School assignment, school choice and social mobility. *Economics of Education Review*, *29*(4), 639–649.

Burgess, S., Greaves, E., & Vignoles, A. (2017). *Understanding parental choices of secondary school in England using national administrative data*. Discussion Paper 17/689. Department of Economics. University of Bristol. http://www.efm.bris.ac.uk/economics/working_papers/pdffiles/dp17689.pdf

Burgess, S., Greaves, E., Vignoles, A., & Wilson, D. (2011). Parental choice of primary school in England: What types of school do different types of family really have available to them? *Policy Studies*, *32*(5), 531–547.

Butler, T., & Hamnett, C. (2007). The geography of education: Introduction. *Urban Studies*, *44*(7), 1161–1174.

Butler, T., & van Zanten, A. (2007). School choice: A European perspective. *Journal of Education Policy*, *22*(1), 1–5.

Candipan, J. (2019). Neighbourhood change and the neighbourhood-school gap. *Urban Studies*, *56*(15), 3308–3333.

Candipan, J. (2020). Choosing schoolsin changing places: Examining school enrollment in gentrifying neighborhoods. *Sociology of Education*, *93*(3), 215–237.

Cantillon, E. (2017). Broadening the market design approach to school choice. *Oxford Review of Economic Policy*, *33*(4), 613–634.

Cascio, E., Gordon, N., Lewis, E., & Reber, S. (2008). From brown to busing. *Journal of Urban Economics*, *64*(2), 296–325.

CEB. (2012). *Inici del curs escolar 2012-2013. Dossier de premsa*. Consorci d'Educació de Barcelona. https://www.edubcn.cat/rcs_gene/extra/01_sala_de_premsa/0_Dossier_premsa_inici_curs_2012_13.pdf

CEB. (2020). *Alumnat curs 2019-20. Tots els ensenyaments*. Consorci d'Educació de Barcelona.

Chubb, J., & Moe, T. (1990). *Politics, markets & America's schools*. The Brookings Institution.

Chumacero, R. A., Gómez, D., & Paredes, R. D. (2011). I would walk 500 miles (if it paid): Vouchers and school choice in Chile. *Economics of Education Review*, *30*(5), 1103–1114.

Dumay, X., & Dupriez, V. (2008). Does the school composition effect matter? Evidence from Belgian data. *British Journal of Educational Studies*, *56*(4), 440–447.

Easton, S., & Ferrari, E. (2015). Children's travel to school-the interaction of individual, neighbourhood and school factors. *Transport Policy*, *44*, 9–18.

Elacqua, G., Martínez, M., Salazar, F., & Santos, H. (2011). Geografía de las oportunidades educacionales en Chile. *Instituto de Políticas Publicas, Universidad Diego Portales*, 1–16.

Ely, T. L., & Teske, P. (2015). Implications of public school choice for residential location decisions. *Urban Affairs Review*, *51*(2), 175–204.

Eurydice. (2020). *Equity in school education in Europe: Structures, policies and student performance*. Eurydice report. Publications Office of the European Union.

Ferrari, E., & Green, M. A. (2013). Travel to school and housing markets: A case study of Sheffield, England. *Environment and Planning A*, *45*(11), 2771–2788.

Fjellman, A. M., Yang Hansen, K., & Beach, D. (2019). School choice and implications for equity: The new political geography of the Swedish upper secondary school market. *Educational Review*, *71*(4), 518–539.

Gulosino, C., & Lubienski, C. (2011). School's strategic responses to competition in segregated urban areas: Patterns in school locations in metropolitan Detroit. *Education Policy Analysis Archives/Archivos Analíticos de Políticas Educativas*, *19*, 1–29.

Hamnett, C., & Butler, T. (2011). "Geography matters": The role distance plays in reproducing educational inequality in East London. *Transactions of the Institute of British Geographers*, *36*(4), 479–500.

He, S. Y., & Giuliano, G. (2018). School choice: Understanding the trade-off between travel distance and school quality. *Transportation*, *45*(5), 1475–1498.

Holt, L., Bowlby, S., & Lea, J. (2019). Disability, special educational needs, class, capitals, and segregation in schools: A population geography perspective. *Population Space and Place*, *25*, e2229. https://doi.org/10.1002/psp.2229

Hoxby, C. M. (2003). *The economics of school choice*. University of Chicago Press.

Ichou, M., & van Zanten, A. (2019). France: The increasing recognition of migration and ethnicity as a source of educational inequalities. In P. Stevens, & G. Dworkin (Eds.), *The Palgrave handbook of race and ethnic inequalities in education*. Palgrave MacMillan.

INE. (2020). *Las Cifras de la Educación en España. Estadísticas e Indicadores*. Instituto Nacional de Estadística.

Kuyvenhoven, J., & Boterman, W. (2020) Neighbourhood and school effects on educational inequalities in the transition from primary to secondary education in Amsterdam. *Urban Studies*. https://doi.org/10.1177/0042098020959011

Kye, S. H. (2018). The persistence of white flight in middle-class suburbia. *Social Science Research*, *72*, 38–52.

Lareau, A. (2014). Schools, housing, and the reproduction of inequality. In A. Lareau, & K. Goyette (Eds.), *Choosing homes, choosing schools*. Russels Sage Foundation.

Ledwith, V., & Reilly, K. (2013). Two tiers emerging? School choice and educational achievement disparities among young migrants and non-migrants in Galway city and urban fringe. *Population Space and Place*, *19*, 46–59. https://doi.org/10.1002/psp.1708

Lévy, J. (1994). *L'espace légitime Sur la dimension géographique de la fonction politique*. Les Presses de Sciences Po.

Lubienski, C., & Dougherty, J. (2013). Mapping educational opportunity: Spatial analysis and school choices. *American Journal of Education*, *115*(4), 485–491.

Makris, M. V. (2018). The chimera of choice: Gentrification, school choice, and community. *Peabody Journal of Education*, *93*(4), 411–429.

Malmberg, B., Andersson, E. K., & Bergsten, Z. (2014). Composite geographical context and school choice attitudes in sweden: A study based on individually defined, scalable neighborhoods. *Annals of the Association of American Geographers*, *104*(4), 869–888.

MEFP. (2019). *Sistema estatal de indicadores de la educación*. Ministerio de Educación y Formación Profesional.

Mordechay, K., & Ayscue, J. B. (2020). Does neighborhood gentrification create school desegregation? *Teachers College Record*, *122*(5), 111–135.

Musterd, S. (2005). Social and ethnic segregation in Europe: Levels, causes, and effects. *Journal of Urban Affairs*, *27*(3), 331–348.

Oberti, M. (2007). Social and school differentiation in urban space: Inequalities and local configurations. *Environment and Planning A*, *39*(1), 208–227.

Oberti, M., & Savina, Y. (2019). Urban and school segregation in Paris: The complexity of contextual effects on school achievement: The case of middle schools in the Paris metropolitan area. *Urban Studies*, *56*(15), 3117–3142.

OECD. (2012). *Equity and quality in education: Supporting disadvantaged students and schools*. Author.

OECD. (2019). *Balancing school choice and equity: An international perspective based on Pisa*. Author.

Pearman, F. (2019). Gentrification, geography, and the declining enrollment of neighborhood schools. *Urban Education*, *55*(2), 183–215.

Posey-Maddox, L., Kimelberg, S. M. D., & Cucchiara, M. (2016). Seeking a 'critical mass': Middle-class parents' collective engagement in city public schooling. *British Journal of Sociology of Education*, *37*(7), 905–927.

Ramond, Q., & Oberti, M. (2020). Housing tenure and educational opportunity in the Paris metropolitan area. *Housing Studies*, 1–21. https://doi.org/10.1080/02673037.2020.1845304

Schneider, M., Teske, P., & Marschall, M. (2000). *Choosing schools: Consumer choice and the quality of American school*. Princeton University Press.

Sykes, B. (2011). *Spatial order and social position*. University of Amsterdam.

Sykes, B., & Musterd, S. (2011). Examining neighbourhood and school effects simultaneously: What does the Dutch evidence show? *Urban Studies*, *48*(7), 1307–1331.

Wilson, D., & Bridge, G. (2019). School choice and the city: Geographies of allocation and segregation. *Urban Studies*, *56*(15), 3198–3215.

Zancajo, A., & Bonal, X. (2020). Education markets and school segregation: A mechanism-based explanation. *Compare: A Journal of Comparative and International Education*, 1–18. https://doi.org/10.1080/03057925.2020.1858272

Zancajo, A., Fontdevila, A., Verger, A., & Bonal, X. (2021). *Regulating public-private partnerships, governing non-state schools: An equity perspective*. Background paper prepared for the 2021 Global Education Monitoring Report.

van Zanten, A. (2009). Competitive arenas and schools' logics of action: A European comparison. *Compare*, *39*(1), 85–98.

SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

How to cite this article: Scandurra, R., Zancajo, A., & Bonal, X. (2021). Opting out of neighbourhood schools: The role of local education markets in student mobility. *Population, Space and Place*, e2542. https://doi.org/10.1002/psp.2542