



What Works in Education?

Using Evidence to Improve Education

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School Choice and Allocation Policies: What Effects Do They Have on School Segregation?

Miquel Àngel Alegre

School segregation is a major education problem. Whether a question of socioeconomic segregation, academic segregation or segregation of newly arrived immigrants, we are faced with a situation that renders schooling conditions for schools and students unequal. It is for this reason that we wish to determine what works (and what does not) in addressing the issue, focusing on the mechanisms aimed at managing the school choice and allocation process. Zoning, quotas, vouchers, information actions, “alternative” schools, allocation algorithms... what do we know about their effectiveness? And what can we learn from the evidence with a view to designing better anti-segregation policies in Catalonia?

“For too long, education has been based on inertia and tradition, and changes in educational intuitions or beliefs were unfounded. The ‘what works’ movement enters into the world of education with a clear objective: to promote evidence-based educational policies and practices. Ivàlua and the Jaume Bofill Foundation join forces to promote the movement in Catalonia.”



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School Choice and Allocation Policies: What Effects Do They Have on School Segregation?



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Motivation

The phenomenon of school segregation, understood as the situation in which schools in the same territory educate markedly different student profiles, jeopardizes the principle of equal opportunities intrinsic to education. Whether a question of segregation of a socioeconomic, academic or “ethnic” nature, the fact is that we are faced with a situation that renders schooling conditions unequal between schools and between students. From the point of view of educational outcomes, two adverse effects are generally produced [1].

- a) Educational inequality is increased. Peer effects cause privileged or disadvantaged students to have poorer academic performance in a mostly disadvantaged school than in a heterogeneous or mostly privileged school.
- b) The network’s overall effectiveness is diminished. The peer effects are asymmetrical: for a privileged student, being schooled in a mostly privileged school or a heterogeneous school does not make as much difference as for a disadvantaged student attending a heterogeneous or mostly disadvantaged school. There is hence more to gain than to lose from reducing segregation.

On the contrary, reducing school segregation may be conducive to more efficient management of the schools' material and human resources. By balancing schools' social composition, the teaching needs and the teaching staff's capacity to perform their role are balanced and, ultimately, accountability is created. Certain unwanted incentives that drive certain teachers towards certain school profiles are counteracted [2]. In the case of families, less segregation implies less concern over the schools' social composition when choosing a school and greater emphasis on selection criteria based on the schools available or on proximity [3].

In Catalonia, the issue of school segregation is palpable at different levels. For instance, data from the 2013-2014 academic year regarding the school distribution of immigrant students reveals:¹ firstly, in most municipalities, the levels of school segregation in primary and secondary education exceed the levels of urban segregation; secondly, although there is segregation between public and private schools, the phenomenon mostly takes place within each school ownership sector; thirdly, the bulk of school segregation occurs within municipalities, rather than between municipalities; fourthly, there is no significant correlation between the municipalities' level of school segregation and the extent of migration; fifthly, the general level of segregation has remained fairly stable since 2008 [4].

In brief, school segregation (for socioeconomic, academic or immigration reasons) is a major education issue; hence, we wish to ascertain what works when it comes to addressing the matter.² Many factors can exert an impact on the manner in which students are distributed across schools. To begin with, in a framework in which allocation is not forced and schools have a certain degree of pedagogical autonomy, evidently, the education proposed and the school's quality, coupled with their resources, play a primordial role. However, focus will not be placed on the supply, but rather on regulating the demand for schools. Hence, **we will discuss the effectiveness of different management policies and tools in the execution of school choice and allocation**, focusing on compulsory (or universal) stages and providing evidence-based arguments, in an effort to avoid the ideological background that often fuels the debate surrounding these policies.

School segregation (for socioeconomic, academic or immigration reasons) is a major education issue; hence, we wish to ascertain what works when it comes to addressing the matter.



1 Enrollment information is not available in Catalonia that would allow the levels of socioeconomic segregation of schools, within and between municipalities, to be calculated.

2 This focus on segregation as an attention variable is a distinctive feature compared to previous articles in the "What Works" series, which revolve around students' educational performance as a useful outcome.

What policies are we talking about

There are many types of policies and mechanisms that regulate the school choice and allocation process and not all of them pursue the same goal, namely, the objectives of planning and matching supply and demand, satisfying preferences and, in terms of equality, managing the balance in schooling conditions and in the social composition of the different schools.

Of the set of policies that could be included in this category (school choice and allocation policies or school admissions policies will be discussed interchangeably)³, this article focuses on those initiatives or regulations of which there is robust evidence of impact, that is, policies that have been evaluated based on their effects on regulating school segregation processes in primary and secondary education, mainly segregation on socioeconomic or ethnic grounds or based on prior attainment.

This article focuses its attention on the policies and regulations that have been evaluated, based on their effects on regulating school segregation processes.



This perspective will bring us to discuss the following instruments of action or areas of regulation:

- **Proximity-based allocation.** Here so-called zoning policies will be discussed, which define, on the one hand, the priority granted to school admission applications based on their proximity to the family home, and on the other hand, the design (demarcation and size) of the schools' catchment areas.
- **Selective schools and/or schools with no zone restrictions.** Among the various features that characterize the make-up of the schools available and the school network and that may be related to patterns of school segregation, we will focus on the effect potentially borne on these patterns by the presence in the area of schools with no zone restrictions on admission and/or with the capacity to select some of their students.
- **Reserve of places or quota policies.** We will afford attention to the effectiveness of those policies that set aside a certain number of places for specific groups at different schools, generally students with socioeconomic or educational deficiencies. These policies are based on establishing either minimum or maximum quotas.
- **School voucher policies.** We refer to programs that grant a monetary transfer to families that they can exchange for their children's education in one school or another. The goal of this mechanism is to broaden the scope of choice for families beyond what would be granted by the proximity-based allocation criterion. The vouchers can be direct transfers to the family or "virtual" transfers (received by the school according to the student enrolled), or can be universal, targeted or progressive, depending on whether their allocation and amount are adapted according to the characteristics of the families' needs.

³ For a comprehensive list of these policies and actions in Catalonia, please see the report by the Síndic de Greuges (Catalan Ombudsman) [4].

- **Information actions.** These entail the actions aimed at informing families of the different elements to be taken into consideration in the school choice process: from the guidance and empowerment of those families that may encounter more difficulties in accessing and managing pertinent information as regards school choice, to the public dissemination of the schools' academic performance. We will be interested in determining which actions have been analyzed from the point of view of their effects on school segregation and what such analyses reveal to us.
- **School allocation algorithms.** Finally, we will discuss the mechanisms employed by the corresponding education authorities to establish how applications for admission to schools and the places available therein are matched. In the context of school choice, it is noted that this element bears a substantial effect on the families' choice strategies; the extent to which it significantly affects the patterns of school segregation in the area must be ascertained.

Questions influencing the review

Considering the diversity of policies and initiatives that we include under the category of admissions policies, the review of the evidence presented herein seeks to answer the following questions: can management policies of school choice and allocation contribute to containing or reducing economic, academic or “ethnic” segregation processes that occur in different primary and secondary schools in the same area? Which of the considered policies seem to be more effective, in which context and under what conditions? Which policies, on the other hand, show a trend toward increasing the level of segregation between different schools? And lastly, what challenges are faced in Catalonia in order to combat the different patterns of school segregation and which actions should be prioritized?

Reviewing the evidence

Reviews and studies considered

We have little empirical evidence as regards the impact borne by different admission policies developed in Catalonia on school segregation processes that occur in different areas. For this reason, the evidence reviewed in this article includes, with some exceptions, the evaluations of programs and initiatives implemented in other countries (the United States, the United Kingdom, the Netherlands, Belgium, Sweden and Chile, amongst others).

However, it must be pointed out that nor did lead the available evidence in the international arena of the association between school admission policies and school segregation to the execution of meta-analysis or systematic reviews. This has made the application of a review methodology based on a “review of reviews” unfeasible, and instead has led to the execution of a literature review. To carry out this review, we have first selected a set of studies using a systematic protocol for searching references. This protocol combines the use of Boolean subject terms (relevant policies and outcomes) and of a methodological nature (evaluations and studies that indicate causality). Secondly, and once the references base had been refined, applying the same search criteria, we performed a rapid evidence assessment.⁴

Previous note: measuring segregation

Before initiating the review of the impacts of the different admission policies considered, what is understood by school segregation must be explained.

To put it very briefly, the term segregation is used to refer to the fairly unequal distribution of a certain group of students (generally speaking, socially disadvantaged, immigrant students, with one educational need or another) across schools of the same educational standard present in the same geographical context. We will therefore discuss imbalances in the schools’ social composition.

School segregation refers to the unequal distribution of a certain group of students (generally speaking, socially disadvantaged, immigrant students, with one educational need or another) between schools of the same educational standard present in the same geographical context.



There are different indicators employed to measure the level of school segregation in territories. Perhaps the most common are the index of dissimilarity [5], the Hutchens index [6] and the Gorard index [7], each of which presents their own respective benefits and drawbacks [8]. This article does not seek to dwell on the pros and cons of these measures, and mention shall not be made of their values or

⁴ For further details regarding the research and systematic review protocol, please contact the author at: miquelangel.alegre@ivalua.cat. The bibliographical references finally selected as the basis for this review are marked in bold at the end of the article; it features a total of 23 studies, including counterfactual impact evaluations (experimental and quasi-experimental) and observational studies based on time series and the use of territorial variability within the same country.

magnitudes in the sections that follow. We will make do with outlining the strength of the association that may be observed between admission policies and various patterns and processes of school segregation, as corroborated by different studies.

We will occasionally discuss the possible effects borne by these policies on the concentration of certain student groups in some schools. The phenomenon of school concentration is not exactly the equivalent of the phenomenon of segregation: the first refers to situations of polarization and social ghettoization of certain schools within the same school network, while segregation refers to fairly pronounced inequalities in the distribution of different student profiles across the network's schools as a whole. Therefore, segregation, even when high, does not necessarily manifest itself as discernibly as certain school concentration realities.⁵ This differentiation will be pointed out when necessary throughout the text.

Proximity-based allocation: zoning policies

Zoning policies serve a dual purpose:

- a) **To establish the level of priority granted** in the admissions process to the distance between the schools and the residence of the families submitting the application.
- b) **To demarcate the boundaries of the geographical areas** of allocation or, alternatively, the schools that are part of the proximity-based choice according to the place of residence.

Unlike other mechanisms that are applied to specific groups (quota policies or targeted school voucher schemes), the definition of the proximity or zone-based allocation criterion directly affects all the families involved in the choice of school. All of this makes the zoning policy a key mechanism when planning the present and future adjustment between supply and demand for school places. It is therefore not surprising that geographical assignment is one of the most commonly used mechanisms in the regulatory framework for school allocation in most OECD countries, mainly in granting admission to primary education (Musset, 2012). In fact, in secondary schools, the effect of zoning very often comes into play on account of their affiliation with primary schools with geographical assignment.

The design and implementation of zoning policies can adopt various forms. This diversity mainly derives from:

- **The time of application of the proximity-based criterion.** The criterion can be orchestrated as an ex ante restriction mechanism (initial or “default” allocation of the neighborhood school, usually with the possibility of an alternative choice) or as an element of ex post prioritization (tie-breaking variable between families applying to oversubscribed schools).

⁵ There are also several indicators to measure the school concentration of students: the most commonly used indicators, isolation indices, measure the likelihood of one student sharing a school with another member of their social group.

- **Weighting of proximity criteria.** It refers to the relative weight granted to proximity in the framework of the scaling of other prioritization criteria employed in the school admissions process (presence of siblings at the school, chronic illnesses, education needs, etc.).
- **Size of the neighborhood areas.** Reference is made to the scope of the geographical area defined and the corresponding volume and typology of the schools falling within the demarcated priority allocation area.

What scope do zoning policies have when it comes to reducing the levels of school segregation in the areas in which they are implemented? Are there zoning models (fairly large, fairly heterogeneous areas) that are more effective in this regard than others? What does the empirical evidence reveal to us about these issues?

Small areas and catchment areas

There seems to be a certain consensus in the literature insofar as small-area models (ultimately, the model that defines a different catchment area for each school) potentially proving detrimental in the fight against segregation, especially when they are applied in municipalities or urban settings with high levels of residential segregation [9], [10]. This **association between the use of catchment areas as an admission mechanism and the presence of high levels of school segregation** mainly occurs for two reasons.

The catchment area model may prove detrimental in the fight against segregation, especially in municipalities or urban settings with high levels of residential segregation.



On the one hand, it is common that when small school areas are defined, they include socially homogeneous residential areas. This makes the possibility of being admitted to a socially heterogeneous school depend on the capacity of the families to “escape” the schools available in the surrounding area. In disadvantaged areas, this implies searching for schools far from the place of residence or private schools, something that is mainly within the reach of families with more economic resources in these neighborhoods. Where such movements take place in the choice of school, the levels of school segregation, mainly for socioeconomic reasons, may exceed the segregation that exists between one neighborhood and another [11].

On the one hand, the increase in school segregation under catchment area regulations may be the product of the families’ residential decisions and of certain urban segregation processes, a phenomenon that has mainly been noted in England and the United States [9], [12], [13]. Where the distance between the school and the home is decisive, some families (as a rule, the most privileged) choose where to live according to the quality and social composition of the schools in the different neighborhoods. Based on the premise that the most privileged schools are located in the most privileged neighborhoods, a **“selection by mortgage” process** therefore occurs, which fuels urban segregation and, as a knock-on effect, segregation between the schools in different neighborhoods.

“Dezoning” or abolishing the proximity criterion

At the opposite end of the spectrum of catchment areas, **abolishing the proximity criterion as an allocation mechanism (ex-ante) or tie-breaking mechanism (ex-post) can also fuel dynamics of school segregation**, particularly when implemented in large territories, with different schools available and a reality of urban segregation. In this context, social inequalities inherent to the school choice process [3] become apparent, which refer to economic difficulties encountered by some families when choosing certain schools (tuition fees and transport costs), to inequalities in admission and the strategic use of privileged information as regards school choice, and the existence of socially and culturally-influenced preferences and choice behavior.

This association between “dezoning” and school segregation (economic, ethnic and academic) has become particularly evident in secondary education in countries such as the United States, England and Sweden.

In a dezoning scenario, social inequalities inherent to the school choice process become apparent, related to disparities in economic resources and access to privileged information.



Box 1.

“Dezoning” and segregation in England and Sweden

In England, Allen [14] compares the levels of socioeconomic and ability segregation of secondary schools with the levels that would occur should the families be assigned to their nearest schools, and concludes that, in this hypothetical scenario (contrafactual), there would be less segregation than that observed in reality. On their part, Burgess et al. [15] measure the scope of school choice that families have considering the number of secondary schools accessible to them in a certain radius of proximity, and show that school segregation is considerably higher than the level of residential segregation in those geographical areas that offer a greater scope of choice.

In Sweden, Söderström and Uusitalo [16] study the impact borne on segregation among post-compulsory secondary schools in the city of Stockholm by the introduction in 2000 of an admission policy reform that entailed abolishing the residence-based admission criterion as a tie-breaking mechanism in school allocation (academic record is kept as the only admission criterion). Monitoring the evolution of the levels of residential segregation and drawing comparisons with the evolution of school segregation in neighboring municipalities not subject to this reform, the authors conclude that dezoning led to an increase in the levels of academic, socioeconomic and ethnic segregation between schools. Since that point forth, the loosening of the proximity-based criterion has been the guiding principle in Sweden; Hansen and Gustafsson were able to conclude that this policy spawned an increase in ethnic and academic segregation in large cities, and not in small and medium-sized cities or in rural areas [17].

For further information:

Allen, R. (2007). “Allocating Pupils to Their Nearest Secondary School: The Consequences for Social and Ability Stratification”. *Urban Studies*, 44(4), 751-770 [14].

Burgess, S.; McConnell, B.; Propper, C. and Wilson, D. (2007). “The impact of school choice on sorting by ability and socioeconomic factors in English secondary education”. In L. Woessmann & P. Peterson (Eds.), *Schools and the Equal Opportunity Problem* (pp. 273-292). Massachusetts: MIT Press [15].

Söderström, M. and Uusitalo, R. (2010). “School Choice and Segregation: Evidence from an Admission Reform”. *Scandinavian Journal of Economics*, 112(1), 55-76 [16].

Yang Hansen, K. and Gustafsson, J.-E. (2016). “Causes of educational segregation in Sweden – school choice or residential segregation”. *Educational Research and Evaluation*, 22(1-2), 23-44 [17].

Halfway point: Extended and internally heterogeneous school zones

Between the catchment area model and the full abolition of proximity-based allocation (dezoning), a policy that was able to demarcate large and internally diverse school zones from the socioeconomic and cultural point of view should allow families to have a range of sufficiently heterogeneous schools to choose from, discouraging the escape to private schools or schools with no zone restrictions [10], [18], as specific residential strategies that generate urban segregation. In this manner, compared to the previous models, **a system of extended zones may prove positive, though not necessarily to contain the possible ghettoization processes of some schools, but in reducing levels of segregation between schools in different neighborhoods.** However, it must be said there is very limited empirical evidence available to substantiate this conclusion.

Extensive and internally diverse areas from the social point of view should allow families to have a range of sufficiently heterogeneous schools to choose from.



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Box 2.

Extension of zoning and segregation in two Catalan municipalities

Benito and González [18] analyze the relationship that exists between school zoning models and levels of school segregation by studying the case of a dozen Catalan municipalities. One of their analyses focuses on two municipalities that, the year previous to the study's execution, had introduced significant changes to their zoning model: both abandoned the so-called "school-area" model (each school has their own and exclusive catchment area); a municipality adopted the "single area" model (all families obtain the same score under the proximity criterion, regardless of the school they choose), the other introduced a "multiple area" model (in which all the proximity areas include more than one public school and, at least, one state-subsidized private school). Thus, in both cases, the change adopted involved increasing the number of schools that families could choose from as nearby schools.

With a view to appraising the change's impact on school segregation in the municipalities, the authors obtained data concerning three school years: students in P3 [first year of kindergarten in Spain, generally at the age of three] (who had been admitted to the school under the new model, and that would represent the treatment group), and students in P4 and P5 [second and third years of kindergarten in Spain, generally at the ages of four and five respectively] (who had been admitted to the schools in P3 within the framework of the former model; the control group). The source that determines the allocation to one group or the other is exogenous, and depends on the school year in which the students are or should be at the time of the change in regulation. Following the verification in both municipalities of the existence of highly stable demographic and urban composition realities over the observation period, the authors noted significant changes in the respective levels of school segregation subsequent to the change: while levels of segregation of students from less-educated families remain virtually unchanged, a clear reduction in school segregation of the more privileged student profiles is noted.

For further information:

Benito, R. and González, I. (2007). *Processos de segregació escolar a Catalunya*. Barcelona: Fundació Jaume Bofill, Col. Polítiques 59 [18].

Selective schools with no zone restrictions

As we observed in the previous section, a key factor to consider as a possible inducer or inhibitor of certain segregation processes between schools –as a mediating factor of the effectiveness of zoning policies– is the introduction in the territory of **schools with a specific institutional profile**, schools that fall outside the general allocation system based on proximity and/or with autonomy to select some of their students. We will begin discussing the effects on segregation that, according to the literature, can be attributed to the presence of schools with autonomy in the admission (and selection) of students, to later do the same in the case of schools with no zone restrictions. As we shall see, each institutional profile extends beyond the consideration of whether the school is publicly or privately owned.

Selective schools

Comparative studies, like other contextual variables, have described how the countries and regions with a higher number of schools with a recognized capacity to select some of their students tend to present an overall level of school segregation (for socioeconomic, ethnic or ability reasons) that is higher than those of education systems with a lower presence of this type of school [19], [20].

This association has also been revealed in other studies that have analyzed territorial and temporal variability of the levels and patterns of school segregation in the same country. This is the case of some studies on the reality of secondary schools in England, which show how the **introduction of selective schools (so-called Grammar Schools) in the territory is usually accompanied by increases in the levels of academic and economic segregation of the school network** [21], [22].

However, setting aside the capacity of some schools to establish admission requirements, what is pertinent is the autonomy granted to certain types of school in the school admissions process. Specifically, longitudinal studies undertaken in different countries conclude that **the increase in the territory of schools responsible for establishing their own admission criteria, whether public or private, are usually associated with an increase in levels of economic and ethnic segregation** between schools that have this autonomy and those that do not [11], [23]. And this happens quite independently of what end up being admission criteria established by the schools concerned and if they come into play according to an ex-ante scheme (admission requirements) or ex-post scheme (prioritization or tie-break in the event of oversubscription).

What seems pertinent is the autonomy granted to certain types of school in the school admissions process.



Box 3.

Schools with autonomy in admissions and segregation: England and New Zealand

In England, Gorard [22] has studied the determinants of between-school segregation in secondary education between 1989 and 2014, analyzing the changes in urban segregation patterns experienced in the country and taking into consideration the gradual introduction in the territory of various education reforms, among them, the introduction of schools with greater autonomy and a different institutional profile. Hence, the author reaches the conclusion that, over the period studied, the main factor influencing the evolution of school segregation lies in social realities and in the processes of urban segregation that can be observed in different places in the country. Among that factors that would remain under the control of education policy, one of them demonstrates a significant impact on the explanation of the levels and evolution of school segregation for socioeconomic reasons: the presence in the territory of autonomous schools not subject to the control of the local authority. In particular, the introduction of grammar schools and academies (autonomous schools from the point of view of student admissions) in the territory is found to be particularly detrimental to the levels of economic segregation between one school and another.

In New Zealand, the reform of the school choice and allocation policy promoted in 1991 introduced the possibility that oversubscribed schools, whether public or state-subsided private schools, would determine their own prioritization and student selection process. Several evaluations have been able to demonstrate how this policy has generated an increase in levels of ethnic and socioeconomic segregation between schools [24], [25].

For further information:

Gorard, S. (2016). "The complex determinants of school intake characteristics and segregation, England 1989 to 2014". *Cambridge Journal of Education*, 46(1), 131-146 [22].

Ladd, H. F. and Fiske, E. B. (2001). "The uneven playing field of school choice: Evidence from New Zealand". *Journal of Policy Analysis and Management*, 43-63 [24].

Thrupp, M. (2007). "School Admissions and the Segregation of School Intakes in New Zealand Cities". *Urban Studies*, 44(7), 1393-1404 [25].

Schools with no assigned zone

It is not always easy to discern which part of the segregating effect of the schools with admission autonomy derives precisely from this competence and which from the fact that many of them are schools with no geographical assignment. Although, in quite a few countries, a substantial number of these schools consider the proximity criterion as a prioritization variable in the event of oversubscription, they are always free choice schools. And this implies referring again to the effects of social inequalities that arise in free school choice settings. **Alongside the selective practices that some of these schools may exercise, we bear in mind that not all families have the same resources and choice strategies**, something that may lead to different behavior in the endeavor to gain admission to these schools.

Studies referring to charter schools support this possibility. These schools, which came into being in the United States in the early 1990s, have a level of autonomy that is considerably higher than that of conventional public schools, both in resource management (including the recruitment of teaching staff) and in the pedagogical field. And often they are primary and secondary schools, not subject to any zone prioritization criteria; in the event of oversubscription, admission is generally determined using a lottery system. This has allowed a large number of experimental studies to be carried out aimed at evaluating the impact of these schools on student performance.⁶ At the same time, the lottery mechanism itself allows the effects of these “no zone” schools on school segregation in the territory to be appraised, to minimize the interference arising from the existence of selective admission practices.

Impact evaluations and correlational studies point in this very direction, that is, **the presence of charter schools in a given territory generally yields the effect of exacerbating the dynamics of school segregation [30]–[33].**⁷

6 Overall, this evidence suggests that the effectiveness of this type of school is generally quite variable. They work in certain contexts and not in others, they sometimes improve the results of certain student groups, while in others they do not make any difference [26]–[29].

7 By contrast, the existing evidence on the segregating effect of another type of autonomous school with no assigned zone, so-called magnet schools, is far less conclusive [32], [34], [35].

Box 4.

Charter schools and segregation in the United States

Specifically, studies referring to the charter schools in North Carolina, California and Texas [36], Arizona [37], [38], Florida [39] and New York [40] conclude that this network of schools is much more segregated for racial reasons than the network of public schools in the same area. Thus, it is found that the composition of white and black students in public schools from which those students originate who move to a charter school tend to be much more heterogeneous than that of the host charter school. Moreover, the charter schools' economic composition (particularly in the case of those with a white majority) [40], as well as their academic composition (especially in those with a black and Hispanic majority) [41], are generally more privileged than those of public schools found in the same area and/or schools from which the charter students emerge.

It is worthy noting that the segregating effect of charter schools varies depending on the network or body responsible for their management. Some reports show that charter schools managed by Charter School Management Organizations (CMO) tend to have a less segregating impact on the entire network than those managed by Education Management Organizations (EMO) [33], [41].

For further information:

Booker, K.; Zimmer, R. and Buddin, R. J. (2005). *The Effect of Charter Schools on Student Peer Composition* (WR-306-EDU). RAND Education [36].

Choi, S. (2012). *A study on charter school effects on student achievement and on segregation in Florida public schools* (PhD Thesis). The Florida State University [39].

Cobb, C. D. and Glass, G. V. (2003). *Arizona Charter Schools: Resegregating Public Education?* Presented at the Annual Meeting of the American Educational Research Association, 2003, Chicago, IL [37].

Cordes, S. and Laurito, A. (2016). *The Effects of Charter Schools on Neighborhood and School Segregation Evidence from New York City*. Presented at the APPAM International Conference, 2016, London [40].

Furgeson, J.; Gill, B.; Haimson, J.; Killewald, A.; McCullough, M.; Nichols-Barrer, I. et al. (2012). *Charter-school management organizations: Diverse strategies and diverse student impacts*. Mathematica Policy Research & Center on Reinventing Public Education [41].

Garcia, D. R. (2008). "The Impact of School Choice on Racial Segregation in Charter Schools". *Educational Policy*, 22(6), 805-829 [38].

Miron, G.; Urschel, J. L.; Mathis, W. J. and Tornquist, E. (2010). *Schools without Diversity: Education Management Organizations, Charter Schools, and the Demographic Stratification of the American School System*. Education and the Public Interest Center (University of Colorado at Boulder) & Education Policy Research Unit (Arizona State University) [33].

To sum up, **the presence of the school network of non-zoned and free choice schools seems to act as a pole of attraction for those families that start out from a more advantageous position in the field of school choice** and that, for one reason or another, are not satisfied with the choice option offered by schools allocated on the basis of proximity. The empirical evidence suggests that, in this scenario, the "escape" options ultimately generate school segregation between the target schools (for example, ethnic or religious concentrations) [42] and between target schools and source schools (according to the socioeconomic category or educational standard).

The presence of non-zoned schools facilitates the existence of "escape" options that generate school segregation.



Reserve of places: quota policies

In this section we refer to those policies that set aside a certain number of places for specific groups in different schools. Generally speaking, **this policy affords attention to the distribution of those groups of students that require special educational support, whether on account of their social origin, geographic origin or manifestation of certain cognitive deficits.** In this regard, and unlike other mechanisms considered in this review, quota policies explicitly seek to balance out the social composition of both primary and secondary schools. In different countries and at different moments in time, these policies have moved between defining minimum quotas and establishing maximum quotas, whose application has been accompanied by several guarantee mechanisms.

What impact can we expect from quota policies on the different patterns of school segregation? Specifically, which of these formulae are more effective when it comes to balancing out the composition of different schools and which have proven to yield the opposite effect?

Establishing minimum quotas

In this case, a minimum number of places in each school are set aside (or year or class group) that must be filled by students with socioeconomic deficiencies or special education needs. This measure seeks to guarantee that all the schools in a certain setting or school network assume minimum co-responsibility for educating the most vulnerable students. Reserving places can be carried out for the duration of the admissions process or can be upheld throughout the school year.⁸

This policy has been implemented in many countries over recent decades, using different formulae and with mixed results. A paradigmatic example of this kind of intervention is found in the “busing” policy.

8 Catalonia upholds the minimum reserve of two places for special education needs per group in the second cycle of pre-school education, in primary education and compulsory secondary education, established during the regular admissions period by virtue of Decree 75/2007 pertaining to student admissions.

Box 5.

“Busing” and segregation in the United States

Implemented in a large number of districts in the United States during the 1970s, “busing” entails the forced transportation and distribution of black students in white majority schools, in order to redress racial segregation between both primary and secondary schools. Studies on the desegregating effect of this measure reveal that their effects can be observed in the decline of school segregation on the grounds of race that occurred between the late 1960s and early 1980s in those states and districts that, over that period, made busing obligatory [43]. Since then, an increase in school segregation between white and black people in those areas that from the mid-80s began to abandon the practice of busing [44], [45] has been observed. The impact of busing on racial desegregation in schools should not be surprising. Almost by definition, the forced enrollment of a group of students in schools that previously did not have representation, inevitably reduces the segregation of this group between one school and another.

For further information:

Orfield, G. (2001). *Schools more separate: Consequences of a decade of resegregation*. Cambridge, MA.: The Civil Rights Project, Harvard University [44].

Orfield, G. and Lee, C. (2007). *Historic Reversals, Accelerating Resegregation, and the Need for New Integration Strategies*. Cambridge, MA: The Civil Rights Project, Harvard University [45].

Reardon, S. F. and Owens, A. (2014). “60 Years After Brown: Trends and Consequences of School Segregation”. *Annual Review of Sociology*, 40(1), 199-218 [43].

We do not have evidence of the existence of experimental or quasi-experimental evaluations that have been commissioned to appraise the impact of the establishment of minimum quotas of a compulsory nature. Whatever the case, we should expect that a minimum quota policy in the admission of a specific group of students will exert a positive impact on reducing the segregation of this group when the minimum quota exceeds the weight that the group had, before being implemented, in at least one of the schools concerned.

Establishing minimum quotas may prove effective when the reserved places are sufficiently generous and are accompanied by measures that ensure they are filled.



Some studies undertaken in Catalonia on different school admission planning models [18], [46] reveal that the establishment of minimum quotas for students with special education needs may become an **effective instrument against their school segregation when:**

- **Prior to their application, there was a strongly segregated school network.** Therefore, any minimum threshold, no matter how low it may be, will entail increasing the representation of the groups concerned in one school or another.
- **The minimum number established is sufficiently generous,** compared to the relative weight held by the target group in the general population concerned.

- **It is accompanied by measures aimed at ensuring that the reserved places are ultimately filled:** maintenance of the reserved places beyond the initial admissions period until they are filled; grants for transport and school meals, information policies, etc.

Establishing maximum quotas

We now refer to the measure that entails fixing the maximum number of students belonging to a certain group (usually students with some kind of social or educational disadvantage) that schools (classes or courses) can come to host year after year. The goal of this policy, applicable to both primary and secondary schools, is to avoid the excessive concentration of students with schooling difficulties in specific schools, thereby preventing incidences of school ghettoization. As in the case of minimum quotas, the maximum threshold per school can only be applied during the admissions process or over the school year.

The effectiveness that establishing maximum quotas can have as a means of combating school segregation is revealed by the studies carried out in the United Kingdom on **banding policies**, implemented in a substantial number of the country's secondary schools.

Box 6.

“Banding” and segregation in England

The “banding” measure entails grouping each student applying to a school into a certain ability band by means of a special test or based on their prior attainment. Three to five bands are generally established to which, as the upper limit, either the proportionate number of students (fair banding) or the percentage represented by each band in the local population are allocated (students from the same school zone or, in the case of secondary schools, students from affiliated primary schools, i.e. local banding). This system can be applied independently by schools responsible for their admissions process (for example, so-called Academies), or can be implemented in a coordinated manner by a set of schools under the aegis of the local education authority.

Banding does not prevent school choice for families; when a school receives more student applications from a certain band than it can accept according to the established quota, then applications are prioritized based on other factors such as the school’s distance to the family’s place of residence or the presence of siblings. When one of the ability bands is not filled, the unfilled places are added to the next ability band.

Various correlational studies suggest that banding can exert positive effects on combating schools’ academic segregation, and that this mechanism heightens its impact when:

- It is applied in schools or school networks characterized by a high demand; it is in this context that banding can effectively undermine the representation of some academic abilities [47].
- It affects all the schools in a given territory and is implemented in a coordinated manner under the aegis of a local authority [48], [49]. This thereby ensures the same definition of the performance criteria to be considered and the weight they must have in each school, and facilitates an academically balanced intake across schools.
- In line with the above argument, we must stop the practice of banding from ultimately resulting in the proliferation of various special tests aimed at measuring levels of performance or abilities to be balanced. The provision of a single measurement criterion not only facilitates the implementation of the policy, but also affords coherence to the definition of the target population [50].

In any case, it seems clear that the main impact of banding is reflected in a more academically balanced intake across schools. The benefits that this instrument can achieve when balancing the socioeconomic and ethnic composition of different schools stem from this first impact.

For further information:

Allen, R.; Coldron, J. and West, A. (2012). “The effect of changes in published secondary school admissions on pupil composition”. *Journal of Education Policy*, 27(3), 349-366 [48].

Noden, P. and West, A. (2009). *Secondary school admissions in England: Admission forums, local authorities and schools*. London: London School of Economics & Research and Information on State Education (RISE) [50].

Noden, P.; West, A. and Hind, A. (2014). *Banding and ballots: secondary school admissions in England: admissions in 2012/13 and the impact of growth of academies*. London School of Economics & The Sutton Trust. London, UK [47].

West, A. (2005). “Banding’ and secondary school admissions: 1972–2004”. *British Journal of Educational Studies*, 53(1), 19-33 [49].

Another example of maximum quota policies is found in **income-based school assignment plans**, which began to be implemented in some states and districts in the United States as an alternative to the controversial racial desegregation measures in schools [51].

Box 7.

Income-based assignment plans and segregation: Wake County (US) and Flanders (Belgium)

In the United States, the school assignment plan initiated in Wake County (North Carolina) in 1999 has borne a particular impact. This plan replaced the previous school assignment criterion based on race. The new criterion stipulates that no primary or secondary school can educate more than 40% of poor students (any student residing in one of 700 neighborhoods categorized as especially vulnerable is considered “poor”) or more than 25% of students achieving below-grade level (based on the scores obtained in standardized tests). Different studies have confirmed that income-based assignment plans such as that of Wake County effectively manage to balance the socioeconomic composition of the schools involved, although this impact does not necessarily result in a significant reduction of school segregation on the grounds of race [51], [52].

In Belgium, Wouters [53] assesses the impact of socioeconomic segregation of kindergarten schools in the region of Flanders attributable to the introduction in 2013 of a school allocation policy that involves reserving a maximum number of places for newly enrolled disadvantaged students; the remaining available places are also conceptualized as a maximum number of places reserved for privileged students. These maximum thresholds come into play in the event of oversubscription and only apply during the schools’ enrolment period.

A student is considered to be disadvantaged either when their family income is below a certain threshold that qualifies the student for a school grant, or when the student’s mother does not have any higher education degree of qualification. The ratio defined for each school between places for disadvantaged and advantaged students is determined by the ratio between these very categories in the neighborhood or community in which the school is located. This reserves policy was made mandatory in the most densely populated areas in the region, whereas it could be adopted voluntarily in other areas. Using a model of double difference, Wouters’ study demonstrated that the introduction of this quota measure is responsible for a significant reduction in economic segregation between schools in those municipalities and metropolitan areas where it was adopted.¹

For further information:

Chaplin, D. (2002). “Estimating the impact of economic integration of schools on racial integration”. In The Century Foundation Task Force on the Common & School (Eds.), *Divided we fail: Coming together through public school choice* (pp. 87-113). New York: The Century Foundation Press [52].

Reardon, S. F.; Yun, J. T. and Kurlaender, M. (2006). “Implications of income-based school assignment policies for racial school segregation”. *Educational Evaluation and Policy Analysis*, 28(1), 49-75 [51].

Wouters, T. (2016). *Segregation and school enrolment policy*. Mimeo [53].

¹ A similar quota system began to be applied in 2009 in the Dutch city of Nijmegen (the Netherlands) to manage admission to primary schools. In this case, among the criteria for prioritizing applications was the consideration that schools do not exceed 30% of disadvantaged students (or 70% of advantaged students). A disadvantaged student is defined as one eligible for “extra” school funding [54].

In short, the effectiveness of any maximum quota policy will depend on:

- **The ratio between the magnitude of the maximum threshold established and the overall weight of the group of students to be redistributed between schools.**

In this case, the lower the quota established and/or the higher the total percentage of students affected, the more likely this instrument will produce observable impacts on the school desegregation of this group.

- **Maintenance and compulsory application of the maximum quota throughout the school year, accompanied by support measures**, such as centralized coordination of the admissions process, and subsidies for transport and school meals for families that fall outside the established quota. When these parameters are guaranteed, the likelihood of the policy's success increases, which does not mean that certain provisional quota systems cannot also prove effective [53].

Establishing maximum quotas can prove effective when the established threshold is not excessive and is accompanied by complementary and support measures.



School voucher policies

The ultimate goal of school voucher policies is **to broaden the scope of school choice for families**, affording them access to a higher number of schools than they would have under a proximity-based allocation scheme. A school voucher policy can have several variants. In its provision system, a school voucher can have a “real” and direct nature (when received by the family) or a virtual and indirect nature (when received by the school by virtue of the student hosted, in accordance with the “money follows the student” scheme).

Beyond this differentiation, vouchers can vary according to the definition of the target audience. There are therefore **three basic schemes: universal vouchers, targeted vouchers and progressive vouchers**. Whether the voucher policy exerts one effect or another on the dynamics of school segregation where it is applied will depend, amongst other factors, on which type is implemented.

Universal voucher systems

Under this scheme, any family, regardless of their socioeconomic status or the characteristics of their children, will be entitled to an “exchangeable” voucher in a number of schools beyond public schools located in their area of residence. Within this category lie the “virtual” voucher schemes in which private primary or secondary schools receive public funding according to the students enrolled. It is therefore understood that the student is the bearer of the funding, and this must allow the school to meet the costs associated with their education (or at least some of these costs). **In general, the universal scheme implies granting a fixed sum per student**. Whether the schools charge the families additional tuition depends on the generosity of the voucher's amount.

This scheme is or has been common in those countries or regions that traditionally have had a wide range of private schools available, such as Belgium, the Netherlands and Catalonia, or that opted for the introduction of quasi-market mechanisms, such as Sweden, New Zealand and Chile.

The accumulated evidence reveals that a universal voucher system, especially when it is not accompanied by other compensatory corrective measures (additional subsidies, information actions, bodies ensuring the admissions process, etc.), **may contribute to increasing school segregation (of an economic, ethnic and academic nature), regardless of the level of urban segregation existing in the territory.** This effect is produced by two processes:

The universal voucher policy tends to increase school segregation (of an economic, ethnic and academic nature), regardless of the level of urban segregation existing in the territory.



a) **Supply-side subsidies.** It is common for those contexts in which universal voucher policies are applied to include schools with management autonomy and the capacity to select at least some of the students. Unlike other voucher types (for instance, progressive vouchers), under the universal voucher scheme, all the students “competing” for admission to the same school compete with the same funding, which does not remove the temptation to engage in cream skimming that some of these autonomous schools may have [9].⁹

At the same time, it is also frequent that the sum granted by the voucher concerned does not cover the entire cost of education, which can lead to the schools (usually private schools) charging **the families additional tuition fees directly.** This constitutes an obstacle to admission for those families that cannot afford this expense and ultimately increases socioeconomic segregation between schools [10].

b) **Demand-side subsidies.** Here we refer to social inequalities that are noted in the school choice process and that, as we pointed out above, are associated with the existence of **economic obstacles** (to fund part of the enrolment to certain schools or to pay for commuting to schools outside the proximity radius), and with **difficulties in acquiring thorough knowledge** and taking strategic action in the field of school choice. These inequalities are linked to different choice behavior between social groups and may be responsible for increasing school segregation in contexts of free school choice.

9 Colloquially, cream skimming is understood as the practice of prioritizing the selection of students with an academically and/or socioeconomically advantaged profile [55].

Box 8.

Universal vouchers and segregation in Sweden and Chile

In Sweden, several studies have shown that the introduction in the early 1990s of a universal voucher system of a “virtual” nature aimed at funding schooling in a then burgeoning network of state-subsidized private schools led to an increase in the levels of school segregation between immigrant and native students, as well as between students from families with a high and low level of education [17], [56], [57]. These studies reveal that, if the main determinant of the increase in school segregation is the increase in residential segregation that occurs over the same period within and between municipalities, broadening the scope of choice facilitated by the voucher system is responsible for a significant number of the imbalances in the social and ethnic composition of schools.

Similar conclusions are drawn from evaluations conducted on the universal voucher system implemented in Chile from the early 1980s until 2008 [58], [59]: beyond the effect of residential segregation, the universal voucher model brought about an increase in socioeconomic and ethnic segregation (native origin) between public and private schools, but also within the private sector.

For further information:

Böhlmark, A.; Holmlund, H. and Lindahl, M. (2015). *School choice and segregation: Evidence from Sweden* (IFAU Working Paper 2015: 8). IFAU-Institute for Evaluation of Labour Market and Education Policy [56].

Elacqua, G. (2012). “The impact of school choice and public policy on segregation: Evidence from Chile”. *International Journal of Educational Development*, 32(3), 444-453 [58].

Hsieh, C.-T. and Urquiola, M. (2006). “The effects of generalized school choice on achievement and stratification: Evidence from Chile’s voucher program”. *Journal of Public Economics*, 90(8-9), 1477-1503 [59].

Lindbom, A. (2010). “School Choice in Sweden: Effects on Student Performance, School Costs, and Segregation”. *Scandinavian Journal of Educational Research*, 54(6), 615-630 [57].

Yang Hansen, K. and Gustafsson, J.-E. (2016). “Causes of educational segregation in Sweden – school choice or residential segregation”. *Educational Research and Evaluation*, 22(1-2), 23-44 [17].

Targeted voucher systems

Targeted vouchers seek to broaden the range of choice options for families facing the choice process with greater limitations. **Generally considered eligible for this scheme are families with less economic resources**, who cannot afford the cost of admission to a private or public school far from their place of residence. The targeted voucher programs implemented in primary and secondary education in different cities in the United States are known.¹⁰

¹⁰ Paradigmatic cases are voucher programs enacted in Milwaukee, Cleveland, New York and Washington D.C., all of which were initiated in the 1990s. Many of these initiatives have been evaluated experimentally in terms of the impacts they yield on the academic results of the beneficiary students. This evidence tends to reveal that the overall effect of targeted vouchers on the test-score performance and graduation rates of students in receipt of such vouchers tends to be nil or almost nil [60].

The evidence available on the association between this voucher scheme and certain school segregation processes is generally correlational (not based on impact assessments). Overall, **the available studies reveal that targeted vouchers do not seem to exert a significant desegregating effect**; moreover, some programs tend to be linked to increases (generally minor) in ethnic segregation and educational profiles between the schools from which the voucher recipients leave and the schools (mainly private) they exchange the voucher with [32].

Box 9.

Targeted vouchers and segregation in the United States

Some studies regarding voucher programs implemented in Cleveland and Milwaukee compared the profile of voucher-eligible families that do not use it with the profile of those who do in fact use the voucher to change school (mainly through enrollment to a private school), and conclude that: although both groups do not differ in terms of socioeconomic status, families that use the voucher have a higher level of educational qualifications than those eligible families that do not use it [61], [62]. In the case of Milwaukee [63], as well as the program implemented in Washington D.C. [64], it was revealed that the impetus behind voucher policies has contributed to making private schools hosting beneficiary students more heterogeneous in terms of race, which has been offset by an increase in the degree of homogeneity of public schools from which these students emerge.

For further information:

Campbell, D. E.; West, M. R. and Peterson, P. E. (2005). "Participation in a national, means-tested school voucher program". *Journal of Policy Analysis and Management*, 24(3), 523-541 [61].

Fuller, H. L. and Mitchell, G. A. (1999). "The Impact of School Choice on Racial and Ethnic Enrollment in Milwaukee Private Schools. Current Education Issues. Revised". (*Current Issues*, 99-5). Institute for the Transformation of Learning, Marquette University, Wisconsin [63].

Greene, J. P. and Winters, M. A. (2007). "An evaluation of the effect of DC's voucher program on public school achievement and racial integration after one year". *Journal of Catholic Education*, 11(1) [64].

Witte, J. F. (1998). "The Milwaukee Voucher Experiment". *Educational Evaluation and Policy Analysis*, 20(4), 229 [62].

Some of the factors that enable a targeted voucher system to fuel certain dynamics of school segregation coincide with the aforementioned ones in the case of universal vouchers, and are related to the **possibility of schools engaging in cream skimming**, and the existence of **inequalities in the school choice process**, based on families' economic and strategic capacity.

Some targeted voucher programs increase ethnic segregation and educational profiles between schools from which voucher recipients emerge and the schools where they exchange them.



Progressive voucher systems

In a progressive voucher or weighted funding scheme, **the funding that “accompanies” a student is adapted to their social profile.** Therefore, the voucher amount for a student with special education needs or from a disadvantaged background will exceed the one of a student that does not present such disadvantages. It is therefore a “virtual” voucher scheme, aimed at covering the costs of students’ schooling (costs deemed variable according to their characteristics) and discouraging certain autonomous schools from engaging in legal or covert cream skimming practices.

In general, progressive vouchers can be exchanged at public schools or, more commonly, at private primary or secondary schools, and it is usually up to the school to decide how to use the funding received. In the case of private schools, such uses, as well as the generosity of the voucher itself, will influence whether families will be requested to pay additional fees.

Box 10.

Progressive vouchers in Australia and Chile: Basic features

In Australia, the progressive voucher system implemented since 1975 covers between 15% and 85% of the cost of a private place, whose sum depends on the applicant families’ income. Furthermore, private schools charge families tuition fees that may vary according to the type of private network (religious or autonomous schools). Each private school, however, charges a fixed fee for all families educated there. Therefore, the principle is retained that disadvantaged students “contribute” higher overall funding to schools than advantaged students [10], [65].

In Chile, however, the implementation of the Preferential Education Subsidy in 2008 resulted in almost 50% additional funding for primary and secondary students deemed “preferential” (children from socio-economically disadvantaged backgrounds and native students), as well as the waiving of any additional fees for these families [58], [66].

For further information:

Elacqua, G. (2012). “The impact of school choice and public policy on segregation: Evidence from Chile”. *International Journal of Educational Development*, 32(3), 444-453 [58].

Gazmuri, A. (2015). “School Segregation in the Presence of Student Sorting and Cream Skimming: Evidence from a School Voucher Reform”. *Job Market Paper*, University of Pennsylvania [66].

Musset, P. (2012). “School choice and equity: Current policies in OECD countries and a literature review” (*Directorate for Education Working Paper No. 66*). OECD [10].

Watson, L. and Ryan, C. (2009). “Choice, vouchers and the consequences for public high schools: lessons from Australia” (*NCSPE Research Paper No. 181*). National Center for the Study of Privatization in Education, Teachers College, Columbia University [65].

In their design, as well as in their effects, so-called progressive vouchers are **comparable to school funding systems adapted to each student profile** that are applied in contexts of free school choice. In both cases, the school is ultimately funded according to the type and level of diversity of the student body.

Box 11.

School funding by student profile in the Netherlands and England: Basic features

In the Netherlands, a primary school student whose parents do not have higher secondary education brings 30% more funding to the school than a student with parents that have higher education, while the voucher increases by 120% when one of the parents has not gone past primary education and the other secondary education. The additional fee charged to families upheld by some private schools is generally substantially reduced, ranging mostly between 30 and 60 euros per year [67].

In England, the enactment of the so-called Pupil Premium in 2011 led to all publicly-funded primary and secondary schools in the country receiving additional funding per disadvantaged student schooled, in accordance with the following weighting:

Pupil Premium Grant, 2017-2018 financial year

Profile of Disadvantaged Students	Pupil Premium per Student
Infant and primary education pupils registered as eligible for free school meals at any point in the last six years	£ 1,320
Lower secondary pupils registered as eligible for free school meals at any point in the last six years	£ 935
Pupils under guardianship in local authority care	£ 1,900
Pupils previously under guardianship in adoption or care under a child arrangements order	£ 1,900

Source: <https://goo.gl/k2Hcb4>

For further information:

Ladd, H. F. and Fiske, E. B. (2011). "Weighted student funding in the Netherlands: A model for the US?" *Journal of Policy Analysis and Management*, 30(3), 470-498 [67].

<https://www.gov.uk/government/publications/pupil-premium-conditions-of-grant-2017-to-2018>

Studies carried out in different countries seem to confirm that both progressive vouchers and means of funding adapted to the student's profile are able to minimize the incentive, particularly in universal voucher schemes, that some schools may have to select less vulnerable students, and at the same time that allow a distribution of resources that is more adapted to the schools' socioeconomic and cultural diversity [58], [67]. To date, however, these developments **have not achieved significant reductions in the levels of school segregation where they have been implemented** [65]–[67], a fact that may be related to the persistence of inequalities in school choice and on the demand-side and to the maintenance of different choice behavior among families with different social profiles.

Progressive voucher schemes can minimize the incentive of some schools to engage in cream skimming practices.



Information actions

In any context of school choice, it is crucial to have access to information and knowledge of the institutional and educational features of the available options, of norms and procedures that regulate the choice and admissions process, and, closely related to this, of the best way to maximize the preferences for some options.

It is common for the responsible educational authorities to develop **information measures aimed at better empowering families in the field of school choice**. Some of these measures focus on families that present more difficulties in accessing and strategically managing this information, usually socially vulnerable and/or foreign families; for example, this is the case of Parent Information Centers, established in the United States in the 1980s [68], and Choice Advice Services implemented by English local authorities since 2006 [69]–[71].¹¹

The existing evidence on the impact borne by these measures on the management of school demand and, therefore, on the possible containment of segregation between schools is very limited. To our knowledge, this evidence focuses on some studies that have endeavored **to appraise the effects observed in the motives of choice among families once they have information regarding the schools' educational results**. More specifically, the purpose of such evaluations is to determine whether having this information changes the predominant choice behavior among socioeconomically and culturally disadvantaged families and that, according to research undertaken in different countries, are reflected in the prioritization of school proximity over other quality indicators [3], [10], [72].¹²

11 The recommendations of some reports produced in Catalonia call for the reduction of positional disadvantages in the field of school choice through information and guidance policies for the most vulnerable families during the choice process, and through subsidies for transport and school meals, which facilitate possible commuting to schools outside the neighborhood of residence [3], [4]. We are unaware of the existence of evaluations dealing with the impact of this second instrument (grants for additional services) on choice behavior and levels of segregation between schools. In this section we concentrate on evidence related to information actions.

12 In contrast with this behavior, the motives of choice that socio-economically and culturally advantaged families tend to prioritize are related to the school's educational standard and its social composition, rather than to its proximity to the family's place of residence.

Box 12.

Information measures and segregation: Experiments in Charlotte-Mecklenburg (USA)

In 2006, Hastings et al. [73] carried out a randomized experiment in the Charlotte-Mecklenburg school district that entailed sending school information to families changing schools (mainly due to changes in the stage of education). Specifically, the information was randomly assigned: a) some schools provided statistics on the average academic achievement of the surrounding schools; b) some schools provided statistics on academic achievement coupled with the estimated odds of admission (differentiating schools according to the difficulty in gaining admission to them); c) some schools did not receive any of the previous “treatment” and maintained their usual information policy. Seventy schools at different education stages (16,500 students) participated in the experiment.

The results of this experiment reveal that, among the families of students attending schools not listed as priority schools under the No Child Left Behind-NCLB Act, receiving information on the results of schools in the district increases the probability of choosing high-ranking schools not assigned by proximity; and this effect is independent of the average level of family income. In addition, receiving information on the odds of admission only has an impact on middle-income families. That is to say, these families, compared to low-income families, adapt to a greater extent their preferences for academic ranking to the probability of success of their applications. On the other hand, none of the treatments studied show significant impacts on the choice behavior of families of students educated in Title 1 schools.

This experimental evidence corresponds to the results obtained by these authors in a previous quasi-experimental study [74]. In this case, the impact of the adoption of the NCLB policy by the Charlotte-Mecklenburg district in 2004 is analyzed, and which implied that certain schools automatically became eligible for Title I school status. Comparing families’ choice preferences prior and subsequent to the publication of this status, the authors demonstrate how this information exercise involved a change in choice behavior. The families who were initially assigned to NCLB schools altered their choice, opting for alternative schools to a greater extent than families with a non-NCLB option initially; and among the families that go on to list alternative schools, the most vulnerable usually end up prioritizing poorer-performing schools than middle-class white families.

For further information:

Hastings, J. S.; Van Weelden, R. and Weinstein, J. (2007). *Preferences, information, and parental choice behavior in public school choice* (Working Paper 12995). National Bureau of Economic Research [73].

Hastings, J. S. and Weinstein, J. M. (2008). *The Quarterly Journal of Economics*, 123(4), 1373-1414 [74].

Studies conducted in other countries reach similar conclusions. For instance, by analyzing the choice behavior of Chilean families before and after the introduction in 1995 of the policy of making school scores on standardized tests public, Gómez et al. [75] conclude that having this information reduces the probability of families choosing the nearest school. A study in Canada (British Columbia) reveals that families are more likely to alter their school choice decisions when public information reveals poor school-level performance. This response is immediate among English-speaking families (particularly in disadvantaged neighborhoods) whereas it takes longer to be observed among non-English speaking families [76].

In short, it has been shown that **the reasons prioritized by families in school choice decisions, and that we believe contribute to generating certain dynamics in school segregation are not**

It is noted that information policies can help adjust the reasons prioritized by families in their school choice.



fixed and can vary in accordance with different information policies. It is yet to be determined which of these policies (printed or online material on the choice procedure and the existing schools available, the publication of rankings, information sessions and school open days, interviews or forums with vulnerable families, etc.) prove more effective in reducing the information gaps between families and thereby preventing certain school segregation processes.

School allocation algorithms

Another element that has shown to bear a significant impact on families' choice behavior and strategies and, consequently, on the social composition of different schools, is related to the procedure used to match applications and available school places. That is, with the school allocation algorithm used.

The Boston mechanism

In Catalonia, the school allocation procedure, both at the outset of universal education and in compulsory secondary education, corresponds to what is known as the Boston mechanism [77]. In accordance with this system, families express their choice options classified according to order of preference and the places are assigned following successive assignment rounds: the first round assigns places taking the first-option preferences listed into account, the second round assigns available places to students that have listed the school as their second option, and so on. Admission to oversubscribed schools in one round or another is decided either using a lottery system, or according to certain priority thresholds (distance to the school from the place of residence, the presence of siblings in the school, education needs, etc.).¹³ Whatever the case, the Boston mechanism reduces the likelihood of ending up with a place at a desired school when the first-choice school was not obtained. This forces families to be strategic in listing their first choices, selecting schools with strong odds of gaining admission.

¹³ Even if the mechanism employs prioritization criteria, a lottery system is often used as a means of allocating places in the event of an eventual tie-breaker.

Various studies have shown that **this procedure does not generally meet families' true school preferences**, even more so when the number of schools offering real odds of admission is limited [78], [79]. Moreover, **it may fuel segregation dynamics as families with more resources retain the option of escaping to private schools or schools with no zone restrictions** should the first choice not be met, a choice that is therefore expressed with a greater risk margin [80].

The Boston algorithm forces families to be strategic in listing their first choices, selecting schools with strong odds of gaining admission.



The deferred acceptance mechanism

An alternative procedure to the Boston mechanism is the so-called “deferred acceptance” mechanism (Abdulkadiroglu & Sönmez, 2003). Originally, this mechanism entails combining the order of preferences listed by families with the school choice preferences. In a first round, each school makes a pre-selection among the students for whom it was their first choice. In the event of oversubscription, the non-selected students are rejected by the school concerned. In a second round, the rejected students are considered by the schools that had been listed as their second choice, and compete, within these schools, with students that they had already pre-selected; and so on until all the students have been assigned.

This mechanism began to spread across various states in the United States in the early 2000s (mainly in the allocation of university and high school places), and has been predominantly employed by English local authorities since 2008. In the latter case, the school's capacity to autonomously select the student body is generally limited, the local authorities being those responsible for establishing the general criteria for prioritizing applications.

Some generally balanced studies or ones based on theoretical simulations conclude that the deferred acceptance mechanism may prove more effective in optimizing the matching of choice preferences and school places: **it diminishes the importance of the first choice and, therefore, minimizes the strategic behavior of families in the order of preferences**, and reduces the risk of school segregation for socioeconomic reasons [79], [80].

The existing **empirical evidence** regarding the effects on school segregation that may be borne by this mechanism, particularly when applied in contexts in which the criteria for prioritizing applications are defined centrally, is very limited and **proves inconclusive**.

Box 13.

Allocation and segregation mechanisms in Brighton and Hove (England)

We refer here to a study on the impact on school composition attributable to the shift from the Boston system with prioritization criteria in the event of oversubscription (including proximity to the school, among others) to the application of deferred allocation in the district of Brighton and Hove (England) between 2007 and 2008 [81]. The new model matches the probability of success of the different choice preferences and incorporates a lottery system to allocate places in oversubscribed schools. The random allocation is implemented separately between the applications of families resident in the chosen schools' catchment areas and, should not all the places be assigned, among those families resident outside the catchment areas. The study concludes that the implementation of this new model had mixed effects on school segregation. On the one hand, a slight increase in the level of socioeconomic segregation between the schools is noted; on the other hand, a slight reduction in segregation based on students' prior attainment is observed. In any case, the authors conclude that a significant number of these effects are not understood without the interaction of two key variables: the presence of autonomous schools in the area (which may act as an escape option for certain families) and the retaining of the catchment area criterion in the design of the model.

For further information:

Allen, R.; Burgess, S. and McKenna, L. (2013). "The short-run impact of using lotteries for school admissions: early results from Brighton and Hove's reforms: Lotteries for school admissions". *Transactions of the Institute of British Geographers*, 38(1), 149-166 [81].

Deferred acceptance minimizes families' strategic behavior in ordering preferences, and could reduce the risk of school segregation for socioeconomic reasons.



Summary

In this article we have reviewed the available evidence on the impacts borne by different policies as regards the management of school choice and allocation on different segregation processes (of an economic, ethnic and academic nature) that may arise in schools. As indicated throughout the text, the extent and quality of this evidence varies considerably according to the type of policy considered and, in any case, does not always provide definitive findings on the effectiveness or strengths and weaknesses of the different programs.

However, the literature itself does concur in highlighting the importance held by two elements in determining the effectiveness of different school admissions policies: on the one hand, the urban structure and patterns of residential segregation; on the other hand, the school network set-up. The first of these factors is not directly regulated by education policy.¹⁴ However, the second is, which has been discussed, noting that the presence in a given territory of schools with the capacity to select some of their students and/or schools with no zone restrictions is often associated with high levels of school segregation for academic, economic and ethnic reasons.

Zoning policies that define broad and internally heterogeneous allocation areas from the social and academic point of view, quota policies adapted to the real representation of groups to be distributed and that guarantee the reserved places are filled, financial aid that removes the barriers to admission to certain schools, communication actions that overcome the bias of existing information between families, school allocation algorithms that minimize the role that may be played by families' strategic capacity in school choice, etc. The impact ultimately borne by these initiatives will depend, in any event, on the institutional set-up of the school network and the administration's capacity to guarantee equal opportunities in admission to any publicly-funded school.

The urban structure and patterns of residential segregation, on the one hand, and the school network set-up, on the other, determine the effectiveness of different school admissions policies.



Table 1 summarizes the main conclusions presented throughout this review.

¹⁴ We have indeed referred to the indirect impacts borne on urban structure by the implementation of certain zoning policies, impacts that are explained by the capacity of these policies to prompt residential decisions motivated by the search for and exclusion of certain schools.

Table 1.
Strengths and weaknesses of the admissions policies considered

Strengths	Weaknesses
Proximity-based allocation: zoning policies	
<ul style="list-style-type: none"> • Zoning policies (whether acting as ex-ante or ex-post mechanisms) can prove effective in combating school segregation • These policies apply to all families involved in school choice 	<ul style="list-style-type: none"> • The impact capacity of zoning is largely influenced by the urban structure and the school network set-up (presence of private schools or schools with no zone restrictions)
<ul style="list-style-type: none"> • The model of extensive and heterogeneous zones may contain school segregation if accompanied by complementary measures (information and funding for indirect schooling costs) 	<ul style="list-style-type: none"> • The model of small allocation zones, on the one hand, and the abolition of the proximity-based criterion, on the other, may fuel school and urban segregation processes • The model of extensive and heterogeneous areas does not mitigate the risk of ghettoization of certain schools • There is no empirical evidence of the actual effectiveness of extensive and heterogeneous areas
Selective schools with no zone restrictions	
	<ul style="list-style-type: none"> • The presence of selective schools is associated with increases in academic and economic segregation between schools
	<ul style="list-style-type: none"> • The presence of schools responsible for establishing their own admissions criteria (public or private) is associated with increases in economic and ethnic segregation between schools
<ul style="list-style-type: none"> • The presence in the territory of schools not subject to zone restrictions increases the choice options for all families 	<ul style="list-style-type: none"> • The presence of schools with no assigned zone (public or private) is associated with increases in economic and ethnic segregation between schools
Reserve of places: quota policies	
<ul style="list-style-type: none"> • The minimum quotas (by economic, ethnic or academic profile) can reduce school segregation of the profiles concerned • The impact is increased when the number of reserved places is significant and is based on a segregated school network 	<ul style="list-style-type: none"> • The effectiveness of minimum quotas is undermined if unaccompanied by measures that ensure the reserved places are filled • The establishment of high minimum quotas limits non-eligible families' right to school choice
<ul style="list-style-type: none"> • Maximum quotas (by economic, ethnic or academic profile) can reduce school segregation of the profiles concerned • The lower the quota established and/or the higher the total percentage of students affected, the greater the scope of impact 	<ul style="list-style-type: none"> • The effectiveness of maximum quotas is undermined if unaccompanied by measures that ensure the reserved places are filled (compulsory nature and maintenance of the quota throughout the school year, centralization of the allocation, etc.) • The establishment of maximum quotas limits eligible families' right to school choice

Table 1. Continuation
Strengths and weaknesses of the admissions policies considered

Strengths	Weaknesses
School voucher policies	
<ul style="list-style-type: none"> • Universal vouchers increase the school choice options for all families 	<ul style="list-style-type: none"> • The universal voucher policy can contribute to increasing school segregation, due to cream skimming and the maintenance of economic and information barriers in the choice process
<ul style="list-style-type: none"> • Targeted vouchers increase the school choice options for the most disadvantaged families 	<ul style="list-style-type: none"> • In practice, targeted vouchers do not seem to have a significant desegregating effect. Some programs may increase segregation between schools
<ul style="list-style-type: none"> • Progressive vouchers allow the funding amount to be adapted to the profile of the student and/or their family • They minimize the incentive that some schools may have to select more vulnerable students 	<ul style="list-style-type: none"> • Progressive vouchers do not seem to have a significant desegregating effect, although the existing empirical evidence is limited
Information actions	
<ul style="list-style-type: none"> • Certain information actions can generate changes in the reasons and preferences behind families' school choice 	<ul style="list-style-type: none"> • There is a lack of empirical evidence as regards the effectiveness of many of the information policies implemented
<ul style="list-style-type: none"> • The public dissemination of schools' academic results makes families (advantaged and disadvantaged) stop prioritizing proximity in school choice 	<ul style="list-style-type: none"> • With the public dissemination of school results, disadvantaged families alter their preferences less markedly than advantaged families
School allocation algorithms	
<ul style="list-style-type: none"> • The Boston mechanism (Catalan model) affords families greater control of the results of their school choice 	<ul style="list-style-type: none"> • The Boston mechanism tends to conceal families' real preferences for one school or another • This mechanism can fuel segregation dynamics as families with more resources retain the escape option to private schools or schools with no zone restrictions
<ul style="list-style-type: none"> • The deferred acceptance mechanism minimizes families' strategic behavior in ordering preferences • Theoretical studies conclude that this mechanism reduces the risk of school segregation for socioeconomic reasons 	<ul style="list-style-type: none"> • Should the deferred acceptance mechanism imply that schools freely choose students that wish to attend the school, there is a risk of generating segregating dynamics • The existing empirical evidence on the impact of this mechanism on school segregation is limited

Source: Compiled by the author

Implications for practise

School segregation is a complex phenomenon, which is manifested in a multitude of forms and corresponds to many factors. In its background lies the socioeconomic structure of the territories concerned (including the geographical location of schools), as well as social inequalities palpable in the field of school choice and that ultimately lead to different choice options, preferences and behavior among families. In this regard, the scope that education policy alone can reach in tackling the problem of school segregation is inevitably limited; even more so if, within education policy, we confine ourselves to the role of school choice and allocation policies.

However, in this review we have noted that some of these policies may bear a positive effect when redressing imbalances that are generally observed in schools' social composition. The areas of consideration listed below would be reinforced by reading these lessons in the case of Catalonia. Needless to say, they do not constitute the only possible decision-making spheres, but are those that, still within the scope of admissions policies, find a stronger foundation in empirical evidence. In any event, they represent areas that inevitably have to be addressed simultaneously.

- **Schools with no autonomy in admissions.** It seems clear that those school networks with public or state-subsidized private schools with autonomy in deciding on student admissions have a greater likelihood of generating school segregation than those networks in which the admissions procedure and criteria (ex-ante and ex-post) are centralized. From this point of view, it should be ensured that admissions procedures to all schools that receive public funding are in fact centralized and coordinated by the education authority and that mechanisms are available to monitor and sanction possible covert cream skimming practices.

- **Offset economic barriers in the field of choice.** We have verified how, in certain schools that charge families some of the schooling costs, school segregation dynamics are reproduced for socioeconomic reasons. It would

It should be ensured that admission to schools does not hinge on families' capacity to meet the direct and indirect costs of schooling.



therefore be a question of ensuring that admission to different schools does not hinge on families' capacity to meet the direct and indirect costs of schooling, at least during the universal and compulsory education stages. In a context of free admission to all public and state-subsidized private schools, the focus should be placed on ensuring that the broadening of families' scope of choice is accompanied by monetary aid that can be adapted according to needs-based criteria, targeting the payment of indirect costs such as transport and school meals. In a context in which not all publicly-funded schools are effectively free (which is the current situation in Catalonia), the possibility of designing supplementary funding for schooling according to families' economic capacity could be explored. In practice, this system would act in a similar manner to progressive school vouchers.

- **Changes in zoning, which lean towards greater openness and heterogenization.** In large or medium-sized towns with a high level of school segregation and in which the patterns of this segregation overlap with the existence of small catchment areas, it seems appropriate to extend the schools' catchment areas and to help all families to have a sufficiently large and diverse window of choice options within their reach.

- **“Generous” quota policies.** The instrument concerning reserving places, when minimum and maximum quotas are defined that are adapted to the population weight of the groups to be balanced (maximum threshold slightly above the overall weight of the group; minimum threshold slightly below), and when accompanied by measures that ensure their fulfillment, can be an unquestionably effective mechanism to reduce the school segregation of these groups. The quota policy can be conceived as an instrument that is occasionally applied and can be adapted to the level and type of existing segregation in the different territories at any given time.

The quota policy can be conceived as an instrument that is applied occasionally and can be adapted to the level and type of segregation existing in the various territories at any given time.



- **Information support and empowerment programs for vulnerable families.** Although the evidence is limited in this regard, an appraisal of the feasibility and timeliness of various communication actions is deemed fitting, conducive to rectifying the information asymmetry observed as regards choice between different family profiles. The various actions to be assessed would include the public dissemination of indicators related to schools' academic results and the strengthening of proximity-based action by bodies such as the Oficines Municipals d'Escolarització (Municipal Enrolment Offices).
- **Mechanisms for matching preferences and less manipulable places.** Given the shortcomings of the Boston mechanism (which renders the success of school choice contingent on families' strategic capacity), the possibility of testing the application of the deferred allocation algorithm (less open to strategic gameplay) with common tie-breaking criteria controlled by the competent education authority could be explored.
- **Prioritize combating “more problematic segregation”.** Throughout this document we have made reference to the effect produced by different admissions policies on patterns of school segregation: socioeconomic, ethnic or academic segregation, as the case may be. It must be borne in mind that different segregation patterns do not always coincide and, as we have seen, there are admission policies that are more effective in redressing one type of segregation and policies that are more effective in tackling another type of segregation. Moreover, education literature makes it clear that there are some school concentrations that are more detrimental than others, and that this is not solely related to the question of numbers (percentage of concentrated students). There are individual and family factors that generate more educational disadvantage than others, at individual level and as a peer effect. For instance, it seems to be proven that, akin to other characteristics, being the son or daughter of an uneducated family implies greater educational vulnerability than having a foreign parent. From this point of view, it is expected that the segregation

of educational profiles shall be more problematic than segregation arising from immigration. In cases in which the form of segregation does not fully coincide, it would make sense to reinforce the instruments that have proven to be more effective in combating segregation that generates greater inequality.

- **Test and evaluate admissions policies and their reform.** There is no evidence more useful than the robust evidence produced as regards initiatives implemented in the nearest surrounding area. From this point of view, an emphasis should be placed on the need to assess both the implementation and, above all, the impact of admissions policies operating in Catalonia, as well as changes that may be introduced therein (in the establishment of quotas, grants or progressive vouchers, changes in zoning, information actions, school allocation algorithms, etc.). Only then shall we be able to fine-tune the design of school choice and allocation policies capable of combating with a greater chance of success those school segregation dynamics that most undermine equal opportunities in education.

Both the implementation and, above all, the impact of admissions policies operating in Catalonia, as well as the impact of changes that can be introduced therein, must be evaluated.



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(The empirical studies upon which the review is based are marked in bold)

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