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Navigating Centralized Admissions: The Role of Parental Preferences in School Segregation in Chile*

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Abstract

In this paper, we aim to understand some of the mechanisms behind the low impact of a Chilean educational reform on socioeconomic integration within the school system. We focus on pre-kindergarden (pre-K) admissions, which account for the highest volume of applications since all students (except those applying to private schools) must seek admission through the centralized system. We employ a discrete choice model to analyze parents' school preferences. Our analysis reveals that the school choices of low-SES families are more strongly influenced by a school's non-academic attributes – which are often omitted from analyses of parental preferences due to data availability constraints – rather than academic quality. For instance, low-SES parents tend to prefer schools with fewer reported violent incidents, schools where students report facing less discrimination and exclusion, and schools where students demonstrate higher levels of self-efficacy. Disadvantaged families also tend to favor schools that have a religious affiliation, offer more "classical" sports (e.g. soccer), or have a foreign name. These results have significant implications for understanding the preferences of disadvantaged families and the impact of centralized admission systems on reducing segregation. By recognizing the non-academic factors driving school choices, policymakers can better design admission systems that truly foster school diversity and equality.

JEL Classification: **A20, D12, I24**
Keywords: School Choice, Centralized Assignment Systems, Segregation.

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1 Introduction

Effective and inclusive education systems play an important role in promoting equal opportunities for all children. As part of a global shift in policy towards promoting diversity and equal access in education, various governments have introduced centralized school choice systems in an effort to make the admission process more transparent, efficient, and equitable (Elacqua et al., 2021). In these systems, families apply to schools through an online platform, ranking schools in order of preference. A mathematical algorithm, typically designed to be "strategy-proof," then uses this information to assign students to available slots, ensuring compliance with government-established priority criteria.

Centralized choice guarantees equal access to schools and has the potential to promote diversity within the education system. At the end of the enrollment period, each student is assigned to their top preference if there is an available seat. This eliminates supply-side selection, as schools are unable to screen students. Since the application process is centralized through a web platform, the system also decreases search costs for disadvantaged families and the time costs of applying to multiple schools. Moreover, the allocation algorithm can give higher priority or reserve some seats in the school for minority students, weakening the link between place of residence and school allocation by eliminating distance-based restrictions.[1]

Yet, existing evidence shows little or no significant impact of centralized choice reform on school segregation (Lauen, 2007; Denice and Gross, 2016; Kutscher et al., 2023; Honey and Carrasco, 2022). This appears to be related to the fact that the actual implementation of these systems often deviates from the theoretical assumptions underpinning them. Factors such as information frictions and behavioral biases can undermine the effectiveness of centralized assignment mechanisms in promoting integration. Evidence suggests that higher-income individuals are more adept at navigating centralized systems and making well-informed choices (Luflade, 2017; Ajayi et al., 2020).[2] Additionally, low- and high-SES families may have different preferences in terms of school attributes. Indeed, studies from centralized market designs consistently show that disadvantaged families place more weight on proximity than school quality (Hastings et al., 2009, among others). Residential segregation may also act as a barrier to equitable access to schools as there can be considerable variation in the local supply of schools across socioeconomic groups. Therefore, even a policy aimed at leveling the playing field for all families may not necessarily lead to increased socioeconomic integration across schools.

In 2016, Chile initiated a national reform known as the School Admission System, or *Sistema de Admisión Escolar* (SAE), which replaced a decentralized school choice scheme with a

[1] Examples of centralized admission systems in the region that establish priorities based on students' socioeconomic or disadvantaged status include Chile, Recife (Brazil), and Palmira (Colombia). In Chile, 15% of each school's vacancies are prioritized for students belonging to the lowest 40% socioeconomic level. In Recife, families that are recipients of the federal cash transfer program (*Bolsa Familia*) are prioritized. In Palmira, priority is given to families that were victims of the internal conflict, many of whom have been displaced.

[2] Families frequently rely on friends, family, and past experiences when judging a school's quality (Elacqua et al., 2006).

student-school matching process employing a Deferred Acceptance (DA) algorithm. Prior to this reform, schools were allowed to implement their own admission criteria and procedures. The application process required direct applications to schools and frequently involved screening or cream-skimming practices, including interviews, entrance exams, income verification, and sometimes even additional documentation such as religious marriage certificates. These practices were criticized for their perceived role in fostering high levels of school segregation (Santos and Elacqua, 2016; Valenzuela et al., 2014). Though the reform sought to improve equity and reduce segregation in the education system, initial studies have found little impact on access for low-income students (Kutscher et al., 2023; Honey and Carrasco, 2022).

In this paper, we aim to understand some of the mechanisms behind the low impact of the Chilean reform on socioeconomic integration in the education system. We focus on pre-kindergarden (pre-K) admissions, since all students entering this level–except those applying to private non-voucher schools–must seek admission through the centralized system. First, we review students' enrollment and application patterns. Then, we explore differences in the patterns of parental school preferences between disadvantaged and non-disadvantaged families. We focus on application data covering all pre-K students in 2019, when the reform was already fully implemented nationwide. Importantly, our investigation extends beyond academic considerations and includes a comprehensive range of non-academic attributes of the schools, including sports infrastructure, religious affiliations, extracurricular activities, and others.

The analysis reveals contrasts in the application patterns of disadvantaged and non-disadvantaged families. Consistent with other studies, non-disadvantaged students are more willing than their disadvantaged peers to travel longer distances to schools and apply to high-performing schools. Low-income families, on average, apply to fewer schools and are less likely to apply to schools in high demand (measured as the ratio of applications to vacancies), schools with higher-SES students, and previously selective schools. When we examine the impact of the SAE policy on school segregation, our results indicate that the reform has had no discernible effect on the socioeconomic composition of pre-K students across schools. Additionally, we do not find encouraging trends in the representation of disadvantaged families in schools considered more "desirable."

These results suggest that the removal of school admission barriers alone may only have a limited impact on the actual distribution of students. We accordingly explore whether disadvantaged and non-disadvantaged families differ in how they prioritize school attributes. We analyze parental school preferences by fitting a discrete choice model to their rank-ordered preference lists. In line with previous work, we find that parents assign higher rankings to closer schools, higher-performing schools, and those with a higher socioeconomic composition (Hastings et al., 2007; Burgess et al., 2015; Abdulkadiroğlu et al., 2020; Beuermann et al., 2023). However, we find substantial differences depending on family socioeconomic background. Low-SES families have lower odds of selecting a more distant school, one that charges fees, or one that had a selec-

tive admission process before the reform. In addition, they are less likely than non-disadvantaged parents to list high-quality schools or schools with a higher SES level.

Furthermore, we observe that the choices made by low-SES families are more strongly influenced by the school's non-academic attributes, which are often omitted from parental preference analyses due to data availability constraints. Low-SES parents tend to favor schools that offer more "classical" sports, have a foreign name, and have a religious affiliation. They are also more likely to rank schools with a relatively more favorable climate: those with fewer reported violent incidents, where students report facing less discrimination and exclusion, and where students demonstrate higher levels of self-efficacy.

We assess the robustness of our results to various specifications. For instance, we acknowledge that there may be disparities in the attributes of accessible schools and this may, to some extent, conflate parental preferences with their local constraints. Disadvantaged and non-disadvantaged families may have different sets of school choices due to residential or spatial inequalities. We take this into consideration by standardizing the school attributes at the education market level. Thus, instead of comparing preferences for these attributes in absolute terms, we do so at a relative level. Our results remain consistent to this and other robustness checks.

Our paper contributes to the literature in several ways. We add to the small body of studies examining the effects of centralized school admission systems on socioeconomic integration across schools. Two recent papers explore the Chilean reform by taking advantage of the discontinuities in the introduction of the policy. Kutscher et al. (2023) assess segregation in the first year of secondary school (ninth grade) and find that it increased following the reform in school districts with high levels of pre-existing residential segregation and in districts with a significant presence of private schools. Honey and Carrasco (2022) also study the Chilean reform and find little short-term effect on the enrollment of low-income students in desirable schools (i.e., high-performing or previously selective schools).

Our findings are also relevant to recent empirical research leveraging preference data from centralized school assignment mechanisms to investigate parental preferences (Beuermann et al., 2023; Abdulkadiroğlu et al., 2020; Glazerman and Dotter, 2017; Burgess et al., 2015). We make two important contributions to this literature. First, while most of these studies analyze revealed preferences in coordinated school admission systems, our investigation has the advantage of exploiting a national reform in a developing country. Second, much of this prior work has been limited in terms of the characteristics that could be measured and studied. The richness of our data allows us to include a comprehensive range of non-academic school attributes, including sports infrastructure, religious affiliation, extracurricular activities, and school safety and climate, among others.

The findings herein have important implications for our understanding of parental school preferences, especially among vulnerable populations. They indicate that parental preferences, in addition to well-documented constraints related to information and residential segregation, may

hinder school integration. This suggests that addressing disparities in school access and ensuring equitable educational opportunities for all students requires not only addressing structural and informational barriers but also working to challenge and reshape entrenched preferences that perpetuate educational inequalities. Such efforts should take into account the diverse needs and aspirations of vulnerable populations and promote inclusion and diversity within the education system.

The rest of the paper is organized as follows. The next section describes the education system in Chile and the new centralized admission system reform. Section 3 discusses the data, focusing in particular on the classification of disadvantaged and non-disadvantaged students. It also reports descriptive statistics on the reform and examines school enrollment patterns of pre-K students. Section 4 presents our empirical strategy for estimating parental preferences, and Section 5 sets forth the results of the rank order logit model and robustness checks. In Section 6, we offer some conclusions for policy related to parental choice and educational inequality in centralized student assignment systems.

2 Contextual Background

The education system in Chile consists of eight years of primary education and four years of secondary education. Schools are divided into public schools, financed by government vouchers (subsidies); private-voucher schools, financed by vouchers and additional fees to parents; and private non-voucher schools, which do not receive government funding. As of 2022, public schools represent approximately 37 percent of total enrollment, while private voucher schools account for approximately 53 percent of students, and the private non-voucher sector enrolls 10 percent of students.

Chile's educational system is known for being highly segregated. In an effort to combat this, the Chilean government introduced a centralized school admission system in 2016, called *Sistema de Admisión Escolar* (SAE), as the central pillar of a major education reform aimed at promoting social inclusion and reducing the high levels of school segregation. The previous (decentralized) student admission process was highly unregulated. Most private non-voucher and private-voucher schools selected students based on elements such as interviews with parents, entrance exams, proof of income, and religious marriage certificates. In fact, a significant number of schools continued to employ selective admission procedures even after having been legally restricted in their ability to do so in 2011 (Carrasco, 2014).[3]

The new school admission system was rolled out between 2016 and 2019, replacing the country's widely studied decentralized school choice system (Epple et al., 2017; Hsieh and Urquiola,

[3]There is no evidence that banning selective admission impacted school screening processes. According to the Ministry of Education, in 2005, 21% of private-voucher schools conducted interviews with parents and 28% used assessments to screen students. In 2012, after the 2008 SEP law made selective admissions technically illegal, and schools could be fined for screening students, 31% of private-voucher schools were still conducting interviews and testing new students.

2006; Mizala and Romaguera, 2000). The SAE eliminated supply-side choice for state-sponsored schools by requiring all families to apply to their preferred schools (public or voucher) with a rank-order logic through a centralized web application platform.[4] The system aims to allocate each student to their highest-ranked plausible choice, conditional on the priorities and seats available at each school. If there are fewer applicants than vacancies at any given school, all students are accepted. Meanwhile, a tie-breaking rule is used if the number of applicants exceeds the number of vacancies. The student-school matching process uses a Deferred Acceptance (DA) algorithm (Abdulkadiroğlu et al., 2009).

The algorithm gives higher priority to applicants whose sibling is already enrolled in their chosen school, those classified as vulnerable students (up to the minimum of 15% per grade level), students whose parent(s) work in the school, and those that were previously enrolled in a certain school.[5] Students not selected during the main phase may apply again in a complementary stage. Those not matched to any school are assigned to the closest school with available seats. Families living in urban areas are required to apply to at least two schools, while those living in rural areas are required to apply to a minimum of one school.

The implementation of the SAE policy was gradual, as shown in Table 1. The process began in 2016 in the Magallanes region to allocate students for the 2017 academic year.[6] It was extended to Tarapacá, Coquimbo, O'Higgins, and Los Lagos the following year and, in 2018, to Arica and Parinacota, Antofagasta, Atacama, Valparaíso, Maule, Biobío, Araucanía, Los Ríos, and Aysén. Finally, in 2019 it was introduced in the Metropolitan Region for the 2020 academic year.

Table 1: Timeline of SAE implementation across regions and years

Year of implementation	Regions
2017	Magallanes
2018	Tarapacá, Coquimbo, O'Higgins, Los Lagos
2019	Antofagasta, Araucanía, Arica y Parinacota, Atacama, Aysén, Biobío, Los Ríos, Maule, Ñuble, Valparaíso
2020	Metropolitan Region

In addition to the SAE, the education reform mandated that every school must operate as a nonprofit to be eligible for public funding. For-profit schools were given a two-year window to adjust their legal status. The government will also gradually replace the family co-payments

[4]The website provides information on each school's educational project, infrastructure, standardized test scores, facilities, and extra-curricular activities, among other characteristics.

[5]The vulnerability classification is based on a government SES index that is determined in several ways: two of most common are being accredited as belonging to the lowest 33% of the income distribution or receiving benefits from one or more social programs that target low-income families.

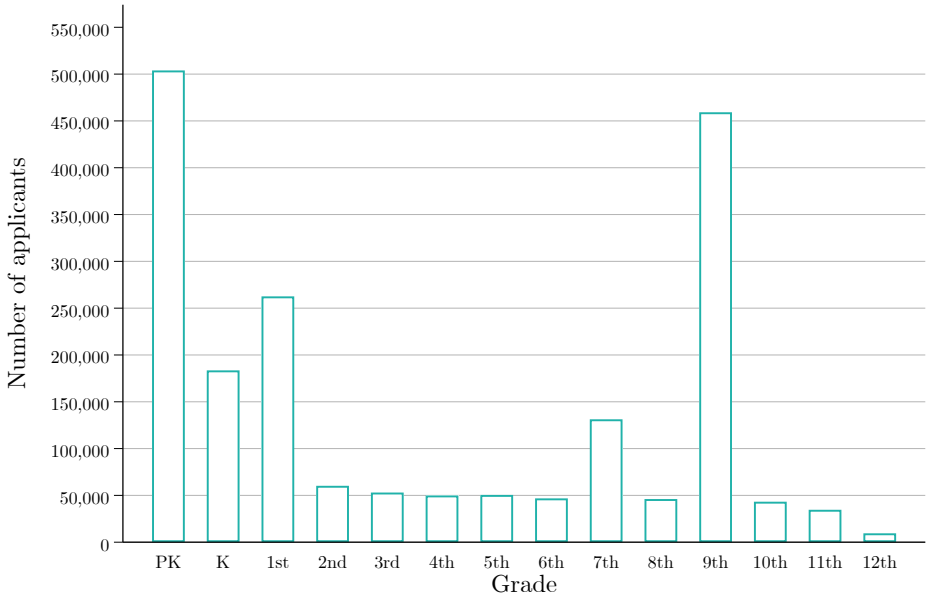
[6]The Chilean academic year begins in March and ends in December of the same year. This means that every student wanting to enter a public or voucher school must apply through the SAE the previous year.

for private-voucher schools with additional subsidies. Over a ten-year transition period, the fees charged to families will progressively decrease until they reach zero. Since the gradual elimination of the co-payment applies uniformly to all schools across the country and is not aligned with the phased implementation of the SAE in different regions, we do not anticipate any concerns about its impact.

3 Data

Participation in the SAE is mandatory for students seeking admission to public and private voucher schools for the first time, as well as for those whose current school does not offer the next grade and students who wish to change schools. In this paper, our analysis focuses on pre-kindergarten (pre-K) as it has the highest participation rate, as shown in Figure 1. All prospective students must participate, except those seeking admission solely to private non-voucher schools. The initial choice of school holds significant importance in a child's educational journey. This decision often sets the foundation for the child's academic and social development, shaping their learning experiences and opportunities, and can have long-lasting effects on a student's educational path.

Figure 1: Number of SAE applicants by grade, admission 2017-2022



Notes: This figure displays the total number of applicants applying for a seat in 2017, 2018, 2019, 2020, 2021 and 2022, broken down by grade.

We gather information from multiple sources. First, the SAE database contains information on the students' applications and schools' vacancies. Specifically, for all the students that partic-

ipated in the program, we know their rank-ordered school choices, gender, if they have siblings in the system, if they are categorized as vulnerable students, and their final school assignment. The school-level data includes the number of vacancies offered and additional characteristics such as location and tuition, among others.

We combine the above with other publicly available information on pupils and schools. Specifically, we have individual-level administrative data on all students enrolled in primary education, as well as a registry of all the schools in the country. This exceptionally comprehensive dataset enables us to capture numerous factors related to school characteristics and infrastructure, such as the availability of sports and other extracurricular activities, the school's religious affiliation, and whether it has a foreign name.

To further characterize schools, we exploit the Education Quality Measurement System (SIMCE, in Spanish), a battery of census-based standardized exams in different grades (starting in the second grade), which are accompanied by surveys for students and their parents. These surveys contain various questions on student and parent attitudes and beliefs about a wide range of school aspects, such as school climate, discipline, etc. The parental survey includes detailed information on household composition, demographics, and income. We use this information to construct different school-level indices, which include indicators on self-efficacy and motivation, school climate, and the frequency of violent events, among others. Note that we cannot obtain student-level family information from the SIMCE dataset as these exams are conducted starting in the second grade, thus there is no information for pre-K students.

Finally, the SEP dataset identifies all the students that are eligible for additional subsidies.[7] Before students apply to schools, the Ministry of Education determines students' eligibility for these subsidies based on their families' socioeconomic status. This data is indispensable for our analysis as it categorizes students as disadvantaged and non-disadvantaged. The government SES index classifies families as being disadvantaged in a number of ways, though the two most common are: belonging to the lowest 33% of the income distribution according to the government's data on socioeconomic status in the *Registro Social de Hogares* or receiving benefits from one or more social programs that target low-income families, specifically *Chile Solidario*, *Programa de Ingreso Ético Familiar*, or *Subsistema Singularidades y Oportunidades*.

It is important to note the potential drawbacks of using the SEP classification. As described in Section 2, students categorized as "vulnerable" in the government index automatically have priority in the algorithm. Thus, it is possible that families react endogenously to the policy by adjusting their priority status (e.g., by applying to social programs). Unfortunately, we do not have information on students' socioeconomic status before they enter pre-K (i.e., prior to the implementation of the reform). While we explore this possibility in Appendix A1, we do not find

[7]The *Subvencioón Escolar Preferencial* (SEP) is a national targeted voucher policy implemented in Chile in 2008, which increased the funding for disadvantaged students by 50%. Its purpose was to acknowledge the fact that educating low-income students is costly and also to give schools an incentive to serve disadvantaged students. Eligible schools had to sign up for the policy and agree not to charge out-of-pocket tuition to vulnerable students.

any evidence of strategic behavior among families before and after the SAE was implemented.

3.1 SAE policy

Figure 2a displays the number of pre-K students participating in the SAE by region and year. The number of applicants has remained steady at the regional level throughout the years, with the highest number in the Metropolitan Region. Over 70% of pre-K applications during the period went to the voucher sector, as shown in Figure 2b (except for 2016, when the policy was only in place in the southern Magallanes region, which has a higher proportion of students enrolled in public schools).

Figure 2: Pre-K applicants and applications, admission 2017-2022

(a) Number of pre-K applicants by region and year

(b) Percentage of pre-K applications by school type and year

Notes: Panel (a) displays the total number of pre-K applicants between 2017 and 2022, broken down by region. Panel (b) shows the percentage of pre-K applications made to public and voucher schools.

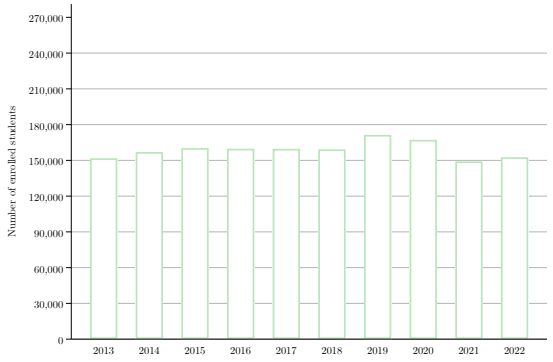
With respect to enrollment patterns, the administrative data indicate that the number of pre-K students enrolled has remained stable since 2013, with the public sector serving 35% of students, the voucher sector 54%, and the private non-voucher sector accounting for just over 10%, as shown in Figure 3a. There is a small decrease in 2021 and 2022, likely due to the COVID-19 pandemic. It is worth noting that, as shown in Figure A5 of the appendix, enrollment in pre-K is lower than in kindergarten or first grade. This is expected as preschool is not mandatory in Chile. However, most students enter the education system in pre-K, and those that enter in kindergarten or first grade have mothers with significantly fewer years of education.[8] Figure 3b shows that, since the implementation of the SAE, voucher enrollment has

[8] A simple regression of mothers' years of education on students' entry into the formal school system shows that the mothers of students who enter the school system in the first grade have one less year of education than those whose children entered in pre-K.

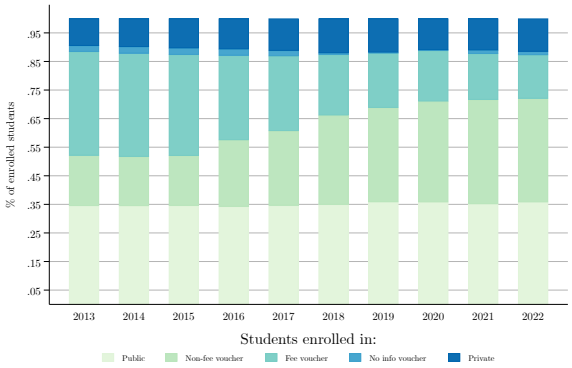
shifted away from voucher schools requiring co-payments to those that do not.

Figure 3: Pre-K enrollment, 2013-2022

(a) Number of Pre-K enrolled students



(b) Pre-K enrollment by school type, 2013–2022

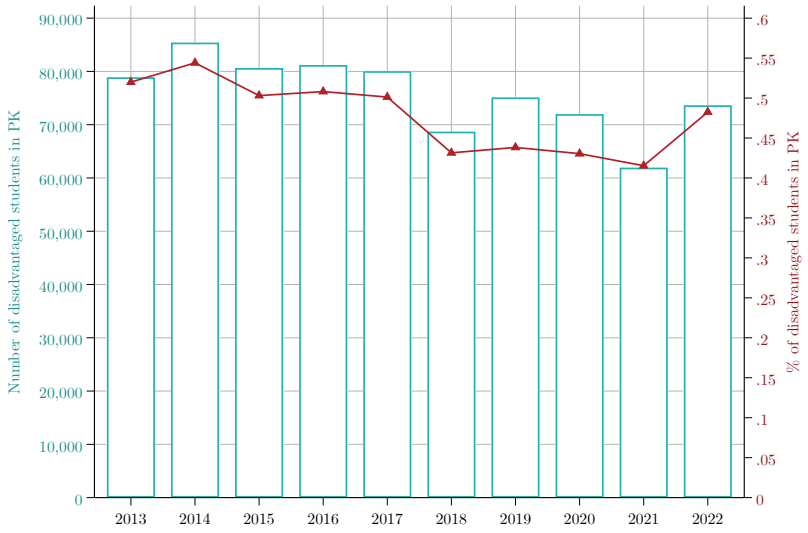


Notes: In this figure, Panel (a) illustrates the total number of students enrolled in pre-K, while Panel (b) shows the breakdown of these students across the public, fee-charging and no-fee voucher schools, and private schools. Note that the information on fees is based on self-reporting from schools, which is not universally available.

Finally, plotting enrollment trends among disadvantaged students makes it possible to analyze the impact of the SAE on the preferences of parents in low and high-income families. Figure 4 displays the trends in the number (bars, left y-axis) and share (line, right y-axis) of disadvantaged students enrolled in pre-K from 2013 to 2022. The number and percentage of disadvantaged students have decreased since the introduction of the reform, which helps alleviate the concern that families and schools are acting strategically in order to take advantage of the algorithm's priorities. Moreover, the distribution of disadvantaged students is far from homogeneous across school types. Disadvantaged students represent about 60% of pre-K enrollment in public schools, 40% in voucher schools, and only about 2% in private schools.

We explore application patterns among disadvantaged and non-disadvantaged students across different school characteristics for 2017-2022. Figure 5 shows some interesting–although not surprising–patterns. Consistent with other studies, non-disadvantaged students are more willing to travel longer distances to schools and more likely to apply to high-performing schools than disadvantaged students. Low-income families apply, on average, to fewer schools and are less likely to apply to highly demanded schools (measured as the ratio of applications to vacancies), or to schools with higher SES students, or ones that previously had a selective admissions process.

Figure 4: Disadvantaged students in Pre-K



Notes: This figure displays the number of disadvantaged students enrolled in pre-K (bars, left axis) and the fraction of all students in pre-K that they represent (line, right axis).

3.2 SAE and School Segregation

With the increased school access facilitated by the SAE, the expectation is that more low-income students will attend highly demanded, good-quality schools, including those that were previously selective and had used admissions systems that largely excluded them. In this section, we examine the pre-K enrollment patterns with the aim of assessing the impact of the reform on school segregation, which results to date have suggested remains negligible. In particular, we follow Kutscher et al. (2023) and take advantage of the staggered implementation of the SAE across regions, though we focus on pre-K students rather than the authors' approach of analyzing students entering the first year of secondary education (ninth grade).[9]

As in Kutscher et al. (2023), we restrict the analysis to the 2015 to 2019 school years. First, we do not want our study period to be too long as the government classification of vulnerability has changed over time. We also prefer not to go beyond 2019 so as to avoid confounding our estimates with the impact of the COVID-19 pandemic. Moreover, since the policy was implemented at the national level in 2020, we do not have a control group beyond 2019.

Schools can be characterized as either segregated or integrated, but this assessment is only meaningful in the context of the composition of an individual school district. School segregation becomes relevant when we compare schools within the same system, such as a school district or

[9]The effect of the policy on ninth graders may have been different than its effect on pre-K students. The sample of students participating in the system is larger for pre-K, as all students applying to voucher and public schools must do so through this centralized process (encompassing more than 90% of the country's student population). Students entering secondary education only need to change schools at the end of primary education if their current school does not offer secondary education.

a metropolitan area. For the purposes of this study, we define school districts as municipalities. This definition is based on the observation that, in our sample, approximately 90% of pre-kindergarten students attend a school within their municipality of residence.[10]

We employ the Duncan and Exposure Indices, two standard segregation measures commonly used in the literature (Valenzuela et al., 2014; Santos and Elacqua, 2016). The Duncan index measures the percentage of students designated as low socioeconomic status who would have to be reallocated across schools for equal representation of students from all socioeconomic backgrounds within the district. The index ranges from 0 to 1, with higher scores indicating greater segregation. The Exposure index reports, for the average disadvantaged student in a given district, the proportion of students in her school who are non-disadvantaged. A low exposure index indicates that students from different socioeconomic strata attend separate schools.

Therefore, we perform a difference-in-differences regression on school segregation at the municipality level to estimate the average impact of the SAE. Further details and a discussion on the identification assumptions can be found in Appendix A3. The results, displayed in Table A1, show that the introduction of the centralized admission system in the Chilean context did not significantly reduce school segregation.

Even if the policy did not significantly reduce segregation, it may have had a positive impact on the representation of low-income students in "desirable" schools. We accordingly investigate changes in the proportion of disadvantaged students in schools before and after the implementation of the centralized admission system. To this end, we employ a similar difference-in-differences strategy, but at the school level (see Appendix A3 for further details). Our analysis groups schools into categories based on their administration type (public, private voucher, or private non-voucher), academic achievement, average socioeconomic composition, level of selectivity before the reform (i.e., whether the school selected students through parental interviews, exams, or required proof of income), and their religious affiliation.[11] The results are shown in Table A3.

When examining schools of various administration types (public, voucher, and private) and different levels of selectivity before the reform, we find that the proportion of disadvantaged students increased in voucher schools but decreased in those that were more selective before the reform. Additionally, the representation of low-income students increased in schools with below-average performance on the SIMCE exam. While we do observe an increase in the presence of disadvantaged students in schools classified as having a medium to medium-high socioeconomic composition in their student body, we also note an increase in their presence in low-SES schools. Consequently, we do not identify consistent patterns that would suggest that low-income students are taking advantage of the system.

[10] We also replicate our analysis using an alternative, data-driven definition of education market. Results can be found in Appendix A3.

[11] The exact definition of these variables is provided in the next section.

3.3 Final sample and description of variables

The previous results suggest that the elimination of school admissions barriers alone may have only a limited effect on the actual distribution of students. We therefore explore whether disadvantaged and non-disadvantaged families have different preferences regarding the prioritization of school attributes.

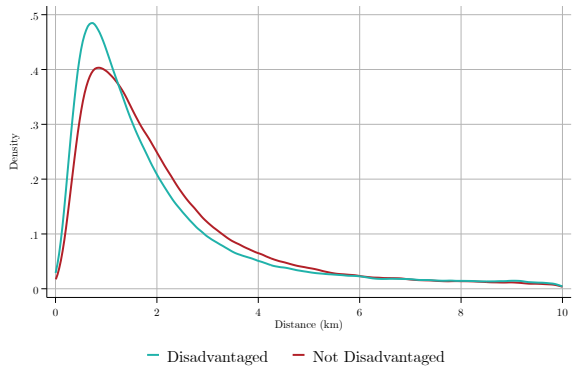
For the analysis of parental preferences, we focus on application data from all pre-K students in 2019, when the reform was fully implemented nationwide. Table 2 reports the main statistics on students and school characteristics in our final sample. Disadvantaged students represent 44% of the total sample, and on average they listed three schools with a mean Euclidean distance of about 4 kilometers from their home.

Panel B of Table 2 displays the statistics of the main school variables included in our analysis. We have incorporated a comprehensive set of characteristics to predict school demand. Specifically, these include the school's enrollment size, the number of teachers per student, the number of educational assistants (educational psychologists, psychologists, speech therapists, social workers, special education assistants, and hall monitors), a binary variable indicating whether the school is public or voucher, a binary variable indicating whether the school is part of an integration program for children with special needs (PIE), an indicator of whether the school charges fees to parents, a binary variable taking a value of one if the school had a selective admission process before the reform, the average math and reading test scores on the national fourth-grade standardized exams, and the average socioeconomic classification of the school.

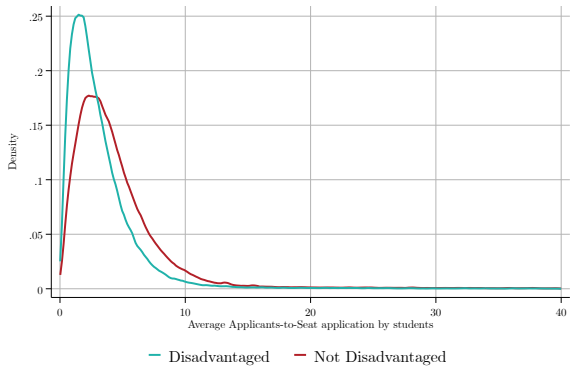
Additionally, we include indicators of whether the school has a religious affiliation, whether it has a foreign name, and information on its infrastructure, extracurricular activities, and sports offerings. Notably, we also introduce a set of non-academic variables obtained from student and parental questionnaires conducted alongside the standardized exams. These variables encompass measures of students' average self-efficacy, parental perceptions of the frequency of violent events in the school (including acts of student vandalism, fights, threats, and harassment among students and towards teachers), a measure of exclusion (the percentage of students reporting feeling discriminated against or left out, whether due to sexual orientation, immigrant status, gender, or other reasons), parents' expectations that their children will attend higher education, and participation in extracurricular activities. Detailed information on the construction of these variables can be found in Appendix A4.

Figure 5: Distribution of applications, by disadvantaged status, 2017-2022

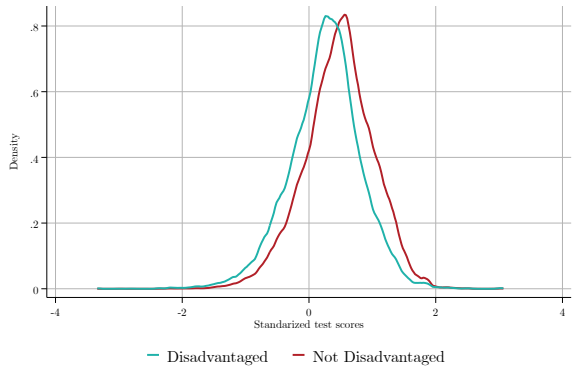
(a) Average distance between applicants' homes and their preferred schools



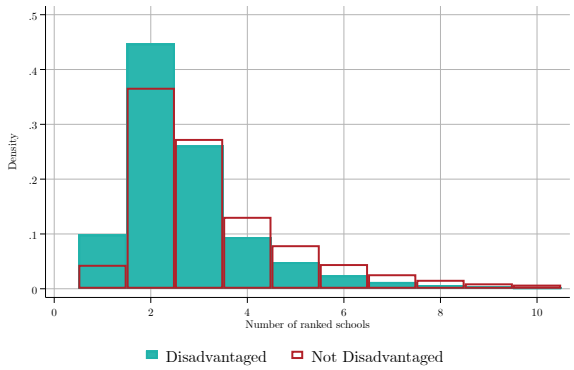
(b) Ratio of applications over school vacancies



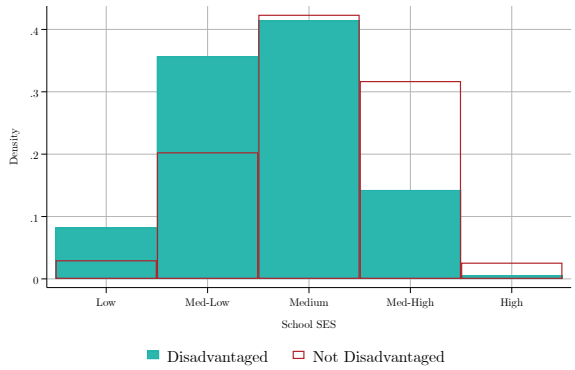
(c) School quality (test scores)



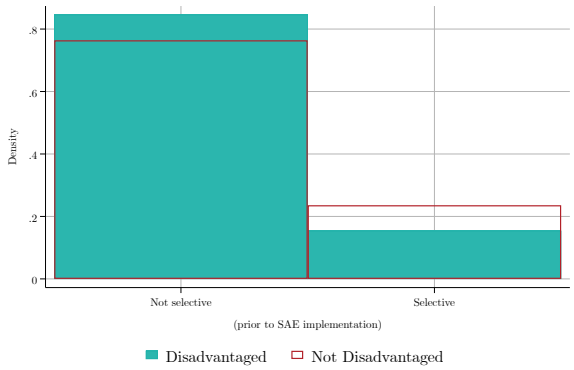
(d) Number of ranked schools



(e) School SES



(f) School selectiveness



Notes: This figure shows the distribution of applications by disadvantaged status. Panel (a) focuses on average home-school distance; Panel (b) on school demand (ratio of applications to vacancies); Panel (c) on the average SIMCE scores in math and reading; Panel (d) on the number of schools in families' ranked lists; Panel (e) on the average SES of the student bodies of the schools listed; and Panel (f) on whether the school had a selective admissions process prior to the SAE coming into force. For more details on the variables, see Appendix A4.

Table 2: Summary statistics

	N	Mean	SD	p10	p50	p90
A - Students						
Disadvantaged	133,017	0.44	0.50	0.00	0.00	1.00
Distance to listed schools (km)	133,017	3.56	30.05	0.54	1.56	5.60
Distance to 1st listed school (km)	133,017	3.16	30.33	0.27	1.21	5.50
Distance to 2nd listed school (km)	126,507	3.31	28.85	0.39	1.41	5.39
Distance to 3rd listed school (km)	73,606	3.70	34.34	0.47	1.61	5.49
Number of listed schools	133,017	3.09	1.77	2.00	3.00	5.00
Choice set size	133,017	34.49	22.21	9.00	29.00	67.00
B - Schools						
Enrollment	4,377	482.88	432.90	98.00	360.00	1,033.00
N of teachers per students	4,377	0.08	0.04	0.04	0.07	0.14
N of ed. assistants per students	4,377	0.02	0.02	0.01	0.02	0.04
N of sport infrastructure	4,377	1.28	0.57	1.00	1.00	2.00
N of art extracurriculars offered	4,377	3.06	1.73	1.00	3.00	5.00
N of classic sports offered	4,377	3.56	1.35	2.00	4.00	5.00
N of niche sports offered	4,377	1.04	0.99	0.00	1.00	2.00
Public	4,377	0.53	0.50	0.00	1.00	1.00
PIE	4,377	0.84	0.37	0.00	1.00	1.00
Foreign name	4,377	0.06	0.23	0.00	0.00	0.00
Religious	4,377	0.45	0.50	0.00	0.00	1.00
Any monthly fee	4,377	0.12	0.33	0.00	0.00	1.00
Had a selective admission	4,377	0.10	0.30	0.00	0.00	1.00
Math test scores	4,377	-0.06	0.83	-1.15	-0.07	1.00
Reading test scores	4,377	-0.00	0.83	-1.05	-0.03	1.10
Low SES school	4,377	0.23	0.42	0.00	0.00	1.00
Med-low SES school	4,377	0.44	0.50	0.00	0.00	1.00
Medium SES school	4,377	0.25	0.44	0.00	0.00	1.00
Med-high SES school	4,377	0.08	0.27	0.00	0.00	0.00
High SES school	4,377	0.00	0.07	0.00	0.00	0.00
Parental percep. of sch. violence	4,377	0.16	0.96	-0.85	-0.03	1.41
Exclusion	4,377	0.43	0.15	0.25	0.42	0.62
Parental college expectations	4,377	0.73	0.16	0.52	0.74	0.94
Self-efficacy	4,377	0.01	0.82	-0.92	0.02	0.98
Particip. in extracurricular activities	4,377	0.05	0.83	-0.94	0.03	1.10

Notes: This table displays summary statistics for the sample used in the parental preferences estimation.

4 Methodology

In this section, we describe the methodology used to gain a better understanding of family preferences. Which school attributes do families value? Do families from different socioeconomic levels value the same attributes? The literature on parental school preferences suggests that parents highly value proximity and academic performance. Moreover, high-income families generally tend to prioritize academic quality, while low-income families prioritize proximity to home (Hastings et al., 2007; Burgess et al., 2015). However, a growing body of literature shows that parents may also value schools that improve outcomes that are not highly correlated with test scores (Beuermann et al., 2023).

We analyze parental school preferences by fitting a discrete choice model to students' rank-ordered preference lists. We follow a random utility framework assuming the standard model of a utility-maximizing individual (McFadden, 1974). Let U_{ij} denote family i's utility from enrolling in school j, and let $J = \{1, \cdots, J\}$ represent their set of available schools. Following Abdulkadiroğlu et al. (2020)'s notation, the school ranked in k-order on a student's choice list is:

$$R_{ik} = \underset{j \in J \setminus \{R_{im}: m<k\}}{\text{argmax}} \; U_{ij}$$

We define the utility of student i in school j as follows:

$$U_{ij} = \gamma_1 Z_j + \delta_1 W_{ij} + D_i \times (\gamma_2 Z_j + \delta_2 W_{ij}) + \epsilon_{ij}$$

where Z_j represents features of the school, W_{ij} represents variables that depend on the applicant-school pair, such as the distance from student i's home address to school j, and D_i indicates whether the student is classified as disadvantaged. We assume ϵ_i follows an extreme value distribution of type I. Hence, it is a rank-ordered multinomial logit model, also known in the literature as exploded logit. The logit model implies the conditional likelihood of the rank list $R_i = (R_{i1}, \cdots, R_{il(i)})$, with $l(i)$ being the length of the list submitted by the student, is:

$$\mathcal{L}(R_i | X_i, Z_j, W_i) = \prod_{k=1}^{l(i)} \frac{\exp(\gamma_1 Z_j + \delta_1 W_{ij} + D_i \times (\gamma_2 Z_j + \delta_2 W_{ij}))}{\sum_{j \in J \setminus \{R_{im}: m<k\}} \exp(\gamma_1 Z_j + \delta_1 W_{ij} + D_i \times (\gamma_2 Z_j + \delta_2 W_{ij}))}$$

Hence, the probability of observing a specific ranking can be written as the product of these terms, representing a sequential decision in which the student first chooses the most preferred school, then the next most preferred school among the remaining options, and so on.

Note that this model imposes the assumption of the independence of irrelevant alternatives (Long and Freese, 2006). This means that the model assumes that the relative preferences for two alternatives do not depend on the other alternatives available. Thus, in this setting, the ranking of school A versus school B remains the same whether or not school C is available as an

alternative. In addition, even though we include a very rich set of school characteristics, there still could be unobserved school factors that influence parents' choices and are correlated with attributes in our model.

In the Chilean context, parents select all the schools they prefer (a minimum of two if they live in an urban area) in order of preference and without any residential proximity restrictions (i.e., parents do not have to choose schools within a particular district). This is an important advantage compared to other contexts where parents can nominate a finite number of schools or there are constraints on their possible choices.[12] In addition, since our focus is on pre-K, all schools have most of their vacancies available, such that students have a high chance of being accepted at their listed schools.

One important decision is how to define the set of schools that families choose from, as there are no legal or geographical restrictions in Chile. We define school districts as municipalities. This definition is based on the observation that, in our sample, approximately 90% of pre-K students attend a school within their municipality of residence. As a robustness check, we also use a different, data-driven definition for education markets.

We acknowledge that this model may, to a degree, conflate families' preferences with the constraints they face. In other words, the differences in preferences between disadvantaged and non-disadvantaged families could, in part, reflect disparities in the attributes of accessible schools due to residential or spatial inequalities. We attempt to capture this by standardizing school attributes at the education market level. Thus, instead of comparing preferences for these attributes in absolute terms, we do it at a relative level. This means that we can ascertain whether families are choosing better quality schools, for example, from among the options they have available.

In addition, we run a conditional logit model on families' first preference. We do this as a way of acknowledging that some parents might have only one school in mind for their children, and they only choose the other school(s) on their list to meet the government's minimum requirement. In other words, the first preference could more reliably capture families' true preferences. We also assess the robustness of our results to different specifications. For instance, we replicate our analysis for a sub-sample consisting of only urban municipalities, as students living in these municipalities may have a significantly larger school choice set. An important caveat of this analysis is that, even though we include a rich set of variables that intend to capture several dimensions of the determinants of parental preferences, unobserved variables could still exist.

5 Main results

In this section, we present the empirical results from the parental preference estimations. Column (1) of Table 3 displays the results from the rank-ordered logit estimation, while column

[12] For instance, in England, parents can list between three and six schools (Burgess et al., 2015).

(2) displays the results of the logit estimation conditional on the first preference only. Due to the large set of variables, we only report the coefficients on the interaction with students' disadvantaged status. The non-interacted terms can be found in Table A4.

The results should be interpreted in terms of the exponentiated coefficients, which can be interpreted as an odds ratio. That is, the coefficients indicate the percent change in the odds of a particular school being ranked ahead of the base category for a unit increase in the explanatory variable, holding other variables constant.

As expected, the results indicate that preferences vary among disadvantaged and non-disadvantaged families. Low-SES students show a stronger aversion to distance from school and place less importance on academic performance compared to high-SES students. They tend to select larger schools with a greater number of teaching and non-teaching staff relative to the student body. They are also less likely to apply to schools that require a co-payment or ones that had a selective admission process in place prior to the reform. This finding is surprising, given that "priority" students typically do not have to pay school fees in most schools.[13] This could suggest that some families are unaware of their eligibility for these benefits and, consequently, believe they lack the resources to enroll their children in fee-charging schools.

Furthermore, disadvantaged families are notably less inclined to apply to schools in which the student body comes from a higher socioeconomic status, which we call high-SES schools (note that the baseline comparison group is comprised of low-SES schools). These results may suggest that, despite the inclusion of low-income families in previously selective and high-SES schools, students from these families may still not feel fully integrated or welcomed within the school or its community (Bell, 2009). Another contributing factor could be that families typically rely on their social networks when making school choices, which can make these decisions more persistent.

Interestingly, we observe that disadvantaged families' choices are more strongly influenced by other non-academic attributes of the school, which are often omitted from parental preference analyses due to data availability constraints. Low-SES parents tend to favor schools that offer more "classical" sports, have a foreign name, or possess a religious affiliation. These families are also more likely to prioritize schools with a more favorable school climate, reflected in their preference for schools with fewer reported violent incidents, schools where students report facing less discrimination and exclusion, and schools where students demonstrate higher levels of self-efficacy.

Surprisingly, disadvantaged families place less value on the sports infrastructure and extra-curricular activities offered by the school compared to non-disadvantaged families. This result may also be related to the socioeconomic level of the feasible set of schools. When we examine the number of sports offered, distinguishing between classical sports (e.g., soccer, basketball,

[13] In our sample, 92% of the schools participate in the SEP policy, a national targeted voucher implemented in Chile in 2008, which increased the funding for disadvantaged students by 50%. Participating schools cannot charge out-of-pocket tuition to disadvantaged or "priority" students.

volleyball, and table tennis) and niche or elite sports (e.g., hockey, golf, swimming, etc.), we find that low-income parents choose schools with more classical sports, while high-income parents choose schools with more elite sports. Elite sports include those that require special and costly infrastructure and more specialized instructors.

As previously discussed, because this model might, to some extent, conflate parental preferences with parents' local constraints, as a next step, we standardize the independent variables to account for the possibility that the observed preferences could also be influenced by variations in school availability. Table 4 reports the results for these estimations for both the full ranked list (column 1) and first choices only (column 2). Again, we only report the coefficients on the interaction with the disadvantaged status of the student (the non-interacted terms can be found in Table A5).

Overall, we find similar patterns: all else being equal, increasing the distance to school reduces the odds that a disadvantaged parent prefers that school compared to a non-disadvantaged parent. The odds that disadvantaged families rank a previously fee-charging school or selective school are 15 and 9 percent lower, respectively. In addition, they are less likely to rank high-performing schools and their probability of ranking a medium-SES school above a low-SES school is almost 80 percent lower than high-SES parents.

Other aspects of the data reinforce the idea that disadvantaged families value schools and communities where they feel more welcomed. A decrease of 1 standard deviation in the indicator of parental perception of school violence makes low-SES parents 2% less likely to rank a school compared to a high-SES parent. Meanwhile, disadvantaged parents are 5% more likely to choose a school with a religious affiliation. An increase of 1 SD in a school's indicator of exclusion or discrimination among students, likewise, is associated with a 2% drop in disadvantaged families' odds of ranking that school.

All in all, these results show that parents from more vulnerable contexts are concerned to a significant degree about various non-academic outcomes, such as their children's safety, and exhibit less interest in academic aspects than their more affluent counterparts. These findings have important implications for our understanding of parental preferences, especially among low-SES families. Indeed, this is a crucial insight, given evidence that non-academic outcomes and school's test scores may be only weakly related (Beuermann et al., 2023).

5.1 Robustness checks

Data-driven education markets. We also consider an alternative definition of education markets, following Kutscher et al. (2023). Specifically, we construct data-driven education markets, assuming two municipalities are part of the same school district if:[14]

[14]The threshold of 7.5% was chosen because, on the one hand, it needed to be less than 10% to allow for a higher level of aggregation than at the municipality level. This choice was informed by our data, which revealed that approximately 90% of pre-K students attend schools within their municipality of residence. On the other hand, we wanted to avoid very large markets, as we are aware that parents with children in primary education

1. 7.5% or more of the students who live in municipality i attend a school in municipality j, or vice versa, and

2. the travel distance by car between the centroids of the municipalities i and j is less than 2 hours.

Figure 6 illustrates the comparison between municipalities and this new definition of data-driven markets in three major metropolitan areas of Chile. The black lines delineate the borders of the data-driven markets, while the white lines show municipal borders. We also replicate our analysis including a small buffer zone on the edge of the cities, as shown in Figure 6, which effectively removes students living close to the border of two markets, for whom we might be defining the set of eligible schools incorrectly.

Table 5 displays the results of these regressions. Columns (1) and (2) report the coefficients from the parental preference estimations with the data-driven markets, for both the full list of ranked schools and the top choice. Columns (3) and (4) report the coefficients for these same estimations for the data-driven markets but with the buffer described above. The results remain consistent.

Urban municipalities.

To ensure that rural-urban differences do not drive our findings, we re-estimate the regression models excluding rural districts from the sample. We define rural municipalities as municipalities in which at least half of schools are rural. Students living in these municipalities have a significantly smaller school choice set. Our results, reported in Table 6, remain robust to this exercise.

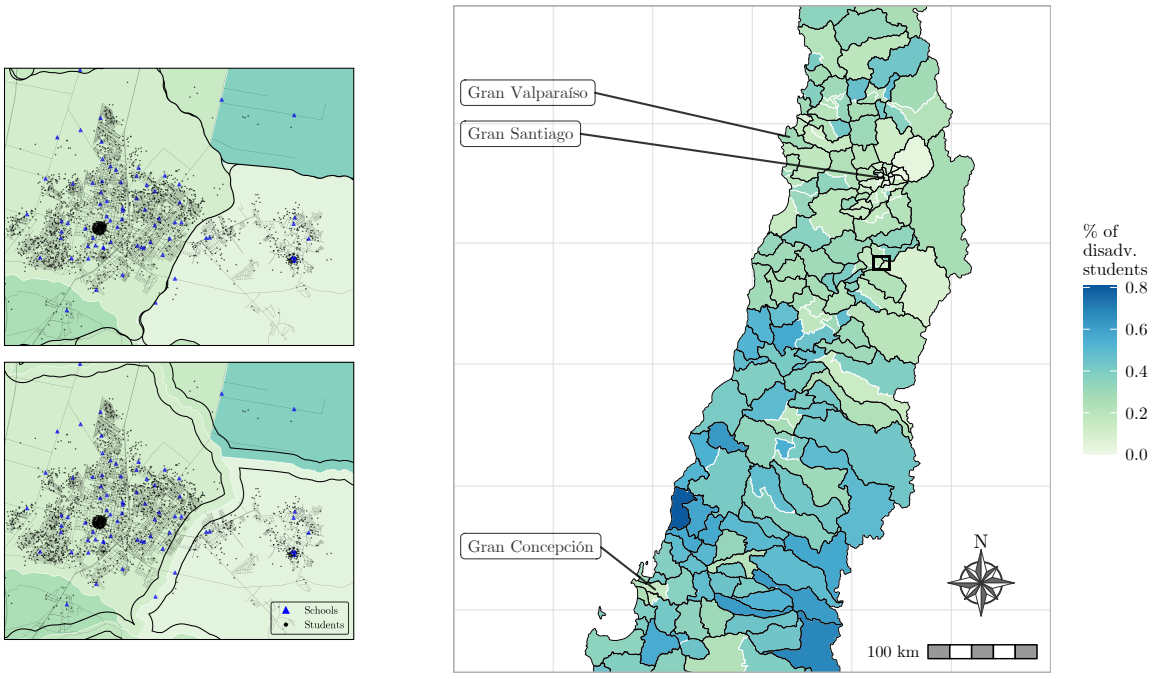
Ranked preferences without top choice. We re-estimated the benchmark model omitting each applicant's top school choice. The results can be found in **??**. The premise is that disadvantaged families might not understand how the DA algorithm works and may want to "secure" a vacancy for their children by listing as their top choice their neighborhood school, which is familiar to them. However, the resulting estimates did not differ substantially from the main results, suggesting that low-SES parents' top choices follow similar selection patterns as their lower-ranked schools.

6 Conclusions

Centralized admission mechanisms offer an equitable way of assigning students to schools because each pupil is treated equally in the assignment process. Families list their preferences, and students are allocated to schools based on the available seats and government-established priorities. This system eliminates schools' discriminatory selective practices and enhances school

tend to select schools close to their homes.

Figure 6: Municipalities and data-driven markets



Notes: This figure displays the municipalities in the most populous region of Chile, encompassing three major metropolitan areas. Each municipality is color-coded based on the percentage of disadvantaged students in pre-K in 2019 across both public and private voucher schools. Black lines delineate the borders of the data-driven markets we constructed. On the left, a zoomed-in map highlights the area enclosed by a black square on the main map. The top left panel shows the market borders without buffers, while the bottom left panel displays market borders with a 500m buffer, which effectively removes from our sample students living close to the borders between education markets. It should be noted that the buffer only excludes students close to the border, not schools.

choice, particularly for families from disadvantaged backgrounds. Yet, empirical evidence indicates such mechanisms do not necessarily lead to reduced socioeconomic school segregation.

In this paper, we first confirm previous findings that the introduction of the centralized admission system has not significantly diminished school segregation. We then explore parental preferences among disadvantaged and non-disadvantaged families. We discover that the choices made by low-SES families are more strongly associated with non-academic factors. Low-SES parents tend to prioritize schools with a more favorable school environment, better indicators of student self-efficacy, fewer reported violent events, and a religious affiliation. They also tend to select schools that are close to where they live, have lower average test scores, a lower socioeconomic composition of the student body, and ones that had less selective admission processes before the reform.

Hence, our results suggest that the elimination of barriers to school admission alone may have only a limited effect on the actual distribution of students. In addition to information fric-

tions and other structural barriers, such as the uneven distribution of schools across residential neighborhoods, families tend to self-select into schools that perform poorly on national standardized test scores and serve a relatively disadvantaged population. Providing them with the option to choose any school may therefore not lead to significant changes in enrollment patterns, at least not in a manner that directly affects school segregation.

Future studies might conduct information experiments focused on low-SES parents, paying particular attention to reducing the costs associated with learning about the algorithm and school attributes. This would encompass both academic and non-academic attributes, enabling these parents to make more informed choices. There is evidence from randomized control trials that provide information to families during the application process can lead to behavioral changes (see, for example, Hastings and Weinstein, 2008; Allende et al., 2019; Ajayi et al., 2020; Arteaga et al., 2022). Such experiments could shed light on the effectiveness of information interventions in promoting equitable access to schools and potentially reducing educational disparities among low-SES families.

Table 3: Families' preferences

	(1) Full list of ranked schools	(2) On the 1st ranked school
Disadvantaged		
× Distance	-0.0379***	-0.0521***
	(0.0008)	(0.0022)
× N of enrolled students	0.0001***	0.0001***
	(0.0000)	(0.0000)
× $\frac{\text{N of teaching staff}}{\text{N of enrolled students}}$	0.5741**	1.9420***
	(0.2654)	(0.4469)
× $\frac{\text{N of non-teaching staff}}{\text{N of enrolled students}}$	3.3423***	5.1301***
	(0.5902)	(1.0146)
× N of Sport infrastructure	-0.0354***	-0.0406***
	(0.0065)	(0.0115)
× N of Art extacurr. offered	-0.0123***	-0.0225***
	(0.0022)	(0.0039)
× N of classic sports offered	0.0066**	0.0102*
	(0.0029)	(0.0052)
× N of niche sports offered	-0.0357***	-0.0491***
	(0.0036)	(0.0063)
× Public	-0.1793***	-0.1751***
	(0.0116)	(0.0206)
× PIE	-0.0159*	-0.0205
	(0.0093)	(0.0167)
× Foreign name	0.0257**	0.0293
	(0.0128)	(0.0235)
× Religious	0.0524***	0.0511***
	(0.0075)	(0.0132)
× Any monthly fee	-0.1585***	-0.0704***
	(0.0118)	(0.0217)
× Had a selective admission	-0.0444***	-0.0733***
	(0.0095)	(0.0170)
× Reading test scores	-0.0522***	-0.0823***
	(0.0098)	(0.0171)
× Math test scores	-0.0300***	-0.0225
	(0.0090)	(0.0157)
× Med-low SES school	-0.3424***	-0.3337***
	(0.0197)	(0.0320)
× Medium SES school	-0.7576***	-0.8001***
	(0.0224)	(0.0373)
× Med-high SES school	-1.3002***	-1.5449***
	(0.0268)	(0.0459)
× High SES school	-2.0249***	-2.4408***
	(0.0465)	(0.0792)
× Parental percep. of sch. violence	-0.0013	0.0029
	(0.0060)	(0.0106)
× Exclusion	-0.1930***	-0.1613**
	(0.0374)	(0.0649)
× Parental college expectations	-0.8585***	-1.2947***
	(0.0475)	(0.0821)
× Self-efficacy	0.0183***	0.0328***
	(0.0068)	(0.0118)
× Particip. in extracurricular activities	0.0036	0.0208**
	(0.0056)	(0.0099)
Observations (individuals × choice set)	4,392,543	3,988,127
Pseudo-R^2	0.127	0.160

Notes: This table displays families' preferences following Section 4. To see the non-interacted coefficients, refer to Table A4. Standard errors are displayed in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Families' preferences with standardized school characteristics

	(1) Full list of ranked schools	(2) On the 1st ranked school
Disadvantaged		
× STD Distance	-0.2905***	-0.2311***
	(0.0052)	(0.0097)
× STD N of enrolled students	0.0225***	0.0037
	(0.0034)	(0.0061)
× STD $\frac{\text{N of teaching staff}}{\text{N of enrolled students}}$	-0.0677***	-0.0750***
	(0.0111)	(0.0193)
× STD $\frac{\text{N of non-teaching staff}}{\text{N of enrolled students}}$	-0.0788***	-0.0623***
	(0.0088)	(0.0158)
× STD N of Sport infrastructure	-0.0204***	-0.0262***
	(0.0038)	(0.0067)
× STD N of Art extacurr. offered	-0.0288***	-0.0442***
	(0.0038)	(0.0067)
× STD N of classic sports offered	0.0078*	0.0109
	(0.0040)	(0.0071)
× STD N of niche sports offered	-0.0293***	-0.0340***
	(0.0036)	(0.0064)
× Public	-0.1277***	-0.1051***
	(0.0114)	(0.0205)
× PIE	0.0413***	0.0538***
	(0.0095)	(0.0171)
× Foreign name	0.0226*	0.0338
	(0.0130)	(0.0239)
× Religious	0.0491***	0.0571***
	(0.0076)	(0.0135)
× Any monthly fee	-0.1679***	-0.0791***
	(0.0120)	(0.0222)
× Had a selective admission	-0.0935***	-0.1200***
	(0.0097)	(0.0175)
× STD Reading test scores	-0.0339***	-0.0596***
	(0.0078)	(0.0138)
× STD Math test scores	-0.0383***	-0.0284**
	(0.0071)	(0.0126)
× Med-low SES school	-0.4440***	-0.4426***
	(0.0194)	(0.0317)
× Medium SES school	-0.9633***	-1.0281***
	(0.0217)	(0.0365)
× Med-high SES school	-1.6039***	-1.8723***
	(0.0263)	(0.0455)
× High SES school	-2.3940***	-2.8311***
	(0.0463)	(0.0795)
× STD Parental percep. of sch. violence	-0.0191***	-0.0171*
	(0.0054)	(0.0097)
× STD Exclusion	-0.0210***	-0.0141
	(0.0056)	(0.0100)
× STD Parental college expectations	0.0313***	-0.0354***
	(0.0073)	(0.0130)
× STD Self-efficacy	0.0181***	0.0267***
	(0.0051)	(0.0092)
× STD Particip. in extracurricular activities	0.0000	0.0052
	(0.0046)	(0.0081)
Observations (individuals × choice set)	4,373,266	3,967,881
Pseudo-R^2	0.156	0.211

Notes: This table displays families' preferences following Section 4. To see the non-interacted coefficients, refer to Table A5. Standard errors are displayed in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Families' preferences with data-driven markets

	Data-driven markets		Data-driven markets w/ buffer	
	(1) Full list of ranked schools	(2) On the 1st ranked school	(3) Full list of ranked schools	(4) On the 1st ranked school
Disadvantaged				
× Distance	-0.0646***	-0.0235***	-0.0494***	-0.0018
	(0.0012)	(0.0024)	(0.0013)	(0.0026)
× N of enrolled students	0.0001***	0.0001***	0.0001***	0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
× $\frac{\text{N of teaching staff}}{\text{N of enrolled students}}$	1.6188***	1.4191***	1.6034***	1.3294***
	(0.2663)	(0.4458)	(0.2790)	(0.4670)
× $\frac{\text{N of non-teaching staff}}{\text{N of enrolled students}}$	2.3826***	4.1175***	2.5611***	4.4078***
	(0.5960)	(1.0334)	(0.6282)	(1.0909)
× N of Sport infrastructure	-0.0370***	-0.0497***	-0.0388***	-0.0522***
	(0.0065)	(0.0114)	(0.0068)	(0.0120)
× N of Art extacurr. offered	-0.0081***	-0.0174***	-0.0084***	-0.0196***
	(0.0022)	(0.0039)	(0.0023)	(0.0041)
× N of classic sports offered	0.0088***	0.0088*	0.0087***	0.0114**
	(0.0029)	(0.0052)	(0.0031)	(0.0055)
× N of niche sports offered	-0.0281***	-0.0410***	-0.0282***	-0.0415***
	(0.0036)	(0.0064)	(0.0038)	(0.0067)
× Public	-0.2419***	-0.2032***	-0.2230***	-0.1824***
	(0.0113)	(0.0202)	(0.0120)	(0.0213)
× PIE	-0.0204**	-0.0116	-0.0239**	-0.0229
	(0.0093)	(0.0165)	(0.0098)	(0.0174)
× Foreign name	0.0226*	0.0287	0.0241*	0.0321
	(0.0130)	(0.0237)	(0.0136)	(0.0249)
× Religious	0.0375***	0.0506***	0.0310***	0.0452***
	(0.0075)	(0.0133)	(0.0079)	(0.0139)
× Any monthly fee	-0.1196***	-0.0387*	-0.1282***	-0.0493**
	(0.0118)	(0.0216)	(0.0125)	(0.0228)
× Had a selective admission	-0.0703***	-0.0883***	-0.0635***	-0.0758***
	(0.0094)	(0.0168)	(0.0099)	(0.0176)
× Reading test scores	-0.0371***	-0.0726***	-0.0316***	-0.0656***
	(0.0099)	(0.0174)	(0.0104)	(0.0182)
× Math test scores	-0.0287***	-0.0213	-0.0308***	-0.0237
	(0.0090)	(0.0159)	(0.0095)	(0.0167)
× Med-low SES school	-0.3395***	-0.2884***	-0.3161***	-0.2812***
	(0.0198)	(0.0325)	(0.0206)	(0.0338)
× Medium SES school	-0.7896***	-0.7510***	-0.7484***	-0.7382***
	(0.0225)	(0.0376)	(0.0234)	(0.0393)
× Med-high SES school	-1.3641***	-1.4991***	-1.3249***	-1.4896***
	(0.0268)	(0.0461)	(0.0281)	(0.0482)
× High SES school	-2.1365***	-2.4404***	-2.0806***	-2.4103***
	(0.0463)	(0.0789)	(0.0485)	(0.0827)
× Parental percep. of sch. violence	-0.0053	0.0100	-0.0018	0.0161
	(0.0060)	(0.0106)	(0.0064)	(0.0112)
× Exclusion	-0.2120***	-0.1740***	-0.2025***	-0.1672**
	(0.0378)	(0.0660)	(0.0398)	(0.0694)
× Parental college expectations	-0.9889***	-1.3484***	-1.0065***	-1.3598***
	(0.0479)	(0.0835)	(0.0503)	(0.0875)
× Self-efficacy	0.0200***	0.0351***	0.0166**	0.0387***
	(0.0068)	(0.0120)	(0.0072)	(0.0125)
× Particip. in extracurricular activities	0.0158***	0.0216**	0.0113*	0.0115
	(0.0056)	(0.0099)	(0.0059)	(0.0104)
Observations (individuals × choice set)	7,998,524	7,504,891	7,293,587	6,849,561
Pseudo-R^2	0.131	0.172	0.136	0.178

Notes: This table displays families' preferences following Section 4. To see the non-interacted coefficients, refer to Table A6. Standard errors are displayed in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Families' preferences without rural municipalities

	(1) Full list of ranked schools	(2) On the 1st ranked school
Disadvantaged		
× Distance	-0.0135***	-0.0491***
	(0.0010)	(0.0028)
× N of enrolled students	0.0001***	0.0001***
	(0.0000)	(0.0000)
× $\frac{\text{N of teaching staff}}{\text{N of enrolled students}}$	-1.6377***	0.1648
	(0.3027)	(0.5272)
× $\frac{\text{N of non-teaching staff}}{\text{N of enrolled students}}$	2.7457***	4.3893***
	(0.6721)	(1.1950)
× N of Sport infrastructure	-0.0403***	-0.0397***
	(0.0069)	(0.0124)
× N of Art extacurr. offered	-0.0114***	-0.0215***
	(0.0024)	(0.0042)
× N of classic sports offered	0.0058*	0.0067
	(0.0031)	(0.0056)
× N of niche sports offered	-0.0351***	-0.0477***
	(0.0038)	(0.0068)
× Public	-0.1993***	-0.2039***
	(0.0125)	(0.0225)
× PIE	0.0054	0.0026
	(0.0097)	(0.0175)
× Foreign name	0.0187	0.0213
	(0.0134)	(0.0245)
× Religious	0.0599***	0.0634***
	(0.0079)	(0.0142)
× Any monthly fee	-0.1780***	-0.0880***
	(0.0122)	(0.0224)
× Had a selective admission	-0.0476***	-0.0840***
	(0.0099)	(0.0177)
× Reading test scores	-0.0609***	-0.0939***
	(0.0107)	(0.0192)
× Math test scores	-0.0210**	-0.0021
	(0.0097)	(0.0175)
× Med-low SES school	-0.3270***	-0.3031***
	(0.0239)	(0.0404)
× Medium SES school	-0.7536***	-0.7837***
	(0.0266)	(0.0454)
× Med-high SES school	-1.2930***	-1.5246***
	(0.0309)	(0.0539)
× High SES school	-2.0406***	-2.4369***
	(0.0494)	(0.0846)
× Parental percep. of sch. violence	-0.0051	0.0025
	(0.0065)	(0.0117)
× Exclusion	-0.1518***	-0.0654
	(0.0416)	(0.0743)
× Parental college expectations	-0.8203***	-1.3133***
	(0.0540)	(0.0966)
× Self-efficacy	0.0160**	0.0393***
	(0.0075)	(0.0133)
× Particip. in extracurricular activities	0.0056	0.0209*
	(0.0061)	(0.0109)
Observations (individuals × choice set)	4,154,485	3,781,446
Pseudo-R^2	0.121	0.149

Notes: This table displays families' preferences following Section 4. To see the non-interacted coefficients, refer to Table A7. Standard errors are displayed in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 7: Families' preferences dropping 1st ranked school

	Full list minus the 1st preference	
	(1) All municipalities	(2) Urban municipalities
Disadvantaged		
× Distance	-0.0152***	-0.0021***
	(0.0010)	(0.0004)
× N of enrolled students	0.0001***	0.0001***
	(0.0000)	(0.0000)
× $\frac{\text{N of teaching staff}}{\text{N of enrolled students}}$	-1.6159***	-2.9758***
	(0.3396)	(0.3740)
× $\frac{\text{N of non-teaching staff}}{\text{N of enrolled students}}$	2.4631***	2.2110***
	(0.7411)	(0.8221)
× N of Sport infrastructure	-0.0383***	-0.0419***
	(0.0080)	(0.0084)
× N of Art extacurr. offered	-0.0093***	-0.0089***
	(0.0027)	(0.0029)
× N of classic sports offered	0.0066*	0.0073*
	(0.0036)	(0.0038)
× N of niche sports offered	-0.0341***	-0.0348***
	(0.0044)	(0.0046)
× Public	-0.1920***	-0.2092***
	(0.0143)	(0.0151)
× PIE	-0.0051	0.0043
	(0.0114)	(0.0118)
× Foreign name	0.0320**	0.0195
	(0.0154)	(0.0161)
× Religious	0.0537***	0.0570***
	(0.0092)	(0.0097)
× Any monthly fee	-0.2086***	-0.2215***
	(0.0143)	(0.0147)
× Had a selective admission	-0.0386***	-0.0412***
	(0.0117)	(0.0120)
× Reading test scores	-0.0456***	-0.0477***
	(0.0121)	(0.0130)
× Math test scores	-0.0462***	-0.0443***
	(0.0111)	(0.0118)
× Med-low SES school	-0.2509***	-0.2779***
	(0.0256)	(0.0301)
× Medium SES school	-0.6356***	-0.6681***
	(0.0288)	(0.0332)
× Med-high SES school	-1.1429***	-1.1660***
	(0.0339)	(0.0383)
× High SES school	-1.7736***	-1.8169***
	(0.0583)	(0.0614)
× Parental percep. of sch. violence	0.0071	-0.0062
	(0.0074)	(0.0079)
× Exclusion	-0.2531***	-0.2289***
	(0.0465)	(0.0506)
× Parental college expectations	-0.6657***	-0.6532***
	(0.0593)	(0.0659)
× Self-efficacy	0.0194**	0.0092
	(0.0085)	(0.0091)
× Particip. in extracurricular activities	-0.0090	-0.0021
	(0.0069)	(0.0074)
Observations (individuals × choice set)	4,263,879	4,046,135
Pseudo-R^2	0.131	0.123

Notes: This table displays families' preferences following Section 4. To see the non-interacted coefficients, refer to Table A8. Standard errors are displayed in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

References

Abdulkadiroğlu, Atila, Parag A Pathak, and Alvin E Roth, "Strategy-proofness versus efficiency in matching with indifferences: Redesigning the NYC high school match," *American Economic Review*, 2009, *99* (5), 1954–78.

_ , _ , Jonathan Schellenberg, and Christopher R Walters, "Do parents value school effectiveness?," *American Economic Review*, 2020, *110* (5), 1502–39.

Ajayi, Kehinde F, Willa H Friedman, and Adrienne M Lucas, "When Information is Not Enough: Evidence from a Centralized School Choice System," Working Paper, National Bureau of Economic Research 2020.

Allende, Claudia, Francisco Gallego, Christopher Neilson et al., "Approximating the equilibrium effects of informed school choice," Technical Report 2019.

Arteaga, Felipe, Adam J Kapor, Christopher A Neilson, and Seth D Zimmerman, "Smart matching platforms and heterogeneous beliefs in centralized school choice," *The Quarterly Journal of Economics*, 2022, *137* (3), 1791–1848.

Bell, Courtney A, "All choices created equal? The role of choice sets in the selection of schools," *Peabody journal of education*, 2009, *84* (2), 191–208.

Beuermann, Diether W, C Kirabo Jackson, Laia Navarro-Sola, and Francisco Pardo, "What is a good school, and can parents tell? Evidence on the multidimensionality of school output," *The Review of Economic Studies*, 2023, *90* (1), 65–101.

Burgess, Simon, Ellen Greaves, Anna Vignoles, and Deborah Wilson, "What parents want: School preferences and school choice," *The Economic Journal*, 2015, *125* (587), 1262–1289.

Carrasco, Alejandro, "'Selección escolar'y desigualdad educacional en Chile:¿ qué tan coactiva es la regulación que la prohíbe?," 2014.

Denice, Patrick and Betheny Gross, "Choice, preferences, and constraints: Evidence from public school applications in Denver," *Sociology of Education*, 2016, *89* (4), 300–320.

Elacqua, G., M. Schneider, and J. Buckley, "School choice in Chile: Is it class or the classroom," *Journal of Policy Analysis and management*, 2006, *23* (3), 577–601.

Elacqua, Gregory, Isabel Jacas, Thomas Krussig, Carolina Mendez, Christopher Neilson, Alonso Roman, and Sammara Soares, "Centralized Student Assignment Systems: Implementation Guide," *IDB Technical Note 02184*, 2021.

Epple, Dennis, Richard E Romano, and Miguel Urquiola, "School vouchers: A survey of the economics literature," *Journal of Economic Literature*, 2017, *55* (2), 441–92.

Glazerman, Steven and Dallas Dotter, "Market signals: Evidence on the determinants and consequences of school choice from a citywide lottery," *Educational Evaluation and Policy Analysis*, 2017, *39* (4), 593–619.

Hastings, Justine S and Jeffrey M Weinstein, "Information, school choice, and academic achievement: Evidence from two experiments," *The Quarterly journal of economics*, 2008, *123* (4), 1373–1414.

_ , Richard Van Weelden, and Jeffrey Weinstein, "Preferences, information, and parental choice behavior in public school choice," Working Paper, National Bureau of Economic Research 2007.

Hastings, Justine, Thomas J Kane, and Douglas O Staiger, "Heterogeneous preferences and the efficacy of public school choice," Working Paper, National Bureau of Economic Research 2009.

Honey, Ngaire and Alejandro Carrasco, "A new admission system in Chile and its foreseen moderate impact on access for low-income students," *Educational Evaluation and Policy Analysis*, 2022, p. 01623737221093374.

Hsieh, Chang-Tai and Miguel Urquiola, "The effects of generalized school choice on achievement and stratification: Evidence from Chile's voucher program," *Journal of Public Economics*, 2006, *90* (8-9), 1477–1503.

Kutscher, Macarena, Shanjukta Nath, and Sergio Urzua, "Centralized Admission Systems and School Segregation: Evidence from a National Reform," *forthcoming in Journal of Public Economics*, 2023.

Lauen, Lee Lauen, "Contextual explanations of school choice," *Sociology of Education*, 2007, *80* (3), 179–209.

Long, J Scott and Jeremy Freese, *Regression models for categorical dependent variables using Stata*, Vol. 7, Stata press, 2006.

Luflade, Margaux, "The value of information in centralized school choice systems (job market paper)," Job Market Paper, Duke University 2017.

McFadden, Daniel, "Conditional logit analysis of qualitative choice behavior," in Paul Zarembka, ed., *Fontiers in Econometrics*, New York: Academic press, 1974, pp. 105–142.

Mizala, Alejandra and Pilar Romaguera, "School performance and choice: the Chilean experience," *Journal of Human Resources*, 2000, pp. 392–417.

Santos, Humberto and Gregory Elacqua, "Socioeconomic school segregation in Chile: Parental choice and a theoretical counterfactual analysis," *Commission for Latin America and the Caribbean*, 2016, p. 124.

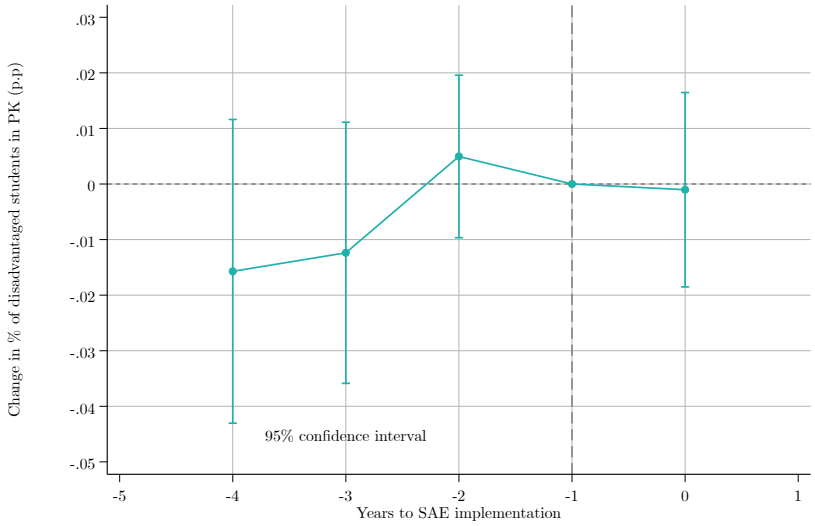
Valenzuela, Juan Pablo, Cristian Bellei, and Danae de los Ríos, "Socioeconomic school segregation in a market-oriented educational system. The case of Chile," *Journal of education Policy*, 2014, *29* (2), 217–241.

Appendix

A1 Government priority classification

The only indicator of socioeconomic status available for pre-K students is the government SES index (vulnerability index). This indicator, however, has some limitations. Students categorized as vulnerable have priority in the algorithm. Hence, as discussed in the main text, families may have reacted endogenously to the policy by, for example, obtaining vulnerable status in order to gain more favorable treatment in school admission. We explore this possibility in Figure A3, which displays the test for pre-trend differences in the percentage of vulnerable students enrolled in pre-K in the context of an event-study analysis. We find no evidence of strategic behavior among families before and after the SAE was implemented.

Figure A1: Event study for the difference in percentage of disadvantaged students in pre-K at the regional level



Notes: This figure displays the estimates and corresponding 95% confidence intervals of the coefficients β_τ in the following specification $y_{rt} = \gamma_r + \delta_t \sum_{\tau=-4}^{0} \beta_\tau D_{rt}^{\tau} + \varepsilon_{rt}$, where y_{rt} is the percentage of disadvantaged students enrolled in pre-K during year t in region r. D_{rt} equals one for regions where SAE was implemented, γ_r are region fixed effects and δ_t is a time fixed effect.

A2 Segregation measures

The Duncan index measures the percentage of disadvantaged students who have to be reallocated across schools for equal representation of students from all socioeconomic backgrounds within the district. The index ranges from 0 to 1, with higher scores indicating greater segregation. Formally, the Duncan index for a specific year and school district can be computed as follows:

$$\frac{1}{2}\sum_{j=1}^{J}\left|\frac{d_j}{d}-\frac{n_j}{n}\right|,$$

where d_j is the number of disadvantaged students in school j, n_j is the number of non-disadvantaged students in school j, and d and n denotes the total number of disadvantaged and non-disadvantaged students in the district, respectively.

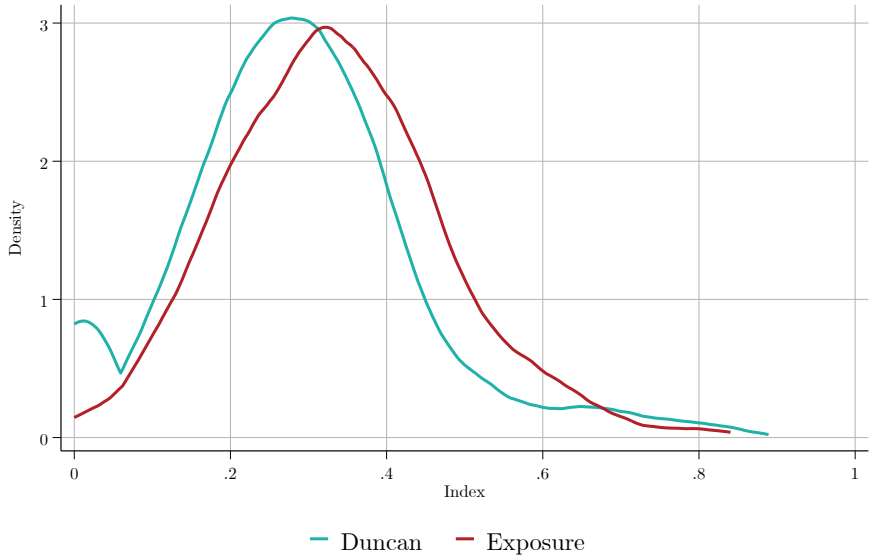
The Exposure index, meanwhile, reports the proportion of students in the average disadvantaged student's school in a given district are non-disadvantaged. A low exposure index indicates that students of different socioeconomic statuses attend separate schools. The formula is as follows:

$$\sum_{j}^{J}\left(\frac{d_j}{d}\times\frac{n_j}{t_j}\right) \tag{1}$$

where d_j is the number of disadvantaged students in school j, n_j is the number of non-disadvantaged students in school j, d denotes the total number of disadvantaged students in the district, and t_j is the total population at school j.

Figure A2 displays the spatial distribution of the Duncan and Exposure indices at the municipality level for 2015-2019. We can see that there is high variation in both indices, mostly due to the fact that there is a large dispersion in municipalities' characteristics across regions.

Figure A2: Spatial Distribution of Segregation Measures: 2015-2019



Notes: This figure displays municipality-level values of the Duncan and Exposure indices between 2015 and 2019.

A3 SAE and School Segregation: Identification

We take advantage of the gradual implementation of the policy across regions to estimate its impact on school segregation. In particular, we employ a difference-in-differences strategy following Kutscher et al. (2023):

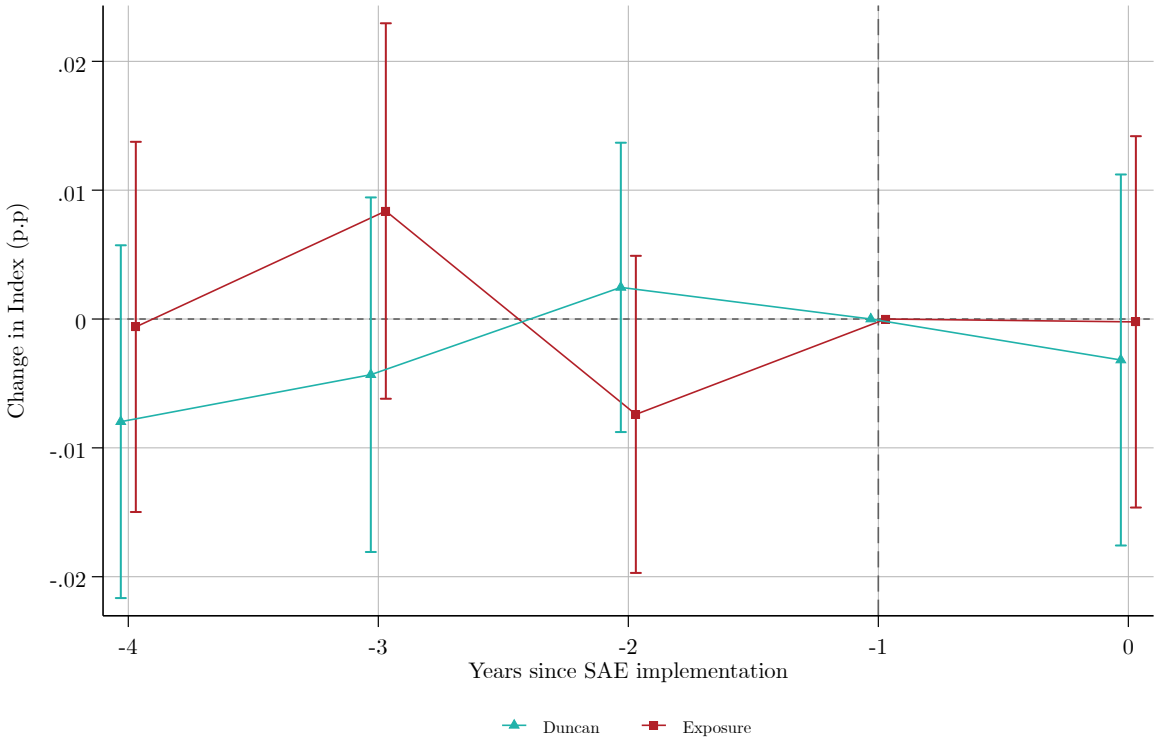
$$Y_{irt} = \gamma_i + \lambda_t + \delta SAE_{irt} + X'_{ir} + \varepsilon_{irt}, \tag{2}$$

where Y_{irt} is the school segregation in municipality i in region r and year t, SAE_{irt} is the treatment variable, which takes a value of one if the SAE program was implemented in the region r in year t, and zero otherwise; γ_i and λ_t are municipality and year fixed effects. X'_{ir} is a vector of municipality variables, including the percentage of private schools and the total school population in municipality i, prior to SAE implementation. The coefficient of interest is δ, which captures the effect of the centralized admission system.

The identification of Equation 2 depends on several assumptions. First, the implementation of the policy should be exogenous to pre-existing levels of school segregation. The only consideration when the policy was instituted across regions was the size of each region's student population.[15] Second, there should not be any responses in anticipation of the treatment. As discussed previously, we did not find evidence that families adjusted their government vulnerability classification in anticipation of the policy (see discussion in Appendix A1). Although we cannot test this concern, we do not think that families reacted by moving to a new location because the main effect of the policy was to increase the available school options for disadvantaged families. Finally, we rely on the conventional common trends assumption. Figure A3 in the appendix suggests that the treatment and control regions had similar trends in school segregation in the absence of SAE.

[15]The law established a fixed calendar for the scaling up of the policy, with the only consideration being the participating student population, from 20% in 2016 to 100% in 2019. There were no considerations related to school segregation.

Figure A3: Event study – indices



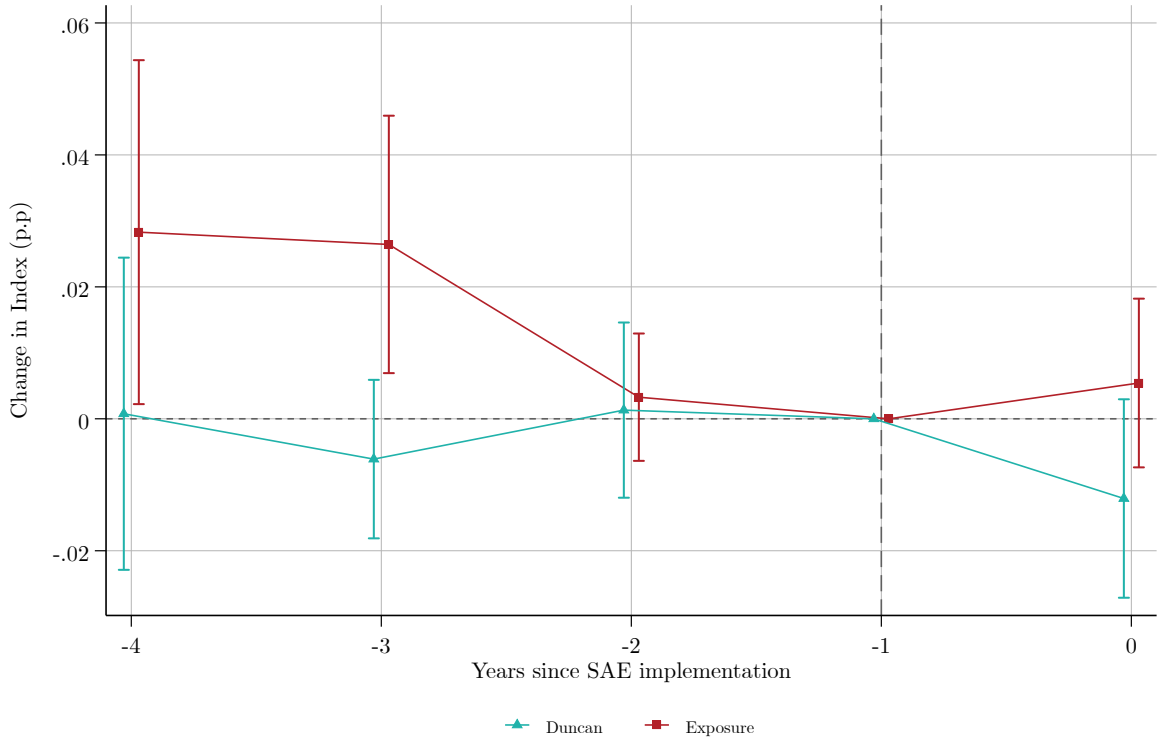
Notes: This figure displays the estimates and corresponding 95% confidence intervals of the coefficients β_τ in the following specification $i_{mrt} = \gamma_m + \delta_t + \sum_{\tau=-4}^{0} \beta_\tau D^\tau_{mrt} + \varepsilon_{mrt}$, where i_{mrt} is the respective index (Duncan, Exposure) for municipality m, in region r, in year t. D_{mrt} equals one for regions where SAE was implemented, γ_m are municipality fixed effects and δ_t is a time fixed effect. Standard errors are clustered at the region level.

Table A1: SAE effect on segregation indices

	(1)	(2)	(3)	(4)
	Duncan Index		Exposure Index	
SAE	-0.005	-0.006	-0.004	-0.002
	(0.008)	(0.008)	(0.008)	(0.006)
Constant	0.287***	0.316***	0.335***	0.301***
	(0.002)	(0.023)	(0.002)	(0.018)
Observations (Municipality × Year)	1,680	1,680	1,680	1,680
R^2	0.784	0.784	0.849	0.849
Municipality FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Controls	N	Y	N	Y

Notes: This table displays the results from estimating Equation 2. Clustered standard errors at the region level are displayed in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Figure A4: Event study – indices, data-driven markets



Notes: This figure displays the estimates and corresponding 95% confidence intervals of the coefficients β_τ in the following specification $i_{mrt} = \gamma_m + \delta_t + \sum_{\tau=-4}^{0} \beta_\tau D_{mrt}^{\tau} + \varepsilon_{mrt}$, where i_{mrt} is the respective index (Duncan, Exposure) for data-driven market m, in region r, in year t. D_{mrt} equals one for regions where SAE was implemented, γ_r are market fixed effects and δ_t is a time fixed effect. Standard errors are clustered at the region level.

Table A2: SAE effect on segregation indices, data-driven markets

	(1)	(2)	(3)	(4)
	Duncan Index		Exposure Index	
SAE	-0.013	-0.015	0.003	0.005
	(0.009)	(0.009)	(0.008)	(0.007)
Constant	0.292***	0.325***	0.328***	0.297***
	(0.002)	(0.022)	(0.002)	(0.024)
Observations (Market × Year)	1,290	1,290	1,290	1,290
R^2	0.778	0.778	0.842	0.842
Municipality FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Controls	N	Y	N	Y

Notes: This table displays the results from estimating Equation 2, estimated with data-driven markets instead of municipalities. Clustered standard errors at the region level are displayed in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A3: SAE effect on the percentage of disadvantaged students

	Schools	– by type			– by selectiveness		– if religious	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All	Public	Voucher	Private	Selective	Not selective	Not religious	Religious
SAE	0.012	0.021	0.016**	-0.009	-0.012*	0.016	0.014	0.016
	(0.008)	(0.016)	(0.006)	(0.010)	(0.007)	(0.010)	(0.009)	(0.011)
Constant	0.550***	0.671***	0.509***	0.059***	0.219***	0.616***	0.604***	0.601***
	(0.002)	(0.005)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)
Observations	33,753	15,974	14,223	2,481	3,144	26,556	14,537	11,911
R^2	0.808	0.571	0.796	0.526	0.910	0.731	0.719	0.740
School FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y

continuation...

	– by SES					– by SIMCE scores	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Low	Med-Low	Medium	Med-High	High	Below Average	Above Average
SAE	0.020**	0.008	0.024**	0.021***	0.020	0.028**	0.008
	(0.009)	(0.012)	(0.010)	(0.006)	(0.015)	(0.012)	(0.008)
Constant	0.784***	0.671***	0.491***	0.253***	0.094***	0.650***	0.574***
	(0.003)	(0.003)	(0.002)	(0.001)	(0.004)	(0.003)	(0.003)
Observations	6,141	11,555	6,803	2,323	143	9,982	16,453
R^2	0.397	0.455	0.574	0.652	0.549	0.603	0.772
School FE	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y

Notes: Clustered standard errors at the region level are displayed in parentheses. *** p<0.01, ** p<0.05, * p<0.1. We estimate a regression similar to 2, with the difference that Y_{irt} represents the share of disadvantaged students at school i in region r and year t, and γ_i captures school fixed effects instead of municipality fixed effects.

A4 Variable definition

A4.1 Indices from SIMCE questionnaires

These indices are constructed with information obtained from the 2018 fourth-grade questionnaires given to students and parents alongside the SIMCE standardized tests, and aim to provide information on the non-academic aspects of students' development, complementing the results of standardized tests. Specifically, we construct the following indices at the school level:

1. Academic self-efficacy: This index includes the perceptions of the students regarding their aptitudes, abilities, and possibilities of improving themselves, their assessment of their academic abilities, and their attitudes towards encountering difficulties in their studies. This measure is standardized to have a mean of 0 and a standard deviation of 1.

2. Parental perception of school violence: This index captures parental perceptions of the frequency of physical and psychological violence within the school, which includes acts of vandalism by students (i.e., breaking or damaging the school), fights and threats and/or harassment among students and towards teachers. It is standardized to have a mean of 0 and a standard deviation of 1.

3. Parental college expectations: This measure captures the percentage of parents in the school that expect their children to earn at least a first college degree in the future.

4. Exclusion: Binary variable that indicates if the student has reported feeling left out because of physical characteristics, sexual orientation, gender, or immigration status, among other reasons.

5. Extra-curricular activities: This variable captures the frequency with which the students of the school participated in extracurricular activities organized by the school during the last year, such as sport activities, bike rides, science and technology fairs, debate competitions, art exhibitions, charity activities, etc. It is standardized to have a mean of 0 and a standard deviation of 1.

6. Previous school selectivity: Following Honey and Carrasco (2022), we construct an indicator of pre-SAE school selectivity with information from the parental questionnaires from the fourth grade SIMCE standardized exams. Specifically, a school is considered selective if at least 50% of parents declare that in order to apply to that specific school, they either had to demonstrate their income level or their child had to take a written exam or attend a playgroup session.

A4.2 Additional school characteristics

These variables come from various administrative data sources provided by the Chilean Ministry of Education (MINEDUC).

1. Number of Teachers per Student: This metric is calculated based on the directory of teachers within the educational system, with a specific focus on teachers actively engaged in classroom instruction.

2. Number of Non-Teaching Staff per Student: This variable is constructed using information from the directory of Educational Assistants. It encompasses various roles, but we specifically consider school counselors, hall monitors (*"inspectores"*), educational psychologists (*"psicopedagogos"*), psychologists, speech therapists, and social workers.

3. Sports Infrastructure: This variable is based on information from the database of Extracurricular Activities, Sports, and Infrastructure, which compiles the same data that parents can access on the school website when applying via the SAE. Specifically, we count the number of sport fields reported by schools (e.g., soccer fields, basketball courts, etc.), along with the presence of a running track, sports complex, swimming pool, and gym.

4. Artistic/Cultural Extracurriculars: This information is sourced from the same database as the previous item and encompasses extracurricular activities related to music, dance, painting, crafts, literature, theater, folklore, band, orchestra, choir, and percussion group.

5. Sports: Similar to the previous item, this data is also obtained from the extracurricular programs database. In the "classical" sports category we include: Soccer, Mini Soccer (*"Baby Fútbol"*), Basketball, Volleyball, and Table Tennis. We also investigate the presence of uncommon or niche sports, which are considered to be less popular (in Chile) and often require specialized infrastructure or equipment. In this category, we include: Hockey, Skating, Climbing, Cheerleading, Artistic and Rhythmic Gymnastics, Canoeing, Golf, Badminton, Track and Field, Rugby, Palín (a traditional Mapuche sport), Yoga, Swimming, Tennis, and Martial Arts.

6. Foreign Name Classification: To classify schools as having foreign names, we initially processed the names using a Python library, which successfully identified approximately 2/3 of our schools as having Spanish names. The remaining 1/3 was classified manually.

7. PIE: The School Integration Program (*Programa de Integración Escolar*, in Spanish) is an inclusion strategy within the school system that aims to provide additional support to students with permanent Special Educational Needs (SENs) associated with disabilities or transient SENs who attend regular educational institutions. It promotes their presence and participation in the classroom, the achievement of learning objectives, and the

educational journey of "each and every student," thereby contributing to the continuous improvement of the quality of education. Furthermore, the School Integration Program encompasses a set of resources and support for educational institutions, which translates into diverse pedagogical strategies, specialized human resources, teacher training, and educational materials tailored to students' needs. All of these supports are focused on the teaching and learning processes within the framework of the curriculum guidelines and the flexibility and diversification of teaching, which some students may require during their school journey.

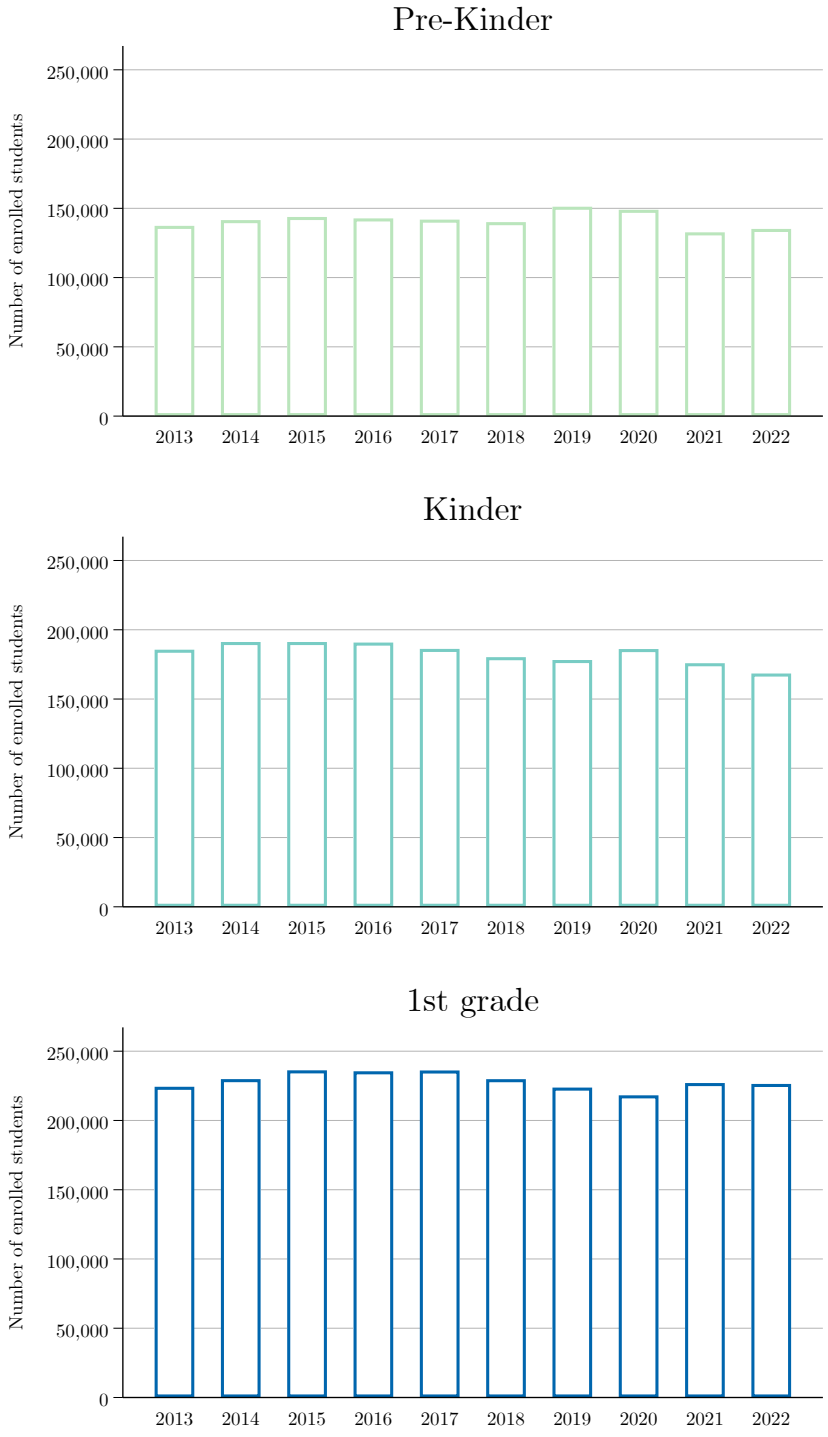
A4.3 School SES

To classify schools, the agency in charge of administering the SIMCE takes into account the educational level of both the mother and father, the total monthly household income, and the School Vulnerability Index (IVE-SINAE). The IVE is constructed by classifying students into three levels, called "priorities" based on poverty conditions and risk of academic failure. The first priority corresponds to students living in extreme poverty, while the second and third priorities are constructed based on metrics of the risk of academic failure. The IVE is then constructed by adding the number of students falling under all three priority levels, and expressing this number as a proportion of the full student body.

The first three variables are obtained through the SIMCE questionnaires, while the fourth variable is obtained from JUNAEB, a state agency that strives to ensure equal educational opportunities for children and young people from economically vulnerable backgrounds. The first three variables are averaged at the school level, whereas the last variable is pre-constructed at the school level by JUNAEB. Subsequently, a cluster analysis is performed to separate schools into five groups: Low, Medium-Low, Medium, Medium-High, and High.

A5 Additional tables

Figure A5: Enrolled students in public and voucher schools between 2013 and 2022

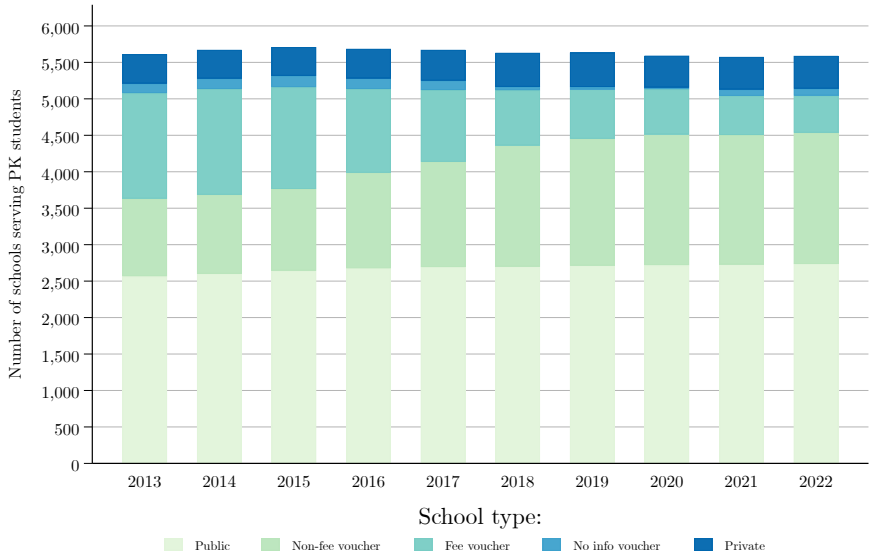


Notes: This figure displays the total number of enrolled students in all public and voucher schools, by grade.

Figure A6: Enrollment by school type 2013–2022

Notes: These figures display the percentage of students in pre-K, kindergarten and first grade enrolled across public, voucher (based on monthly fees), and private schools. It should be noted that the information regarding fees is reliant on self-reporting from schools, which implies that some schools may not report their fee information at all.

Figure A7: Pre-K schools by type, 2013–2022



Notes: This figure displays how schools that offer pre-K are distributed based on their administrative classification, including public, voucher (with or without monthly charges), and private.

Figure A8: SAE applicants and their enrollment status following the admission process

Notes: These figures display the enrollment status of pre-K, kindergarten, and first grade students who took part in SAE, indicating whether they enrolled in their SAE-assigned schools, enrolled in other schools, or did not enroll at all.

Table A4: Families' preferences (cont. from Table 3)

	(1) Full list of ranked schools	(2) On the 1st ranked school
Distance	0.0004***	-0.0406***
	(0.0001)	(0.0015)
N of enrolled students	0.0004***	0.0006***
	(0.0000)	(0.0000)
$\frac{\text{N of teaching staff}}{\text{N of enrolled students}}$	-12.9520***	-10.4445***
	(0.1850)	(0.3368)
$\frac{\text{N of non-teaching staff}}{\text{N of enrolled students}}$	-10.5894***	-13.0454***
	(0.4208)	(0.7732)
N of Sport infrastructure	0.0307***	0.0639***
	(0.0041)	(0.0076)
N of Art extacurr. offered	0.0329***	0.0411***
	(0.0014)	(0.0026)
N of classic sports offered	0.0088***	0.0055
	(0.0019)	(0.0035)
N of niche sports offered	0.0568***	0.0577***
	(0.0023)	(0.0042)
Public	0.1823***	0.1559***
	(0.0077)	(0.0147)
PIE	0.1564***	0.1914***
	(0.0057)	(0.0106)
Foreign name	0.0095	-0.0500***
	(0.0079)	(0.0152)
Religious	0.0062	0.0478***
	(0.0048)	(0.0089)
Any monthly fee	0.0480***	-0.0766***
	(0.0071)	(0.0136)
Had a selective admission	0.2407***	0.3556***
	(0.0056)	(0.0105)
Reading test scores	0.0359***	0.0890***
	(0.0065)	(0.0121)
Math test scores	0.2070***	0.2399***
	(0.0059)	(0.0109)
Med-low SES school	0.5557***	0.3446***
	(0.0155)	(0.0264)
Medium SES school	1.1126***	0.8376***
	(0.0171)	(0.0296)
Med-high SES school	1.4092***	1.2558***
	(0.0192)	(0.0339)
High SES school	1.5061***	1.6199***
	(0.0242)	(0.0418)
Parental percep. of sch. violence	-0.0965***	-0.1304***
	(0.0041)	(0.0077)
Exclusion	0.3968***	0.4062***
	(0.0250)	(0.0465)
Parental college expectations	1.6737***	1.8716***
	(0.0336)	(0.0622)
Self-efficacy	-0.0527***	-0.0833***
	(0.0046)	(0.0085)
Particip. in extracurricular activities	0.0085**	0.0266***
	(0.0036)	(0.0068)
Observations (individuals × choice set)	4,392,543	3,988,127
Pseudo-R^2	0.127	0.160

Notes: This table displays families' preferences following Section 4. Standard errors are displayed in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A5: Families' preferences with standardized school characteristics (cont. from Table 4)

	(1) Full list of ranked schools	(2) On the 1st ranked school
STD Distance	-0.5651***	-0.8479***
	(0.0030)	(0.0062)
STD N of enrolled students	0.2621***	0.3175***
	(0.0022)	(0.0040)
STD $\frac{\text{N of teaching staff}}{\text{N of enrolled students}}$	-0.2983***	-0.2121***
	(0.0073)	(0.0136)
STD $\frac{\text{N of non-teaching staff}}{\text{N of enrolled students}}$	0.0093*	-0.0277**
	(0.0055)	(0.0107)
STD N of Sport infrastructure	0.0188***	0.0365***
	(0.0024)	(0.0045)
STD N of Art extacurr. offered	0.0558***	0.0704***
	(0.0024)	(0.0045)
STD N of classic sports offered	0.0055**	-0.0026
	(0.0025)	(0.0048)
STD N of niche sports offered	0.0468***	0.0402***
	(0.0023)	(0.0043)
Public	0.0543***	0.0355**
	(0.0076)	(0.0146)
PIE	0.0607***	0.0965***
	(0.0058)	(0.0109)
Foreign name	0.0057	-0.0605***
	(0.0080)	(0.0154)
Religious	0.0051	0.0422***
	(0.0048)	(0.0091)
Any monthly fee	0.0971***	-0.0314**
	(0.0072)	(0.0140)
Had a selective admission	0.2686***	0.3680***
	(0.0057)	(0.0108)
STD Reading test scores	0.0365***	0.0912***
	(0.0051)	(0.0096)
STD Math test scores	0.1725***	0.1934***
	(0.0046)	(0.0087)
Med-low SES school	0.7700***	0.5313***
	(0.0153)	(0.0261)
Medium SES school	1.5298***	1.2130***
	(0.0164)	(0.0286)
Med-high SES school	1.9713***	1.7488***
	(0.0185)	(0.0332)
High SES school	2.2075***	2.2453***
	(0.0235)	(0.0412)
STD Parental percep. of sch. violence	-0.0573***	-0.0823***
	(0.0035)	(0.0068)
STD Exclusion	0.0404***	0.0463***
	(0.0036)	(0.0068)
STD Parental college expectations	0.0216***	0.0865***
	(0.0048)	(0.0093)
STD Self-efficacy	-0.0567***	-0.0765***
	(0.0033)	(0.0063)
STD Particip. in extracurricular activities	0.0363***	0.0544***
	(0.0029)	(0.0055)
Observations (individuals × choice set)	4,373,266	3,967,881
Pseudo-R^2	0.156	0.211

Notes: This table displays families' preferences following Section 4. Standard errors are displayed in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A6: Families' preferences with data-driven markets (cont. fromTable 5)

	Data-driven markets		Data-driven markets w/ buffer	
	(1) Full list of ranked schools	(2) On the 1st ranked school	(3) Full list of ranked schools	(4) On the 1st ranked school
Distance	-0.0738***	-0.1741***	-0.0868***	-0.1952***
	(0.0007)	(0.0017)	(0.0008)	(0.0018)
N of enrolled students	0.0005***	0.0006***	0.0005***	0.0006***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$\frac{\text{N of teaching staff}}{\text{N of enrolled students}}$	-10.6928***	-7.1179***	-10.9379***	-7.3231***
	(0.1870)	(0.3363)	(0.1975)	(0.3540)
$\frac{\text{N of non-teaching staff}}{\text{N of enrolled students}}$	-10.4376***	-13.1592***	-10.0972***	-12.8901***
	(0.4220)	(0.7845)	(0.4477)	(0.8311)
N of Sport infrastructure	0.0339***	0.0695***	0.0316***	0.0697***
	(0.0041)	(0.0076)	(0.0043)	(0.0081)
N of Art extacurr. offered	0.0276***	0.0354***	0.0290***	0.0363***
	(0.0014)	(0.0026)	(0.0015)	(0.0028)
N of classic sports offered	0.0078***	0.0061*	0.0073***	0.0036
	(0.0019)	(0.0035)	(0.0020)	(0.0037)
N of niche sports offered	0.0517***	0.0523***	0.0506***	0.0505***
	(0.0023)	(0.0042)	(0.0024)	(0.0044)
Public	0.2192***	0.1667***	0.2037***	0.1523***
	(0.0076)	(0.0144)	(0.0081)	(0.0153)
PIE	0.1531***	0.1863***	0.1525***	0.1926***
	(0.0057)	(0.0105)	(0.0060)	(0.0111)
Foreign name	-0.0087	-0.0618***	-0.0077	-0.0650***
	(0.0080)	(0.0153)	(0.0085)	(0.0162)
Religious	0.0237***	0.0567***	0.0338***	0.0620***
	(0.0048)	(0.0089)	(0.0050)	(0.0094)
Any monthly fee	0.0038	-0.1191***	0.0349***	-0.0804***
	(0.0070)	(0.0135)	(0.0075)	(0.0143)
Had a selective admission	0.2439***	0.3330***	0.2448***	0.3262***
	(0.0055)	(0.0103)	(0.0059)	(0.0109)
Reading test scores	0.0501***	0.1095***	0.0381***	0.0995***
	(0.0065)	(0.0122)	(0.0069)	(0.0128)
Math test scores	0.1936***	0.2279***	0.1981***	0.2300***
	(0.0059)	(0.0110)	(0.0062)	(0.0116)
Med-low SES school	0.4802***	0.2567***	0.4689***	0.2612***
	(0.0157)	(0.0268)	(0.0163)	(0.0279)
Medium SES school	1.0230***	0.6966***	0.9909***	0.6949***
	(0.0171)	(0.0298)	(0.0179)	(0.0312)
Med-high SES school	1.3729***	1.1465***	1.3215***	1.1225***
	(0.0192)	(0.0341)	(0.0201)	(0.0358)
High SES school	1.4999***	1.5370***	1.4472***	1.5035***
	(0.0240)	(0.0416)	(0.0252)	(0.0438)
Parental percep. of sch. violence	-0.1052***	-0.1456***	-0.1141***	-0.1532***
	(0.0041)	(0.0077)	(0.0043)	(0.0081)
Exclusion	0.4536***	0.4400***	0.4611***	0.4461***
	(0.0252)	(0.0470)	(0.0268)	(0.0498)
Parental college expectations	1.7039***	1.8500***	1.6912***	1.8173***
	(0.0338)	(0.0632)	(0.0358)	(0.0666)
Self-efficacy	-0.0470***	-0.0810***	-0.0379***	-0.0740***
	(0.0046)	(0.0086)	(0.0049)	(0.0090)
Particip. in extracurricular activities	0.0142***	0.0434***	0.0159***	0.0491***
	(0.0036)	(0.0067)	(0.0038)	(0.0071)
Observations (individuals × choice set)	7,998,524	7,504,891	7,293,587	6,849,561
Pseudo-R^2	0.131	0.172	0.136	0.178

Notes: This table displays families' preferences following Section 4. Standard errors are displayed in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A7: Families' preferences without rural municipalities (cont. from Table 6)

	(1) Full list of ranked schools	(2) On the 1st ranked school
Distance	0.0009***	-0.0275***
	(0.0001)	(0.0017)
N of enrolled students	0.0004***	0.0005***
	(0.0000)	(0.0000)
$\frac{\text{N of teaching staff}}{\text{N of enrolled students}}$	-12.0320***	-9.9359***
	(0.2016)	(0.3779)
$\frac{\text{N of non-teaching staff}}{\text{N of enrolled students}}$	-11.5219***	-14.2443***
	(0.4592)	(0.8709)
N of Sport infrastructure	0.0344***	0.0608***
	(0.0042)	(0.0080)
N of Art extacurr. offered	0.0335***	0.0441***
	(0.0015)	(0.0027)
N of classic sports offered	0.0117***	0.0074**
	(0.0019)	(0.0037)
N of niche sports offered	0.0570***	0.0564***
	(0.0023)	(0.0044)
Public	0.1925***	0.1743***
	(0.0081)	(0.0156)
PIE	0.1513***	0.1920***
	(0.0059)	(0.0110)
Foreign name	-0.0041	-0.0590***
	(0.0082)	(0.0157)
Religious	0.0050	0.0458***
	(0.0050)	(0.0093)
Any monthly fee	0.0544***	-0.0708***
	(0.0072)	(0.0140)
Had a selective admission	0.2311***	0.3402***
	(0.0058)	(0.0108)
Reading test scores	0.0427***	0.1023***
	(0.0068)	(0.0129)
Math test scores	0.2148***	0.2545***
	(0.0062)	(0.0117)
Med-low SES school	0.5323***	0.3019***
	(0.0187)	(0.0330)
Medium SES school	1.0848***	0.7557***
	(0.0201)	(0.0358)
Med-high SES school	1.3838***	1.1638***
	(0.0222)	(0.0402)
High SES school	1.4581***	1.4969***
	(0.0266)	(0.0472)
Parental percep. of sch. violence	-0.0976***	-0.1236***
	(0.0043)	(0.0082)
Exclusion	0.4289***	0.4554***
	(0.0267)	(0.0508)
Parental college expectations	1.7461***	2.1206***
	(0.0368)	(0.0704)
Self-efficacy	-0.0659***	-0.1015***
	(0.0049)	(0.0092)
Particip. in extracurricular activities	0.0247***	0.0491***
	(0.0038)	(0.0072)
Observations (individuals × choice set)	4,154,485	3,781,446
Pseudo-R^2	0.121	0.149

Notes: This table displays families' preferences following Section 4. Standard errors are displayed in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A8: Families' preferences dropping first ranked school (cont. from Table 7)

	Full list minus the 1st preference	
	(1)	(2)
	All municipalities	Urban municipalities
Distance	0.0012***	0.0014***
	(0.0001)	(0.0001)
N of enrolled students	0.0004***	0.0004***
	(0.0000)	(0.0000)
$\frac{\text{N of teaching staff}}{\text{N of enrolled students}}$	-14.3754***	-13.2550***
	(0.2259)	(0.2416)
$\frac{\text{N of non-teaching staff}}{\text{N of enrolled students}}$	-9.7500***	-10.7150***
	(0.5072)	(0.5435)
N of Sport infrastructure	0.0167***	0.0231***
	(0.0049)	(0.0050)
N of Art extacurr. offered	0.0320***	0.0320***
	(0.0017)	(0.0017)
N of classic sports offered	0.0115***	0.0149***
	(0.0022)	(0.0023)
N of niche sports offered	0.0636***	0.0646***
	(0.0027)	(0.0028)
Public	0.2039***	0.2142***
	(0.0092)	(0.0095)
PIE	0.1441***	0.1372***
	(0.0068)	(0.0070)
Foreign name	0.0365***	0.0192**
	(0.0094)	(0.0096)
Religious	-0.0154***	-0.0156***
	(0.0057)	(0.0059)
Any monthly fee	0.0914***	0.1001***
	(0.0084)	(0.0085)
Had a selective admission	0.2115***	0.2039***
	(0.0068)	(0.0069)
Reading test scores	0.0036	0.0117
	(0.0077)	(0.0081)
Math test scores	0.2157***	0.2195***
	(0.0070)	(0.0073)
Med-low SES school	0.6571***	0.6183***
	(0.0195)	(0.0228)
Medium SES school	1.2701***	1.2296***
	(0.0213)	(0.0243)
Med-high SES school	1.5504***	1.5171***
	(0.0237)	(0.0268)
High SES school	1.4734***	1.4140***
	(0.0303)	(0.0328)
Parental percep. of sch. violence	-0.0918***	-0.0946***
	(0.0049)	(0.0051)
Exclusion	0.4080***	0.4406***
	(0.0300)	(0.0316)
Parental college expectations	1.6790***	1.7011***
	(0.0404)	(0.0434)
Self-efficacy	-0.0460***	-0.0581***
	(0.0055)	(0.0058)
Particip. in extracurricular activities	-0.0043	0.0112**
	(0.0043)	(0.0045)
Observations (individuals × choice set)	4,263,879	4,046,135
Pseudo-R^2	0.131	0.123

Notes: This table displays families' preferences following Section 4. Standard errors are displayed in parentheses. *** p<0.01, ** p<0.05, * p<0.1.