Centralized Admission Systems and School Segregation: Evidence from a National Reform

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Motivation
- Centralized admission system are being adopted to coordinate student assignment
- In practice, also used as policy tools to promote diversity, giving priority to low-SES students
- E.g. New York and Boston
- However, more efficient and welfare-enhancing theoretical allocation might not necessarily lead to less segregated schools
- Residential segregation and heterogeneity in outside options: Calsamiglia et al 2020, Baum-Snow et al 2011

This paper: Studies Chile’s large-scale adoption of a centralized admission system and it effects on school segregation
- De-mechanism
- Replaced country’s decentralized system
- Exploits sequential introduction of the reform across regions using a Difference-in-Difference strategy
- Preview of results: No impact on average school segregation, but important heterogeneity across school districts.
- Increased segregation in areas with high levels of residential segregation
- Higher provision and differential access to education associated with increased segregation

Background
- Since 1980s, three types of school in Chile: public, voucher schools and private schools,
- Decentralized school admission system; highly selective
- High socioeconomic stratification in the educational system
- Overwhelming majority of low SES students in public schools
- In 2015 the government passed the law (Ley de Inclusión Escolar)
- Major component: centralized school admission system (SAS)

Centralized Schooling Admission System
- Centralized Schooling Admission System (SAS) for public and voucher schools through a web application platform.
- Admissions to private schools currently continues to be decentralized.
- Deferred Acceptance algorithm with multiple tie breaking
  - Priorities: 1. students enrolled in the school
  2. priority students (up to the rate of 15%) 3. children of school officials
  4. former students (except expelled)
- Reform was gradually introduced at the regional level, between 2016-2019

Empirical Strategy
- Incremental implementation and geographic variation: Diff-in-Diff design
- Data is Duncan index, $D_h$ is treatment variable and $Z_{t, h}$ pre-SAS measures of local schooling.
- $\gamma_h$ captures time invariant region specific differences, and $h$ captures aggregate differences in segregation over time
- The policy parameter of interest is $\delta_h$
- Assumptions:
  - Adoption date of the policy random to existing levels of school segregation
  - No responses in anticipation of the treatment
  - Also heterogeneous effects

Data
- Enrollment, SIMCE and school data
- School segregation (Duncan Index) at district level
- Low SES: mothers without a HS degree
- $N_a$ of 2015: Duncan [0-1] in Chile
- Residential segregation: commuting time to amenities using complete road network of Chile
- Captures variation in access to amenities within a municipality.
- Outside option: local provision differential access to private education
- Private schools are a substitute for voucher and public schools and impacts participation in DA.

Main Results
- Overall no statistically significant impact
- Heterogeneous effects?

Potential Mechanism
- High SES migrating from public and voucher to private schools

Table of Results

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>SIMCE</th>
<th>Residential Segregation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS dummy (DL)</td>
<td>0.004</td>
<td>(0.004)</td>
</tr>
<tr>
<td>SAS dummy (DL) % of public pre-SAS</td>
<td>0.015</td>
<td>(0.007)</td>
</tr>
<tr>
<td>SAS dummy (DL) % of voucher pre-SAS</td>
<td>0.015</td>
<td>(0.007)</td>
</tr>
<tr>
<td>SAS dummy (DL) Travel time to private (in)</td>
<td>0.024</td>
<td>(0.016)</td>
</tr>
</tbody>
</table>

Observations 1712
R-squared 0.179
Region FE ✓

Threats to Identification & Robustness Tests

Threats to identification
- Parallel trends: leads and lags test, visual pre-trends, region-specific trend variables, random assignment into treatment
- Rule out strategic responses/migration by parents in anticipation of the policy.
- No correlation between the policy adoption date and the existing levels of school segregation in a region

Robustness tests
- Duncan Index: alternative proxies for student SES
- Only urban municipalities
- Provinces as school districts
- Alternative segregation measure

Figure 1. Spatial distribution of school types in the Metropolitana (Santiago) and Coquimbo regions

Figure 2. Spatial density plots of low and high SES students in the Biobio region

A. Low income families
B. High income families