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## School segregation, inequality and trust in institutions: evidence from Santiago

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### ABSTRACT

This study looks at segregation across the high schools of Santiago, Chile, and the levels of trust students hold in key institutions. Confidence in government and private institutions, such as parliament, courts, government agencies, the Church, the media, banks and firms, is important to political and social stability and for maintaining social cohesion. The results from a survey of high school students are used to examine the links between segregation and levels of student trust in public and private institutions. Multi-level modelling is employed to derive estimates of student institutional trust and explore the within – and between-school components. The results show that there are significant levels of between-school variation in levels of trust in both public and private institutions. The between-school differences are largely explained by the effects of student socioeconomic status (SES), mean school SES, and type of school.

### KEYWORDS

Segregation; trust;  
inequality; social cohesion

## Introduction

Segregation across schools is a pressing issue in Chile. International comparisons show that high schools in Chile are some of the most socially segregated in the world. For example, in a study on equity and quality in education, the OECD (2012a) reported that 81 per cent of disadvantaged students in Chile attend disadvantaged schools (i.e. schools with above average proportions of disadvantaged students). By comparison, the average across OECD countries is 50 per cent. Other research shows comparatively high levels of segregation across Chile's schools (e.g. Valenzuela, Bellei, and De los Ríos 2008). One international study finds that compared to the average Dissimilarity Index score of 0.38 across 37 nations Chile recorded a score of 0.51, the highest score of all countries (Gutiérrez, Jerrim, and Torres 2020). The same analysis shows that not only are schools highly segregated in Chile by comparison with other countries, but that schools have been highly segregated over a long period of time.

Despite the high levels of segregation in the Chilean school system, little is known about the full range of consequences for individuals and society at large. Some studies have found mixed evidence about the long term effects of choice and private education on student achievement (see McEwan, Urquiola, and Vegas 2008, for a review). A number of studies have analysed the relationship between standardised test scores and

attendance at public and private schools using national data (e.g. Mizala and Romaguera 2000; Hsieh and Urquiola 2007; McEwan 2001; McEwan, Urquiola, and Vegas 2008). Some studies find little difference in test score performance between municipal and private subsidised schools after controlling for family background. Other studies, such as those by Bravo, Contreras, and Sanhueza (1999) and Sapelli and Vial (2002), find evidence of stronger student performance in private schools. At an aggregate level, some studies suggest that there has been little change over time in the aggregate levels of student achievement, while at the same time social segregation across schools has increased, suggesting that the supposed benefits of increased competition, such as student learning efficiency dividends, have not materialised (Hsieh and Urquiola 2007).

While not clear as to the extent to which segregation contributes to inequality in Chile, what is clear from various studies is that inequality in student achievement is quite marked. The 2015 results from PISA reveal that in science, while scoring well below the OECD average level, Chile recorded above-average SES gaps in performance between the highest and lowest SES quartiles of students, well-above average estimates of the percentage of variation in science performance explained by student SES, and larger than average estimates of the percentage of between-school differences due to differences in student SES (OECD 2016). The indicators used by OECD to measure equity and performance point to Chile lacking in levels of fairness and inclusion (OECD 2016).

Most of the studies looking at school organisation, student outcomes and inequality in Chile have focussed on student achievement. Few studies have looked at other types of outcomes such as broader skills, and social and civic values. This is true not only for Chile, but for many other nations as well. We know little about the broader social, political and civic consequences of socioeconomic segregation of schools. While student achievement is very important to study, the effects of school organisation and social stratification are likely to extend well beyond student achievement. Just as important, but possibly less well understood, is any relationship between school organisation and socialisation processes for students, and the implications this may have for the broader social outcomes of schooling. Schooling not only works to prepare students with the abilities and skills necessary to become competent workers able to contribute to economic productivity; it also prepares future citizens able to participate and contribute to renewing community life and promoting harmony. This is especially important in a world characterised by increased individualisation and diversification, where social order rests on individuals capable of coping with diversity and dissensus (Jansen, Chioncel, and Dekkers 2006). By reducing diversity in school contexts, segregation across schools can potentially lead to reduced levels of trust and impede the development of other social skills relevant for social cohesion (Mikulyuk and Braddock 2018; OECD 2010).

The aim of the current paper is to look at the relationships between school segregation in Santiago and levels of student trust in government and private institutions. Trust in institutions is considered integral to democratic stability, social integration and social cohesion (Newton and Norris 2000). According to the OECD (2013), trust in government and private institutions is one of the most important foundations upon which the legitimacy and sustainability of political systems is built. Consequently, this study seeks to examine the relationship between social segregation in schools and institutional trust among secondary school students in the city of Santiago, Chile. To do so it uses data

collected as part of a major international comparative study of schooling in different cities of the world.

## Background

Why is schooling in Chile so segregated? The reasons largely relate to the implementation of extensive free-market educational reforms in the early 1980s which focused on delivering unfettered school choice to parents through the role of vouchers. In 1981, the civic-military dictatorship that took control of the country implemented a national education voucher system, and carried out system-wide decentralisation, deregulation and privatisation of primary, secondary and tertiary education (Carnoy 1998; Castiglioni 2001). The voucher system took the form of a subsidy per student based on monthly attendance at school, with the voucher transferable and redeemable at any school, public or private. Effectively, parents could choose which school their children would attend and the school, public or private, would receive the same level of funding thanks to the voucher system. With these actions came the creation of a new form of school: the publicly subsidised private school, a type of school that is privately run but with the facility to receive the voucher subsidy from the state.

However, school segregation in Chile is also linked to the early establishment and operation of a separate coterie of private schools catering mainly to affluent families, often run by religious orders, which preceded the establishment of public schools and the introduction of market-based reforms. The schools operate without public subsidies and are funded entirely through private tuition fees. Effectively, the private-fee schools operate as a world unto themselves, outside of the system of public voucher funding, serving mainly the wealthy, some having existed for over a hundred years, often charging high levels of fees, and having much more freedom to cultivate a student clientele more likely to succeed in school thanks to the role of family capital and resources.

Since the reforms of 1981, primary and secondary schools in Chile have been largely grouped by their administrative and funding scheme into three main types: (1) municipal schools run and operated by local municipal authorities (public schools), (2) private voucher schools which are funded through vouchers and in some cases parental contributions, and (3) private fee-paying schools. Municipal schools and private voucher schools can be further divided into those that are academically selective (schools that select students, all or a proportion, on the basis of academic entry test scores or other assessment of skills) and those that are not academically selective for admission. Private voucher schools often use selective admissions through tests and parent interviews to filter student intake, though some municipal schools do as well (McEwan, Urquiola, and Vegas 2008).

Shares of enrolments have shifted markedly since the 1980s as parents have increasingly opted for using private schools. In 1986, across Chile, 62.6 per cent of students were enrolled in municipal schools, 30.4 per cent in private voucher schools and 6.1 per cent in private fee schools.<sup>1</sup> Three decades later in 2016, private voucher schools enrolled 54.7 per cent of all students, municipal schools enrolled 37.2 per cent, and private fee schools accounted for 8.1 per cent. The privatisation of schooling has been even more marked in Santiago where municipal schools in 2016 enrolled only 26.6 per cent of students, private voucher schools enrolled 60.3 per cent, and private fee

schools enrolled 13.1 per cent. Privately-run schools, either voucher or fee-based, are now by far the dominant form of school provision in Chile, particularly in Santiago.

Accompanying the shift in total enrolments has been a shift in student composition of schools. A study by Hsieh and Urquiola (2006) found that the major effect of unrestricted parental choice and school privatisation has been a movement of middle-class families from public to private schools, producing a decline in the average SES of families using municipal schools. The effects for municipal schools represent a form of residualisation where the schools formerly catering to broader groups across the community increasingly are avoided by aspirational families leading to a higher concentration of the most disadvantaged students in municipal schools.

There are good reasons to study the consequences of educational segregation in Santiago, the capital city of Chile. Santiago is the largest city in the country, hosting around 40 per cent of the nation's population, and despite being the richest city, it is the most unequal in terms of income distribution. Santiago shows the highest levels of residential segregation in the country, with the wealthiest families concentrating in a few north-eastern neighbourhoods while the lowest income families reside on the outskirts of the city (PNUD 2017). As mentioned before, Santiago's secondary school system is highly privatised and shows higher levels of student segregation by type of school than the rest of the country.

### ***Trust in institutions***

The study of trust in institutions has gained increasing attention since the early 1990s (Cook, Levi, and Hardin 2009; Llewellyn, Brookes, and Mahon 2012). One of the reasons for this increasing interest is the association between trust and other important concepts for social harmony and well-being, such as social capital, government support, social stability, and socio-economic development. Institutional trust generally refers to trust in public institutions, including local or national governments, politicians, political parties, parliament, police, judges, and the military, as well as to trust in private institutions such as the media, banks, firms and businesses (Cole and Cohn 2016). Putnam (2000) found that people who have trust in key agencies such as the government are more likely to participate in politics, participate more frequently as volunteers, donate to charity, comply with tax obligations, and so on. In particular, institutional trust enables a political system to establish legitimacy, especially as it relates to democracy, and is associated with the effective functioning of government institutions and citizens' adherence to the law (Marien and Hooghe 2011). Another important aspect of institutional trust lies in its association with socio-economic development. Fukuyama (1995) argues that economic prosperity and well-being of nations are conditioned by their aggregate levels of trust. The arguments are that trust is crucial to ensuring organisational innovation in a constantly changing market environment, and that trustful societies spend fewer resources protecting individuals and organisations from being exploited in economic transactions. Trust is therefore associated with stronger economic performance (Knack and Keefer 1997). However, societies with higher levels of trust among their citizens also present better outcomes in terms of life satisfaction, health indicators, democratic performance, and so on (Charron and Rothstein 2016; Larsen 2013).

There are strong links between trust and education. Not only do individuals with more years of education tend to have higher levels of trust, but richer and more democratic societies also benefit from higher levels of trust (Huang, van den Brink, and Groot 2011; Putnam 2000). Putnam reported that after controlling for several other variables, the number of years of education is the strongest predictor of individual levels of trust. Uslaner (2002) also argues that the best predictor of trust and participation is education. One of the arguments to explain this relationship is that at the individual level, more educated individuals do better in the labour market, have higher salaries, greater chances of employment and can influence the political systems in a society, and are therefore in a better position to take the risk to trust others. Another explanation is that more educated individuals are better prepared to handle complex information to make choices that require trust (Keefer and Knack 2005). At a societal level, more educated societies benefit from critical citizens who contribute to improving the quality of government operations and reducing corruption, thereby increasing social trust (Botero, Ponce, and Shleifer 2013).

Education is important, therefore, to the development of trust. Student trust in institutions is potentially influenced by school practices, such as having specific lessons around civic issues and community problems, and by creating a participatory and democratic school environment (Torney-Purta, Richardson, and Barber 2004). What happens in schools is viewed as essential for the political socialisation of students and the formation of political attitudes such as trust in institutions (Flanagan 2013). The knowledge and experiences gained in school help students better understand and interpret information from the political, economic and legal systems, and allow students to be in a better position to develop support and trust in institutions (Huang, van den Brink, and Groot 2011).

Some studies have shown, however, that this strong positive relationship between education and trust can be the opposite in contexts of high institutional corruption, where the highly educated may be more sceptical about developing trust (Frederiksen, Larsen, and Lolle 2016). New evidence is showing more persistently that education and institutional corruption interact to affect political trust (Mayne and Hakhverdian 2017). In their study across European countries, Hakhverdian and Mayne (2012) reported that education can have a positive effect on trust in low corruption countries but a negative effect in high corruption countries. As such, a healthy level of distrust may be desired in contexts where the expected and specified use of power of institutions does not follow the social contract by which individuals transfer authority to those institutions (Fuchs and Klingemann 1995). In these contexts, disproportionately high levels of trust in institutions may reflect an uncritical view of the social order, or as a failure to exercise an evaluation of institutional performance based on a broader understanding of contexts and expectations.

### ***Schools, segregation and trust in institutions***

Despite increasing interest in the role of school practices in influencing student political, civic and social attitudes, there has been little research on the relationship between school organisational characteristics and student civic outcomes (Janmaat and Mons 2011; Kavadias, Hemmerechts, and Spruyt 2017). In particular, research on the relationship between segregation across secondary schools and student levels of trust in institutions

has been negligible. This is the case even though evidence suggests that social segregation can shape how well students do in school (Card and Rothstein 2007; Thrupp, Lauder, and Robinson 2002) and diversity in schools can create contexts for the development of positive social attitudes and the promotion of social cohesion (Mikulyuk and Braddock 2018).

The discussion about diversity, segregation and trust has mainly centred on the topic of generalised trust – the trust that people have in their fellow community members. A number of researchers have argued that increased diversity in communities – racial, ethnic, and religious diversity – can lead to lower levels of generalised trust (Alesina and La Ferrara 2002; Alesina et al. 2003; Putnam 2007). Putnam (2007) noted that while over time increased diversity may produce various cultural, economic and social benefits, the immediate effect may be to reduce trust, social solidarity and social capital. Uslaner (2010) argues that rather than diversity it is segregation that leads to lower levels of trust. Rothwell (2012) suggests that increased urban racial segregation leads to declines in levels of trust and volunteering, while diversity has no significant effect. Other researchers have suggested that the interactive dynamics of increased diversity and marked segregation mean that both can contribute to lower levels of generalised trust. For example, one study, reflecting on the mutual interactive effect in the US context, stated that 'both diversity ... and segregation ... serve to undermine the social cohesion needed to bind American citizens to one another and to society at large' (Braddock and Del Carmen 2010, 1633).

Some studies suggest that marked racial and ethnic segregation in both schools and neighbourhoods can work to undermine trust and cohesion (Owens 2020; Orfield and Lee 2005; Uslaner 2010). The arguments put forward to explain the influence of segregation mainly come from the perspective of contact theory (Allport 1979), whereby intergroup contact can produce positive effects in the development of attitudes towards others, such as a reduction in levels of prejudice and the formation of trust. From the school setting standpoint, providing adequate conditions for positive intergroup contact, students of different social backgrounds are better positioned to develop positive attitudes towards others and a range of social skills, such as collaboration, communication and the capacity to accept others and handle difference and diversity (Bjørnskov 2007). Various studies support the view that intergroup contact under conducive conditions promotes positive attitudes toward others (for a brief review see Pettigrew 1998). Some studies go as far to suggest that social diversity at school can have the effect of reducing the achievement gap between groups by fostering critical thinking and problem solving (Kahlenberg 2012), but others suggest that at least it provides a richer context for learning where students acquire important social values such as tolerance through mixing with others from different backgrounds, supporting attitudes related to social cohesion (OECD 2010).

In one of the rare studies examining the relationship between segregation, education and attitudes related to social cohesion, Janmaat and Mons (2011) found that tracking led to academic segregation and to differences in levels of ethnic tolerance and patriotism across different social and ethnic groups. In a study on the impact of academic segregation on civic attitudes in European countries, Kavadias, Hemmerechts, and Spruyt (2017) found some evidence that points to negative effects of academic segregation on student development of democratic values and openness towards other groups.

Most of the research on the relationships between schools, segregation and trust have focused on generalised trust, or trust in others. There is very little work on the relationship between schools, segregation and institutional trust. The current paper will contribute to the existing research on trust and segregation by examining the relationships between segregation across schools in Santiago and the trust students hold in key public and private institutions.

## Methodology

The method for the current study was designed to answer two main questions. Firstly, what are the levels of SES and academic segregation across secondary schools in Santiago? Secondly, what are the school differences in student levels of trust in government and private institutions linked to SES segregation?

### Data

The data to carry out the analysis come from the *International Study of City Youth* (ISCY), an international study set up to compare how well school systems are preparing young people for further study and work in 15 cities across Europe, North America, South America, and Australasia. ISCY follows cohorts of 10th Grade students in every participating city to find out about their journeys through school into further study, work and life beyond school.

The surveys in Santiago (ISCY-Santiago) were administered in schools between April and July, 2016. ISCY-Santiago involved an online survey for all 10th Grade students in each participating school, their teachers and principals. Students were also administered two online tests, one for reading and one for mathematics. ISCY-Santiago followed a two-stage stratified cluster sample design and the final sample consists of 27 schools and 2,432 10th Grade students, as described in [Table A1](#) in the Appendix.

### Measures

Student SES and reading skills are the outcome variables used to explore the extent of social and academic segregation in Santiago, and trust in government and private institutions are the outcome variables used to explore the association between segregation and institutional trust. All measures were standardised to have a mean of 0 and a standard deviation of 1, so that positive numbers represent scores above the mean and negative numbers indicate scores below the mean.

#### Socioeconomic status

Correlation analysis, principal components analysis (PCA) and reliability analysis were conducted to estimate a scale of student SES in a similar fashion to that used to create the Index of Economic, Social and Cultural Status (ESCS) developed for the PISA programme of the OECD (2002). The variables included in the creation of the student SES index were highest attained formal education qualification level of the mother/father, highest level of parental occupation, home wealth (number of mobile phones, televisions, computers, cars and bathrooms at home), home educational resources (availability of a desk to

study, a quiet place to study, a computer for school work and internet access at home) and cultural possessions at home (possession of musical instruments and number of books at home). For a detail of the results of the principal component and reliability analysis see [Table A2](#) in the Appendix. School SES was calculated as the mean student SES for each school.

### ***Trust in institutions***

Following the approach taken in other surveys, such as the World Values Survey and the Australian Survey of Social Attitudes, students were asked ‘How much confidence do you have in each one of the following organisations?’, with response categories ranging from 1 (No confidence at all), to 4 (A great deal of confidence). The institutions included the church, the press, the government, the police, the courts, the media, political parties, parliament, major companies, and banks. Even though this type of measure of trust in institutions is sometimes criticised for its failure to clearly identify what respondents understand by trust, and what it is exactly that they trust or distrust in each institution, the creation of indices provides useful information on the image of trust or confidence that people have of the institutions (Dekker 2012).

PCA was conducted using all trust items to explore dimensionality, resulting in two components: those associated with government-related institutions (parliament, government, political parties and courts) and those related with private institutions (newspapers, big companies, banks and the media). Separate PCA were conducted using variables specific to each component, producing strong factor loadings and fairly high scale reliabilities for each component (see results in [Table A3](#) in the Appendix).

### ***Academic skills measured using reading skills***

To measure the level of academic segregation across schools, reading skills were captured by student performance on a test. Student reading test scores were calculated based on the number of correct items adjusted for item difficulty.

### ***Type of school***

As well as potential differences based on SES, the three main types of schools in Santiago – municipal, private voucher and private fee – are further separated by the level of student academic selection. Academic selection was not considered in the sampling of schools, and as such, results should be treated cautiously.

Five types of schools are used in the analysis:

- (1) municipal non-selective or open entry schools (reference category in the multilevel models)
- (2) municipal selective-entry schools (admission based on entry test scores)
- (3) private voucher non-selective or open entry schools
- (4) private voucher selective-entry schools (admission based on entry test scores), and
- (5) private fee schools.

## ***Gender***

Information on student gender was obtained from the student questionnaire and information provided by schools.

## ***Analysis***

The study uses multi-level modelling to estimate effects. Multi-level modelling recognises that observations are not independent, but rather related to each other as they are nested in units or groups such as schools, and allows for better estimation of the degree of variation in student levels of skills and institutional trust explained by school characteristics, after accounting for individual student differences (Raudenbush and Bryk 2002). Random intercept multi-level models also offer the potential to disentangle how much of the variation in student levels of institutional trust is observed between-schools compared to within-schools.

The analysis starts with a 'null' or unconditional model to estimate how much of the variance in the dependent variable is observed between schools and within schools. Following this, successive models are estimated adding student background characteristics (gender, SES), reading skills (test scores), school SES (average student SES at the school level) and school type. The inclusion of successive variables for each model permits estimation of how much of the between-school variance is reduced by the inclusion of each set of variables. When estimating the levels of institutional trust, the models also include student reading test scores as an individual control variable. Including reading test scores is important because segregation can be based on social as well as academic selection and using reading test scores helps control for academic selection and explore the extent to which it contributes to school effects. Additionally, research suggests the need to control for prior achievement when looking at school effects (Raudenbush and Willms 1995). Although highly correlated, the models also incorporate school SES and type of school, because social segregation by school type is not entire and student SES variation exists between schools of the same type. Including school type after school SES in the models allows an exploration of the effects of type of school on reducing unexplained between-school variance in trust in institutions once school SES is accounted for.

The analysis explores the fixed and random effects, but special attention is given to the random effects, as they allow estimation of the between-school variance, and how much of it is reduced by school type and the SES composition of school (social segregation). If school SES is useful in helping explain between-school variance in student levels of trust in institutions after accounting for student characteristics, it suggests that social segregation may be influencing school contexts in ways that contribute to different levels of trust in institutions. If the type of school is useful in helping explain differences in student levels of trust in institutions after accounting for school SES, it suggests that there are unobserved characteristics in those types of schools that explain student levels of trust in institutions, some of which could be linked to segregation in addition to student and school SES.

## **Results**

### ***Social segregation***

Table 1 shows the distribution of students in Santiago by SES and type of school. It reports the shares of students within each school type drawn from the different SES quintiles. The

**Table 1.** Distribution of students, by SES (quintile) and type of school: Santiago, Year 10 students.

Student SES quintile	Type of school				
	Municipal non-selective	Municipal selective	Private voucher non-selective	Private voucher selective	Private fee
Lowest	50.5	9.8	26.5	2.4	0.0
Lower Middle	29.7	21.0	26.1	8.5	0.6
Middle	11.5	28.5	25.9	17.1	3.3
Upper Middle	6.1	28.8	16.6	47.6	19.1
Highest	2.2	11.9	4.9	24.4	77.0
Total	100.0	100.0	100.0	100.0	100.0

results show that students in private fee schools are largely drawn from the highest SES quintile (77.0 per cent) and very few are drawn from the lowest two quintiles (0.6 per cent). By contrast, half of the students enrolled in municipal non-selective schools come from the lowest SES quintile, almost a third from the lower middle quintile and only 8 per cent from the upper middle and highest quintile of SES. Although private voucher non-selective schools also serve low SES families, they do so to a lower extent than municipal non-selective schools: lowest, lower middle and middle SES quintile students each represent about a quarter of total enrolments in private voucher non-selective schools. Municipal selective-entry schools pool students from all social backgrounds, although students in the lowest SES quintile represent only 9 per cent of total enrolments in these schools. Private voucher selective-entry schools mostly serve families from upper-middle and high SES backgrounds. The schools that operate as selective-entry schools tend to have a higher SES intake than equivalent category schools which do not select students academically.

The results show that the different types of secondary schools pool students from different parts of Santiago based on SES.

### ***Academic segregation***

Reading skills of students vary markedly by the type of school. **Table 2** reports the distributions of students by reading skills and school type. Students are grouped into quintiles of reading skills. For students attending private fee schools almost three-quarters are in the top two quintiles of Reading skills (73.1 per cent). By contrast, two-thirds of students in municipal non-selective schools are in the bottom two quintiles of reading skills (66.6 per cent). The selective entry municipal schools and selective entry private voucher schools enrol students who are in the upper bands of reading skills, though despite

**Table 2.** Distribution of student reading skills using quintiles, by type of school.

Reading skill quintile	School type				
	Municipal non-selective	Municipal selective	Private voucher non-selective	Private voucher selective	Private fee
Lowest	41.9	10.9	22.6	8.7	6.1
Lower Middle	24.7	13.7	27.4	17.3	8.2
Middle	19.4	24.2	20.6	21.2	12.6
Upper Middle	9.8	25.7	17.6	28.8	26.0
Highest	4.0	25.5	11.8	24.0	47.1
Total	100.0	100.0	100.0	100.0	100.0

**Table 3.** Multilevel model estimates of reading test scores.

Parameters	Null Model	Model 1	Model 2	Model 3	Model 4
Constant	0.00	0.03	0.04	-0.49**	-0.08
<i>Individual Level</i>					
Gender (ref: males)		-0.05	-0.04	-0.03	-0.03
Student SES			0.15**	0.14**	0.10**
<i>School Level</i>					
School SES				0.56**	0.51**
Type of school (ref: Municipal non-selective)					
Municipal selective					0.33*
Private voucher non-selective					0.17
Private voucher selective					0.06
Private fee					0.19
<i>Explained Variance (%)</i>					
Within-school	[71]	0	1	1	1
Between-school	[29]	0	39	94	97

\* $p < .05$ . \*\* $p < .01$ .

their selective admissions do not have as many high achieving students as do private fee schools.

The results show that segregation across school types is along academic skill as well as social lines.

In order to explore further the relationship between social segregation and student reading skills, five random intercept multi-level models were run. The results are reported in Table 3.

The Null model shows that 29 per cent of the total variance in student reading test scores can be attributed to differences between schools. The estimate is similar to that derived at a country level for Chile in PISA 2012 (OECD 2013).

Model 2 results show that student SES is a significant predictor of student reading test scores, and that it explains 39 per cent of the between-school variance in reading test scores. It only explains 1 per cent of the within-school variance precisely because of the levels of social segregation in the system and the low variation of student SES within schools. Model 3 results indicate that mean school SES is a significant independent predictor of student reading test scores, beyond individual SES.

When the four dummy variables for type of school are added in Model 4, only students in municipal selective schools significantly outperform students in municipal non-selective schools, and the between-school variance explained increases by 3 per cent. Ultimately, the large school type differences in reading test scores are associated with student and school SES; the high level of student achievement in reading in private schools is largely explained by the individual SES of their students and the overall SES composition of their student population. School type doesn't add much to explaining reading achievement beyond the role of SES.

### ***Segregation and institutional trust***

Students in Santiago record low levels of trust in key Chilean institutions, particularly government-related institutions. Table 4 presents the percentages of students who reported having quite a lot or a great deal of trust in private and government institutions. The results reveal that roughly one-quarter to one-third of students report having trust (quite a lot or a lot) in Newspapers, Banks and the broader Media and courts. The

**Table 4.** Percentages of students with high levels of trust ('quite a lot' or 'a great deal') in key government and private institutions, by type of school (%).

	Type of school					Tolta
	Municipal non-selective	Municipal selective	Private voucher non-selective	Private voucher selective	Private fee	
<i>Private institutions</i>						
Newspapers	22.8	34.0	28.3	37.3	63.4	35.3
Banks	27.3	24.9	27.2	34.2	64.9	33.3
The Media	24.4	21.8	27.1	26.9	41.8	27.7
Big companies	12.7	11.4	11.0	12.0	46.8	17.5
<i>Government institutions</i>						
Courts and judiciary	21.8	15.9	20.7	21.7	43.2	23.4
Parliament	6.7	5.2	6.2	9.6	23.6	9.1
Political parties	7.7	3.7	5.3	4.8	19.4	7.5
Government	6.7	4.3	4.6	6.0	19.7	7.4

government, political parties and parliament are the institutions that students have least trust in, with fewer than 10 per cent of students recording quite a lot or a lot of trust. Government-related institutions attract the lowest levels of trust. This is consistent with the levels recorded in the World Values Survey for the broader population of Chile, a survey in which the results set Chile apart from many other countries (OECD 2019).

While levels of trust may seem to be low, there are important differences in the student population and these are of interest. Table 4 presents student levels of trust by type of school. The percentages of students in private fee schools who have trust in Chile's government and private institutions are much larger than of students in other types of schools, revealing gaps of 30 percentage points or more in some cases. While the percentages of students with high levels of trust in government and private institutions may, on average, be low, students in private fee schools record quite high levels – over 60 per cent have confidence or trust in Newspapers and Banks and over 40 per cent in Media, Big companies and the Courts. For every institution, the levels of trust recorded by students in private fee schools are two or more times the levels recorded by students in municipal non-selective schools.

Outside of students in private fee schools, students in all other settings record very low levels of trust in public institutions, apart from the Courts and judiciary. Not only are the levels of trust comparatively low, they do not vary much by type of school. Students in municipal schools and in voucher schools do not have much confidence in government.

Results of multi-level modelling are presented in Table 5. The Null model shows that 11 per cent of the variance in student trust in government institutions is found between schools. Model 1 results show a positive and significant relationship between student SES and trust in government institutions, and that over one-third (43 per cent) of the between-school variance in student levels of trust is explained by SES differences among the students.

The results from Model 2 reveal that reading test scores are not a significant predictor of trust in government institutions and do not increase explained variance between schools. The results suggest that higher achieving students do not place greater trust in institutions than lower achieving students, after accounting for SES.

**Table 5.** Multilevel model estimates of student trust in government institutions.

Parameters	Null Model	Model 1	Model 2	Model 3	Model 4
Constant	0.04	0.07	0.07	0.00	0.04
<i>Individual Level</i>					
Gender (ref: males)		-0.04	-0.04	-0.02	-0.02
Student SES		0.13**	0.13**	0.09**	0.08*
Reading test score			0.01	-0.01	-0.01
<i>School Level</i>					
School SES				0.25**	0.05
Type of school (ref: Municipal non-selective)					
Municipal selective					-0.15
Private voucher non-selective					-0.10
Private voucher selective					-0.19
Private fee					0.52*
Explained Variance (%)					
Within-school	[89]	0	0	0	0
Between-school	[11]	43	43	64	95

\* $p < .05$ . \*\* $p < .01$ .

Model 3 results reveal that mean school SES is a significant predictor of student levels of trust in government institutions. The explained variance figures at the bottom of Table 5 show that adding school SES (Model 3) increases between-school explained variance by 21 percentage points to 64 per cent suggesting that there is a contextual effect of school SES on levels of trust students hold in government institutions beyond individual SES and other factors. The effect of school SES becomes no longer significant, however, once school type is introduced (Model 4), as institutional trust is disproportionately higher among students in private fee schools.

While student SES and mean school SES are important to explaining between-school variation in student trust in government institutions, the elite private fee schools are associated with higher levels of trust among students beyond the effects of student and school SES. Attending private fee schools is associated with significantly higher levels of trust in government institutions, increasing the levels by more than half a standard deviation, even after controlling for student SES.

The results of the modelling to predict trust in private institutions are presented in Table 6. The null model shows that the between-school variation in student levels of trust in private institutions is 15 per cent, slightly higher than for trust in government institutions.

Model 1 reveals that the higher the SES of the family, the higher the level of student trust in private institutions. One-third of the total between-school variance in levels of trust in private institutions is explained by student SES.

Model 2 shows that student reading achievement is not associated with higher or lower levels of trust in private institutions, once controlling for individual SES. This result confirms that family background is more important than academic achievement to understanding differences in levels of private institutional trust.

The results in model 3, consistent with the results for trust in government institutions, suggest that the mean SES of the school is a significant independent predictor of the levels of trust students have in private institutions: a one unit increase in mean school SES is associated with a 0.33 standard deviation increase in student level of trust in private institutions, controlling for the effects of student SES, gender and reading

**Table 6.** Multilevel model estimates of trust in private institutions.

Parameters	Null Model	Model 1	Model 2	Model 3	Model 4
Constant	0.02	0.07	0.07	-0.10	0.04
<i>Individual Level</i>					
Gender (ref: males)		-0.07	-0.07	-0.06	-0.06
Student SES		0.11**	0.11**	0.08*	0.07
Reading test score			-0.02	-0.02	-0.03
<i>School Level</i>					
School SES				0.33**	0.18
Type of school (ref: Municipal non-selective)					
Municipal selective					-0.15
Private voucher non-selective					-0.03
Private voucher selective					-0.26
Private fee					0.47
Explained Variance (%)					
Within-school	[85]	0	0	0	0
Between-school	[15]	33	33	65	87

\* $p < .05$ . \*\* $p < .01$ .

achievement. As well, the inclusion of school SES increases the explained between-school difference in level of trust in private institutions by 32 percentage points to 65 per cent, suggesting that school differences in social intake are associated with differences in levels of student trust in private institutions.

The results in model 4 show that after adding type of school there are no significant independent predictors of trust in private institutions. Attending a private fee school is associated with a substantial increase in level of trust (0.47 standard deviation increase) but it is not significant after controlling for all else. School SES is no longer significant, though is positively associated with student trust. There is a 22 percentage point increase in the amount of between-school variance explained to 87 per cent.

## Discussion

Social segregation is a feature of schooling in Santiago. Results from analysis of the social composition of schools in this study confirm findings reported in national and international studies on Chile more widely that schools are highly segregated: most of the variance in student SES is observed between schools, meaning that the variation in student SES is much greater between than within schools. That finding is consistent with a school arrangement that is highly segregated along SES lines. Students are much more likely to attend schools with others who are like themselves and much less like to attend schools that are mixed or where students are from different or other backgrounds. Other research suggests that this is likely, at least in part, to be due to the different types of schools which have become established following the introduction in the early 1980s of vouchers and free-market policies promoting privatisation and parental choice of schools (see, for example, Hsieh and Urquiola 2007). Private voucher schools emerged, and grew rapidly, joining the smaller number of long established and highly influential exclusive private fee schools that have served Santiago's elite families for the last century or more.

Academic selection for entry to some municipal and private voucher schools has further contributed to the levels of segregation across schools. Measured using reading achievement, results suggest the weakest readers are in municipal non-selective

schools which have large proportions of students in the bottom quintile of reading performers. Private-fee schools draw the strongest achievers, with large proportions of their students in the top quintile of performers. Results suggest that selective schools, municipal and private voucher, have a more even spread of performers. Reading skill levels of students are aligned to the average SES of the school that a student attends. About a third of the total variation in student reading test scores is between-schools, and student SES and mean school SES explain most of the variation. Mean school SES by itself accounts for over half of the between-school variation in student reading achievement. Type of school also contributes even if modestly (3 percentage points). The results support the view that in Santiago the student population is divided both socially and academically across schools by school type.

Segregation of the scale apparent in Santiago secondary schools comes with consequences. This has been examined in previous work mainly through studying the impact of the policy of vouchers on student achievement (see, for example, the study by Hsieh and Urquiola 2007). In the current study, segregation has been examined in terms of levels of students trust in government and private institutions. Contributing to the research on school segregation and inequality, the analysis shows that while mean levels of trust among Santiago students in government and private institutions are relatively low, there are sizeable gaps associated with school SES and the type of school a student attends.

Of the different school types, the effects are tied significantly to private fee schools, the schools that have historically served the wealthy and operate without any government financial support and remain outside the voucher programme. Students at these schools, largely from high SES families, record higher levels of trust in both government and private institutions compared to students at any other type of school. In terms of trust in government institutions, there is an independent effect for private fee schools which remains even after controlling for student SES and mean school SES. Students at the elite private fee schools hold higher levels of trust in government institutions, after controlling for all else. Of course, self-selection may contribute to this finding because we had no prior measures of trust to see if it is the private-fee school context that contributes to the result, or the types of families using the schools, but, irrespective, the student population is divided based on the results and it is only in private fee schools that students will mix with any sizeable proportion of students who may have trust or confidence in the key institutions of Chile. Whether the schools help cultivate it, or not, effectively they keep students separate from students in other types of schools from other types of backgrounds who in turn are unable to mix with students who have more positive views of Chile's key institutions.

Schools have long been regarded as key to helping build trust and cohesion in communities (OECD 2012b). They provide opportunity for students to acquire the sorts of skills and qualifications needed to build careers and contribute economically. They also prepare young people with the knowledge and skills needed to participate effectively as citizens. Schools can also foster, through providing the opportunity to mix with diverse others, development of important values such as tolerance, interpersonal respect, shared understandings and trust in institutions. Yet, it is possible for this capacity to be undermined if schools become uneven spaces for the acquisition of skills and qualifications, and don't provide the opportunity for mixing with others from diverse

backgrounds. The findings of the current study suggest that segregation in the secondary school system of Santiago is associated with different levels of trust in institutions which may work to undermine the capacity for institutional legitimization and social cohesion.

## Note

1. Enrolment estimates reported in this paragraph are based on author calculations derived from official student enrolment data from the Chilean Ministry of Education.

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## Appendix 1

**Table A1.** ISCY-Santiago sample, by type of school and school SES.

School SES	Type of school					TOTAL
	Municipal non-selective	Private voucher non-selective	Municipal Selective	Private voucher selective	Private Fee	
<i>Schools</i>						
Low	3	2	0	0	0	5
Lower-middle	3	2	0	0	0	5
Middle	0	5	2	0	0	7
Upper-middle	0	1	1	2	0	4
High	0	1	0	0	5	6
<i>TOTAL</i>	6	11	3	2	5	27
<i>Students</i>						
Low	220	137	0	0	0	357
Lower-middle	246	133	0	0	0	379
Middle	0	432	478	0	0	910
Upper-middle	0	77	96	112	0	285
High	0	100	0	0	401	501
<i>TOTAL</i>	466	879	574	112	401	2432

**Table A2.** Results for scaling student socioeconomic and cultural background (SES).

Index	Variables	Loadings	Cronbach's Alpha	Min	Max	Mean	SD
Student SES	Highest level of parental education	0.82	0.70				
	Highest level of parental occupation	0.81					
	Home wealth	0.74		-2.99	2.18	0.00	1.00
	Home resources for education	0.59					
	Cultural possessions	0.69					

**Table A3.** PCA results for scaling trust in institutions.

Index	Variables	PCA scores	Cronbach's Alpha	Min	Max	Mean	SD
Trust in Government Institutions	Trust in government	0.85	0.86				
	Trust in courts	0.73		-1.12	4.05	0.00	1.00
	Trust in political parties	0.89					
Trust in Private Institutions	Trust in parliament	0.91					
	Trust in the media	0.77	0.81	-1.55	3.04	0.00	1.00
	Trust in newspapers	0.76					
	Trust in big companies	0.84					
	Trust in banks	0.81					