Private financing in urban public schools: inequalities in a stratified education marketplace

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Abstract

This study examines inequalities of school funding as exclusively generated by the parent community in urban public schools, and potentially illuminates a secondary impact of between-school segregation. For schools that are largely understood as free, the substantial injections of private financing into public schools indicate a concerning tension for fairness and equity. Using a census dataset of all public schools in one Australian capital city ($n = 150$), we compare reported parent 'contributions, fees and charges' and how they are patterned by measures of school disadvantage and advantage. We found a statistically significant relationship between private financing and measures of school-based advantage or disadvantage, over a four-year period. Advantaged schools generate up to six times greater income in comparison to disadvantaged schools over a four-year period, and we argue that the substantial gaps function as another form of 'compounded disadvantage' for residualised public schools and a tiered effect of segregation.

Keywords Segregation · Public schools · Socioeconomic status (SES) · Parent contribution · Parent fees · Fundraising

Introduction

With global trends towards privatisation and the erosion of traditional public schooling across OECD countries (Verger et al. 2017), parental engagement and involvement in their child's schooling is a consistent tenet of the reform agenda. For example, the OECD (2018) 'Education GPS' report argues that parental

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involvement equates to greater equity, student engagement and motivation, asserting that a lack of parental involvement leads to 'inequities in education'. In Australia, parent engagement is upheld as essential for achieving both equity *and* excellence, and a major recommendation of the Australian Government (2018) report *Through Growth to Achievement* is to 'enable parents and carers to be partners in their child's learning' (p. xi, xv, 20). Shared themes across government reports, or global score-cards such as the OECD PISA, stress the importance of parental choice, leveraging accountability via parents and creating a 'supportive community' (OECD 2018). The bilateral endorsement for parental involvement in schools is another means to shift responsibility and accountability, from freely provided government education to the individual consumer. In this paper, we critique this position through the lens of school financing and conceptualise parental involvement as a problematic component of the privatisation creep in public schools.

This study examined individual school income as exclusively generated by the parent community within public schools. Parental financing in public schools is generated in myriad ways, including fundraising, monetary gifts, contributions or donations, or direct fees. Fundraising has attracted scholarly attention in various OECD countries, including Canada (Winton 2016, 2018; Winton and Milani 2017) and the United States (Posey-Maddox 2016). Overall however, there are gaps in understanding the depth and breadth of parental financing in urban public schools, and how this is linked with driving equity or possibly inequity, particularly within Australia. On one hand, parental financing may be regarded as a safeguard towards encroaching privatisation and the increasingly deficient role of the state. On the other, parental contributions may effectively operate as an additional *arm* of privatisation, in exacerbating social, cultural and economic barriers between public schools, in addition to distending resource disparities and stigmatisation of increasingly residualised urban schools.

Research around parental financing in public schools tends to coalesce with research around middle-class school choice (Windle 2015; Campbell et al. 2009; Rowe 2017). Scholarship from the US suggests that parental financial contributions in urban public schools are driven by socially mobile middle-class parents, and frequently patterned by race and ethnicity (Cucchiara 2013; Posey-Maddox et al. 2016; Billingham and Kimelberg 2013; Lipman 2011). As marketisation and choice policies have grown, there has been a sharp trend and mobilisation of middle-class parents enacting the role of performative consumers and choosers in the urban market, in addition to the role of 'economic broker' and 'producers of urban school change' (Posey-Maddox 2016 p. 179). Although this involvement can manifest positive change in schools, it can simultaneously exacerbate tiers of exclusion. In Posey-Maddox's (2016) US-based study, she writes that

> Despite their stated commitments to public education and desire for diversity, most parents worked with and for a more *selective* public in their school change efforts, exacerbating resource disparities in the segregated urban district. (p. 178, emphasis in original)

In this paper, we study how parental financing in urban public high schools is patterned by school-level advantage and disadvantage.[1] Whilst previous studies such as Posey-Maddox (2016) focus more on fundraising efforts, in this paper we study a similar yet distinct mobilisation of private financing—parental financial contributions in public schools. By examining school-based revenue gaps, as correlated with school-level advantage and disadvantage, this will potentially illuminate impacts of between-school segregation.

For an international audience, it is necessary to briefly explain the differentiations between public and private schools in Australia. Public schools are broadly understood as free and secular, predominantly funded by the government. The public school sector serves the majority of the schooling population (59% in the secondary sector); and the majority of students who are experiencing a disability, are Indigenous, and represent the lowest socioeconomic status (SES) quartile (Gonski et al. 2011; Australian Government 2015). In comparison, the private school sector charges up-front parental fees, ranging from low or moderate fee to high-fee elite schools. Elite Independent (private) schools cater to approximately twenty per cent of the population, predominantly students from higher SES backgrounds (Watson and Ryan 2010; Perry et al. 2016). Therefore, Australia represents a useful context for exploring parental financial contributions in public schools and to examine how these contributions are patterned by segregation and measures of advantage or disadvantage.

In the following section, we review the literature around how socioeconomic status (SES) is conceptualised and measured in relationship to both individual and school-level SES. Second, we briefly set out the policy context of parental financing in public schools, notably in Canada, the US and Australia. We then report the findings and discuss their implications.

Individual and school-level socioeconomic status

There is a robust history of educational research which has consistently demonstrated a strong relationship between individual socioeconomic status (SES) and student educational outcomes (Caldas and Bankston 1997; Coleman et al. 1966; Lubienski et al. 2008; Lubienski and Lubienski 2005, 2006, 2013; OECD 2016; Sirin 2005; Perry and McConney 2010, 2013). The measurement of SES is an ongoing source of contention and debate within scholarship. For example, in their US-based studies of academic differences between public and private schools, Lubienski and Lubienski (2005, 2013) used student eligibility for a reduced-price/free lunch program as a measure for SES, which was highly criticised by its detractors (e.g. Chubb 2013). Whilst debates surrounding the measure of SES are common, and useful (Sirin 2005; e.g. Rutkowski and Rutkowski 2013), student

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[1] We will refer to the Index of Community Socio-Educational Advantage as ICSEA and this measure will be explained in further depth forthcoming.

SES is typically measured via parental income, parental occupation and parental education, as described by Sirin (2005):

> Regardless of disagreement about the conceptual meaning of SES, there seems to be an agreement on Duncan, Featherman, and Duncan's (1972) definition of the tripartite nature of SES that incorporates parental income, parental education, and parental occupation as the three main indicators of SES. (p. 418)

Many researchers have considered how school-level SES, as a functionally separate and distinct measure from individual-level SES, affects student outcomes and indeed, whether school-level SES supersedes individual-level SES. School-level SES is conceptualised as the average SES of students within a particular school. In his highly cited meta-analysis, Sirin (2005) found a 'large degree of association' between family SES and academic achievement at the school level:

> Of all the factors examined in the meta-analytic literature, family SES at the student level is one of the strongest correlates of academic performance. At the school level, the correlations were even stronger. (Sirin 2005 p. 438)

An increase in school SES is consistently associated with an increase 'in students' academic performance, and … this relationship holds regardless of an individual student's SES' (Perry and McConney 2010 p. 72). In the OECD publication, *Ten Steps to Equity in Education,* Field et al. (2007) wrote that 'any individual student outcome is correlated not only with that individual's own social background, but also with the social background of other students in the same school' (p. 42).

School-level SES affects a number of contextual variants within the school environment (see Caldas and Bankston 1997). A global cross-country patterning of homogenous SES school cohorts reflects the difficulties that high-poverty or 'residualised' schools encounter. High-poverty schools are more likely to record higher levels of teacher absenteeism, struggle to retain experienced teachers, and build adequate school resourcing, particularly within rural geographies or poor urban districts (Lamb 2007; Lamb et al. 2015; OECD 2016, 2017). Low-SES schools typically provide limited access to higher-tiered academic subjects which enable access to prestigious university courses (Schmidt et al. 2015; Perry and Southwell 2014). Schmidt et al. (2015) write that 'the most affluent students generally receive more rigorous opportunities to learn important mathematics' (p. 381). Caldas and Bankston (1997) argue that educators teaching students from majority low-SES backgrounds, with fewer resources and types of 'capital', may retain lower expectations of students. An OECD publication determined that teachers' expectations have a large impact on student outcomes, writing that, 'the relationship between teachers' low expectations and student low performance in mathematics is statistically significant even after accounting for the socioeconomic status of students and schools' (OECD 2016 p. 144). When many of these factors are combined—a student from a more disadvantaged background attending a school which serves a majority of low-SES students—there will be a greater likelihood of the student encountering inexperienced teachers, higher teacher

absenteeism, a resource-poor rather than resource-rich learning environment, and lower teacher expectations. When schools serve a majority-disadvantaged or majority-advantaged cohort, with very little social integration, it compounds and entrenches the relationship between socioeconomic status and educational outcomes, retaining a direct impact on educational equity. Thus, school segregation 'warrants policy attention because of evidence from many countries that segregation affects students' educational opportunities' (Benito et al. 2014 p. 104).

The entrepreneurial public school

Research from the US and Canada stipulates that parental fundraising is the norm in many urban schools, but parental funds are now being used to finance what was traditionally financed by the state—core academic activities and resources, such as books and science equipment, rather than items considered as 'extras' or non-necessities (Posey-Maddox 2016; Winton 2018). This constructs grossly inequitable learning conditions for teachers and students, a claim levelled in a high profiled class action in the US. Students argued that, when combined with high-stakes accountability policies, the lack of resourcing in their school established discriminatory testing conditions (see Powers 2004).

Policy around parent voluntary financial contributions in public schools differs in Australia, and it also varies across states and territories. The State of Victoria led the way in terms of decentralising public schools, legislating 'self-managing' public schools in 1998 via the *Education Self-Governing School Act* (Parliament of Victoria 1998). With regard to parental payment and fees for public high schools in Victoria, state legislation stipulates that 'the standard curriculum program' must be provided free of charge in public schools (Department of Education and Training 2017; Victorian Auditor-General's Report 2015). Nevertheless, parents are required to pay for items which the school categorises as 'Essential Student Learning Items'. There is very little oversight in terms of how individual schools categorise items or services as 'essential', which can encompass a broad range of items such as textbooks, uniforms, stationery, mandatory excursions and any additional materials required for a learning task. Schools may also request parent payments for "optional items" that are offered in addition to the standard curriculum, such as extra-curricular programs, music tuition, optional excursions and camps, as well as "voluntary financial contributions", typically delegated for special initiatives and/or a building or library fund (Department of Education and Training nd). As school budgets were decentralised under the 1998 Act, schools are not held accountable or required to comply with any regulations as set by the respective Department of Education and Training (DET). The Department 'takes no responsibility for monitoring and enforcing school compliance' or imposing limitations around parental contributions for each school (see Victorian Auditor-General's Report 2015 pp. 3, 7). In a similar way to Winton's (2018) research from Canada, parents are required to pay for items that are not only for extra-curricular activities such as ski-trips, rowing or sailing, but are contributing financially for *basic* learning items such as textbooks.

Methodological approach

This study examined the relationship between school socio-educational advantage and financial data in all urban public secondary schools in metropolitan Melbourne, the second most populated city in Australia. To the best of our knowledge, it is the first comprehensive empirical study that compares school-level advantage or disadvantage with financial contributions as generated by the parent community in urban public schools. We examined the degree to which parent contributions are related to school characteristics, and the size of the gap between schools with different levels of socio-educational advantage. Our primary aim was to measure the extent of inequalities between schools in the amount of parental funding that individual schools can generate.

Data

We first created a dataset by harvesting data from two websites, the *MySchool* website[2] and the Victorian State Government Department of Education website.[3] The data were first collected by a research assistant, and in turn checked and verified by the authors of the study. Our census comprises all public secondary schools in Victoria, as identified by the Victorian government website, that are located in 'major cities' according to the *MySchool* website. The 'major cities' classification is defined by the Australian Government as cities with more than 100,000 residents (Department of Infrastructure and Transport 2013). In Victoria, and in our dataset, almost all schools that are located in 'major cities' are situated in Greater Melbourne as defined by the Australian Government, with a small minority located in Geelong, Victoria's second largest city (Department of Infrastructure and Transport 2013). Four schools were excluded due to missing data on *MySchool*. The final dataset includes 150 schools, two of which are select-entry and two of which offer restricted years of schooling (years 9–12).

For each school in the dataset, we collected data from the most current data (year) available on *MySchool*, which at the time of writing was 2016, for the following:

(1) Total enrolment within the school across four separate years (2013–2016), collected as a separate figure for each year.
(2) "Fees, charges and parent contributions" *per student* across 4 years (2013–2016), collected as a separate figure for each year.
(3) "Fees, charges and parent contributions" *per school* across 4 years (2013–2016), collected as a separate figure for each year.
(4) School Index of Community Socio-Educational Advantage (ICSEA) (2016).

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[2] See: https://myschool.edu.au/. The *MySchool* website is authored, designed and maintained by the Australian Curriculum Assessment and Reporting Authority (ACARA).

[3] See: http://www.education.vic.gov.au/Pages/default.aspx.

The *MySchool* website incorporates a detailed profile of each school and the characteristics of its students (see, MySchool website, ACARA).

We used the Index of Community Socio-Educational Advantage (ICSEA) to consider how parent income is patterned by school-level measures of advantage and disadvantage. ACARA assigns each school a 'School ICSEA Value' based on the following formula (ACARA 2015):

ICSEA = SEA[Socio-educational advantage:

parent occupation and parent education] + [School] Remoteness

+ Percent indigenous student enrolment.

The ICSEA measure is similar to the commonly used method for measuring SES based on parent occupation, parent education and parent income (see Sirin 2005). However, it also includes country context-specific variables such as school location (i.e. remote, regional or major city) and the percentage of Indigenous student enrolment. It is reasonable to use the ICSEA measure as a proxy for SES, as there are various conceptualisations, critiques and measures of SES in the literature (Sirin 2005; e.g. Mueller and Parcel 1981; Rutkowski and Rutkowski 2013), and evident in previous studies (see Dix et al. 2012). However, for methodological consistency and clarity, we refer to 'ICSEA' or socio-educational advantage and disadvantage in this paper.

ICSEA values range from approximately 500 (representing extreme disadvantage) to 1300 (representing extreme advantage) and are scaled so that the national average is 1000. In addition to an ICSEA value, *MySchool* reports the distribution of students from four socio-educational advantage (SEA) quarters, based on parent occupation and education (see ACARA 2015).

ICSEA is a fairly reliable snapshot of school socio-educational advantage. The variables of which it is composed are considered to have the 'strongest association with student performance' in standardised tests (ACARA 2015), reflecting the literature about SES and achievement (see Sirin 2005). A primary marker of validity of SES, as argued by Sirin (2005), is how the data are collected—and ideally, SES data should be based on individual data rather than aggregated neighbourhood census data, and collected from parents rather than students, as students may not have a clear understanding of their parents' wealth, educational attainment or occupation. ICSEA meets these aims since it is based on actual parental education levels and occupation data as acquired directly at point of enrolment from households, rather than collected from students, making it arguably more robust than iterations utilised in the earlier *MySchool* website (see critique, Cobbold 2010). Even so, calculations such as ICSEA and SES, are ultimately estimates of levels of advantage and disadvantage and not indicative for all individuals. It is important to acknowledge a range of studies that critique the limitations of *MySchool* data, particularly in terms of the standardised testing data and comparisons between 'like' schools (Gobby 2016; Thompson et al. 2017; Wu 2016; Thompson and Harbaugh 2013).

Our second source of data is financial data for each school, for four consecutive years (2013–2016), as reported on *MySchool*. *MySchool* reports the amount

of income received by each school from the following four categories: Australian Government recurrent funding; state/territory government recurrent funding; fees, charges and parent contributions; and other private sources.

We focussed exclusively on 'fees, charges and parent contributions',[4] which is defined as 'income received from parents for the delivery of education services to students'. Arguably, this is the most robust source for examining parent contributions. It includes, for example, charges and contributions for specialist programs, computer services, excursions, incursions and infrastructure initiatives. 'Other private sources' includes funding generated by parental fundraising, but this is diluted by additional offsets: 'interest on bank accounts, profits on trading activities and profits from sale of assets' (ACARA 2018). Therefore, we only examined data from the 'fees, charges and parent contributions'[5] category. *MySchool* lists the per student and total amount for each school, and we included both figures in our dataset. The per student amount allowed us to examine between-school inequalities whilst controlling for school size, and the total amount allowed us to examine inequalities that are compounded by school size. For example, two schools may have similar per student funding amounts, but if one school is markedly larger than the other, it has a much greater funding pool to support costly projects or initiatives. The analysis and findings of this study are strictly grounded in the reported data that are available at time of writing through the *MySchool* website.

Analytical strategy

For every school, we calculated an average per student and per school amount of parent funding from 2013 to 2016. We created an average based on 4 years of data to allow for year-to-year fluctuations. We also summed the total school parent contributions over the 4 years[6].

Next we divided the 150 schools into quartiles based on ICSEA, with quartile 1 having the lowest ICSEA values (the most disadvantaged schools) and quartile 4 having the highest (the most advantaged schools) (see Table 1). We then calculated the mean and median per student and per school parent contributions for each school quartile. The mean is the average, and the median denotes the midpoint value for the

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[4] We utilise the exact wording employed by the *MySchool* website to report these data.

[5] The authors cannot verify whether the data as reported on the *MySchool* website are consistently accurate. Whilst some data are questionable, we are nevertheless confident about the data as a whole, especially since we are comparing data in the aggregate rather than between individual schools, and basing comparisons on 4-year averages rather than single years. The financial data reported on *MySchool* are provided by a credentialed and reputable accounting firm, and reportedly checked for accuracy by ACARA. It is also subject to accountability processes because the data are reported to government ministers.

[6] A small proportion of schools (14%) reported $0 in parent contributions in 2014. We found this dubious, especially since it only appeared in 2014, and occurred across the entire range of school socio-educational advantage and was not limited to schools with low ICSEA values. Because we were not confident about these data, we entered "NA" instead of $0 for these 21 schools in 2014. We are not overly concerned about this operation since we calculate averages over four years, thus reducing the impact of these data anomaly.

Table 1 School characteristics and parent contributions, by school SES quartile

School ICSEA quartile	Number of schools	School enrolment size (2013–2016)		ICSEA range (2016)	Annual funding per student, averaged over 4 years (2013–2016)		Annual funding per school, averaged over 4 years (2013–2016)		Total funding per school, summed over 4 years (2013–2016)	
		Mean	Median		Mean	Median	Mean	Median	Mean	Median
Q1	36	801	755	886–948	$408	$335	$352,956	$258,644	$1,296,497	$999,242
Q2	39	893	865	950–993	$590	$560	$521,177	$455,857	$1,968,579	$1,823,427
Q3	38	949	889	997–1052	$954	$795	$901,832	$755,409	$3,580,720	$3,021,635
Q4	37	1147	1151	1054–1166	$1,430	$1,399	$1,584,974	$1,494,194	$6,253,167	$5,976,776
Total: mean		948		1004	$846		$839,639		$3,272,553	
Total: median		944		995	$725		$652,999		$2,489,954	

entire frequency distribution. The median value is typically lower than the average because it is not impacted by outlying values at either extreme. We report both the mean and median since our census contains a wide range of values and outliers (see Table 1).

We also conducted correlational analysis to measure the strength of the associations between variables. We used Pearson correlation coefficients to measure the strength and direction of bivariate relations, such as the strength of the relation between school ICSEA and per-pupil parent funding. The Pearson coefficient, or Pearson's r, ranges from -1.00 to 1.00. A value of 0 means there is no relation between two variables, a value of 1.00 means there is a perfect positive relation between two variables (i.e. that as one variable increases in value, the second does as well), and a value of -1.00 means there is a perfect negative relation (i.e. as one variable increases, the second decreases). A strong relation is considered to be > 0.50 by Cohen (1988), but some educational researchers lower the threshold to 0.30, as done by De Bortoli and Thomson (2010). To test whether the correlations are statistically significant rather than due to chance, we calculated p values using two-tailed tests of significance.

Results

In this section, we report three sets of findings: first, the correlations between variables; second, characteristics of schools in our census, including levels of segregation; and third, how parent financing is patterned by school ICSEA. The lowest ICSEA in our sample is 886 and the highest is 1166. Enrolment size has a positive relation with school SES, with the most disadvantaged schools being on average the smallest and the most advantaged schools the largest in size (see Table 1):

In order to examine how school financing is patterned by school-level advantage and disadvantage, it is useful to consider the homogeneity of schools and how these schools are marked out by concentrated levels of advantage and disadvantage. We argue that the substantial financial gaps function as another form of compounded disadvantage for residualised public schools, and a tiered effect of segregation.

Robust segregation is evident across the sample, according to the proportionality of students concentrated into either the top or bottom quarter of SEA. This is particularly pronounced for the most advantaged and disadvantaged public schools. For the schools considered to be highly disadvantaged (Q1) within our sample and as calculated by the authors, on average these schools serve a student cohort in which 59% is concentrated into the most disadvantaged SEA quarter. This is almost inverted for the most advantaged schools, with 45% concentrated in the highest quarter of SEA (see Fig. 1). For the most advantaged and disadvantaged, schools tend to serve a high proportion of students as concentrated into only one or two brackets. For example, the most disadvantaged schools serve a student cohort in which 85% are concentrated into the bottom two quarters of SEA, which is very similar for advantaged schools—although the students are concentrated into the top two quarters of advantage. This indicates very little social integration between schools, with schools characterised by disadvantage.

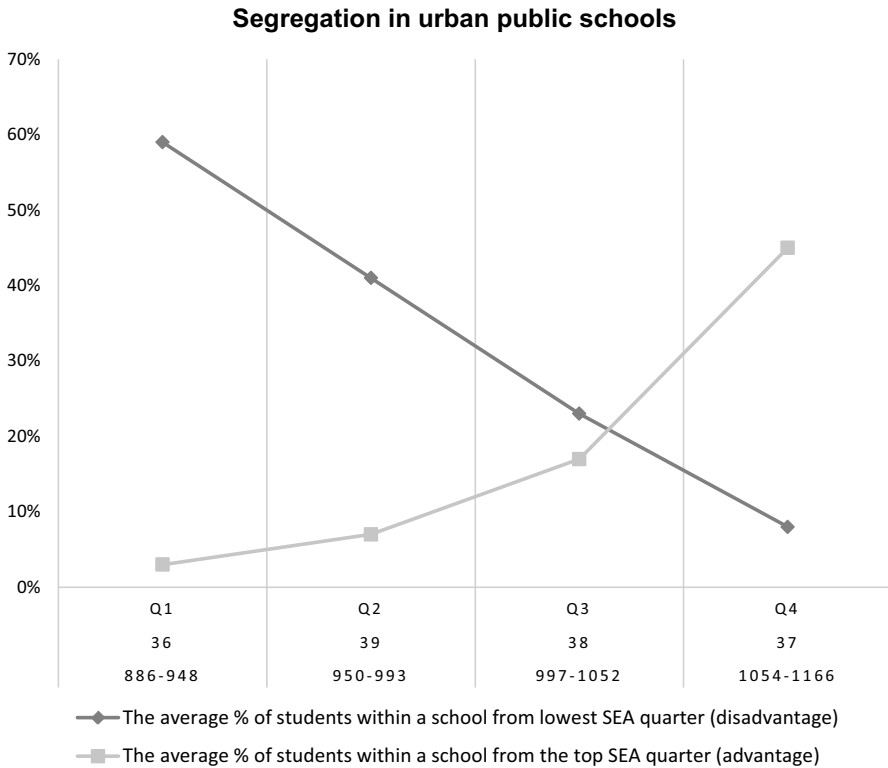**Segregation in urban public schools**

Fig. 1 Segregation as patterned by socio-educational advantage (SEA) is comparatively high across all schools. On average, disadvantaged schools serve 59% of students from the lowest SEA quarter and low levels of social integration

There is a sharp and visible contrast between advantaged and disadvantaged schools (see Fig. 1):

The robust segregation in this study correlates with significant gaps in parental financing between urban public schools (see Table 1). Across all relevant categories, advantaged schooling cohorts generated significantly greater sums of income. The lowest per student parent funding was $35 at a Q1 (high socio-educational disadvantage) school, and the largest was $2851, at a Q4 (high socio-educational advantage) school (81 times higher). Sixty-five per cent of schools within our sample receive per student parent contributions that range from $322 to $1370. The mean for the entire census is $846, and the median is $725 (see Table 1). The differences between school ICSEA quartiles are very large. As shown on the figure below, the mean per student parent contributions in the most advantaged schools (Q4) is 3.5 times greater when compared to the most disadvantaged schools (Q1) ($1430 mean for Q4 compared to $408 for Q1) (see Fig. 2). The difference is even greater when comparing median values. The median *per student* parent contributions is more than four times greater for Q4 than for Q1 ($1399 compared to $335) (see Fig. 2):
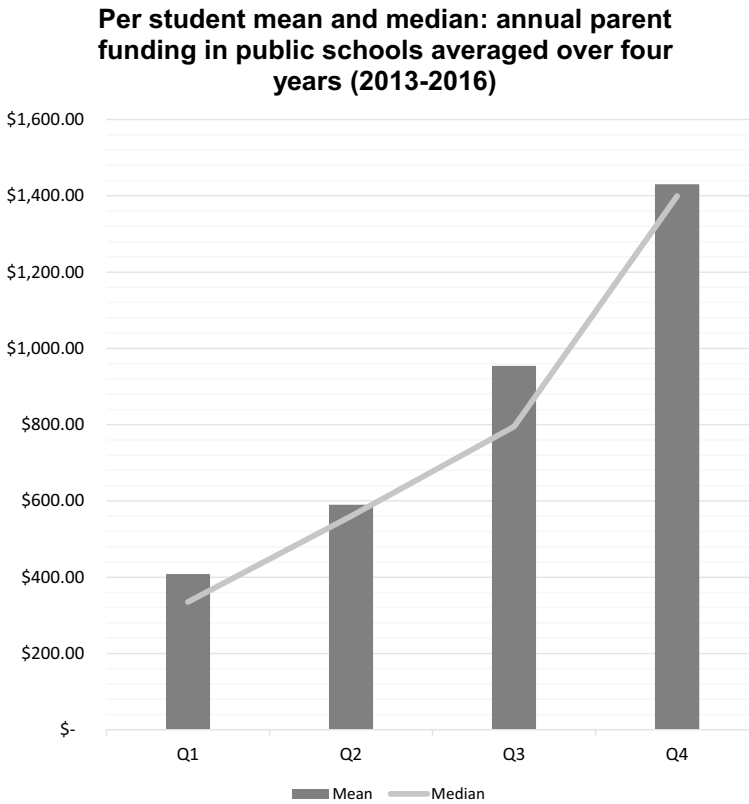
Per student mean and median: annual parent funding in public schools averaged over four years (2013-2016)

Fig. 2 Per student mean and median: parent contributions in public schools per student (mean and median), as patterned by school ICSEA over 4 years (2013–2016). The most advantaged schools generate more than four times greater income (parent contributions) over 4 years, in comparison to the most disadvantaged schools in the data

These dramatic inequalities are even larger when we compare *per school* parent contributions (see Fig. 3). This is because schools with higher levels of socio-educational advantage also tend to have larger enrolment sizes. The lowest amount of per school parent funding is $139 as a total amount (2013–2016) compared to $11,404 as a total amount, equating to 82 times greater. The *mean* per school contribution is 4.5 times greater in Q4 schools than in Q1 schools, and this inequality grows to 5.8 times when comparing *median* per school parent contributions (see Fig. 4). Parent contributions may be used to fund fixed costs which do not vary by the number of enrolled pupils, for example school facilities. With their much larger per school parent funding pools, schools with a more advantaged student cohort are much better placed to fund costly initiatives. When comparing the total funding per school summed over 4 years, the gap is significant, with more advantaged schools generating six times more income in comparison to the most disadvantaged schools (see Figs. 3, 4):
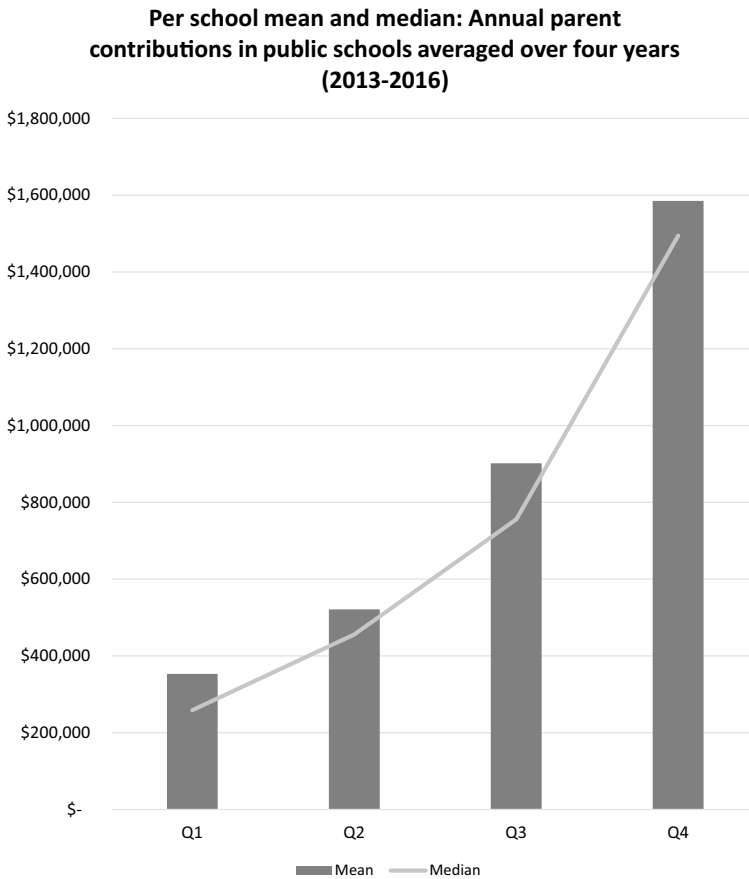
Per school mean and median: Annual parent contributions in public schools averaged over four years (2013-2016)

Fig. 3 Per school mean and median: Parent contributions in public schools per school (mean and median), by school ICSEA quartiles (Q1–Q4). The most advantaged schools generate more than five times greater income (parent contributions) over 4 years, in comparison to the most disadvantaged schools in the data

Finally, we calculated the strength of the relation between the variables in our dataset. Table 2 presents a correlation matrix for all variables. As can be seen in the table, school ICSEA is strongly related to per student parent funding ($r = 0.73$), per school parent funding ($r = 0.70$) and funding per school summed over 4 years ($r = 0.71$). Interestingly, the relation between school enrolment size and ICSEA is small to moderate ($r = 0.27$), although still statistically significant; whilst schools with less privileged social compositions tend to be smaller than schools with more privileged compositions, the relation is far from perfect (see Table 2). Only one relation—per-pupil funding and enrolment size—was small and not statistically significant.

In summary, our analysis demonstrates sharp segregation between schooling cohorts, which tie into substantial inequalities in parent funding between schools
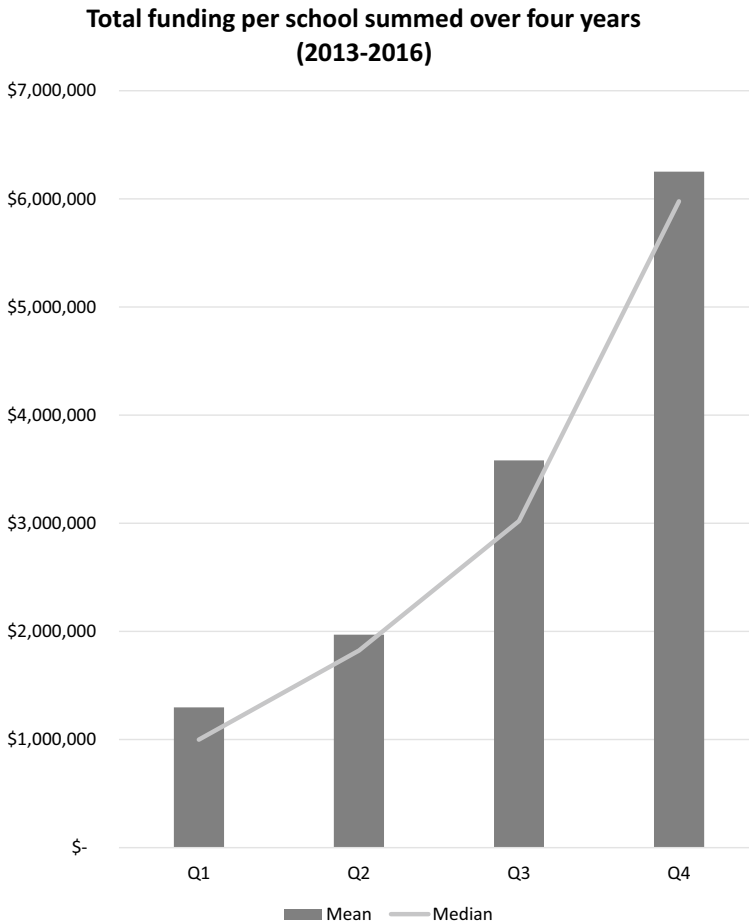
Total funding per school summed over four years
(2013-2016)

Fig. 4 Total parent contributions per school (mean and median), by school ICSEA quartiles (Q1–Q4). The most advantaged schools generate six times greater income (parent contributions) over 4 years, in comparison to the most disadvantaged schools in the data

Table 2 Correlation matrix

	ICSEA	Enrolment size	Per-pupil, average per year	Per school, average per year	Total per school, summed over 4 years
ICSEA	1	0.27*	0.73*	0.70*	0.71*
Enrolment size		1	0.14	0.67*	0.66*
Per-pupil, average per year			1	0.74*	0.73*
Per school, average per year				1	1.00
Total per school, summed over 4 years					1

*$p < 0.01$

as patterned by low and high socio-educational advantage. The relation between school socio-educational advantage and parent contribution is very strong, and the difference in parent funding that is available to highly advantaged schooling cohorts is 400–500% greater than in disadvantaged schools. These inequalities are compounded by school size and segregation.

Discussion

To the best of our knowledge this is the first comprehensive study, in Australia or internationally, which has examined inequalities of school funding as exclusively generated by the parent community in urban public schools, and how this private funding correlates with school socio-economic status. We argue it is a timely scrutiny of private financing in public schools, and the repercussions, limitations and implications of equitable resourcing and school funding.

We found a large and statistically significant relationship between a school's level of advantage or disadvantage (SES) and levels of funding exclusively generated by parents, as reported by the *MySchool* website over four consecutive years. This pattern is evident across all utilised metrics, including per student and per school, mean and median. Our findings show that schools which serve the most disadvantaged cohorts raise the least amount of per student funding and per school funding over four consecutive years. Schools that serve the most advantaged cohorts report the highest amounts of per student funding and per school funding over four consecutive years, according to both mean and median levels. Studying this over four consecutive years suggests that the relationship between school socio-economic status and parental financial contributions is robust and consistent.

It is relatively unsurprising that schools that serve more advantaged student cohorts also report higher amounts of annual contributions per student and per school. However, it is concerning that amounts of parental contributions differ so substantially between advantaged and disadvantaged schools, with advantaged schools able to leverage up to six times more income over 4 years, in comparison to the most disadvantaged schools. This potentially leads to significant structural disparities and inequities in school funding and resourcing within the public schooling sector. It is beyond the scope of this paper to understand the wider impacts of inequitable funding gaps, and whether this certainly affects overall funding gaps between schools, after accounting for a needs-based funding model. Government funding may potentially *limit* the damaging effects of financial gaps, but this is uncertain.

However, whilst it is unclear whether these funding gaps affect educational outcomes, school segregation is well defined and clear in this study. The schools in this study are sharply segregated according to measures of disadvantage and advantage, such as parental occupation and parental levels of education. School segregation correlates with substantial parental financing gaps. It is fair to assert that funding differences—as generated by the parent community—demonstrate a secondary effect of segregated schooling cohorts, particularly when these cohorts are

marked out by majority-disadvantaged and majority-advantaged student composition. Research has consistently demonstrated that schooling segregation, via poverty, race and class, undermines educational equity (Benito et al. 2014; Palardy 2013). Schools that serve majority-disadvantaged student cohorts are more likely to have inexperienced teachers, teacher shortages and teacher absenteeism. Research indicates that teachers may have lower expectations of students, and these schools struggle to maintain resource-rich environments (OECD 2016; Powers 2004; Itkonen and Jahnukainen 2007). This study further indicates that advantaged schools are able to generate substantially higher amounts of parental financing, which enhances their capacity to provide educational experiences and opportunities.

As the most advantaged schools raise sums that are approximately four to six times higher than their least advantaged counterparts, they maintain greater capacity to provide enhanced learning resources and learning experiences. But these schools also maintain greater capacity to meet *fundamental* or basic demands of learning, such as the provision of textbooks. As there are little to no limitations or compliance models in terms of how the income is generated or used, schools with greater incomes should theoretically be able to substantially improve classroom resourcing. Schools could potentially utilise this funding to increase their marketing budget or promote particular 'aspirational' programs. Certainly, we would argue that funding disparities which we have illuminated in this paper only further exacerbate lowered or raised marketability of the school, leading to school choice dynamics and between-school segregation.

We recommend that policymakers seek ways to reduce stratified funding inequalities between schools. Since disadvantaged schools have less capacity to generate funding from parents, additional sources of funding should be made available to them, or the ability to self-fund should be limited. For example, state treasuries could create funding schemes to which disadvantaged schools could apply, although a competitive application process may result in further stratification. Alternatively, policymakers could regulate levels of parental contributions by imposing compliance models for schools, in terms of what schools can ask parents to pay for, or imposing limits on parental contributions within schools. The Ontario Model (e.g. *The Fundraising Guideline*, Ontario Ministry of Education, 2012) asks schools to share resourcing and funding amongst themselves, in order to ensure a level playing field, although this is not mandatory (see Winton and Milani 2017). Regardless of the selected mechanism, however, policy needs to be sensitive to the larger context of schooling in Australia, ensuring that solutions do not undermine the quality of public schooling and its ability to compete in a highly privatised landscape.

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