

# PIDE Working Papers No. 2021:1

EDUCATOR

The Yardstick of *What School Do You Go To?* An Estimation of School Socioeconomic Segregation in Urban Pakistan

> Saman Nazir Hafsa Hina

PIDE Working Papers No. 2021:1

# The Yardstick of *What School Do You Go To?* An Estimation of School Socioeconomic Segregation in Urban Pakistan

Saman Nazir Pakistan Institute of Development Economics, Islamabad.

and

Hafsa Hina

Pakistan Institute of Development Economics, Islamabad.

# PAKISTAN INSTITUTE OF DEVELOPMENT ECONOMICS ISLAMABAD 2021

*Editorial Committee* Lubna Hasan Saima Bashir Junaid Ahmed

*Disclaimer:* Copyrights to this PIDE Working Paper remain with the author(s). The author(s) may publish the paper, in part or whole, in any journal of their choice.

Pakistan Institute of Development Economics Islamabad, Pakistan

*E-mail:* publications@pide.org.pk *Website:* http://www.pide.org.pk *Fax:* +92-51-9248065

Designed, composed, and finished at the Publications Division, PIDE.

# **CONTENTS**

	Page
Abstract	v
Introduction	1
Socioeconomic School Segregation and Inequalities	1
The School Education Market in Pakistan: An Overview	3
Data and Methods	4
Data and Sample	4
Measures	4
School SES Segregation Index	5
Results	6
Discussion and Conclusions	9
References	11

# List of Tables

Table 1.	Descriptive Statistics (%)	5
Table 2.	D-Index- Disadvantage to Advantage for National and Urban Levels	_
	by School Type	7
Table 3.	Income Inequality in the Cities of Pakistan (Gini Coefficient)	10

# List of Figures

Figure 2.D-Index for Grades 5 (2018)8Figure 3.D-Index for Grades 8 (2018)9Figure 4.D-Index for Grades 10 (2018)8Figure 5.D-Index for Grades 1-10 (2000)8Figure 6.D-Index for Grades 5 (2000)9Figure 7.D-Index for Grades 8 (2000)9Figure 8.D-Index for Grades 10 (2000)9	Figure 1.	D-Index for Grades 1-10 (2018)	8
Figure 3.D-Index for Grades 8 (2018)9Figure 4.D-Index for Grades 10 (2018)8Figure 5.D-Index for Grades 1-10 (2000)8Figure 6.D-Index for Grades 5 (2000)9Figure 7.D-Index for Grades 8 (2000)9Figure 8.D-Index for Grades 10 (2000)9	Figure 2.	D-Index for Grades 5 (2018)	8
Figure 4. D-Index for Grades 10 (2018) 8   Figure 5. D-Index for Grades 1-10 (2000) 8   Figure 6. D-Index for Grades 5 (2000) 9   Figure 7. D-Index for Grades 8 (2000) 9   Figure 8. D-Index for Grades 10 (2000) 9	Figure 3.	D-Index for Grades 8 (2018)	9
Figure 5. D-Index for Grades 1-10 (2000) 8   Figure 6. D-Index for Grades 5 (2000) 9   Figure 7. D-Index for Grades 8 (2000) 9   Figure 8. D-Index for Grades 10 (2000) 9	Figure 4.	D-Index for Grades 10 (2018)	8
Figure 6.D-Index for Grades 5 (2000)9Figure 7.D-Index for Grades 8 (2000)9Figure 8.D-Index for Grades 10 (2000)9	Figure 5.	D-Index for Grades 1-10 (2000)	8
Figure 7.D-Index for Grades 8 (2000)9Figure 8.D-Index for Grades 10 (2000)9	Figure 6.	D-Index for Grades 5 (2000)	9
Figure 8. D-Index for Grades 10 (2000)	Figure 7.	D-Index for Grades 8 (2000)	9
	Figure 8.	D-Index for Grades 10 (2000)	9

### ABSTRACT

School socioeconomic de/segregation is a primary policy concern as it can foster or limit children's opportunities in society. This study measures the magnitude of school socioeconomic segregation in Pakistan. By using the data from the 2001-02 and 2018-19 Pakistan Social and Living Standards Measurements (PSLM) surveys, we estimated the school segregation at national, urban, and city levels. Our study suggests high levels of segregation in the public school for students from disadvantaged socioeconomic backgrounds. Segregation in schools has significantly increased over the years. Public schools are more segregated than low-cost and high-cost private schools at the national, all urban, and city levels. However, the low-cost private school is significantly less segregated than public and high-cost private schools. Additionally, we found the highest socioeconomic segregation (grades 1–10) for Islamabad, followed by Multan, Gujranwala, and Faisalabad.

### **INTRODUCTION**

The socioeconomic segregation in schools is a major policy concern as it can limit children's opportunities for social integration and mobility in society. Segregation, socially, is to keep one group of people separate from another. Specifically, segregation is defined as a "pattern in the spatial distribution of categories that deviates significantly from a random distribution (Louf & Barthelemy, 2016)". Therefore, school socioeconomic segregation can be understood as an unequal distribution of children in schools with different socioeconomic characteristics (Larraaga & Sanhueza, 2007). The measurement of socioeconomic segregation provides an estimated percentage of deprived students who need to move/transfer between schools to provide a homogeneous distribution of all the schools in a given territory (Valenzuela, Bellei & Ríos, 2014).

School social-economic segregation is relevant to education policy in several aspects. First, the socioeconomic composition of classmates is a primary mechanism for peer effect. Research concur that students' socioeconomic composition and students' outcomes are linked; more integrated schools have better school outcomes for students of different socioeconomic backgrounds (Palardy, 2013; Palardy, 2008). In the long run, differences in academic achievement contribute to differences in earning achievements, a significant cause of income stratification in a society (Duncan & Murnane 2011; Owens, 2018). Second, the school has been seen as a medium for socialisation for students that exposes them to social life complexities. School segregation impedes that socio-civic feature by limiting their engagement with people from different socioeconomic backgrounds (Larraaga and Sanhueza, 2007). Finally, the segregation of disadvantaged students in schools impacts educational policies' efforts to improve educational conditions across socioeconomic groups. School segregation for disadvantaged students is likely to increase their degree of vulnerability to stratification and elevate their risk of exclusion (Larraaga and Sanhueza, 2007).

In Pakistan, school education has gradually expended, yet inequalities are significantly based on the quality of education, socioeconomic status, gender, and geography. Our study aims to estimate the degree and evolution of socioeconomic segregation of students in schools. The study will contribute to this literature in the following ways. The work on socioeconomic school segregation is still in infancy in Pakistan. The study is first to estimate the magnitude of socioeconomic segregation at the city level in Pakistan. With a rapidly growing urban population in Pakistan, studying socioeconomic segregation is imperative in its own right (since segregation is an urban phenomenon). Second, the study is indispensable from the education policy view's point as it will generate a debate about un/integrated school systems in Pakistan that might be partially responsible for fostering or limiting the opportunities for children.

### SOCIOECONOMIC SCHOOL SEGREGATION AND INEQUALITIES

Contemporary literature in sociology sees segregation as a significant structural factor for social-economic stratification (Massey, 2012). From the social inequality perspective, segregation of different population groups may not matter as far as all the

groups have equal proximity to resources (including institutional, social, and environmental resources) and if those resources were evenly distributed throughout residential spaces (Reardon, 2006). However, segregation studies across the globe indicate that resources are not distributed equally. From the social interaction perspective, even in proximity or equal distribution of resources, segregation matters as it influences the possibilities for intergroup contacts among the individuals of contrastive social groups (Reardon, 2006).

Critical channels through which segregation affects a particular population group are various kinds of social interactions and experiences. These include but not limited to peer effect, interaction effects, role models, knowledge networks, social networks, and social capital (Larraaga & Sanhueza, 2007). For example, in schools, the peer effect may have a long-lasting effect on students' outcomes. Duru-Bellat (2015) discussed the effect of social mix in schools where students' composition itself leads to inequalities. Classmates are resources for each other; their accomplishments and inspirations depend positively on their reference group's average achievements. Moreover, social segregation in schools is partially responsible for unequal educational achievement, i.e., schools with high achievements often have students with favourable social backgrounds and a high percentage of them, and vice versa (Butler & Hamnett, 2007). If the peer effect impacts children's performance, then social segregation in schools may contribute to higher academic disparities (Jenkins, Micklewright & Schnepf, 2008) and possibly responsible for reproducing educational and social inequalities (Maloutas & Ramos Lobato, 2015).

Segregation at different levels in society operates complexly to create and reproduce inequalities in society. For example, there is growing evidence that school, racial and residential segregation are interlinked. As Reardon (2006) suggests that residential location not only influences the individual's proximity to specific resources (i.e., both institutional and social) but also creates possibilities for intergroup contacts (Reardon, 2006). Wodtke, Harding, & Elwert (2011) found that prolonged exposure to deprived communities significantly affects graduation from high school; growing up in the most deprived neighbourhood quintile brings down graduation from 96 to 76 percent, and 95 to 87 percent for black and non-black children, respectively. Moreover, neighbourhood effect operates through where people live now and where they have lived in the past (Wodtke, Harding, & Elwert, 2011). Larraaga & Sanhueza (2007) examined the effects of residential segregation on the poor's opportunities in Chile. The results indicate that segregation raises the risk that children living in disadvantaged households do not attend pre-school schooling, fall behind grades, and drop out.

Research shows that middle-class parents' strategies for their children's schooling play a crucial role in increasing educational inequalities. These strategies channel through various structural dynamics, such as housing and school admission policies. Parents from the middle class pursue a range of approaches for their children to attend proper schools and their strategies, ultimately reinforcing social inequalities (Maloutas & Ramos Lobato, 2015; Reay, Crozier, & James, 2011). Parents' socioeconomic background affects the weight that they put on specific school attributes. Parents with low socioeconomic background have lesser odds of making a school choice but are less likely to choose school performance as a priority criterion for the school selection (Leroux, 2016).

Moreover, the literature suggests that higher selectivity in school admissions would increase social segregation; higher segregation rates exist in countries where school selection has a higher prevalence (Jenkins, Micklewright, & Schnepf, 2008). Duru-Bellat (2015) also asserts that the school systems with various strategic choices offer leeway to inequalities. These inequalities arise from specific trade-offs between the costs, risks, and potential benefits that families from different socioeconomic backgrounds make for their children.

### THE SCHOOL EDUCATION MARKET IN PAKISTAN: AN OVERVIEW

School education in Pakistan is mainly delivered by three systems, i.e., government, private, and madrassah (religious schools). The recent PSLM 2018-19 data suggests that net enrolment rates in primary (grade 1-5), middle (grade 6-8) and metric (grade 9-10) levels are 66 percent, 38 percent, and 27 percent respectively. Among these, 65 percent of children attend government schools, while 35 percent enrol in private institutions (33 percent to private schools, 1 percent to madrassah, and 1 percent to others). However, overall, 30 percent of school-aged (5 to 16) children are out of school in Pakistan.

Following the devolution in 2003, the provincial governments in Pakistan took over public education. However, all the public schools across all provinces provide education free of cost or highly subsidised. Private schooling in Pakistan is mainly market-based. A considerable portion of the school-age population is attending private schools in the country. Until 1972, private schools were serving niche markets and mainly run by missionaries or local foundations. These schools were nationalised in 1972. However, in 1979 the policy decision was reserved (Andrabi, Das, & Khwaja, 2006). Private schools in the country are no more serving the upper-middle or wealthy class. There are low-cost private schools that are serving children from low SES backgrounds. International donor agencies/organisations such as UNICEF, World Bank, DFID, and the British Council have also contributed to increasing the school participation in Pakistan. For example, world banks fund a project in the poorest districts in Punjab through which children are provided vouchers to attend a low-cost private school. However, such interventions' impact is debatable and limited in the country's broader access to education and socio-economic context.

There is a wide variation of tuition fees that private schools charge across the country. The tuition fee depends on various factors, including but not limited to educational and extracurricular services, infrastructure, location, institutional prestige, and academic afflictions. One question that emerges why parents, even from low socioeconomic, choose private schools for their children while in the existence of free of cost public schooling? The researchers suggest that children in private schools outperform their counterparts in public schools in Pakistan; even after accounting for household and school variables, the effect persists. The study found that low-cost private school students outperformed their government school counterparts (Amjad & MacLeod, 2014). Alderman, Orazem, & Paterno, (2001) also looked at the factors influencing whether poor households send their children to government schools, private schools, or no school. They found that even the poorest households make substantial use of private schools, which increases with income. Siddiqui (2017) research on segregation by poverty and students' performance in Pakistan shows that academic performance segregation is higher than segregation by poverty. Moreover, in private schools, segregation by poverty is higher than in government schools, whereas, in government schools, segregation by performance is higher.

### DATA AND METHODS

### Data and Sample

Data were drawn from two rounds of Pakistan Social and Living Standards Measurements (PSLM) surveys for years 2000-01 and 2018-19 conducted by the Pakistan Bureau of Statistics. The PSLM survey is representative at national, provincial, and district levels. PSLM provides information on social and economic indicators in the alternate years. Two staged stratified sampling design was employed for this survey. A modified sampling frame through the Population & Housing Census 2017 was used for sample collection in PSLM 2018-19. PBS developed a sampling framework for rural and urban areas, dividing each city/town into enumeration blocks. These enumeration blocks are called primary sampling units (PSUs) for urban and rural domains. Information from 24809 households in 1802 primary sampling units (PSUs) have been collected. Detailed sampling methods and data collection techniques of the PSLM for both rounds that we are using in our analysis are further discussed elsewhere (see: http://www.pbs.gov.pk). Although we estimate segregation at the national level, we mainly restricted our analysis to urban PSUs of most populous cities. Our study included 10 of Pakistan's most populated cities, namely Karachi (144 blocks), Lahore (113 blocks), Faisalabad (44 blocks), Rawalpindi (36 blocks), Gujranwala (48 blocks), Peshawar (57 blocks), Multan (29 blocks), Hyderabad (43 blocks), Islamabad (16 blocks), and Quetta (45 blocks). The unit of analysis for the study are the children (alive) who were aged 5-19 and enrolled in a school last year.

### Measures

Literature classifies segregation measures mainly into five dimensions, i.e., the degree of similitude/ evenness, exposure, concentration, centralisation, and clustering (Massey and Denton 1988; Reardon & O'Sullivan 2004). Informed by the studies on the issue, we have used evenness as a segregation measure to estimate the school segregation in Pakistan (Owens, 2017). Valenzuela, Bellei & Ríos (2014, p 222) defined evenness as "the degree of similarity in the distribution of the individual characteristics between different units of a given territory and is linked to the unbalanced spatial distribution of a population with a specific social attribute." Thus, evenness measures different population groups' spatial distributions among constituent in a metropolitan area (Iceland & Weinberg 2002).

This study uses the Dissimilarity Index (D- Index) to estimate evenness for school segregation. D-Index is the most commonly used measure of evenness (Iceland & Weinberg, 2002). Many studies that performed a comprehensive analysis of the optimum segregation measures proposed D-index to calculate unevenness (Massey 2012; Massey, White, and Phua, 1996). In our study, the D-Index estimates the percentage of deprived

students that need to move/transfer between schools to provide a homogeneous distribution of all the schools in a given territory (Valenzuela, Bellei & Ríos, 2014). The D-Index value ranges from 0 to 1, where 0 indicates full even distribution, and 1 indicates an entirely uneven distribution. The value above 0.6 indicates hyper segregation (Glaeser, & Vigdor, 2001). We calculated the D-index at the national and urban levels.

### **School SES Segregation Index**

The dissimilarity index requires dichotomous variables (Yalonetzky, 2012); therefore, we use the principle component analysis (PCA) to create the school SES index. The selection of variables to calculate the SES index informed mainly by prior research (Valenzuela, Bellei & Ríos, 2014). The PCA in this study is calculated from the three variables, i.e., father education, mother education, and per capita household expenditure. Based on the SES index, we rank the PCA lowest to the highest and then divide the students into disadvantage (30 percent lowest value of SES index) and advantage (30 percent highest value of SES index) groups.

Descriptive Statistics (%)					
Variables		2001-02	2018-19		
Students in Grade	Grade 1	17.5	17.1		
	Grade 2	15.1	14.0		
	Grade 3	12.5	12.7		
	Grade 4	11.1	10.7		
	Grade 5	9.8	9.8		
	Grade 6	8.0	8.3		
	Grade 7	6.7	7.1		
	Grade 8	6.7	6.9		
	Grade 9/ O- Levels	5.5	7.0		
	Grade10/ O-Level	6.9	6.5		
School Type	Government	75.1	65.9		
	Private low fee	13.1	25.4		
	Private high fee	9.8	8.7		
Students' Age	9 - 10	22	21.8		
	11-12	19.1	18.6		
	13 - 14	15.2	16.2		
	15-16	10.6	10.8		
	17-19	4.4	3.6		
Parental Education Level	Mother literacy rate	27.2	37.6		
	Father literacy rate	62.4	63.0		
Average household size		9.0	8.0		
N (Children)		19807	27973		

Table 1

Father's education and mother's education are continuous variables and computed by considering years of education completed. In the case of inconsistencies in the data, we made the following arrangements. Missing or in case of death, data on mother's education was imputed from the father's education level whereas, missing data on both mother's and father's education were imputed from the head's education data. Per capita expenditures are calculated at the household level. Aggregate nominal consumption expenditure includes monthly all food and non-food expenditures of the households.

We estimated SES school segregation at the national level for the students of grades 1-10. We expect that segregation levels vary across school grades. Therefore, we estimate the SES segregation separately for fifth, eighth, and tenth graders. It is imperative to look at the degree of segregation at different levels of education in Pakistan, as students from low SES either do not attend secondary school altogether or likely to drop out rapidly. Furthermore, we calculated the level of SES school segregation by type of schools. We divide the school type into three main categories, i.e., public schools, low-cost private schools, and high-cost private schools. As described earlier, there is another type of schooling system called madrassas, exist in the country. Although we find the madrassas an indispensable category to study SES segregation, we excluded the category mainly due to the data restriction. A very few percentages (1.6 percent) of children in our analysis are attending madrassas; therefore, we cannot estimate segregation for the category.

Public schooling is either free or heavily subsidised in Pakistan. Private schools have a wide range of fee structures; high-cost schools are mainly located in affluent residential areas charging tuition fees up to \$500/month, whereas low-cost schools are charging around \$3 and \$25 per month (Naviwala, 2016). We categorised private schools into two types; low-cost and high-cost private schools. Low-cost schools are schools that cater to the low-income population of a country. The following definition informs our categorisation of low-cost private schools. Low-costs schools are defined by the Department for International Development (DFID) as relative to the income of the intended beneficiaries of these educational institutes and not as the costs of running these schools. According to DFID, these schools' costs should not exceed 4 percent of the beneficiaries' household budget (Barakat, Hardman, Rohwerder, & Kathryn, 2012). Moreover, the costs of education are not just the school fee but also include and not limited to uniforms, books, and other extra-curricular activities. In our study, we use the terms low-cost and affordable schools interchangeably.

### RESULTS

We estimate the magnitude and evolution of school segregation in Pakistan. Table 2 shows the estimated D-index at the national and urban levels across school types for 2000 and 2018.

In 2000, the school social segregation was 0.27 and 0.26 (grades 1-10) at national and urban levels. Interestingly, these levels increased to 0.52 and 0.51 in 2018. These estimates indicate the 63 and 65 percentage point increase in segregation levels between 2000 and 2018. It is noteworthy that segregation at both low and high cost private schools have almost doubled between 2000 and 2018 at the national level. Highest school segregation is found in grade 5 at the national level for both years, although it was significantly lower in 2000. The segregation index is equal to 0.53 in 2018 as compared to 0.26 in 2000. For all the grade levels, segregation levels have increased over the years. The public schools are highly segregated in all grades at both national and urban levels.

T	. 1. 1		$\mathbf{a}$
- 1	an	le.	7
- 1	au	u U	4

	Grade 1-10	Grade 5	Grade 8	Grade 10	Grade 1-10	Grade 5	Grade 8	Grade 10
				20	)18			
Type of School		National	Level			Urban I	Level	
Public Schools	0.26	0.27	0.22	0.20	0.26	0.25	0.22	0.20
Private low-cost schools	0.13	0.15	0.09	0.08	0.11	0.10	0.08	0.07
Private high-cost school	0.13	0.12	0.12	0.12	0.14	0.15	0.14	0.13
D-Index Total	0.52	0.53	0.43	0.41	0.51	0.49	0.44	0.40
Ν	27991	2758	1938	1726	10648	1025	824	792
			2000	)				
Public Schools	0.14	0.13	0.12	0.11	0.13	0.16	0.09	0.12
Private low-cost schools	0.08	0.07	0.05	0.04	0.07	0.10	0.04	0.04
Private high-cost school	0.05	0.06	0.07	0.07	0.06	0.07	0.05	0.08
D-Index Total	0.27	0.26	0.23	0.21	0.26	0.32	0.19	0.24
Ν	19408	1907	1307	1279	8316	827	689	715

D-Index- Disadvantage to Advantage for National and Urban Levels by School Type

We estimated school segregation for ten most populous cities in Pakistan for years 2018, and 2000. We could not calculate the segregation levels for Islamabad (grades 5, 8, 10) and Rawalpindi (grades 5 and 10) due to many missing cases. Figures 1-4 shows estimated school segregation for the year 2018. For grades 1-10 collectively, the highest segregation is found in the Islamabad (Figure 1). The segregation index for the city is equal to 0.70, which shows a case of hyper segregation. Multan, Gujranwala, and Faisalabad also have high school segregation levels, i.e., 0.61, 0.54, and 0.49. For grades 1-10, the D-index is 0.33 for Rawalpindi, which is the lowest among all cities.

Moreover, estimates show that public and high-cost private schools have the highest school segregation levels. The public schools in all ten cities are more segregated than both low and high-cost private schools. The highest level of segregation in public schools has been found for the city of Islamabad (0.35), followed by Multan (0.31), Gujranwala (0.27), and Faisalabad (0.24). With Hyderabad and Quetta's exceptions, low-cost private schools have the lowest segregation levels in all the cities.

For the 5th graders (see Figure 2), Karachi schools are the most segregated, followed by schools in Quetta, Multan, and Faisalabad. The segregation index is equal to 0.55 for Karachi and to 0.53 for Quetta. It is noteworthy that public schools are most segregated than low-cost and high-cost private schools except for Multan, where segregation levels are the same for public and low-cost private schools. Figure 3 shows the school segregation levels for the 8th graders. The estimates suggest hyper socioeconomic school segregation in Karachi, Faisalabad, and Rawalpindi; the D-Index value for these cities is as high as 0.66, 0.62, 0.62, respectively. For the 10th graders (figure 4), the highest segregation is found in Peshawar (0.62), followed by Faisalabad (0.58). In all the grade levels, public schools are most segregated than low-cost private schools. Moreover, high-cost private schools are more segregated than low-cost private schools.

To examine the evolution of segregation over the years, we estimated D-index for the year 2000. Figures 5-8 present the school segregation levels in 2000. Due to many missing cases, we have not been able to calculate the segregation levels for Rawalpindi & Hyderabad (grades 10) and Gujranwala (grades 8). The overall Dindex for grades 1-10 for most of the cities in our analysis was considerably low in 2000 compared to 2018 (see Figure 5). For example, the D-index value for Lahore is 0.22 in 2000 as compared to 0.39 in 2018. That shows segregation levels exacerbated over the years. Notably, Karachi has the same school segregation (0.39) for both periods. The high school segregation for grades (1-10) found in Multan (0.54) and Peshawar (0.35) for the year 2000. The D-Index value for Multan and Peshawar has also increased over time, i.e., 0.61, and 0.43 for 2018, respectively. Public schools are highly segregated as compared to private schools. Moreover, high-cost private schools are more segregated than low-cost private schools.











Multan

Quetta

()

Hyderabad

D-Index Total

.4

.5

.7

.2

.9



Segregation levels for grade 5 have decreased for a few cities, including Rawalpindi, Peshawar, Multan, and Hyderabad in 2018 as compared to 2000. Figure 6 shows the D-index for 5th graders in 2000. School segregation in Hyderabad in the year 2000 for 5th graders was as high as 0.82. D-index for Multan and Peshawar is also high, i.e., 0.68, and 0.63 respectively. Figures 7 and 8 show the D-index values for grades 8 and 10. Highest school segregation has been found for Multan (0.83) and Hyderabad (0.75), while Quetta has the highest D-index for 10th graders in 2000. Due to many missing cases, we have not been able to calculate the segregation levels for Rawalpindi & Hyderabad (grades 10) and Gujranwala (grades 8).

### DISCUSSION AND CONCLUSIONS

We estimated the magnitude of school socioeconomic segregation in Pakistan. To sum up, findings suggest that the magnitude of socioeconomic school segregation in Pakistan is considerably high. Over the past two decades, segregation has increased significantly in public schools. Public schools both at national, all urban, and city levels are more segregated than low-cost and high-cost private schools. However, the low-cost private schools are significantly less segregated than public and high-cost private schools. We found the highest socioeconomic segregation (grades 1-10) for Islamabad, followed by Multan, Gujranwala, and Faisalabad. In grades 5, estimates show Karachi has the highest school segregation, followed by Quetta, Multan, and Faisalabad. Peshawar has the highest school segregation level for grade 10.

Despite the expansion of public school education over the years, uneven distribution among schools for children with different socioeconomic characteristics reflects persistence inequalities in Pakistani society. The study results can be understood in various yet interrelated ways- first, among these two periods, income inequality for these ten cites in Pakistan has increased drastically, which could be one of the important factors that drive high school segregation in 2018-19 compared to 2001-02 (see Table 3). Notably, in 2018, income inequality levels in cities, including Karachi, Lahore, Rawalpindi, Gujranwala, Multan, Hyderabad, and Quetta, are alarmingly high.

Table 1	3
---------	---

meenie meenie of the entres of t entistent (entre eoejjietenti)					
Cities	2001-02	2018-19			
Karachi	0.417	0.957			
Lahore	0.404	0.956			
Faisalabad	0.393	0.955			
Rawalpindi	0.329	0.836			
Gujranwala	0.446	0.935			
Peshawar	0.434	0.884			
Multan	0.411	0.916			
Hyderabad	0.339	0.938			
Islamabad	0.402	0.797			
Quetta	0.333	0.905			

Income Inequality in the Cities of Pakistan (Gini Coefficient)<sup>1</sup>

Second, the parental choice for schooling could be another critical factor explaining schools' high socioeconomic segregation levels. From the analysis, we can see that public schools have a concentration of children from disadvantaged socioeconomic backgrounds. Why parents from disadvantaged backgrounds choose public schooling for their children is not hard to answer. Public schools are almost free of cost or highly subsidised. Even in low-cost private schools, parents have to pay for tuition fees and educational items. School choice in socially disadvantaged households is highly sensitive to tuition fees, proximity, and quality (Alderman, Orazem, & Paterno, 2001).

Parallel, private schools have a reasonable share of students in Pakistan. Parental high demand for private schooling is due to the higher quality and learning opportunities that private schools offer than public schools (Alderman, Orazem, & Paterno, 2001). Also, the parental choice for schooling may be driven by parents' own economic and social positioning. Research shows that an increased number of parents' formal schooling has a positive association with children's enrolment in private schools in Pakistan. Whereas, parents' fewer years in formal education are strongly linked to the enrolment of children in Madrassahs (Siddiqui, 2017). Consequently, the parent-choice of schooling is not an independent decision and interacts with other social, institutional inequalities.

<sup>&</sup>lt;sup>1</sup>Income inequality among individuals at city level is measured by the Gini coefficient. It is based on the comparison of cumulative proportions of the population against cumulative proportions of income they receive, and it ranges between 0 in the case of perfect equality and 1 in the case of perfect inequality.

Third, we can also understand the interaction of school segregation with social mobility in light of Boudon's (1974) work in which he looked at the interaction between educational, social institutions, and social inequality. He asserts that greater access to education may not necessarily result in social mobility (Boudon, 1974; Thompson & Simmons, 2013). The decline in educational opportunity inequality does not necessarily decrease inequality of social mobility; even the economic growth and the fairer distribution of the education shares do not automatically change the stratification structure (Boudon, 1974).

If we look at the school education over the last two decades in Pakistan, the expansion is laudable. However, how much these schools are socially integrated is questionable? We are not saying our findings show an implication of Boudon's theory, but mostly the analysis is the one part of the puzzle and provides context for future research. The concentration of children from a disadvantaged background in public schools is worrisome.<sup>2</sup> Studies suggest that segregation impacts children's educational outcomes (Palardy, 2013; Palardy, 2008). Research from Pakistan shows that students in private schools outperformed public ones and earn more when employed (Asadullah, 2009). In the long term, educational inequalities in school systems may translate into limiting the opportunities for better social positioning and good earnings. Finally, at the city level, to understand school segregation dynamics, in-depth studies are needed on the local educational market and provincial educational policies.

### REFERENCES

- Alderman, H., Orazem, P. F., & Paterno, E. M. (2001). School quality, school cost, and the public/private school choices of low-income households in Pakistan. *Journal of Human Resources*, 304–326.
- Amjad, R., & MacLeod, G. (2014). Academic effectiveness of private, public and private–public partnership schools in Pakistan. *International Journal of Educational Development*, 37, 22–31.
- Andrabi, T., Das, J., & Khwaja, A. I. (2006). A dime a day: The possibilities and limits of private schooling in Pakistan. The World Bank.
- Asadullah, M. N. (2009). Returns to private and public education in Bangladesh and Pakistan: A comparative analysis. *Journal of Asian economics*, 20(1), 77–86.
- Boudon, R. (1974). Education, opportunity, and social inequality: Changing prospects in western society.
- Butler, T., & Hamnett, C. (2007). The geography of education: Introduction. *Urban Studies*, 44, 1161–74.
- Duncan, G. J., & Murnane, R. J. (Eds.). (2011). Whither opportunity? Rising inequality, schools, and children's life chances. Russell Sage Foundation.
- Duru-Bellat, M. (2015) Social inequality and schooling. International encyclopaedia of the social & behavioural sciences (second edition) 22, 325–330.
- Glaeser, E. L., & Vigdor, J. L. (2001). *Racial segregation in the 2000 Census: Promising news*. Washington, DC: Brookings Institution, Centre on Urban and Metropolitan Policy.

<sup>&</sup>lt;sup>2</sup>Data limitations prevent us from making more substantial causal claims; the segregation analysis of census data will be more reliable. However, the most recent census data (2018) for Pakistan is not available yet.

- Iceland, J., & Weinberg, D. H. (2002). Racial and ethnic residential segregation in the United States 1980-2000. Bureau of Census.
- Jenkins, S. P., Micklewright, J., & Schnepf, S. V. (2008). Social segregation in secondary schools: how does England compare with other countries? Oxford Review of Education, 34(1), 21–37.
- Khattab, N., Johnston, R., Sirkeci, I., & Modood, T. (2012). Returns on education amongst men in England and Wales: The impact of residential segregation and ethnoreligious background. *Research in Social Stratification and Mobility*, 30(3), 296–309.
- Larrañaga, O., & Sanhueza, C. (2007). *Residential segregation effects on poor's opportunities in Chile*. Santiago de Chile: Departamento de Economía, Universidad de Chile.
- Leroux, G. (2016). Choosing to succeed. Social Market Foundation, Accessed February 11th. http://www. smf. co. uk/wp-content/uploads/2015/01/Social-Market-FoundationPublication\_SMFBriefing\_Choosing-to-succeed\_Do-parents-pick-theright-schools\_160114WEB. pdf.
- Louf, R., & Barthelemy, M. (2016). Patterns of residential segregation. PloS One, 11(6).
- Maloutas, T., & Ramos Lobato, I. (2015). Education and social reproduction: Educational mechanisms and residential segregation in Athens and Dortmund. *Local Economy*, 30(7), 800–817.
- Massey, D. S. (2012). Reflections on the dimensions of segregation. *Social Forces*, 91(1), 39–43.
- Massey, D. S., & Denton, N. A. (1988). The dimensions of residential segregation. Social Forces, 67(2), 281–315.
- Massey, D. S., White, M. J., & Phua, V. C. (1996). The dimensions of segregation revisited. *Sociological Methods & Research*, 25(2), 172–206.
- Naviwala, N. (2016). *Pakistan's Education Crisis: The Real Story*. Woodrow Wilson International Centre for Scholars.
- Owens, A. (2017). Racial residential segregation of school-age children and adults: The role of schooling as a segregating force. *RSF: The Russell Sage Foundation Journal of the Social Sciences*, *3*(2), 63–80.
- Owens, A. (2018). Income segregation between school districts and inequality in students' achievement. *Sociology of Education*, 91(1), 1–27.
- Palardy, G. J. (2008). Differential school effects among low, middle, and high social class composition schools: A multiple group, multilevel latent growth curve analysis. *School Effectiveness and School Improvement*, 19(1), 21–49.
- Palardy, G. J. (2013). High school socioeconomic segregation and student attainment. *American Educational Research Journal*, 50(4), 714–754.
- Raveaud, M., & Zanten, A. V. (2007). Choosing the local school: middle class parents' values and social and ethnic mix in London and Paris. *Journal of Education Policy*, 22(1), 107–124.
- Reardon, S. F. (2006). A conceptual framework for measuring segregation and its association with population outcomes. *Methods in Social Epidemiology*, 1(169), 169– 192.
- Reardon, S. F., & O'Sullivan, D. (2004). Measures of spatial segregation. Sociological Methodology, 34(1), 121–162.

- Reay, D., Crozier, G., & James, D. (2011). White middle-class identities and urban schooling. Springer.
- Sampson, R. J. (2012). Moving and the neighbourhood glass ceiling. *Science*, 337(6101), 1464–1465.
- Siddiqui, N. (2017). Parental education as a determinant of school choice: A comparative study of school types in Pakistan. *Research in Education*, *99*(1), 3–18.
- Siddiqui, N. (2017). Socio-economic segregation of disadvantaged children between schools in Pakistan: comparing the state and private sector. *Educational Studies*, 43(4), 391–409.
- Thompson, R., & Simmons, R. (2013). Social mobility and post-compulsory education: revisiting Boudon's model of social opportunity. *British Journal of Sociology of Education*, 34(5-6), 744–765.
- Valenzuela, J. P., Bellei, C., & Ríos, D. D. L. (2014). Socioeconomic school segregation in a market-oriented educational system. The case of Chile. *Journal of Education Policy*, 29(2), 217–241.
- Vithayathil, T., & Singh, G. (2012). Spaces of discrimination: residential segregation in Indian cities. *Economic and Political Weekly*, 60–66.
- Wodtke, G. T., Harding, D. J., & Elwert, F. (2011). Neighbourhood effects in temporal perspective: The impact of long-term exposure to concentrated disadvantage on high school graduation. *American Sociological Review*, 76(5), 713–736.
- Yalonetzky, G. (2012). A dissimilarity index of multidimensional inequality of opportunity. *The Journal of Economic Inequality*, 10(3), 343–373.