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The Effect of Private Schooling on Learning Outcomes in South Asia and East Africa:
A Within-Family Approach

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Introduction

Private school attendance is increasing rapidly in the global South. Between 2000 and 2017, the share of primary school pupils enrolled in private institutions is estimated to have increased from 9.9% to 17.5% in low- and middle-income countries (The World Bank 2019). The true share is likely to be even higher: some private schools operate informally and official figures therefore undercount private school enrolment (Härmä 2019).

The merits and downsides of the rise in private schooling are subject to intense debate in academic and policy circles. Proponents argue that private schools are a valuable and cost-effective instrument to improve learning outcomes in low-income contexts, where public systems often perform poorly (Bold et al. 2011; Tooley and Dixon 2005). Critics highlight negative implications for equality of opportunity and the right to access free basic education, which is enshrined in various international conventions (Klees 2018; Srivastava 2016). They also suggest that the learning gains associated with private schools tend to be overstated, and merely reflect their more socio-economically advantaged pupil body (Klees 2008).

Several studies have sought to identify empirically the learning gains associated with attending a private school. These studies have been plagued by selection effects, however: children attending private schools tend to be advantaged on various measurable and unmeasurable aspects of family background, and it is often not possible to disentangle the effect of the family on learning outcomes from that of the (private) school. A systematic literature review therefore highlighted "the need for more studies using rigorous methodologies accounting for pupil social background to attempt to identify more rigorously the true extent of the private school effect on pupil learning outcomes" (Ashley et al. 2014:48).

Our study follows this call, looking at the effect of private schooling in four lower and lower-middle income countries. We address three main questions:

1. How does access to private schooling in India, Pakistan, Kenya and Uganda differ by socio-economic background?
2. What is the effect of private schooling on learning outcomes?
3. Does this effect differ by socio-economic background?

Our study contributes to the literature on private schooling in the global South in several ways. First, we use recent data from a very large sample of children collected from households rather than schools. Because our sample is collected at the household level, it covers children attending unregistered private schools, who might be excluded from surveys relying on the school register as their sampling frame. More importantly, the coverage of multiple children in the same household allows us to employ household fixed effect models to estimate the effect of private schools controlling for all family and community-level characteristics. These models compare the learning outcomes between children in the same household, where one attends a government school and the other a private school. Finally, whereas most existing studies use data from a single country or province, we use harmonized data from four countries in two continents.

Before discussing the data and analytical procedures in more detail, we provide an overview of the 'private school debate' and the current state of evidence on the effect of private schools on learning outcomes in low-income countries.

Background

Access to private schooling

Our first research question relates to socio-economic inequalities in access to private schooling. Although there are a wide variety of private (or non-government) schools—including not-for-profit NGO and religious schools—recent growth in the global South has been largely driven by 'low-fee' private schools. These are funded through direct tuition fees that are typically far lower than those at elite private institutions (Härmä 2015; Srivastava 2013). Although most of the earliest low-fee private schools were locally owned businesses, the sector's growth is increasingly attributable to corporate 'chains' of schools operating at scale (Srivastava 2016).

Parental demand for private schooling is often attributed to failures in government provision. Baum, Abdul-Hamid and Wesley (2018) note that a lack of places in government schools is a strong predictor of the size of a region's private school sector. This factor is likely to be especially important in urban slums where the supply of government schools is often insufficient (Oketch et al. 2010; Tooley, Dixon, and Stanfield 2008). Although scarcity of places in government schools is important, the literature also emphasises that many parents are choosing to pay for private provision

because they believe it offers a better quality education (Alcott and Rose 2017; Härmä and Adefisayo 2013; Singh and Bangay 2014; Tooley and Dixon 2005). In the absence of information about student learning, parental judgments of quality often rely on a range of readily visible schooling conditions (Heyneman and Stern 2014): commonly cited factors include class size (Mehrotra and Panchamukhi 2006; Zuilkowski et al. 2018), teacher engagement (Oketch et al. 2010), stricter discipline (Oketch et al. 2010), and language of instruction, especially English (Alcott et al. 2019; Endow 2018; Joshi 2019).

Although the demand for private schooling may not differ substantially between poorer and wealthier households (Härmä 2011), disparities in ability to pay result in unequal access. Despite the growth of low-fee private schools, the costs of private schooling have been found to be prohibitive for poorer families in a number of countries, including Kenya (Zuilkowski et al. 2018) and Uganda (Sakaue 2018). In India, it has been noted that children in private schools are more likely to come from wealthier, more highly-educated households (Chudgar and Quin 2012; Härmä 2011), and this rich-poor gap appears to have widened over time (Chudgar and Creed 2016). This is despite legislation aiming to improve access to private provision: India's Right of Children to Free and Compulsory Education Act of 2009 mandates that 25% of places in private schools be reserved for children from marginalised backgrounds. In practice, however, it has remained difficult for children from low-income families to gain access to these schools (Srivastava and Noronha 2016).

Disparities in the ability to access private schools are also driven by geography. In spite of the growing number of rural private schools in South Asia and Sub-Saharan Africa, urban children are still much more likely to live near a private school (Härmä 2016; Mottaleb, Rahut, and Pallegedara 2019; Muralidharan and Kremer 2009). Moreover, where private schools exist in rural areas, they are often established in wealthier villages with better infrastructure (Andrabi, Das, and Khwaja 2008; Chudgar and Quin 2012; Pal 2010). As a consequence, socioeconomic disparities may be greatest in rural areas (Chudgar and Creed 2016): in rural Uttar Pradesh, private school attendance is 10% among the poorest quintile and 70% among the wealthiest (Härmä and Rose 2012).

The effect of private schooling on learning outcomes

Our second research question refers to the effect of private schools on learning outcomes in low-income contexts. The research literature has offered several reasons for a potential private school advantage in pupil achievement. One of the most prominent is that private schools are more directly accountable to parents, and thus more responsive to their concerns, than government schools. This translates into greater teacher 'effort' and lower rates of absenteeism, as well as smaller class sizes (Andrabi et al. 2008; Härmä and Adefisayo 2013; James and Woodhead 2014; Mbiti 2016). Another commonly-cited reason is cost efficiency (van der Berg et al. 2017; Dahal and Nguyen 2014; Tooley et al. 2010): in a particularly extreme example, the median fee of private schools in Uttar Pradesh, India, is less than a tenth of the per-pupil expenditure in government schools (Kingdon 2019). This efficiency is primarily driven by low-cost private schools paying far lower teacher salaries than government schools (Heyneman and Stern 2014; Muralidharan and Sundararaman 2015). Lower salaries may lead also to higher levels of turnover and lower levels of qualification and training among private school teachers, however, with potentially negative implications for the quality of teaching (Mehrotra and Panchamukhi 2006; Srivastava 2007; Zuilkowski et al. 2018).

These competing arguments on the relative quality of private schools versus government schools remain difficult to verify because of the empirical challenge in establishing a meaningful counterfactual. There is ample evidence that private schools have higher average learning outcomes than government schools across a range of contexts, including the countries we study (e.g. Alcott and Rose 2016; Andrabi et al. 2008; Bold et al. 2011; Rolleston and Moore 2018). However, it remains difficult to establish how much of this difference is attributable to private school practices and how much to the composition of their pupil body. As we mentioned earlier, private school pupils are, on average, more socio-economically advantaged and therefore more likely to achieve higher learning outcomes even if they had attended government schools.

Researchers have deployed a range of methods—including experimental, quasi-experimental, value-added and regression models—to control for family background. Some of these studies have found substantially improved learning outcomes even when accounting for differing student backgrounds (Andrabi et al. 2008; Aslam 2009;

Baum and Riley 2018; Bold et al. 2011; Desai et al. 2009; French and Kingdon 2010; Wamalwa and Burns 2018) while others have found negligible or insignificant effects (e.g. Chudgar and Quin 2012; Crawfurd, Patel, and Sandefur 2019; Eigbiremolen, Ogbuabor, and Nwambe 2019; Muralidharan and Sundararaman 2015; Zuilkowski, Piper, and Ong'ele 2020). It remains unclear whether these discrepancies reflect genuine variation across contexts in the nature or effectiveness of private schools, or differences in sampling, measurement and research design.

In the countries we study, several studies have found substantial learning differences between private and government schools. For example, Andrabi et al. (2008) found a private school advantage of between 0.5 and 1 Standard Deviation (SD) in Math, Urdu and English among grade 3 pupils in three rural districts in Pakistan, which can be considered a large effect. Moreover, the gap in learning between students in private and government schools hardly narrowed when controlling for family socio-economic status. Looking at middle school pupils in Pakistan, Aslam (2009) found that private schools outperformed government schools by 0.35 SD after controlling for family background. In rural India, Muralidharan and Kremer (2009) found an effect of 0.4 SD, net of family background, school facilities, and village fixed effects. These findings were contradicted by Chudgar and Quin (2012), who found no significant differences between government and private schools in either rural or urban India after propensity score matching. In Kenya, Baum and Riley (2018) found a private school advantage of between a quarter and one half of a SD using propensity score matching as well as a Heckman selection model, while Bold et al. (2011) found an effect equivalent to 1 SD, using a different dataset and identification strategy.

A well-known limitation of both regression and propensity score methods is the conditional independence assumption: selection into private schooling is only affected by variables included in the model, typically a limited number of proxies for household socio-economic status (Vandenberghe and Robin 2004). Many important elements of social origin, however—such as social and cultural capital, neighbourhood characteristics, the wider family network, and parental commitment to schooling—are almost impossible to measure in survey research. It is plausible that these unobserved characteristics affect selection into private schools as well as learning outcomes. As a result, the private school effect observed in much of the literature remains confounded with unobserved aspects of family background.

Studies that employ more robust strategies to control for selection effects tend to find less impressive private school effects on learning outcomes. For example, a recent study using value-added models to control for initial ability found that private schools in Nairobi did not produce higher learning gains than government schools (Zuilkowski et al. 2020). Using a similar approach with data from rural and urban districts in Andra Pradesh, Singh (2015) found no effect on math in rural or urban areas, and a positive effect on English in rural areas only. In Kenya, Wamalwa and Burns (2018) found a modest private school effect of 0.12 SD using a household fixed effect model. Finally, using a voucher lottery experiment in the Indian state of Andhra Pradesh, Muralidharan and Sundararaman found that private schooling had no significant effect on Math, Telugu and English scores, in spite of large cross-sectional differences (2015).

In summary, evidence on the impact of private schooling on learning is far from conclusive, and more robust evidence is only available for a small number of contexts, which are often not nationally representative.

Differential effects by socio-economic background

Our third research question asks whether the effect of private schooling differs by socio-economic background. Prior research has emphasised the considerable diversity of private provision across both rural and urban areas (for example Chudgar and Quin 2012; Maluccio et al. 2018). Mirroring socioeconomic disparities in access to private education, there are socioeconomic disparities in who accesses different forms of private education (Baum et al. 2018; Siddiqui 2017). Cameron (2011) found that social stratification is visible even in the poorest neighbourhoods of Dhaka, with the relatively well-off more likely to attend larger, longer-established schools.

There is good reason to assume that these differences in intra-private sector enrolment will matter to equitable educational provision. In a privatised market, higher-quality providers are likely to charge higher fees, which may be unaffordable for most parents. In Lagos, where most children attend private schools, teachers in registered private schools—which tend to serve relatively advantaged children—are far more likely to hold professional qualifications and higher education degrees (Baum et al. 2018). In India, it appears that high quality provision in the private sector is typically restricted to wealthier urban areas (Chudgar and Quin 2012; Singh 2015).

Assuming that quality is more evenly distributed in the public sector, this suggests that high socio-economic status (SES) children benefit most from private schooling, because their parents can afford to pay for the best schools (Fennell and Malik 2012). On the other hand, it could be argued that private schools have stronger incentives to tailor their teaching to the actual learning level of their pupils, whereas teaching in government schools often appears to benefit higher-performing, more advantaged pupils while leaving others behind (Pritchett and Beatty 2015). The is little empirical evidence on differential returns to private schooling by socio-economic background, although Alcott and Rose (2016) suggest that the benefits are roughly similar in three East African countries.

Method

Data

All analyses are based on the 2013-2018 People's Action for Learning (PAL) Network data (see https://palnetwork.org/). Stemming from the initial work of the Indian NGO Pratham, the PAL Network is a South-South collaboration that uses citizen-led assessments to assess basic literacy and numeracy competencies of all children, in their homes. Surveyors also collect basic data on household wealth—in the form of an asset index—and parental education. For Kenya and Uganda, we combine cross-sectional surveys for several years to increase sample size. Data for Kenya and Uganda are nationally representative, whereas data from Pakistan and India are representative of rural areas only (see Table 1).

Table 1: Data and sample

Country	Year(s)	Coverage	Total sample	Within-HH sample	% of Total
Kenya	2013–2015	National	194,089	8,830	4.6 %
Uganda	2013–2015	National	118,976	14,379	12.1 %
Pakistan	2018	National, rural only	66,927	2,522	3.8 %
India	2016	National, rural only	182,839	11,282	6.2 %

Compared to other international learning assessments, the PAL Network data have several advantages. First, because the data are collected at the household level, we can compare multiple children within the same family; which is key to our analytical approach. Second, information on household characteristics is based on information

from the household head rather than on self-reports by children, which are notoriously prone to measurement error (Engzell 2019). Finally, the large sample size (see Table 1) allows us to estimate the effect of private schooling with a high degree of precision, both at the country level and for specific groups of children.

Analytical approach

As discussed previously, controlling for the effect of family background is the key challenge in estimating the difference in learning outcomes between private and government schools. Various methods have been employed in prior research, including regression-based methods, propensity score matching and value-added models. Most of these methods rely on strong assumptions or do not control for unobserved aspects of family background. The latter is problematic because it is well known that a large proportion of the total family effect on educational outcomes results from factors that are not covered in typical household surveys (Björklund, Lindahl, and Lindquist 2010).

This study relies on a simple yet effective approach: estimating the difference between children in the same household, where one attends a private school and the other attends a state school (see French and Kingdon 2010; Newhouse and Beegle 2005; Wamalwa and Burns 2018):

$$Learning_{ij} = \beta_1 * Private_{ij} + \beta X_{ij} + a_j + e_{ij}$$

for children i in households j. $Private$ is a dummy variable indicating whether the child attended a private school and X_{ij} is a set of child-level control variables[i]. The household fixed effects a_j control for all factors that are shared between children in the same household, whether observed or unobserved. This includes not only family attributes—such as parenting—but also genetic similarities and community or neighbourhood characteristics. It is important to note though that they do not control for unobserved confounders at the child level.

We limit our sample to children enrolled in grades 2 to 6 of primary school[ii]. To assess the extent to which family background confounds the effect of private schooling, we compare these household fixed effect (FE) estimates to a simple Ordinary Least Squares (OLS) regression excluding controls for family background.

Our estimation strategy requires that households have at least one child who attends private school and another child who attends government school. This was the case for 4.6% of sampled children in Kenya, 12.1% in Uganda, 3.8% in rural Pakistan and 6.2% in rural India (see Table 1). Although these figures might appear surprisingly high, it is common practice for parents in low-income countries to send their children to different schools, for example if they have insufficient resources to send all their children to private schools. We discuss this phenomenon in more detail later in this study.

We argue that the private school effect observed in a household fixed effect model should be interpreted as an upper bound on the causal effect of private schooling, for a number of reasons. First, even though parent and community-level characteristics are controlled for, the private school effect in household fixed effect models includes peer effects, e.g. the effect of classmates' social background and ability on a child's learning outcomes. Such peer effects may be desirable from the perspective of parents when choosing a school for their child, but they should not be considered part of a school's effectiveness (Raudenbush and Willms 1995). The magnitude of peer effects on learning is highly disputed in the literature (Angrist 2014; Sacerdote 2011) but, to the extent that they exist, they are likely to contribute to the private school effect. Second, anecdotal evidence suggests that some private schools select on ability, even at the primary level. Finally, it is possible that within-household selection results in higher-ability children attending private schools. We discuss this possibility in more detail in the section 'Robustness checks'. Again, to the extent that within-household selection is present, it is likely to bias the private school effect upwards.

In addition to estimating the overall private school effect, we assess whether the effect differs between low- and high SES families, by conducting separate household fixed effect models for each wealth group.

Measures and Descriptives

The PAL Network data contain scores on three basic skills tests: numeracy, English literacy and local language literacy[iii]. The tests are designed to assess Grade-2-level knowledge, using simple tasks of increasing difficulty (e.g. for literacy: (1) letter recognition, (2) word recognition, (3) ability to read a short sentence, (4) ability to read

a short story and (5) comprehension of the story). For more information, see Jones, Schipper, Ruto and Rajani (2014).

From the numeracy and literacy tests, we compute two measures of learning outcomes. The first is a country- and age-standardised measure of the combined numeracy and literacy scores, following Anand et al. (2018). The second is a dummy variable indicating whether the child achieved the minimum literacy for grade 2, e.g. being able to read and comprehend a simple story.

Our key independent variable indicates whether the child was enrolled in a private school or a government school[iv]. The PAL network surveys do not distinguish between different types of private school (such as for-profit, religious or NGO schools). Prior research shows that most private schools in the countries we study operate on a commercial basis (e.g. funded by fees), although not necessarily with an exclusive profit motive (Kingdon 2017; Tsimpo and Wodon 2014).

All models control for demographic factors that may differ between children in the household, notably age, grade attending and gender. In the fixed effect models, we also control for whether the child received paid tuition.

Descriptive statistics for all covariates are presented in Table 2. Private school attendance for children enrolled in Grade 2 to 6 was 12.4% in Kenya, 23.5% in Uganda, 17.7% in rural Pakistan and 32.5% in rural India, which is broadly in line with other sources (The World Bank 2019). Girls are underrepresented in the rural Pakistan sample, which is due to a combination of gendered non-response and gender differences in school enrolment. Additional private tuition is fairly common in the countries we study, ranging from 13% in rural Pakistan to 26% in Kenya.

Country	Kenya	Uganda	Pakistan (rural)	India (rural)
School type				
Government	87.6%	76.5%	82.3%	67.5%
Private	12.4%	23.5%	17.7%	32.5%
Mean age (SD)	10.4 (2.3)	11.1 (2.5)	9.4 (2.0)	9.4 (1.9)
Grade attending				
Grade 2	20.9%	24.4%	31.0%	21.6%
Grade 3	20.5%	22.9%	27.1%	20.2%
Grade 4	21.2%	21.9%	19.7%	19.6%
Grade 5	19.2%	17.5%	22.2%	20.1%
Grade 6	18.2%	13.3%	NA	18.5%
Child's gender				
Male	50.9%	50.2%	61.5%	51.3%
Female	49.1%	49.8%	38.5%	48.7%
Tuition				
No tuition	73.8%	84.2%	86.9%	78.0%
Receives tuition	26.2%	15.8%	13.1%	22.0%
Observations	194,089	118,976	66,827	182,839

Results

Access to private schooling

In Figure 1 we plot private school attendance by wealth quintile in each of the countries we study, based on the full sample of children enrolled in Grade 2-6 of primary school. Access to private schooling is highly unequally distributed in each of the four countries, although the overall share of private school enrolment is different. In India, a child in the top wealth quintile is 3.4 times more likely to be enrolled in a private school than a child in the bottom quintile. In Uganda and Pakistan, a rich child is 4.4 times more likely to be in private school, and in Kenya, 8.2 times.
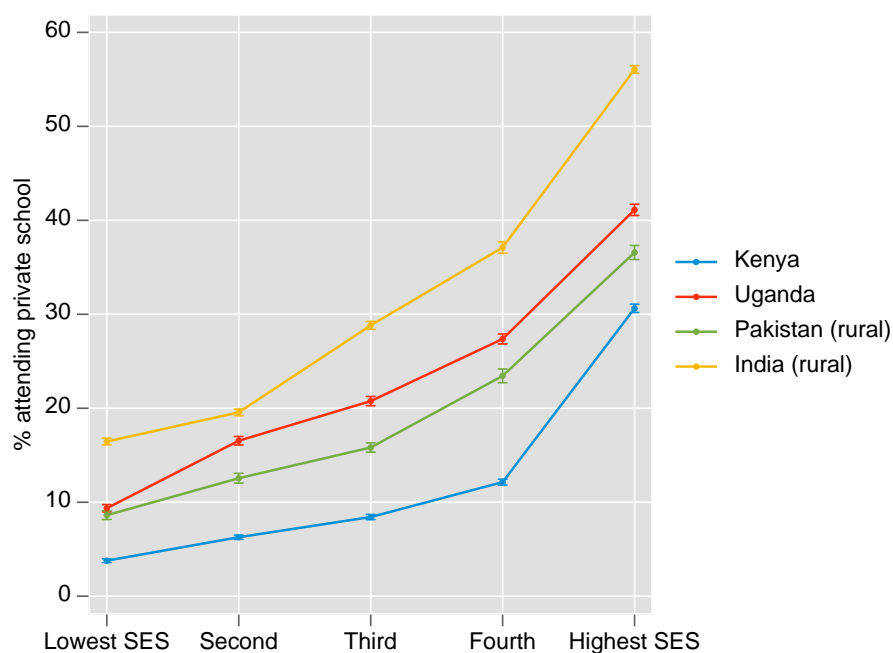
Note: PAL Network data, all children enrolled in Grade 2-6 of primary school
Spiked bars indicate 95% confidence intervals

Access to private schooling is non-negligible even among the poorest strata, however. It is highest in rural India (which also has highest enrolment in private schools overall), where 16.5% of children in the poorest quintile attend private schools. In Kenya the corresponding figure is 3.8%, with Uganda and rural Pakistan somewhere in between. Among the wealthiest 20%, however, private schooling is far more prevalent, ranging from 56.1% in rural India to 30.6% in Kenya. It is important to keep in mind that, for India and Pakistan, these figures are for rural areas only: private schooling is likely to be even more common in urban neighbourhoods.

In a supplementary analysis (see Appendix Figure 1) we find that boys are more likely to attend private schools in rural India, regardless of parental wealth. In rural Pakistan, Uganda and Kenya gender differences are negligible, however, even among the poorest[v]. For a more in-depth analysis of gender inequalities in private schooling, see Aslam (2009), Maitra, Pal & Sharma (2016) and Srivastava (2006). In subsequent analyses, we control for gender differences.

### Effects on learning outcomes

Our second research question relates to the average effect of private schools on learning outcomes. As discussed in the previous section, we use household fixed effect models to fully control for household- and community-level characteristics. We compare these estimates to OLS regression estimates without any controls for family background, to assess the extent to which any private school advantage is driven by selection effects. The results for age-standardized learning outcomes are presented in Table 3, and visually displayed in Figure 2.

Table 3: Results from OLS and household fixed effect regressions on age-standardised learning outcomes

	Kenya		Uganda		Pakistan (rural)		India (rural)	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Private school	0.52***	0.20***	0.53***	0.24***	0.35***	0.08**	0.64***	0.24***
Grade 2 (ref.)	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*
Grade 3	0.30***	0.22***	0.26***	0.21***	0.26***	0.18***	0.14***	0.13***
Grade 4	0.62***	0.49***	0.48***	0.42***	0.54***	0.44***	0.26***	0.24***
Grade 5	0.76***	0.54***	0.73***	0.57***	0.84***	0.65***	0.31***	0.31***
Grade 6	0.88***	0.66***	0.96***	0.69***	-	-	0.40***	0.46***
Female	0.10***	0.08***	0.03***	0.06***	0.03***	0.03	-0.01**	-0.08***
Tuition	-	0.00	-	0.07*	-	0.02	-	0.24***
Constant	-0.61***	-0.39***	-0.56***	-0.36***	-0.43***	-0.28***	-0.42***	-0.33***
Observations	194,089	8,830	118,976	14,379	66,827	2,522	182,870	11,282

$^{*} p < 0.05,\ ^{**} p < 0.01,\ ^{***} p < 0.001$

Figure 2: The effect of private schooling on age-standardised learning outcomes
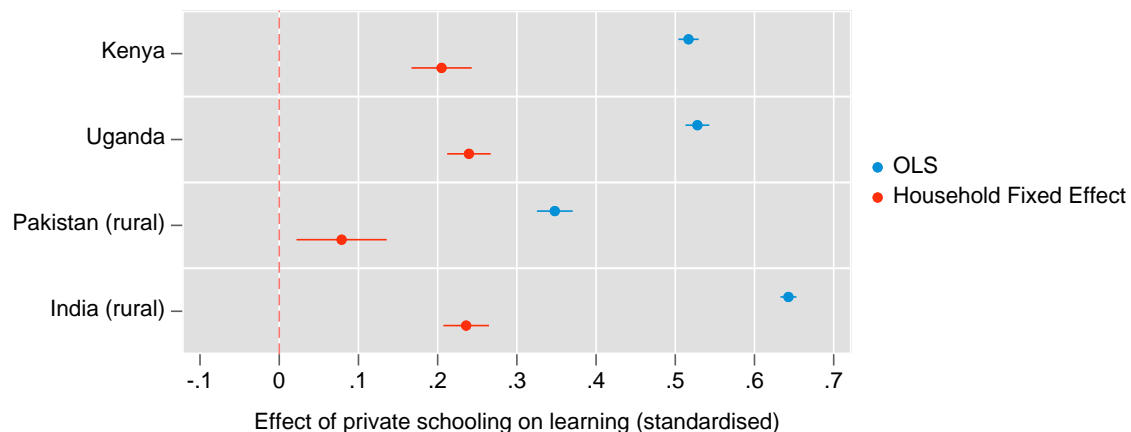
Note: Based on children enrolled in grade 2-6. Controls (not shown): age, gender, grade (all), tuition (FE only)
Data from UWEZO (2013-15), ASER Pakistan (2018) and ASER India (2016)

We find an overall effect of private schooling of 0.20 SD in Kenya ($p<0.001$), 0.24 SD in Uganda ($p<0.001$), 0.08 SD in rural Pakistan ($p<0.01$), and 0.24 SD in rural India ($p<0.001$). The associations found in OLS models are approximately twice as large, suggesting that about half of association between of private schools and learning outcomes is due to confounding by household or community-level factors.

Although these standardised estimates give an effect size that is comparable to previous research, it is difficult to interpret them in terms of practical learning gains. We therefore repeated the previous analysis with a dichotomous outcome that indicated whether the child was able to read and comprehend a simple story. This outcome is estimated using a linear probability model.

The findings (presented in Table 3 and Figure 2) show that before controlling for family background, private school children had a 10 percentage-point higher probability of being able to read in Pakistan, increasing to 22 percentage points in Kenya. As is the previous model, this effect is reduced by about half after fully controlling for family background: to 8 percentage points in Kenya ($p<0.001$), 7 points in Uganda ($p<0.001$) and 8 points in India ($p<0.001$). In Pakistan, the effect turns slight negative and non-significant.

Table 4: Results from OLS and household fixed effect regressions on ability to read a story (linear probability models)

	Kenya		Uganda		Pakistan (rural)		India (rural)	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Private school	0.22***	0.08***	0.15***	0.07***	0.07***	-0.01	0.19***	0.09***
Grade 2 (ref.)	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.
Grade 3	0.13***	0.12***	0.05***	0.01	0.05***	0.01	0.10***	0.05**
Grade 4	0.37***	0.33***	0.16***	0.10***	0.26***	0.16***	0.22***	0.13***
Grade 5	0.53***	0.43***	0.36***	0.23***	0.47***	0.30***	0.32***	0.19***
Grade 6	0.67***	0.53***	0.58***	0.39***			0.42***	0.27***
Female	0.03***	0.03**	0.01**	0.02**	0.01***	0.02	0.02***	-0.00
Tuition		0.02		0.04**		0.02		0.04*
Constant	0.04***	0.09***	-0.00	-0.02	-0.00	-0.08	-0.07***	0.03
Observations	194,089	8,830	118,976	14,379	66,827	2,522	182,839	11,282

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Controls for child age included but not shown here.

Figure 3: The effect of private schooling on ability to read a story (linear probability models)
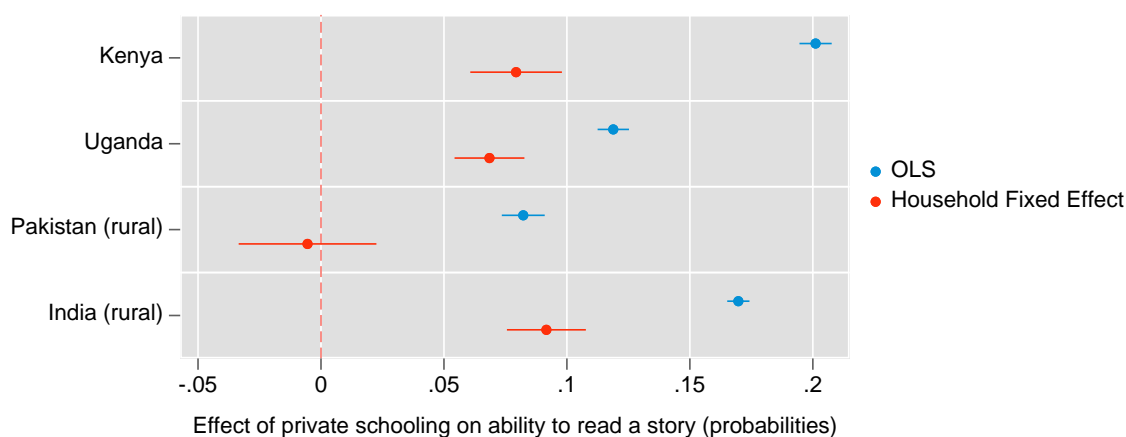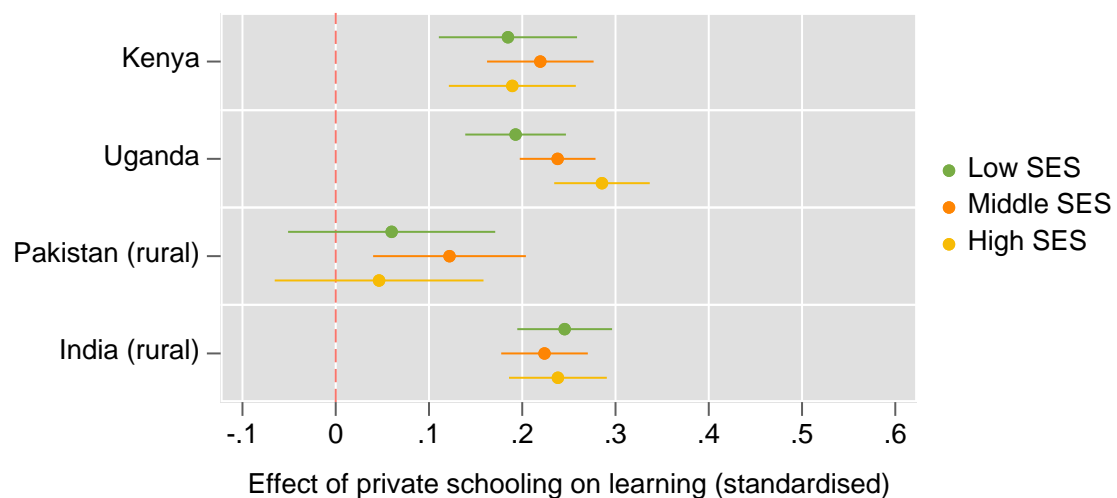

Note: Based on children enrolled in grade 2-6. Controls (not shown): age, gender, grade (all), tuition (FE only)
Data from UWEZO (2013-15), ASER Pakistan (2018) and ASER India (2016)

As a reference, the average probability of being able to read a story among children in Grade 2-6 was .50 Kenya, .27 in Uganda, .27 in rural Pakistan and .35 in rural India (please note that due to differences in the survey instruments, these proportions are not strictly comparable between countries).

Differential effects by socio-economic background

Finally, we assessed whether the private school advantage observed in the household FE models differed by family background. We ran the household FE models presented in Figure 2 separately for households in the bottom two wealth quintiles, the second and third quintiles and the top quintile. The results, presented in Figure 4, suggest that there were no major differences in the effect of private schooling for poorer and wealthier children. This finding can be interpreted in different ways. It could be that government and private schools are roughly equally good at teaching children from different social backgrounds. It could also be the case that both government schools and private schools are socially segregated, with wealthier children attending the better private schools but also the better government schools (see Fennell and Malik 2012; Gruijters and Behrman n.d.).

Figure 4: The effect of private schooling on age-standardised learning outcomes, by SES (household FE models)

Note: Based on children enrolled in grade 2-6. Controls (not shown): age, gender, grade, tuition
Low SES is bottom two wealth quintiles, middle SES is third and fourth quintile, high SES is top wealth quintile.
Data from UWEZO (2013-15), ASER Pakistan (2018) and ASER India (2016)

Robustness checks

Chudgar and Quin (2012) highlight two concerns with using household fixed effect models to estimate private school effects. First, households that send one child to government school and another child to private school may not be representative of the overall population, which means the findings from the fixed-effect sample may not

be generalizable to the population at large (sample selection). Second, households that send their children to different schools may practice some form of favouritism with respect to the child that gets to attend private school (within-household selection).

We consider the first concern to be less serious than the second, because there no reason to assume that private schools will be either more effective or less effective in the population of households that are part of the fixed effect sample. In general, there are many reasons why parents might send one child to government school, and another to a private school. Lack of funds to pay private school fees for each child is likely to be a major reason. Some private schools also provide concessionary spaces to poor children, either as an act of goodwill or because of government regulations, such as the Indian Right to Education Act (Heyneman and Stern 2014). In some families, only one child might be able obtain such a place. In a supplementary analysis (available on request) we found that the household FE sample had somewhat lower SES than the sample of households that sent all their children to government schools—in fact, this makes them more representative of the overall population. Moreover, we have seen previously that the effect of private schooling is relatively constant across SES quintiles.

To address Chudgar and Quin's second concern, we need to consider whether and how within-household selection might have affected our results. Within-household selection would bias our estimates if the criteria for selection are both unobserved and correlated with the child's innate ability for reading and math. For example, if selection is based on the children's age or gender this does not affect our findings, because we control for both age and gender in all models. If selection is based on practical considerations (such as the availability of government-school spaces in the relevant grade) this is also not a problem, because such criteria are unlikely to be associated with the children's relative ability. We would overestimate the private school effect, however, if some parents decide to send their most promising child to a private school. A review of the literature on school choice in low-income contexts shows that parents may have various reasons to send their children to different schools. Safety concerns related to the age and gender of the child often play a role. For example, parents might prefer the nearest school for younger children or girls (Andrabi et al. 2008; Srivastava 2006). There is some evidence that parents make strategic schooling decisions to

maximise the family's returns in terms of expected future earnings, which may lead them to prioritise sons' education in patrilineal cultures (Maitra et al. 2016).

Further analysis (Appendix Table 1) shows that in the household FE sample, the child attending private school was more likely to be younger, male and receiving extracurricular tuition. Each of these aspects are controlled for in our regression models. Although we cannot directly assess whether ability plays a major role in within-household school selection, it is questionable whether parents—many of whom have little education themselves—would be able to assess their child's academic potential at such a young age.

Finally, we checked whether the private school effect differed between the numeracy, English literacy and local language literacy skills tests. In many locations, private schools are more likely teach in English than government schools, which may affect our results[vi]. The findings (Appendix Figure 3) show that the findings were substantively similar for each subject.

Discussion

The purpose of this paper was threefold: to (1) assess socio-economic inequality in access to private schools, (2) evaluate the effect of private schools on learning outcomes, and (3) assess whether any effects differ between children from poor and wealthier families. In line with previous research (Chudgar and Quin 2012; James and Woodhead 2014; Zuilkowski et al. 2018), we found that access to private schools is highly stratified by parental wealth, although even some of the poorest children attended private schools. After fully controlling for family background, we found a private school learning advantage of 0.21 SD in Kenya, 0.25 SD in Uganda, 0.06 SD in rural Pakistan, and 0.24 SD in rural India. In practical terms, a learning gain of a quarter of a SD equates to a 0.07 – 0.09 higher probability of being able to read a simple story. There is no indication that the effect of private schooling differs by parental background.

The private school effect we observe is substantially lower than the estimates of Bold, Kimenyi, Mwabu and Sandefur (2011) for Kenya, and those of Andrabi et al. (2008) and Aslam (2009) for Pakistan. Although part of this might be due to differences in samples and time frames, our findings highlight the need to control for unobserved as well as observed characteristics when estimating private school effects. Further

analyses show that private school effects remain substantially overestimated when controlling for observed parental characteristics only (see Appendix Figure 2). As discussed previously, we interpret our findings as an upper bound on the average causal effect of private schools in these four countries. This is because our estimates might be affected by within family-selection and because they incorporate peer effects, which are not an effect of the school itself. It could thus be there is no 'true' private school advantage in these four countries, as suggested by some recent studies (Muralidharan and Sundararaman 2015; Singh 2015; Zuilkowski et al. 2020).

In each of the countries we study, public primary education is, ostensibly at least, free of charge. Why would parents pay often burdensome fees to send their children to private institutions, if the learning gains their children experience there are modest? One explanation is that parents are unable to observe the true effect of private schools: instead, they may observe higher graduation rates and exam scores, lower levels of teacher absenteeism, and other visible indicators. Private schools may also offer other benefits, such as proximity, security, networks and social status (Joshi 2014).

It is sometimes suggested that policymakers should embrace the expansion of private education as a potential solution to the 'learning crisis' (Heyneman and Stern 2014; Tooley et al. 2011). Our findings suggest that a more cautious approach is warranted. Much of the aggregate performance difference between private and government schools is simply a reflection of the more advantaged family background of private school pupils, rather than of differences in school management or teaching practice. The effect that remains after controlling for family background is not negligible, but—considering the very low baseline—insufficient to bring performance standards near acceptable levels. Moreover, the ongoing trend towards increasing privatisation comes at the cost of increased social inequality and between-school segregation (Singh and Bangay 2014). Perhaps even more worrisome are the negative externalities of private expansion on government provision. If elites can opt out of public schooling by sending their kids to private alternatives, what incentive do they have to enhance the quality of the public system? Joshi (2014) found that in Nepal, government schooling has become associated with social stigma: "middle-class parents thought that sending their children to public schools would signal that they did not care about them" (p. 425). The long-term effects of private school growth on the

quality, coverage and reputation of public provision needs to be investigated in more detail.

The analyses presented here are subject to certain limitations, some of which we have discussed already. We are not able to fully address potential concerns about within family selection, which is why our household fixed effect estimates should be interpreted as an upper bound on the true effect of private schooling. Moreover, data limitations prevent us from distinguishing between different types of private schools, or to assess the relative resources of government and private schools. To better understand the implications of the rise of private schooling in the global South, there is an urgent need for more and better data. Instead of treating private schools as a uniform category, surveys such as ASER could distinguish between different types of private schools. Future research could focus on parents' schooling decisions and the—government and private—schooling options available in different areas.

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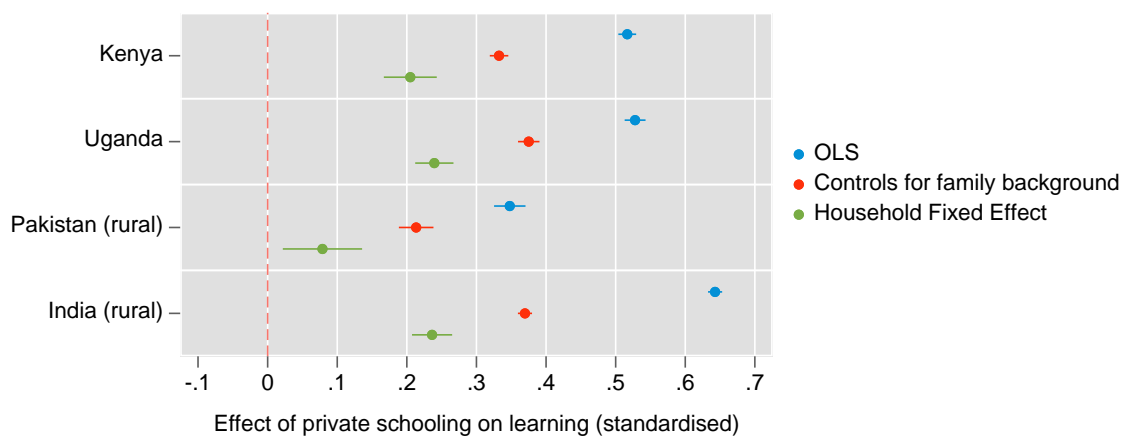
Figure A1: Gender differences in private school attendance, by SES quintile
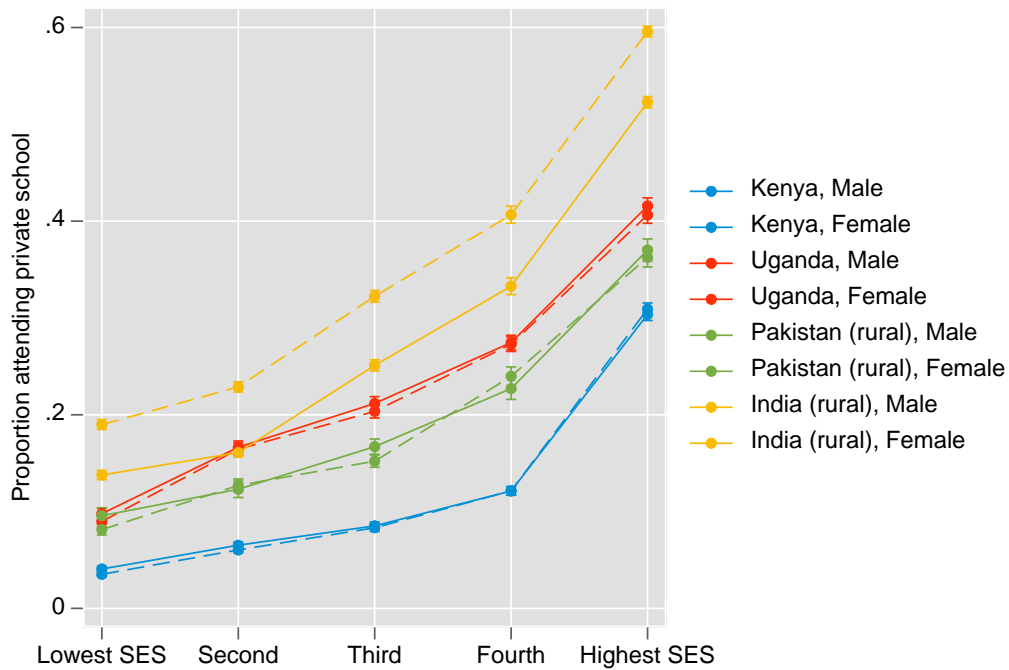

Note: PAL Network data, all children enrolled in Grade 2-6 of primary school
Spiked bars indicate 95% confidence intervals

Figure A2: Controlling for family background using observed covariates vs. household FE

Note: Based on children enrolled in grade 2-6. Controls (not shown): age, gender, grade
Data from UWEZO (2013-15), ASER Pakistan (2018) and ASER India (2016)

Figure A3: Private school effects, by subject tested
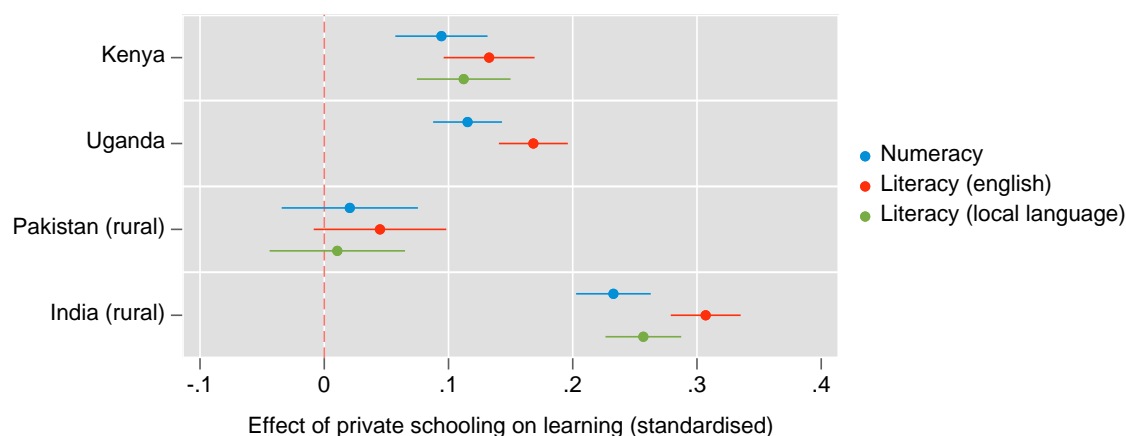
Note: Based on children enrolled in grade 2-6. Controls (not shown): age, gender, grade
Data from UWEZO (2013-15), ASER Pakistan (2018) and ASER India (2016)

Table A1: Selection into private school (household fixed effect model)

	Kenya	**Uganda**	**Pakistan (rural)**	**India (rural)**
Age	*ref.*	*ref.*	*ref.*	*ref.*
Female	-0.0894***	-0.0528***	-0.0725***	0.0436***
Receives tuition	-0.0412**	-0.0158	-0.161***	-0.344***
Constant	0.621***	0.572***	0.517***	0.185***
Observations	1.248***	0.939***	1.154***	0.203***

Dependent variable: child attends private school
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Controls (not shown): tuition info missing

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Endnotes

[i] All models are estimated using the xtreg command in Stata 15, using the appropriate household weights.
[ii] In Pakistan grade 5 is the final year of primary school, so we use grades 2 to 5.
[iii] In Uganda local language literacy was not tested, because it is not part of the primary school curriculum.
[iv] In India and Pakistan, a small number of children were enrolled in Madrassa's (Koran schools). These children were not considered in the analyses presented here.
[v] It is important to remember that our sample only includes children enrolled in school. Especially in Pakistan, there are strong gender inequalities in enrolment.
[vi] Please note that Uganda did not have a local language test

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