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NON-STATE ACTORS IN EARLY CHILDHOOD EDUCATION: IMPLICATIONS FOR EDUCATION EQUITY AND QUALITY

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ABSTRACT

SDG Target 4.2 commits countries to provide universal access to quality early childhood education (ECE) by the year 2030. Currently, the ECE participation rate across low-income countries is only 43%. A large share of these enrollments are in non-state institutions (41%); however, very little is known about the contributions and implications of private provision at the ECE level, with only a small share of existing research on the topic. This study will offer one of the first broad looks at the scope of the issue across low- and middle-income countries (LMICs), including: a systematic review of the existing research on private ECE, analysis of the determinants and affordability of private vs. public ECE services across vulnerable demographic groups (including household wealth, location, ethnicity, student gender, etc.), an analysis of the characteristics of private ECE markets in Kenya, Nigeria, and Tanzania, and an evaluation of the learning outcomes in public versus private preschools in Nigeria. This research contributes to the global knowledge, providing new evidence to assist policy makers in tailoring educational programs to current environments towards the fulfillment of SDG 4.2.

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2.0. INTRODUCTION

2.1. *Growth and challenges in early childhood education*

Early childhood education¹ delivers large developmental benefits for children (Currie & Thomas, 1999; Reynolds et al., 2001; Shafiq et al., 2018) and high rates of return to investments (Heckman & Masterov, 2007). Engle et al. (2011) estimate that increasing preschool enrollment to 50% of all children in low and middle-income countries (LMICs) could result in lifetime earnings gains of \$14-\$34 billion. Early childhood investments are also equity-enhancing, with the largest benefits accruing to the poorest in society (Walker et al, 2011).

Children who begin primary schooling inadequately prepared are less likely to obtain high learning levels, and are more likely to repeat grades and drop out of school (Currie & Thomas, 1999; Heckman & Masterov, 2007; Reynolds et al., 2001). Failure in the first year or two of schooling to establish basic cognitive skills substantially reduces the ability of children to successfully progress through the education system and receive the skills and knowledge necessary for leading productive and healthy lives (Abadzi, 2006). Countries will waste significant resources if they cannot produce and fund early childhood services of adequate quality.

Historically, early childhood education (ECE) has been neglected in many low-income countries, relative to the attention placed upon primary and secondary education. The 2017/18 GEM Report found that in 2015, 69% of children worldwide participated in pre-primary or primary schooling in the year before primary entry age; however the participation rate was only 43% across low-income countries, with large disparities across countries. This marks a sharp contrast to the rates of participation at the upper levels; the global primary net enrollment rate is 91%, with an average of 81% across low-income countries. The participation rates are 84% globally and 62% for low-income countries at the lower secondary level (UNESCO, 2018).

¹ For the purposes of this paper, early childhood education will refer to all forms of organized learning from age 3 up to the first year of primary education. Drawing from UNESCO Institute for Statistics (2020), “[a]n organized learning programme is one which consists of a coherent set or sequence of educational activities designed with the intention of achieving pre-determined learning outcomes or the accomplishment of a specific set of educational tasks” (p. 1). This definition includes school-based early childhood education, preschool, and pre-primary education opportunities, as well as home-based learning programs for children prior to grade 1. Not included in this definition are forms of early childhood care from ages 0 to 3, as well as those that do not include a formal educational component.

More recently, greater emphasis is being placed on raising access to high quality ECE services (Gove, 2017). It is likely that this growth has stemmed, at least in part, from the Millennium and Sustainable Development Goal (MDG/SDG) targets, which have placed early childhood development more squarely within international policy frameworks. Specifically, SDG Target 4.2 commits countries to ‘ensure that *all girls and boys have access* to quality early childhood development, care and *preprimary education* so that they are ready for primary education’ by the year 2030. Between 2010 and 2018, gross enrollment in pre-primary education grew from 14.5% to 23.9% in low-income countries and from 23.8% to 36.8% in lower-middle-income countries (World Bank, 2020). Citing data on low levels of pre-primary enrollment along with high demand for services (e.g., high incidence of under-age enrollment in Grade 1) in many countries, Zafeirakou (2015) suggests that Africa may be on the verge of an enrollment boom at the early childhood level.

Similar to trends at the primary and secondary levels, data from the WIDE database suggest that participation in pre-primary education is strongly determined by factors such as student wealth, location, gender, and ethnicity. Additionally, indications suggest that these same inequalities are found in student cognitive and non-cognitive abilities at the early childhood level (UNESCO, 2018). Data from the UWEZO assessment in Tanzania show big gaps in student achievement by household location and wealth at the end of pre-primary school (Baum et al., 2019). Given these existing challenges within early childhood education in LMICs, progression towards SDG 4.2 will require close attention to issues of equity and quality as countries continue to expand their ECE services by 2030.

Governments face large finance gaps in their efforts towards expanding ECE. One report estimates that provision of universal pre-primary education in low-income and lower-middle-income countries, as per the SDG goal, by 2030, would cost \$44 billion per year (International Commission on Financing Global Education Opportunity, 2016). Currently, only \$11.1 billion is spent annually by these countries (Zubairi & Rose, 2017). Successful expansion may require countries to take advantage of innovative approaches for financing and delivering early childhood education efficiently and effectively.

2.2. Research and policy on the involvement of the private sector in education

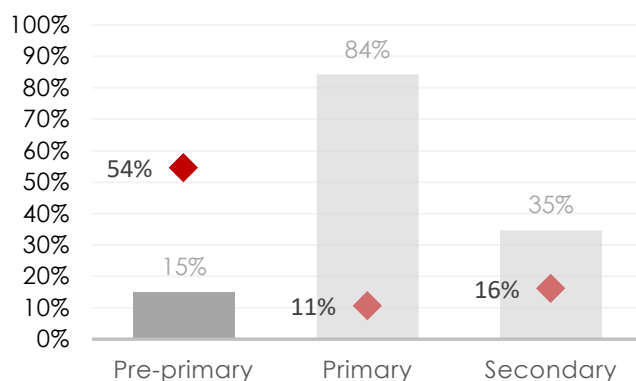
The role of non-state actors in education is an issue that has received a large amount of attention within the global education research, policy, and civil-society communities. This issue certainly has relevance when considering matters of equity and quality within education. Such research has been building for at least the past two decades, and there exists a strong body of evidence on issues such as the quality of

services, determinants of school choice, costs of attendance, and social equity implications, among others (Ashley et al., 2014; Härmä, 2019; Srivastava, 2013; Tooley, 2013).

However, the research on the role of non-state actors in early childhood education is limited. A handful of studies on topics such as low-fee private schools (LFPS) happen to give cursory attention to ECE – typically within a paragraph or two of a larger study of private primary and secondary schooling (Ohara, 2012; Rose, 2002; Siaplay & Werker, 2013; Srivastava & Walford, 2016; Tooley & Dixon, 2006). An even smaller number of studies specifically collect data on pre-primary schools, as part of their larger research on private primary and secondary schools (Baum, Abdul-Hamid, et al., 2018a; Härmä, 2016a; Urwick, 2002), or capture both public and private operators in their general research on early childhood education (K. Bidwell & Watine, 2014). More recently, a few studies have been carried out explicitly on the topic of private ECE in low-income countries (Edwards et al., 2019a). An additional recent study considers the potential implications of unofficial private school markets on national administrative pre-school enrollment data (King et al., 2020). Overall, the research focused explicitly on private ECE is in its infancy.

As well as growing, the ECE landscape in developing nations is changing shape: over the last ten years, enrollment growth in private ECE has outstripped public enrolment (6% compared to 4%). Recent figures suggest that 55% of all children enrolled in pre-primary education in low-income countries are served by private operators (UNESCO, 2015). Much of this is due to the fact that government education systems have been largely focused on primary and secondary education, so there is simply insufficient supply of free public pre-schooling. Such low public supply creates demand for alternative educational opportunities, including fee-based access to private schools (Woodhead & Streuli, 2013b). As evidence of these market forces, Figure 2.1 shows the large share of enrollments in private preschools in Sub-Saharan Africa (54 percent), relative to the significantly lower private enrollment at the primary and secondary school levels in the region (11 percent and 16 percent, respectively), with the low supply of public provision being a likely driver of non-state market growth.

Figure 2.1. Net enrollment rates (■), and share of enrollments in private institutions (◆) by subsector, Sub-Saharan Africa (median, 2014)

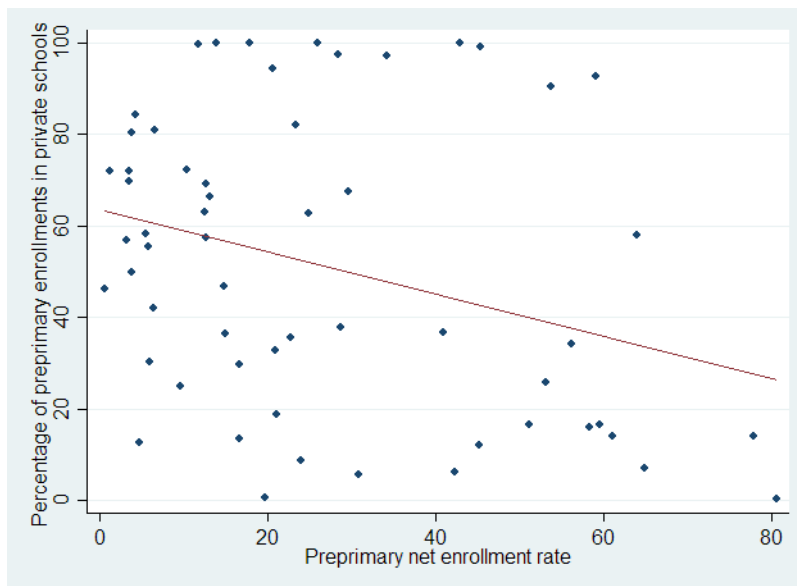


Source: Baum, Cooper, et al. (2018)

Figure 2.2 demonstrates that across low-income and lower-middle-income countries, there is a significant relationship between pre-primary enrollment rates and the percentage of students enrolled in private pre-schools ($r(57) = -0.31, p = 0.018$). Three key observations emerge from this relationship:

1. Low enrollment in ECE is driven more by weak supply than weak demand for services, as evidenced by the fact that where overall enrollment is low, the proportion of students in private schools is higher. That is, more households are paying for private ECE because there are insufficient public options.
2. Thus, where nation states have not adequately expanded public services, the market has responded with growth of private options.
3. But, overall, the nation states that have reached the highest levels of early childhood enrollment have done so by expanding public services.

Figure 2.2. Relationship between pre-primary enrollment rates and size of the private sector across low- and lower-middle income countries

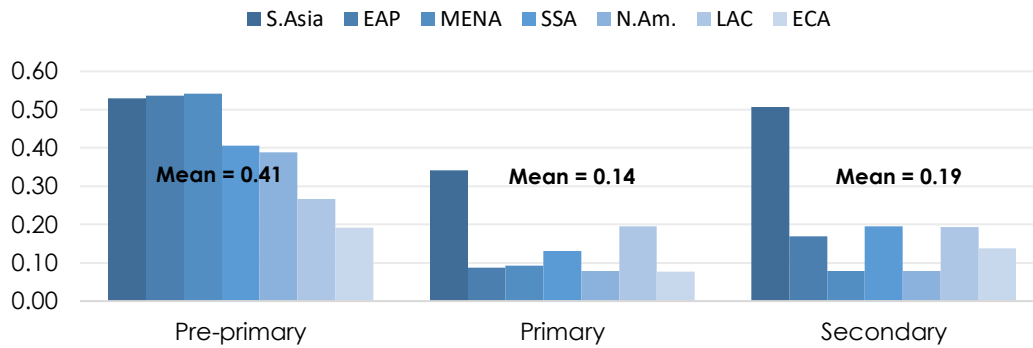


Data source: World Bank (2016)

However, to date, few researchers, policy makers, or other stakeholders are aware of the scope of private ECE provision in low-income countries. This marks a substantial oversight on the part of the research and policy communities, given the size of private markets for ECE across the world (as compared to primary and secondary education levels). Non-state providers are educating 41% of all pre-primary students across world regions, compared to 14% and 19% at the primary and secondary levels, respectively (Figure 2.3). Moreover, these figures refer only to the share of students enrolled in recognized and registered private schools. And given what we currently know about the size of unofficial schooling markets in many low-income countries (Baum, Cooper, et al., 2018), it is likely that these numbers provide only a lower-bound on the share of students enrolled in private schools (King et al., 2020).

Demand for and enrollment in ECE is higher in urban areas compared to rural areas. One recent study in urban slums in Nairobi, Johannesburg, Accra and Lagos found that between 71% and 95% of children receiving early years education were in private institutions (K. Bidwell & Watine, 2014). Considering the existing financial constraints facing most low-income countries, the private sector is a potentially valuable resource with whom some governments have already begun to partner (for an example, see the discussion on the Nairobi City County initiative in section 5.1.1). In many developing countries there is limited government regulation of such actors and their quality is highly heterogeneous.

Figure 2.3. Share of school enrollments in non-state institutions, by world region



Clearly, with over half of preschool provision across Sub-Saharan Africa, South Asia, and East Asian and the Pacific taking place in non-state schools, it is critical to obtain a clear picture as to the operation and impact of the private ECE sector. Today, where education systems include much involvement of non-state actors, the characteristics and influence of the private sector must be adequately accounted for within education decision-making. During the SDG period, countries are actively pursuing expansion of their early childhood education systems, as current enrollments at this stage are far behind those at the primary and secondary levels. And recognizing the magnitude of private participation, it is critical that we seek to expand the research on the impacts and contributions of non-state actors at the ECE level. This research proposes to offer one of the first broad looks at the scope of the issue across low- and middle-income countries.

3.0. SYSTEMATIC REVIEW OF THE EXISTING RESEARCH ON PRIVATE ECE IN LMICS

Given that there is far less research on private education at the early childhood level (as compared to the research on private primary and secondary education) one of the aims of this study is to provide a comprehensive look at the existing literature. To this end, I conduct a systematic review of the existing research on the topic.

3.1. Method

To identify studies in the existing literature on private ECE, I apply a three-stage search procedure: (1) systematic searches of online databases using a thorough set of search terms;² (2) hand searches of journals by identifying the top journals based on the sample studies; (3) backward (ancestry) searches of reference lists in identified articles; and (4) forward searches of articles that have cited key studies.³

Stage-1 involved searches of the following academic databases:

- *Education Resources Information Center (ERIC)* - online library of education research and information, sponsored by the Institute of Education Sciences (IES) of the U.S. Department of Education.
- *Scopus* - abstract and citation database of peer-reviewed literature: scientific journals, books and conference proceedings.
- *Applied Social Sciences Index and Abstracts (ASSIA)* – indexing and abstracting tool covering health, social services, psychology, sociology, economics, politics, race relations and education.
- *Google Scholar*
- *EconLit* - economics publications including peer-reviewed journal articles, working papers from leading universities, PhD dissertations, books, collective volume articles, conference proceedings, and book reviews.
- *Econ Papers* - online economics working papers, journal articles, books, chapters, and authors.
- *NBER Working Papers* – online working papers published by the National Bureau of Economic Research.
- *Business Source Premier* - business research database featuring full text and searchable cited references for top journals covering a variety of business disciplines.
- *PsychInfo* - abstracting and indexing database with more than 3 million records devoted to peer-reviewed literature.

² The search process included sets of search terms selected to identify relevant articles on the topics of (i) early childhood education, (ii) non-state provision, and (iii) low- and middle-income countries. A detailed list of included search terms is provided in Appendix 8.5.

³ Forward searches are conducted using Google Scholar's 'cited by' feature (Martin-Martin et al., 2017).

- *ProQuest Dissertations* - dissertations repository for the U.S. Library of Congress, including graduate works from institutions worldwide.

In addition to the use of these academic databases, the process also included searches of the following professional (non-academic) organization websites:

- World Bank
- UNICEF
- UNESCO
- OECD
- DFID
- PERI Global
- Center for Global Development
- Inter-American Development Bank

After identifying studies using the steps above, results were screened for relevance using the following inclusion criteria:

- | | |
|--|---|
| <ul style="list-style-type: none"> • Years: 1990 - 2020 • Geographic focus: Low- and middle-income countries • Thematic focus: Schooling/education provision at the early childhood level (prior to the start of grade 1) | <ul style="list-style-type: none"> • Publication types: <ul style="list-style-type: none"> ○ Books ○ Book chapters ○ Journal articles ○ Reports ○ Working papers ○ Theses and Dissertations |
|--|---|

Studies meeting the inclusion criteria were categorized according to their relevance to the present topic.

In particular, studies were grouped into three different thematic categories:

- Type 1. Private early childhood education – the intersection of these two topics is the explicit focus of the study; perhaps comparing public versus private provision or outcomes. The fact that the school is private has significance for the results.
- Type 2. Early child education. Studies of early childhood education, which happens to take place in or include reference to private institutions (the fact that the school is private is not the primary question of interest).
- Type 3. Non-state education. Studies of private education, which happen to mention or include the early childhood level in their samples (the focus on early childhood is not the primary question of interest).

Of note is that the search process did not require the articles to include any particular methodologies, analytical approaches, outcomes, themes, or research questions. Rather, the intent was to provide a thorough review of any prior research focused on non-state early childhood education, to represent broadly the extent of work previously conducted on this topic. I present below a summary of the existing knowledge on private ECE, as found within the current research literature.

3.2. Systematic search results

3.2.1. Study descriptives

The search procedures described above resulted in 410+ articles to be screened for the inclusion criteria and categorized according to the three ECE/private thematic categories. The majority of these articles did not meet all of the required inclusion criteria. I provide some of the more frequent reasons for study exclusion, citing one or more of the inclusion requirements:

- Study location, United States: 110
- Studies location, other upper-income country: 33
- Study of upper grades only (primary/secondary school): 23
- No coverage of ECE: 42
- No coverage of the private sector: 29
- No coverage of private ECE (the two are addressed separately): 7
- No coverage of education: 17
- Article in language other than English: 12
- Inadequate publication type (e.g., magazine article): 9
- Repeat of article already included: 36

Of the 410+ articles identified through the search process, a total of 70 met the inclusion criteria for the study. Disaggregating by thematic category, we find that 39 meet the requirements of Type 1 studies (private early childhood education), 24 are classified as Type 2 studies (research on early childhood education, which happens to take place in or include reference to private institutions), and 7 are classified as Type 3 studies (research on private education, which tangentially addresses or includes early childhood education in their samples). Figure 3.1 shows the geographic coverage of these 70 studies, with shades representing the number of articles per country. As visible in this figure, the countries with the highest

number of included studies were India (11), Ghana (10), Turkey (7), Kenya (5), Brazil (5), Pakistan (4), Nigeria (3), Ethiopia (3), and Tanzania⁴ (3).

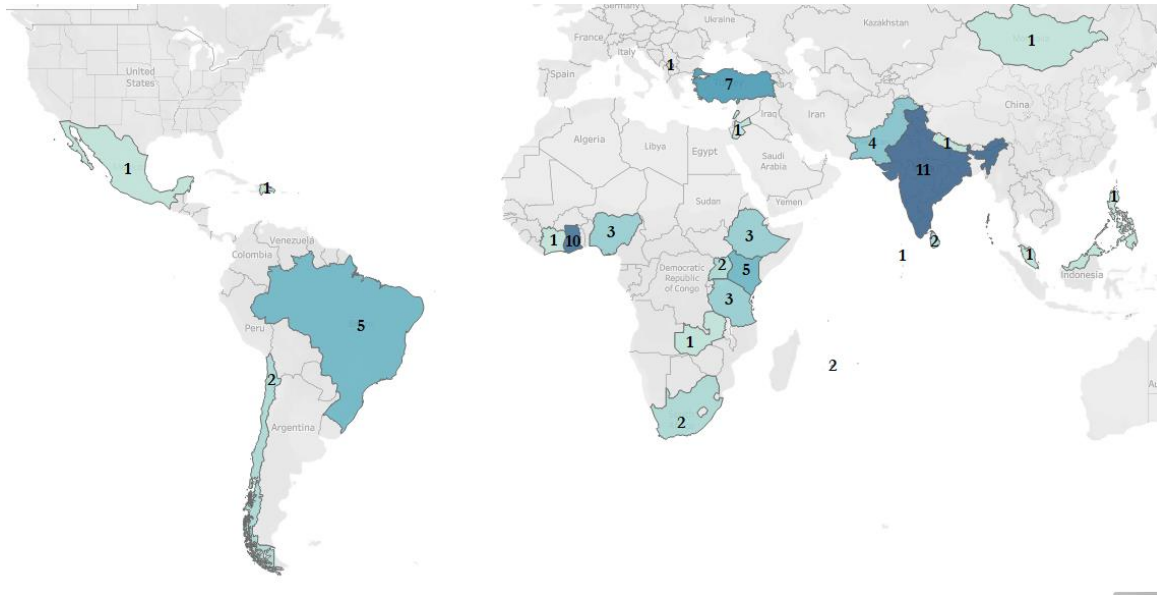
Each of these 70 sources was examined with attention to the studies' methodologies, research questions, data, analytical approaches, findings, and themes relevant for the current discussion on non-state early childhood education. In particular, the following themes were prioritized in the process of collating information and evidence from each of the sources: provision, finance, innovation, access, equity (costs and affordability), program quality (structural and process quality), regulation, teachers, parental choice, and parent engagement. Perhaps unsurprisingly, the studies that most often provided rich sources of information on these themes were those categorized as Type 1; unsurprising, given that the explicit emphasis of these papers is on private early childhood education. After these, the Type 3 studies (although smaller in number) were the most likely to offer valuable insight and data on the private ECE themes. The richness of the Type 2 studies was found to be mixed. Some of these studies, which focus primarily on topics of early childhood education, offered detailed discussion of the relevance of the private aspects of ECE. Others, however, drew little or no contrast between public and private schooling. A common example of this were a handful of studies (roughly 10 in number) whose sampling procedures drew ECE children from private centers, but sometimes only from 1 or 2 private schools, and typically without any comparison to the public sector or discussion on why school sector matters to the questions of interest.

The methodologies used in these studies cover a range of epistemologies, methods, and analyses. The most common type (roughly 33%) of study within this review was the descriptive (and often comparative) study of public private ECE provision, choice, and attendance. In some instance, these studies offered a detailed review and analysis of a country's ECE system, with careful attention to the non-state ECE sector. The second most common (15%) methodological approach applied by studies within this systematic review were those implementing a causal research design (RCT or other) to estimate the impact of ECE programs on student outcomes. Other methodologies included surveys of non-state ECE providers and teachers (12%); observation/estimation of the quality of provision within public and private ECE centers (12%) (some of these explore different instruments available for validly measuring ECE quality in the global South; see the discussion in section 5.0.1 for more information about these types of instruments); and evaluations (or reviews) of a specific ECE program (8%). A handful of sperate studies involved analysis of the regulatory environment for non-state ECE, longitudinal assessments of ECE participation and it's

⁴ Two of the three studies labelled 'Tanzania' were focused on Zanzibar.

impacts on various child outcomes, and qualitative interviews with private ECE teachers, principals, and/or policy makers. Overall, the coverage of this systematic review appears to provide the most comprehensive look at private early childhood education research conducted to date.⁵ I provide next a discussion of the findings from this review.

Figure 3.1. Geographic coverage of private ECE studies in LMICs



3.3. Analysis of the existing research on private ECE in LMICs

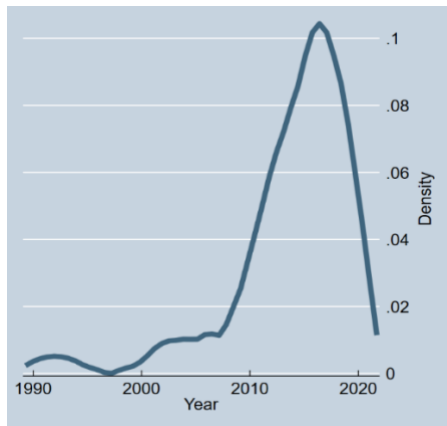
3.3.1. Trends and influences in the development of private ECE research

A notable characteristic of the studies within this review is their age. Even a cursory look at the years of the included studies shows that the investigation of private ECE is relatively new stream of research (see Figure 3.2) The median year of publication across these studies is 2015, while the mode is 2018. However, there were a small number of studies that laid the foundational groundwork for current research on non-state early childhood education. I suspect that the relative recency of this specific subfield of education research is driven by the fact that (i) research on non-state education in LMICs did not seem gain strong popularity until the emergence of James Tooley’s research in the mid to late 2000s; and (ii) the emphasis within the global Education for All movement in expanding school access from 1990 (at the initiation of the global Education for All project) and potentially even up to 2015 (at the outset of the Sustainable Development goal period) was largely targeted towards primary and secondary education expansion.

⁵ A list of all of these studies is provided in Appendix 8.6.

More recent attention to the growing importance of ECD provision for the purposes of individual and national development and the existing size of the non-state sector in this sphere has thrown the intersection of these two issues into greater relief, and I believe have likely be the main causes of the recent growth in research in this area.

Figure 3.2. Publication years of included studies



Some of the early influential works that recognized the importance of the non-state sector for country ECCE efforts was the Young Lives project – the nearly 20-year longitudinal study of 12,000 children in Ethiopia, India, Peru, and Vietnam – which, early on, observed the participation of children in both public and private early childhood experiences. Certainly not the first, but some of the earliest influential papers on private ECE in low-income country contexts were Young Lives’ analyses of child participation in private ECE centers in India (Streuli et al., 2011) and Ethiopia (Orkin et al., 2012). In the years since the publication of these studies, the Young Lives project, and its numerous papers exploring the importance of ECCE have relatively frequently been attuned to intersections between early childhood education and the non-state sector (A. Singh, 2014; R. Singh & Bangay, 2014; R. Singh & Mukherjee, 2017).

Another early influential project was a program of research conducted by Kelly Bidwell and Loïc Watine of Innovations for Poverty Action. This research provided one of the first systematic investigations of ECE provision by the private sector in a cross-country framework. Their work was carried out in four peri-urban locations in Sub-Saharan Africa: Ashaiman in Accra, Ghana; Soweto in Johannesburg, South Africa; Agege in Lagos, Nigeria; and Mukuru in Nairobi, Kenya. The multi-country results were summarized in Bidwell and Watine (2014). One of the key contributions of this work was the spotlight placed upon private provision in expanding access to ECE services in these countries. The authors found consistently in these peri-urban locations that private pre-schools were the majority providers of pre-primary schooling, often

resulting from low public provision. The shares of child attendance in private institutions ranged from 56% in Soweto, Johannesburg to 94% in Mukuru, Nairobi. While the large body of prior research on private primary and secondary schooling in Africa had already painted a clear picture of non-state participation at the upper education levels, Bidwell and Watine demonstrated that similar trends were likely to be found in other countries at the pre-primary level. This research may have reasonably caused other researchers to consider what additional trends might be uncovered in the intersection of private schooling and early childhood education.

Surprisingly, not much of the early research on low-fee private schools in low-income countries paid attention to policy or provision at the sub-primary level. There are of course, a few exceptions to be noted. James Tooley and Pauline Dixon – the pair of early influencers in the growth of research on low-fee private schools in LMICs – collected data on school fees in pre-primary grades attached to private primary and secondary schools in East Delhi, India in 2007 and Kibera (one of Nairobi’s informal settlements), Kenya (Dixon & Tooley, 2012; Tooley & Dixon, 2007). Additionally, some of Joanna Härmä’s early studies of private schooling provision included data such as enrollments, teacher qualifications, student-teacher ratios, and other school characteristics in pre-primary grades in Nigeria (Härmä, 2011, 2013). Some of Härmä’s later work has been more explicit in its investigation of topics as they relate directly to private ECE (Härmä, 2016b), and other LFPS studies have since followed suit in including ECE grades and schools in their research designs that had historically been restricted to private primary and secondary schooling (Baum, Abdul-Hamid, et al., 2018b).

More recently, a highly rigorous set of studies have been conducted (and appear to be still emerging) by Sharon Wolf and colleagues out of the University of Pennsylvania and New York University, focused on both public and private ECE provision, regulation, and innovation in programs within Ghana. A number of these studies present results from cluster-randomized trials of ECE interventions, and their relative impact on children across school sectors (McCoy & Wolf, 2018; Pesando et al., 2020; Wolf et al., 2018; Wolf, Aber, Behrman, & Peele, 2019; Wolf, Aber, Behrman, & Tsinigo, 2019; Wolf & Peele, 2019). These studies, I believe, are setting a new standard for researchers to consider inclusion of private ECE centers (in addition to public) in the design and evaluation of new questions, and testing of new/existing programs across a range of ECE topics.

For the remainder of this section, I present findings from the systematic review of the existing research on private ECE in LMICs.

3.3.2. Provision and access

As discussed in the introduction to the current paper, the growth of private ECE across many LMICs has been clearly evidenced using within- and cross-country data. Similar trends are observed in several countries covered by this systematic review. Importantly, provision is not isolated to for-profit ECE providers, but rather spread across non-government, faith-based, and for-profit organizations (Araujo et al., 2013; Dundar et al., 2017; Woodhead & Streuli, 2013a). In Kenya and Ethiopia, non-state ECE services are provided by a range of for-profit organizations, faith-based institutions, community groups, and NGOs (Orkin et al., 2012; Sitati et al., 2016). In Peru, the ratio of public to private ECE centers decreased from 4:1 in 1998 to 1.5:1 in 2008 (Woodhead & Streuli, 2013a). From 2013 to 2015, the number of private preschools increased at a rate four times faster than public schools, “largely influenced by greater involvement of parents, churches, and enterprises in funding and managing preschools” (Pesando et al., 2020, p. 111).

There is strong evidence that in many locations, non-state schooling is growing in response to excess demand in the ECE schooling system – that is, in contexts where governments provide limited public ECE services. The private sector accounts for a sizable share of the ECCE services offered in countries such as the Dominican Republic (Araujo et al., 2013) and the Maldives (Gupta, 2018). In Lagos State, Nigeria, 88% of pre-primary pupils are enrolled in private schools (Härmä, 2013). In Addis Ababa and other urban centers in Ethiopia 58% of the Young Lives sample of children participated in early childhood education, but only 5% of these were in government ECE programs (Woodhead & Streuli, 2013a). In Sri Lanka, 84% percent of ECD centers are run by NGOs, private organizations, and church-affiliated groups, while the remaining 16% of providers are government programs (Dundar et al., 2017). In some countries, the state provides financial support to non-state entities (churches, communities, or nonprofit organizations) for the delivery of early childhood care and education (Araujo et al., 2013).

In Mozambique, the state is not involved in the delivery of pre-primary education. As such, in Maputo, non-state schools make up 100% of the pre-primary sector, with roughly half of providers being religious or community organizations (Härmä, 2016b). And likely driven by the lack of public options, household consumption of these private services has caused the pre-primary school level to grow much more rapidly than those at the primary and secondary levels. Zambia has experienced similar growth of the LFPS market amidst low government spending and pre-primary provision, causing home-based private preschools in some locations to expand rapidly (Thomas & Thomas, 2009). In the Mtendere settlement of Lusaka, nearly 94% of all ECCE services are offered by private schools, more than half of which were established by former or current public schools teachers (Edwards et al., 2019b).

Evidence from Ghana suggests that households respond to supply-side provision from both public and private sectors. Results from Pesando et al.'s (2020) modeling of school choice decisions suggest that a one-unit increase in the availability of nearby public schools is associated with the 3.8% *decrease* in the likelihood of a child enrolling in private preschool. On the other hand, a one-unit *increase* in the availability of nearby private schools is associated with a 2.8% increase in the likelihood of private preschool enrollment.

With respect to the causes of growth of private pre-schooling, growth in private provision is sometimes driven more by differentiated demand, with parents selecting private ECE opportunities not due to a lack of public services, but motivated by what they perceive to be a higher quality educational experience, or perhaps simply one better aligned to their preferences (such as religiously-based or English-medium curricula). In India, the growth in private ECE has taken place alongside the availability of public ECE programs in the form of anganwadis, under the auspices of the country's Integrated Child Development Services (ICDS) program (Woodhead & Streuli, 2013a). Anganwadis provide the majority of ECCE within the country, offering a wholistic set of ECD services, including: nutritional support (meals served within schools), health services, and preschooling (R. Singh & Mukherjee, 2017). In Andhra Pradesh, 43% of preschool children are enrolled in private schools, 45% in Angawadis, and 12% in other types of schools (Kaul et al., 2015). Woodhead & Streuli (2013a) suggest that private kindergartens in India have been replacing public anganwadis rapidly in urban locations but increasingly in rural parts of the country as well, driven by demand for differentiated services.

Not all countries experience the same challenges in providing public pre-schooling. In some locations, government provision is the norm for students accessing ECE. Across Turkey, roughly 85% of preschools are government facilities while 15% are private. However, this is not constant across regions. Similar to other countries, urban areas in Turkey may have higher rates of private participation; in Istanbul, private ECE providers account for 47% of provision (Aran et al., 2016). Kindergarten provision in Mongolia is split primarily between three types of schools: standard (fixed) government, mobile ('ger') government, and private kindergarten, with the private institutions accounting for roughly 10% of enrollments. The private sector has accounted for much of the growth in kindergarten provision over the past decade; however, 78% of these private pre-schools are located in the capital of Ulaanbaatar (Ali et al., 2017). In Guatemala, only 1% of communities with populations of between 300 and 2,500 in 2005 were found to have any private pre-school (Bastos et al., 2016). In Brazil, government pre-schools account for roughly 75% of

enrollments, with nearly one-quarter of pre-primary⁶ education being delivered through fully private (19%) and government-contracted (*conveniado*) schools (5%) (although, the government-contracted sector growing rapidly year-over-year) (Evans & Kosec, 2012).

In most instances, pre-school services are split between standalone ECE centers and those attached to primary and/or secondary schools. The data suggests that private pre-schools are more commonly found to be attached rather than existing separate from upper education levels. In Mtendere, Lusaka 69% of private ECCE centers are attached to existing primary schools, likely offering greater financial stability for these pre-schools (Edwards et al., 2019b). A majority of private pre-schools in India appear to be attached to private primary schools (Kaul et al., 2015; R. Singh & Mukherjee, 2017). The motivation for this may be that private schools are hoping to funnel younger children towards private primary and secondary trajectories, and thus using ECE services as a means of capturing earlier participation for future students (Streuli, Vennam, & Woodhead, 2011). However, in at least one case – Maputo, Mozambique – pre-primary schools are more likely to exist in standalone centers, as compared to primary and secondary schools, “likely due to parents’ desire to keep small children closer to home” (Härmä, 2016b).

3.3.3. Finance

Much has been written recently about the financial constraints that low-income countries face in their efforts towards providing universal pre-primary, primary, and secondary education (Global Education Monitoring Report, 2016; Omwami & Keller, 2010; UNESCO, 2015; UNICEF, 2019). In the past, it has been common for countries to allocate far less in public resources to early childhood education than to the primary and secondary school levels. For example, in Kenya, less than 1% of the budget of the Ministry of Education is allocated to pre-schools, resulting in a private ECE provision rate upwards of 75% (Sitati et al., 2016). Schooling in Sri Lanka is nearly completely funded and provided by the state at the primary and secondary levels.⁷ However, at the pre-school level, education is primarily funded by households, NGOs, and other private entities; and while there appears to be growing recognition of the importance of ECE within the country, such recognition has not yet led to significant increases in funding for the sector (Dundar et al., 2017).

⁶ In Brazil, 43% of daycare services are private, with 29% of children enrolled in fully private and 14% enrolled in government-contracted creches (Evans & Kosec, 2012).

⁷ Private schools in Sri Lanka account for only 3% of enrollments at both the primary and lower-secondary levels (World Bank, 2020).

It is evident that early childhood education systems will require greater resources if countries are to meet their SDG commitments around ECE provision. However, increased government funding can be used in a multitude of ways, and when education services are available through alternative sources, such as available non-state education sectors, governments may decide to allocate their resources in other ways. Kosec (2011) considered this possibility and looked closely at how local governments in Brazil chose to spend their available funds after experiencing changes in revenue, as well as how such changes in spending impacted provision of and participation in ECE. The study found that exogenous increases in revenue led to increases in municipal spending on pre-schooling and growth in public pre-primary enrollment. Importantly, however, these relationships between increased revenue, increased spending, and increased ECE participation were not constant across municipalities. Kosec found that wealthier and more-economically-stratified regions were significantly less likely to direct increases in funding towards public education (as compared to fully public goods, for which there are no private substitutes, such as parks and roads). The author posits that this type of decision-making is likely influenced by the fact that (i) where a majority of citizens are already consuming a service through private channels they are less likely to demand public versions of that service, and/or (ii) where a majority of decision-makers are already consuming (and are satisfied with) a private service they are less likely to spend on a public version of that service (even if there is some demand from citizens).

These findings have important implications for public policy relating to ECE finance and provision. As markets for private ECE services continue to grow (particularly in locations where public options are limited or absent), governments may experience less pressure to cover the cost of service provision, particularly in localities of high wealth. As such, as efforts to increase the availability of funding for pre-primary education continue, it is critical that priority be maintained on allocating funds to the poorest local governments and to poor households/individuals living in wealthy local governments. Such findings also highlight the importance for governments to maintain free public provision of ECE, even amidst strong growth of private services.

An additional study from Brazil (Bastos & Straume, 2013) provides evidence that increasing the availability of funding for education can have significant impacts on public ECE provision and participation. The study applies a regression discontinuity design to an analysis of one of Brazil's local government funding programs – Fundo de Participacao dos Municipios (FPM) – which accounts for, on average, 40 percent of municipal government revenue. The program requires that municipalities allocate a minimum of 15% of FPM funds to education. Results suggest that larger transfers lead to an expansion in the provision of

municipal preschool services and significantly higher enrollments in municipal ECE centers.⁸ Moreover, the study finds that flows of funding from federal sources to local governments are able to produce these positive impacts on public ECE enrollment without negatively impacting private ECE in terms of participation (in fact there is some weak evidence to suggest increases in private enrollments) or structural quality.⁹ Bastos and Straume assert that these findings provide evidence that public and private ECE provision is capable of expanding simultaneously, as private deliverers will adjust attendance costs in response to changes in the availability of free government services.

The government of South Africa has also demonstrated its commitment to increasing investments in ECD. Data from a 2015 report shows an education spending increasing of over 300% between 2004 and 2010. As part of this, the state has increased financial support for both public and private ECD centers through direct transfers to public centers and “partial subsidies” to private ECD centers (Shanker et al., 2015). Such subsidies to private schools represent one form of public-private partnership, through which some states are electing to support the ECCE sector. Gupta (2018) suggests that such public-private relationships in India have led to “dozens of franchises” emerging in various ECE spaces, including provision but also in the development of support services.

A study of non-state ECCE by Edwards and colleagues (2019b) in Zambia shows why some of the low-fee markets for private pre-schooling may benefit greatly from some type of government support. In Mtendere, a slum settlement in the capital of Lusaka, private proprietors are delivering over 90% of all pre-school services, but many of these private schools find themselves in financially precarious positions, with up to one-quarter of schools reporting annual profits below \$20.

Public-private partnerships are being used by governments in several countries as one form of investment into early childhood. In Mongolia, subsidies to the private sector account for 7% of national preschool spending, with funds intended to support private providers in covering their schools’ variable costs (Ali et al., 2017). In Brazil, 14% of daycare and 5% of pre-primary services are delivered by government-contracted private schools (Evans & Kosec, 2012). The government of Ghana makes loans available to private schools for purposes of upgrading infrastructure; such opportunities provide incentive for private entrepreneurs to invest in education (Pesando et al., 2020).

⁸ Results suggest that an FPM transfer increase of one standard deviation is related to an increase in the number of ECE centers by 20% and ECE enrollment by 8.5%.

⁹ The study measures school structural quality using two measures: group size and the share of teachers with higher education.

In Trinidad and Tobago, 67% of ECCE centers are operated by a nonprofit organization, Service Volunteered for All (SERVOL). For over 30 years, SERVOL has received subsidies from the Ministry of Education to provide for teacher and caregiver salaries, while the organization is responsible for covering its remaining operational and infrastructure costs. Centers managed by SERVOL receive consistent quality monitoring to ensure high-quality service delivery (Araujo et al., 2013).

Funding for the operation of both public and private institutions are investments that the state can make into increasing the availability of ECCE services. Given findings discussed above, early childhood programs and systems are in clear need of greater financial support. Existing research provides evidence that states can have significant impacts on ECE participation by increasing the availability of funds. The use of those funds should be designed carefully to account for the areas of greatest public need. Evidence suggests that the spending of funds in both public and private sectors should be carried out with at-risk communities and students in mind, as a means to maximize the contributions of both public and private sectors.

3.3.4. Regulation

Within the global legal frameworks that establish education as a human right, governments are identified as the entities responsible for ensuring that children have access to quality educational opportunities. As part of this obligation, national governments are expected to make available free public education for all within their jurisdictions who may demand such services. However, it is also recognized that parents should have the agency to select alternative educational opportunities for their children outside the public school system. Under these circumstances, “states must take all effective measures, including particularly the adoption and enforcement of effective regulatory measures to ensure the realisation of the right to education where private actors are involved in the provision of education” (Abidjan Principles, 2019, p. 7). This section considers country approaches to the regulation of non-state ECE in LMICs.

While government policies for regulation of private education may be varied in their intended outcomes, there are possibly two areas of priority deserve the most attention, as these tend to be the areas of greatest priority: quality and equity of delivered services; typically the existence of state regulations on private schools can be categorized as being aimed towards ensuring one of these two outcomes.

Regulating equity within private ECE

The studies included in this systematic review provide less evidence of government regulation around equity of private ECE access. One example comes from the Ghanaian context. Ghana was one of the first

(in 2007) countries in Africa to systematically incorporate early childhood education into its efforts towards guaranteeing universal basic education – including two-years of pre-primary schooling (KG1 and KG2, for children 4 and 5-years old) as a required component of the basic education system (Pesando et al., 2020). Recognizing that the private sector was already delivering a sizable share of early childhood services, Ghana also set parameters within which the sector could continue contributing to ECE efforts. Part of these parameters included keeping these services affordable by setting tuition limits for private schools not receiving state subsidies (Pesando et al., 2020).

As borne out within the systematic review studies, far more common than equity-focused regulatory measures are policies that aim to maintain a minimum quality standard within private schools. This result aligns with those found in the regulation of private primary and secondary schools in Africa. A recent study of private school regulations across 21 countries in Africa found 7 cases of regulatory caps or requirements for government approval of tuitions fees in private schools (Baum, Cooper, et al., 2018). In contrast, 19 of 21 countries had explicit regulations over the qualification standards of private school teachers; 16 had set limits on private school class sizes; and 17 had requirements around the number, type, or size, of classrooms within private schools. Importantly, this same study found it much more common for government regulations to exert control over indicators of school structural quality (e.g., infrastructure, land, and qualifications of staff) as opposed to process quality (e.g., school inspections, quality assurance, curriculum, and pedagogy), which is unfortunate, given that the latter is more likely to lead to increases in school quality and student learning (Davis, 2003; Nurmi & Kiuru, 2015). While the previously-mentioned study focuses its analysis at the primary and secondary school levels, the findings are relevant when considering the regulation of private ECE, as the policies governing pre-primary education are often the same as those governing the primary and secondary school levels¹⁰ (Baum, Cooper, et al., 2018).

Regulation of structural quality (the most typical form of regulation)

As mentioned above, the most-commonly-observed approach to governing private pre-schooling was the regulation of school structural characteristics. In Sri Lanka, while state regulatory policies for private pre-schools includes maximum ratios of trained teachers per child (1:20)¹¹, there are no standards for quality assurance, oversight of instructional practices, or expectations for child developmental outcomes (Dundar

¹⁰ Because governments often use a single policy for the regulation of private providers from pre-primary through secondary school, there is often insufficient attention to facilitating developmentally appropriate curricula or pedagogy that would enhance learning and development opportunities for children.

¹¹ In practice, implementation appears to align closely with the official policy, as observed teacher-child ratios are 1:21 (not including teachers' qualifications) (Dundar et al., 2017).

et al., 2017). Policies are similar for Brazilian ECE providers, with requirements over teacher qualifications and class sizes; however, even these are not actively enforced, and beyond these measures private preschools remain independent and “highly unregulated” (Bastos & Straume, 2013, p. 12). In Ghana, ECE policies don’t require private ECE teachers to have a minimum set of teaching credentials (as opposed to public ECE teachers who are required to have official education diplomas from accredited teacher colleges) (Asare & Nti, 2014; Avornyo & Baker, 2018).

In the case of Maputo, Mozambique, private pre-primary schools report being inspected frequently. Even in less-resourced neighborhoods, most schools had been inspected by a government agency within the previous year, with only 1 school of 53 having never been inspected (Härmä, 2016b) (however, no details are provided as to the nature of these inspections; based on other country experiences, it is likely that these inspections also focus more on observations of school structural rather than process indicators). The Mongolian regulatory framework includes public inspection of private kindergartens – primarily to ensure compliance with infrastructure and safety standards. However, as outlined by Ali and colleagues (2017), what occurs in practice is typically only an audit of school financial behavior. There is no attention to the school learning environment, teaching practices, or quality outcomes. Parallels can be seen in the governance of the private ECE sector in Lusaka. All private pre-schools must only be registered with the local city council; the country’s Ministry of General Education (MoGE) plays no role in registering or inspecting private pre-schools.¹² And the director of Early Childhood Education for the MoGE voiced no concern over needing to engage in regulation or oversight of private providers, suggesting that such schools should be seen more as profit seeking ventures than educational endeavors (Edwards et al., 2019b). Lusaka city regulations deal only with the commercial and health characteristics of schools. Initial school inspections during the registration process focus only on the health and sanitation of private schools facilities (Edwards et al., 2019b). Initial and subsequent inspections pay no attention to school quality.

Two studies consider the effects of regulatory frameworks that strictly control the structural characteristics of schools. Baum, Cooper, and Lusk-Stover (2018) find that onerous regulations over school infrastructure and other structural quality characteristics are related to growth in unofficial private provision (i.e., schools operating outside the purview of government oversight), and that there is no link between such regulations and school quality outcomes. Aran and colleagues (2016) investigate the

¹² Similarly, in Peru, the government provides “minimal government engagement in licensing and quality of the private sector” (Woodhead & Streuli, 2013a, p. 314).

potential impact of strict regulations on school structural characteristics in Turkey through surveys of 141 ECCE providers in Istanbul. The paper finds (controlling for school-level confounding variables) stricter structural regulations (measured primarily by the requirement to have a garden on the school premises) to be significantly associated with higher school tuition rates and lower percentages of enrolled children from poorer households. This is relevant for the Turkish context, and likely for others where physical school requirements tend to be the strictest and greatest in number (a condition that applies to the regulatory policies in many LMICs).

The studies included in this systematic review did not frequently discuss the operation of unlicensed or unregistered private preschools, even considering that this marks a common point of research in the study of low-fee private schools at the primary and secondary levels. In the two instances – Zambia and Mozambique – where this was investigated, the researchers found a minority of schools to be operating while unregistered. In the former, more than 75% of schools were registered according to expected standards (Edwards et al., 2019b). In the latter, any unregistered schools were found to be in process of applying for registration (Härmä, 2016b).

Effective regulation of the private sector

In some instances, countries demonstrate more advanced approaches for regulating, monitoring, and facilitating improvements of private ECE provision or expanding ECE access. In the case of Jamaica, the Ministry of Education has established a framework capable of supporting quality improvements within the private sector (Araujo et al., 2013). The ministry employs 35 inspectors, supervised by 5 senior inspectors, who are required to have at least one degree in ECE (and two in the case of senior inspectors). Additionally, there are 70 additional staff who provide monthly monitoring through site visits and teacher training sessions. Oversight of schools includes both structural and process dimensions including: physical environment, nutrition, health, safety, child protection, staff, programs, and finance, as well as interactions and relationships between children, teachers, caregivers, parents, and community members (Araujo et al., 2013). While the operation of such an in-depth monitoring process does not work without challenges (including availability of sufficient staff, funds, and training), this approach certainly represents a high-level approach for both monitoring, but as importantly, supporting private centers in delivering high quality services. This model is far more likely to lead to the types of child learning and development outcomes desired from an ECE system, particularly as compared to the typical approach to monitoring only school structural quality.

India has not facilitated improvements to private preschools through monitoring, like Jamaica; however, the country has experienced some success in expanding the supply of ECE services through regulation of the private sector. As outlined by the Law Commission of India (2015), both state and local governments in India would be expected to establish pre-school centers in all public as well as private aided schools (i.e., private schools that receive funding from the government) (Gupta, 2018). In addition to this effort towards expansion, the country's 2009 Right to Education Act required all private schools to reserve 25% of their capacity for the enrollment of children from socially disadvantaged households. Following the institution of this policy, India has experienced a substantial increase in student enrollment and a "corresponding increase in private schools to accommodate all students" (Gupta, 2018, p. 16).

Based on the findings regarding regulation of private ECE, it is recommended that governments consider adapting policies that more adequately address the dual needs of increasing process quality as well as access to private ECE centers within their jurisdictions.

3.3.5. Parental demand and choice

Parents cite different motivations for selecting either public or private early childhood education experiences for their children. In East Africa, the limited supply of places within highly desired primary schools has been one cause for increasing demand of pre-primary education, as some competitive primary schools have begun to formally and informally require early childhood education for admittance (Mwaura et al., 2008), and parents seek to gain an advantage by enrolling their children in more respected preschools.

Proximity of a school to the home is often mentioned as a key determinant of preschool selection. Distance to school seems to be a relatively more important predictor of school selection for children of younger ages, as parents have concerns over children traveling too far to school. An interesting paper by Ezaki (2018) tested this theory by analyzing changes in transfers between public and private preschools following the Nepal earthquake of 2015. The study site was a village in the Bhaktapur District, Bagmati Zone of Nepal, roughly 12 kilometers away from Kathmandu. The village does not offer any private preschools, but some families choose to bus their children to private schools in nearby urban locations. Many parents in the study site express a preference for private schools; however, when children are young and still familiarizing themselves with the formal schooling experience, it is common for parents to enroll them initially in public schools closer to home. Then, as the child grows older and becomes more

comfortable with formal school attendance, it is not uncommon for parents to switch their children to an urban private school.¹³

Prior to the earthquake, of all instances of student transfer from one preschool school to another, 71.4% were flows to private schools. However, after the earthquake, transfers to private schools accounted for only 23.1% of school switches (Ezaki, 2018). At the same time, children in older grades experienced no significant change in private school attendance post-earthquake. The results suggest that household decision over enrolling a child in a private school are likely more determined by proximity to the school than for children at upper education levels.

Edwards et al.'s (2019b) study in Lusaka, Zambia found that household selection of an ECCE center (in a geographic location where 94% of ECCE providers are private) was determined in part by proximity to the home (14% of responses); however, the overwhelming driver of school choice in this context was quality of the school (i.e., good teaching) (59.7% of responses). Affordability was the third motivating factor at 10% of responses. As these findings highlight, school selection decisions are often motivated by a complex set of determinants for households. Findings from Bidwell and Watine (2014) paint a similar picture. In their study of ECE in peri-urban locations in Africa, they find that the average preschool-age child has between 3 (in Lagos, Accra, and Johannesburg) and 5 (in Nairobi) preschools within walking distance. Across countries, caregivers are found to have different school choice priorities, with proximity, cost, teacher qualifications/motivation, curriculum quality, and convenience all being mentioned as motivating factors. Proximity is the most frequently cited motivation for school selection in Accra, Nairobi, and Johannesburg, while teacher qualifications, motivation, and attendance are the most cited reason in Lagos. Given the findings from all of these listed studies, it seems that school systems can likely impact the demand for preschool by reducing proximity, reducing costs of attendance, and increasing quality of available services. Additionally, preparation for primary school (40%), nutrition (provision of school meals; 5%) and behavioral instruction (learning to sit and obey; 26%) have been noted as additional motivators in Andhra Pradesh (Kaul et al., 2015).

There is some evidence of increased participation in both public and private daycare/ECE to allow parents to engage in formal employment. Data from the Madrasa Early Childhood Programme in East Africa supports the idea of increased demand for ECE, given changing familial structures (for instance, extended family relationships) and changing expectations for parents (particularly mothers) to be engaged in formal

¹³ Other studies have similarly found that students in the private ECE sector are more likely to experience school switches than students in the public sector (Ali et al., 2017).

paid employment (Mwaura et al., 2008; Swadener et al., 1997). A similar finding emerges from one of the *Young Lives* studies in Andhra Pradesh, where public schools are sometimes used as a form of de facto childcare for ECE-age children of working parents (Streuli et al., 2011). For similar reasons, households (particularly poorer households) are sometimes drawn to ECE centers that provide meals for children during the school day.

Data from multiple studies suggest that demand for private ECE is not constant for all households and individuals. More specifically a number of areas of disadvantage for students have been found to be related to demand for ECE. Section 3.3.6., below, provides evidence of differential demand for and participation in public and private ECE by individual and household characteristics such as wealth, geographic location, gender, and disability.

Parental perceptions of school quality

Although parents frequently identify school quality as one of the primary motivators in the selection of their child's school, it is important to note that parents do not always have access to reliable information about the relative quality of schools. In absence of this information, estimates of a school's quality are often made using proxies, that may or may not accurately reflect the true nature of any given school's educational experience (often there is no link between the structural proxies used by parents to judge school quality and actual process quality within the classroom; see Bassok et al., 2018). A few common indicators appear to be used frequently by parents in determining the quality of the school (some because they represent aspects of the educational experience that parents actually value, and others because parents believe they are linked to school quality). For instance, it is common across many low-income countries for parents to prioritize English-medium schools. Notwithstanding the fact that a majority of language research suggests instruction in one's mother tongue to be preferable to a non-native language, particularly for the development of younger children (such as those at the ECE level), many parents seem to prefer English instruction for the potential economic advantage that communication in English may provide their child in the future. In India, Zambia, and Ethiopia, parents express their desire for children to be enrolled in private preschools due to their English instruction (Edwards et al., 2019b; Orkin et al., 2012; R. Singh & Mukherjee, 2017; Streuli et al., 2011; Woodhead & Streuli, 2013a). Parents have also been shown to value private schools based on their school uniforms, the state of the school's infrastructure, or their smaller class sizes (Orkin et al., 2012).

Perhaps most concerning are some of the perceptions that parents maintain about high-quality curricula and instructional practices. There is relatively consistent evidence across many countries that parents

perceive traditional academic instructional approaches to be more desirable than play-based, inquiry-driven, and other pedagogies shown in the literature to facilitate child development and learning. Formal, teacher-focused, didactic academic instruction is common within public, and perhaps even more in private, pre-schools across the countries in this systematic review. And not only does this appear to be the predominant mode of instruction, but there is good evidence to suggest that this is the type of educational experience that parents desire for their children (Kaul et al., 2015), with a particular emphasis on rote memorization for the purposes of acquiring traditional numeracy and literacy skills. According to Orkin et al. (2012), private schools in Ethiopia “tend to be replicas of primary schools, with few concessions made to the stage of development of younger students” (p. xii); and such pedagogical approaches are actually those demanded by wealthy parents. In Zambia, parents in interviews specifically criticized the student-centered, play-based pedagogies of the local government preschool as “too playful,” expressing instead a desire for

This reality poses an interesting challenge for both ECE providers and policy-makers. Parents seem to want the formal academic curriculum they’re used to seeing at the primary and secondary levels. And a large number of headmasters and teachers in low-fee private preschools do not have the training or expertise to implement a more developmentally-appropriate pedagogy. More importantly, private schools likely have no incentive to improve their instructional practices if the lower-quality approaches are easier/cheaper to deliver and more desirable to parents. As such, governments face a challenge in influencing private providers to develop child-centered and play-based approaches in a child’s mother tongue. One solution may require public information campaigns to inform parents of the value of these alternative instructional approaches.

3.3.6. Equity and affordability

Socioeconomic inequalities

One of the fundamental concerns of involving the private sector in the delivery of any type of education service is the potential for introducing or perpetuating social stratification through the education system (Pal & Kingdon, 2010; Verger et al., 2016). This risk remains one of the primary critiques of the private delivery of education. And for good reason – drawing from the studies included within this systematic review, the most consistent finding across countries relates to the generalizable conclusion that private ECE services are disproportionately accessed by households with more financial, social, and cultural capital. In particular, household income is a consistently predictive determinant of child enrollment in

private ECE. This result is observed in at least 10 countries¹⁴ – or, in other terms, in every single study that investigated participation by household wealth.

In one sample from Ghana, 72% of public ECE attendees came from households at risk for poverty, while only 28% of private ECE attendees came from similar at-risk households (Wolf, Aber, Behrman, & Peele, 2019). In a second study in Ghana, for every 10-point increase on Pesando et al.'s (2020) wealth index (measured from 0 to 100), a student experiences between a 8% and 16% greater likelihood in attending a private preschool, suggesting that “financial barriers prevent some poor households from choosing private preschools.” Other predictors of private versus public preschool enrollment included parent education and parent marital status (Pesando et al., 2020).

The relationship between household wealth and private ECE participation in Peru is moderated by geographic location. Private ECE in rural areas is accessed primarily by social elites: the “least poor” households attend private ECE at a rate of 30% compared to 1% for the poorest households (Woodhead & Streuli, 2013a). In urban Peru, even public preschools are accessed at greater rates by the middle class than by those near the bottom of the economic ladder. And private preschools are still primarily accessed by the privileged. The wealthiest decile in Turkey is accessing private childcare and preschool at a rate of 60.0%, compared to 16.8% of the poorest decile (Aran et al., 2016). Moreover, there are differences in the structural quality of private schools accessed by the wealthiest and poorest, with school cost significantly related to school characteristics such as accreditation status and pupil-teacher ratio (Aran et al., 2016).

Similar to what has been observed at the primary and secondary school levels of Chile’s education system (Carnoy, 1998; Verger et al., 2016), findings from the ECE level provide evidence of social stratification across school sectors. There are essentially no high-income children accessing public school services and no medium-to-low income children accessing private school services; there are, however, some voucher schools that serve medium-to-low SES children¹⁵ (Strasser & Lissi, 2009). Moreover, large inequalities exist not only in terms of ECE access but also in student cognitive abilities at the beginning of ECE, with significant differences in child emergent literacy knowledge measured at the beginning of their

14 Ghana, India, Peru, Nigeria, Kenya, South Africa, Turkey, Chile, Brazil, Cote d’Ivoire

15 Access to ECE in Cote d’Ivoire looks similar. Public ECE is the primary service provider for the majority of low SES households; private formal providers serve mostly high SES households; and private informal providers (who are the least commonly regulated) cover a more equal distribution of households by SES (Moscoviz & Bélanger, 2019).

kindergarten experience. However, once in school, students appear to learn on similar trajectories, regardless of their school type or background characteristics (Strasser & Lissi, 2009).

Three separate studies in Brazil demonstrate the existent of social inequalities by wealth. Evans & Kosec (2012) find that only 20% of the wealthiest children attend public ECE centers as opposed to 85% of the poorest ECE students. Offering a bit more perspective on the financial constraints that poorer households face, Kosec (2011) demonstrates that the median per-child cost of attendance in a private pre-primary school is 74% of income for those at the poverty line, which is significant, given that in 2000 nearly one-third of Brazilians was living at or below the poverty line. On average, monthly income for households with children enrolled in private ECE are roughly twice as large as those for households with children enrolled in public ECE (Bastos & Straume, 2013).

Affordability of different types of services has been considered in the context of Lagos, Nigeria as well. The average private pre-primary school cost is \$115 per year, or 2.8% of annual income for a household at the poverty line. Private ECE costs are \$81 higher (compared to an unapproved school) for attendance in a school registered and approved with the government, \$20 higher for attendance in a school in process of registration. Private school size and pupil-teacher ratio are also predictive of school cost (for each reduction in one pupil, the cost of attending the school increases by \$1.2). Additionally, there is an increase of \$2.4 for a 10% increase in the share of a school's pre-primary teachers with state certification.

The economic inequalities in access are larger in some locations than others. Bidwell and Watine (2014) find positive correlations between household income and (private) ECE participation in their peri-urban African locations. However, even children from the poorest quintiles seem to be accessing ECE at relatively high rates (Agege, Lagos: 73%; Ashaiman, Accra: 84%; Mukuru, Nairobi: 77%), with the exception of Soweto, Johannesburg (52%). Across these locations, the poorest quintile is participating in ECE at only 12 percentage points below the cross-quintile average – ranging from 7% in Mukuru to 19% in Soweto.

Disability and private ECE

In a handful of studies, researchers report on the accessibility of ECE services by student disability. The study by Kaul et al. (2015) in Andhra Pradesh, India measured whether preschools were “disability friendly.” Out of 298 private and Anganwadi ECE centers, only 7 were “somewhat equipped” in terms of the infrastructure necessary to support children with special needs. The remaining 291 centers lacked even basic physical requirements such as ramps and railings. In Kakamega County, Kenya, neither public nor private schools were found to be providing adequate facilities for children with disabilities (Sitati et al., 2016).

Results from Zambia provide a bit more detail into the school perspective of inclusive education. 16% of private ECE centers reported having at least one student with a disability. Survey responses suggest that some schools purposefully redirect students with disabilities to other ECE centers (i) to keep operational costs down, and (ii) to refer them to schools with better resources for special needs education (Edwards et al., 2019b). In such contexts, there may also be reduced demand from parents, who recognize low-fee private schools as inadequate in their capacity to support special needs students. Finally, in one case – that of Mongolia – private kindergarten teachers self-reported a higher rate of enrollment for students with disabilities (10%) than public kindergarten teachers (Ali et al., 2017).

Geographic and gender disparities

Given the operational dynamics of the growth and sustainability of education markets, it is much more common for private providers to deliver services in densely populated urban locations. Rural locations are significantly less likely to adequately sustain robust private markets. And when they do operate in rural communities, costs are often more prohibitive for those lower on the socioeconomic ladder. As such, the provision of private ECE is harder to come by in more remote locations. Both Tanzania and Ethiopia experience less private provision in their rural locations (Mtahabwa, 2011; Orkin et al., 2012).

Gender is one additional potential indicator of inadequate private ECE access. In Andhra Pradesh, girls are enrolled in government pre-schools at much higher rates than their brothers, and are likewise more likely to leave school early (Streuli et al., 2011). In Madhya Pradesh and Chhattisgarh, again, girls are more likely to be enrolled in government preschools and boys in private preschools (R. Singh & Mukherjee, 2017). As part of the Madrasa Early Childhood Program in Kenya, Uganda, and Zanzibar, the institution of a girl-friendly approach has sought to increase opportunities for both girls and women, providing tracks to leadership for women within the community (women who have completed secondary education are selected and trained as preschool teachers, principals, and are represented on school management committees) (Bartlett, 2004).

3.3.7. Quality, learning, and student outcomes

In addition to questions of equitable access, the research literature is foundationally interested in the quality of both public and private ECE in LMICs – rightfully so, as high-quality educational experiences are the driving forces for achieving the school system’s ultimate goals of producing student learning. To this end, the systematic review addresses several areas important to our understanding of ECE quality. Firstly, this section examines the cognitive and non-cognitive abilities that students bring into their ECE experiences, determining whether important differences exist across public and private sectors. Next

measures of both structural and process quality within school environments will be examined, paying attention to what structural and process factors actually contribute to student learning. Lastly, I consider the extent to which public and private preschools are facilitating positive growth in student outcomes.

Student outcomes at entry into preschool

Given what we know about the typical differences between students accessing public and private ECE (e.g., socioeconomic status), we should likely expect students to begin their ECE experiences with different levels of measured cognitive and non-cognitive abilities. Pesando and colleagues (2020) recently addressed this question using an assessment of children in Ghana upon entry into preschool, asking what household characteristics predict school readiness in both public and private preschool students. The authors find a number of household characteristics and behaviors to be predictive of school readiness, including household resources and parent help on homework. Two significant measures of private school choice included parent involvement and cognitive stimulation (Pesando et al., 2020).

School structural quality

There is a large amount of literature that considers differences in structural quality between public and private preschools. This is understandable, given that the majority of private school regulations are centered around structural school characteristics, and that parents are using these indicators to judge school quality. For these reasons, it is important to determine (i) whether there are differences in structural quality across school sectors, and (ii) whether any structural quality characteristics are related to either process quality or student learning.

Using data collected in the Ga-West municipality in the Greater Accra Region of Ghana, Frimpong (2019) finds mixed results on structural quality across public and private schools. In private preschools, classrooms are more likely than public classrooms to have age-appropriate furniture, learning centers, decorations in the classroom, and proper ventilation. However, public classrooms are more likely to have pictures and drawings attractive to learners, windows and doors, and proper lighting.

Some of the most common indicators of school structural quality include characteristics such as class size or teacher-student ratio and the quality of school facilities/infrastructure. Findings on ECE class sizes or teacher-student ratios are mixed. In two studies, private schools were shown to have higher teacher-student ratios: 1:16 (public) versus 1:25 (private) in Greater Accra, Ghana (Pesando et al., 2020). In Ga-West, Ghana, teachers reported some degree of overcrowding in urban private classrooms (Frimpong, 2019). In other studies, private preschools are operating with more desirable class sizes than public

preschools. In Brazil, Kosec (2011) finds that public ECE centers are operating with 3 more children per teacher than their private competitors. In Mongolia, private kindergarten classes are substantially lower in size (25) than public kindergarten class sizes (42) (Ali et al., 2017). In Zambia, low-fee private ECE centers have similar teacher-student ratios as public centers (Edwards et al., 2019b). Studies comparing the relative quality of school infrastructure all find superior school facilities in private preschools (Evans & Kosec, 2012; Kosec, 2011; Pesando et al., 2020). Private schools may prioritize investments into facilities, as these are easier for parents to use as signals of perceived school quality.

In Ghana, public and private-sector classrooms had similar levels of material resources (Wolf et al., 2018). In Mongolia, public kindergartens are more likely to include students of the correct age (83%), as opposed to private schools, who included a much larger share of younger children enrolled in the same class (Ali et al., 2017).

One final common indicator of school structural quality are the educational and professional qualifications of teachers and school administrators. In only one study did researchers assess the educational qualifications of school headmasters, finding significantly better-qualified head teachers within private preschools (Pesando et al., 2020). With respect to the education completion levels of ECE teachers, results are mixed. In Ghana public preschool teachers are more likely to have higher levels of education than private teachers (Avornyo & Baker, 2018; Pesando et al., 2020). However, in studies from Brazil and India, teachers had higher education qualifications within the private ECE sector (Kaul et al., 2015; Kosec, 2011).

Notwithstanding the mixed evidence on teacher education levels, the cross-country evidence strongly suggests that public school teachers, on average, demonstrate more ECE-specific training than private teachers. According to Gupta (2018), private school teachers in Sri Lanka lack adequate ECE qualifications. In Andhra Pradesh, Assam, and Rajasthan, India, private preschool teachers are among the least likely to have had previous teacher training (Kaul et al., 2015). Public preschool teachers in Ghana are also more likely to be trained in ECD (0.72 versus 0.63) (Pesando et al., 2020). Private ECE teachers in Zambia are more likely to have received their certification from unaccredited private colleges, as opposed to public teachers who are certified through the Zambia Preschools Association (Edwards et al., 2019b). Of private pre-primary teachers in Maputo, Mozambique, over one-third lack any teaching qualification whatsoever (Härmä, 2016b).

Overall, the systematic review finds some mixed results with respect to school structural indicators. There does not appear to be a consistent advantage within either public or private preschools in terms of teacher-student ratio, class size, materials, financial resources, or teacher education levels. Two

consistent findings emerge, however. First, private ECE centers are more likely to have higher quality facilities and infrastructure than public schools. This could be the product of government regulations over private school facilities; however, it is also likely that private schools are explicitly investing in their physical facilities for the purposes of signaling a higher quality schooling experience to potential consumers. The second consistent finding is that adequate teacher training (particularly training in ECE-specific curricula and instructional practices) is low within the private sector, and significantly below the typical training of public ECE teachers. Of all of these structural school characteristics, ECE training for teachers is the likeliest to have implications for student learning, given prior research demonstrating the value of high-quality instruction for facilitating student learning and development.

School process quality

Prior research demonstrates that a school's performance on measures of process quality is far more important to student success than its performance on structural quality measures (Moscoviz & Bélanger, 2019). This section addresses findings relevant to the process quality of both public and private preschool in the included studies. One concern around school process quality from prior research highlights a "motivation crisis" for teachers in low-income countries (Bennell & Akyeampong, 2007; Moon, 2007). Informed by concerns over teacher effort and professionalization, recent studies have considered the differential distribution of teacher absenteeism in public and private school sectors (Duflo et al., 2012; Martin & Pimhidzai, 2013). Only one study (Pesando et al., 2020 in Ghana) explicitly measured teacher absences and found that although public preschools are more likely to formally monitor teacher absences, teacher absenteeism was higher in public ECE centers (0.96 days per month) than private (0.52 days per month). Although not measured directly, parents in Andhra Pradesh have cited teacher absenteeism as one reason for selecting ECE options outside of the public anganwadi centers (Streuli et al., 2011).

Of greatest interest to the discussion on school process quality is the consideration of curriculum, pedagogy, and overall teaching practices as they occur within actual ECE classrooms. As introduced in the section on parental perceptions of school quality, above, it is not uncommon for preschool instruction in LMICs to follow a traditional, teacher-focused, didactic academic instruction model. However, research suggests that high-quality ECE programs are much more likely to be using a more child-centric, play-based, self-driven approach to academic inquiry and development. As such, this systematic review is particularly interested in observed approaches to more high-quality instruction within both public and private preschool classrooms.

Data from Bidwell & Watine's (2014) observations of private preschool classrooms indicate that class time is focused largely on literacy and numeracy instruction (Accra and Nairobi), looking similar in nature to the type of traditional instruction seen in primary school classrooms. In the same locations, classrooms are organized in a traditional manner, with desks facing the front of the classroom and the majority of time spent listening to the teacher's instruction, repeating, or writing. However, these findings are not uniform across all countries of Bidwell & Watine's (2014) study. In Soweto, Johannesburg children spend more time sitting and working in small groups.

In Mongolia, public kindergartens score higher on a measure of classroom quality than private kindergartens. Public KGs score higher than private on four of five quality domains (program structure, activities, literacy, math; differences were generally small, ranging from 0.013 points in program structure to 0.25 in activities), while private schools outperform public on interactions (0.11 points higher).

Using both OLS and hierarchical linear modeling (HLM), Strasser & Lissi (2009) find similar instructional practices across public, private, and voucher kindergarten classrooms in Santiago, Chile, notwithstanding that these schools serve distinctively different populations of students (at least in terms of household socioeconomic status). Across all school types, class time is dominated by whole-class instruction, with little small-group or individual instruction taking place. The study also finds that, although students enter kindergarten with large inequalities in knowledge of certain subjects (e.g., emergent literacy), the trajectory of student learning growth is similar across school sectors and regardless of child background.

In Pesando et al. (2020), results from observations of Ghanaian preschool classrooms demonstrate that public preschool instruction is more effective than private in including the following practices: praising children for positive behaviors, stimulating classroom interactions, promoting cooperative learning, and using specific tools to facilitate learning. In an RCT of a teacher training and parent engagement program administered in both public ($n = 108$) and private kindergartens ($n = 132$) in Ghana, Wolf and colleagues (2018) found no difference across sectors on measures of facilitating deeper learning or supporting student expression. Public schools performed significantly poorer than private schools on emotional support and behavior management, with a difference of 0.35 SD.

McCoy & Wolf (2018) demonstrate the importance of school process quality for facilitating positive students outcomes. Using data from over 3,400 students across both public and private kindergartens in the Greater Accra Region of Ghana. The authors find that "improvements in domains of classroom instructional quality are related to small, positive gains in children's early academic and social-emotional

outcomes.” Positive changes to teachers’ use of high-quality instructional practices are significantly related to gains in both cognitive outcomes and socioemotional skills of students.

As one additional indicator of process quality within preschools, I include findings on language of instruction. Given that instruction in one’s mother tongue – particular when children are younger -has been linked to positive student learning outcomes in the research literature (Hakuta et al., 2000; Taylor & von Fintel, 2016), native language instruction should be considered an important measure of the quality of education provided. In private preschools, it is much more common for English to be used as the primary language of instruction than in public preschools (Kelly Bidwell & Watine, 2014; Wolf et al., 2018)

Student learning - do private schools produce more learning growth?

This section addresses evidence surrounding changes in student outcomes in both public and private preschools. Important to consider here is that a majority of studies apply simple observational methods when comparing changes in public and private student learning. That is, few studies are adequately positioned to account for the selection bias which causes differences in the types of students enrolled in public and private preschools. Attention will be paid to the methodological design of these studies for determining whether to attribute observed differences to schools versus household/student characteristics.

An early RCT of public and private ECE delivery India was one of the first to show the deficiencies of traditional academic math instruction, labelling such approaches as developmentally inappropriate for ECE-age children (Kaul et al., 1991). The study also found high quality (and developmentally appropriate) instruction to be more critical for child learning than school sector.

Mwaura et al. (2008) estimate differences in cognitive test score gains between public and non-state preschool students (as well as children not enrolled preschool) in Kenya, Uganda, and Zanzibar, controlling for a small number of student characteristics (child age and gender, parent education and occupation) in an OLS regression framework. The non-state preschool students were all participants in the Madrasa Resource Centre (MRC), a faith-based early childhood education program operating in all three countries. MRC supports over 200 community preschools in East Africa (66 in Kenya, 53 in Uganda and 84 in Zanzibar). Preschool attendance in both MRC and government pre-schools is significantly related to higher student growth in combined cognitive performance. Public preschool students experienced .204 SD ($p < .05$) greater growth in cognitive performance over 18 months than children not enrolled in ECE. MRC children experienced more than twice the growth in cognitive performance compared to public students: .446 SD ($p < .05$) higher than children not enrolled in ECE. Across a set of 7 subscales, public students

performed between .04 and .27 standard deviations higher than those not enrolled in preschool. While MRC students performed between .24 and .43 standard deviations higher than unenrolled students. Results, however, should be taken with caution, given that within this OLS approach, differences between MRC students and public students may be driven in part by unaccounted for unobserved characteristics.

Singh (2014) applied a similar approach, comparing outcomes of public and private students within the *Young Lives* India data, controlling for potential student-level confounders (household size, parent education, age, female-headed household, first born) through OLS. Singh finds that students enrolled in private preschools (.53 SD, $p < .01$; .43 SD, $p < .01$) score significantly higher on cognitive outcomes than those in public preschools (.28 SD, $p < .01$; .16 SD, not sig), as compared to those not enrolled in any preschool school (reference group). Differences between public and private preschools are statistically significant ($p < .01$ in all cases). Again, results should be taken cautiously in light of the OLS regression approach; additionally, outcomes are measured at only one point in time rather than offering a measure of learning growth (as such, these results could perhaps be interpreted as estimates of the selection bias between students in public, private, and those not enrolled in any preschool).

In the Greater Accra Regions of Ghana, children in private ECE centers perform higher than those in public ECE centers, after controlling for classroom quality (facilitate deeper learning, support student expression, emotional support and behavior management, curriculum checklist), changes in quality, child gender, age, caregiver age, caregiver marital status, poverty scorecard, and geographic district: literacy = .31 SD; numeracy = .13 SD; prosocial (not significant); executive function = .23 SD; and approaches to learning = .18 SD (McCoy & Wolf, 2018). Even more than in the case of the Singh (2014) *Young Lives* study, significant coefficients may actually be representing the selection bias between public and private school students, as the statistical models include controls for a few observed child/household characteristics, as well as variables holding constant the quality (and changes in quality) of the classroom practices and environment. As such, the coefficients for private sector represent differences in outcomes given equal levels of quality in public and private classrooms. The primary (and I believe most valuable) contribution of this study is the evidence it offers that improvements in a school's process quality (through use of manipulatives, attention signals, and songs, as well as facilitation of deeper learning) can lead to significant growth in student learning outcomes and socioemotional skills.

Pesando and colleagues (2020) apply one of the more rigorous designs – a two-stage least squares approach, instrumenting for school distance as a means to account for the endogeneity introduced by household school choice decisions – to estimate the effects of public and private ECE on student learning

in “six of the nine most disadvantaged districts in the Greater Accra Region” (p. 112). Results find significantly higher one-year growth in private preschool students (compared to public) in one of four measured outcomes (early literacy), with the remaining three (early numeracy, socioemotional development, or executive function) showing no significant difference. The private sector advantage was .36 standard deviations in early literacy growth.

3.3.8. Teachers

Teachers, of course, represent one of the most critical elements in the delivery of a high-quality ECE experience. Prior research suggests that improvements to teacher training, monitoring, and coaching can be effective at increasing instructional practice (Ganimian & Murnane, 2016). Improvements in preschool provision in any school sector will require that teachers are actively trained, supported, compensated, and treated as professionals. This section discusses the available evidence in these key areas.

Teacher training is possibly one of the areas of greatest need for improvement within the ECE systems of LMICs. In Mozambique, the most common form of in-service teacher training reported by private schools is guidance to teachers from the school head teacher or another experienced member of the staff. In some instances, private teachers are able to participate in external training workshops (Härmä, 2016b). However, 13% of private schools reported that they provide no training whatsoever for their preprimary teachers. In Ghana, some private school proprietors have voiced a desire for the government to expand opportunities for teachers in non-state schools to receive further training and professional development (Abdul-Hamid et al., 2015)

Wolf, Aber, Behrman, & Tsinigo (2019) provide an important assessment of an ECE teacher training program in Ghana and its impact on classroom, teacher, and student outcomes in both public and private schools. This cluster randomized trial included two treatment arms – (i) a teacher training (TT) program, (ii) a teacher training plus parental-awareness (TTPA) program, (iii) and a control group. The teacher training had positive impacts on teacher professional well-being, significantly reducing teacher burnout (in both TT and TTPA conditions) and teacher turnover (in the TT condition) (by 29.6%). The study also found a moderating effect of school sector in the relationships between program participation and well-being outcomes. Specifically, the impact of the training programs on reducing teacher burnout was larger in private schools (from 40.7% to 22.3% in the TT condition and to 26.8% in the TTPA condition). These results could possibly be explained by the fact that private school teachers are often less trained and thus less capable of thriving within the profession. It is reasonable to think that increased opportunities for training for these individuals would create a greater commitment to their work, in addition to greater

capacity to delivery quality instruction. These results have implications for additional student outcomes. Findings from Moscoviz and Bélanger (2019) provide evidence that increases of teacher professional well-being are linked to growth in student literacy and numeracy.

In terms of student outcomes, the Wolf, Aber, Behrman, & Tsinigo (2019) study found positive links between the TT intervention and teacher support of student expression in the classroom. Both interventions increased teacher emotional support and behavior management of students in the classroom. Neither treatment had a significant effect on facilitating deeper learning. Lastly, the teacher training intervention increased children's school readiness (early numeracy, early literacy, and social-emotional skills).

Teacher compensation

In the literature on low-fee private schools in LMICs, recent discussions have brought attention to the compensation of teachers within the private sector, and potential implications for the manpower needs of the sector. In this section, I address available data on teacher compensation and the relevance of conclusions for private ECE policy.

In Ghana, private sector ECE teachers experience lower levels of compensation and job security than the civil servant teachers working in the country's public ECE centers (Wolf, Aber, Behrman, & Peele, 2019). Private ECE teachers face some precariousness in the reception of their paychecks in regular intervals. According to Sitati et al.'s (2016) Kenya findings, private school teacher paychecks are sometimes tied directly to child tuition payments. Thus, if an inordinate number of tuition accounts go unpaid, a teacher may be at risk of not being paid for the work they completed. Such conditions may contribute to the teacher burnout and turnover discussed in the previous section. In the Zambian context, private ECE teachers (\$93-\$176 per month) earn only a third as much as teachers within public preschools (\$280-\$415 per month).

3.4. Implications for policy, practice, and future research

This systematic review provides the first comprehensive look at the existing evidence on private ECE in LMICs. Learning from the experience of various countries in their provision, finance, and regulation of private ECE, I provide a number of suggestions for states to consider for better capitalizing on the contributions of the private sector for the maximization of public welfare.

The growth of private ECE across many LMICs has been clearly evidenced using within- and cross-country data. Similar trends are observed in several countries covered by this systematic review. Importantly, provision is not isolated to for-profit ECE providers, but rather spread across non-government, faith-based, and for-profit organization. There is strong evidence that in many locations, non-state schooling is growing in response to excess demand in the ECE schooling system – that is, in contexts where governments provide limited public ECE services. In other contexts, growth in private provision is driven more by differentiated demand, with parents selecting private ECE opportunities not due to a lack of public services, but motivated by what they perceive to be a higher quality educational experience, or perhaps simply one better aligned to their preferences (such as religiously-based or English-medium curricula). Households respond to supply-side provision from both public and private sectors.

It is evident that early childhood education systems will require greater resources if countries are to meet their SDG commitments around ECE provision. As markets for private ECE services continue to grow (particularly in locations where public options are limited or absent), governments may experience less pressure to cover the cost of service provision, particularly in localities of high wealth. As such, as efforts to increase the availability of funding for pre-primary education continue, it is critical that priority be maintained on allocating funds to the poorest local governments and to poor households/individuals living in wealthy local governments. This includes the importance for governments to maintain free public provision of ECE, even amidst strong growth of private services.

Public-private partnerships are being used by governments in several countries as one form of investment into early childhood. Funding for the operation of both public and private institutions are investments that the state can make into increasing the availability of ECCE services. Evidence suggests that the spending of funds in both public and private sectors should be carried out with at-risk communities and students in mind, as a means to maximize the contributions of both public and private sectors.

Regulation of the private ECE sector is focused largely on controlling school inputs (i.e., structural school quality). Government regulation of the sector needs to be paired with adequate oversight and quality assurance of private schools' curricula and pedagogies, as well as support for teacher training in both public and private sectors. More attention to process quality is needed. Governments would also be wise to consider policies such as India's Right the Education Act, which has helped to expand access for poorer segments of society by requiring private schools to reserve places within their schools. Additionally, regulations for private schools should include requirements for the physical resources and materials necessary to support students with disabilities. These students should be free to select any school and not

be restricted because of the school's inability to meet their needs. On the whole, it is recommended that governments consider adapting policies that more adequately address the dual needs of increasing process quality as well as access to private ECE centers within their jurisdictions.

Parents often make judgements about public and private schools using tenuous signals of school quality (quality of infrastructure, English instruction, academic instructional practices). Some of these may actually be perpetuating the delivery of a low-quality educational experience, as this is what parents demand. There could be great value in designing some national information campaigns to increase public knowledge about what a quality ECE experience looks like. If parents can learn that higher-quality ECE instruction is likely to be child-centered, self-driven, play-based, and in the child's native language, they will be more likely to demand such high quality services, as opposed to maintaining demand for the status quo defined by inadequate instructional approaches.

On a majority of structural variables, the public versus private preschool advantage appears to vary by country. Private preschools are more likely to have higher quality infrastructure. Public schools are more likely have teachers with ECE-specific training, but also face challenges related to teacher absenteeism. Analysis of process quality indicators suggest that public schools have a slight advantage in delivering high-quality curriculum and pedagogy, and being more likely to do so in a student's native language. Students enter the ECE system already experiencing inequalities in (non-)cognitive performance – much of this is driven by differences in household characteristics, including motivation, wealth, cultural capital, etc. Overall, quality of instruction appears to be more important for producing student learning gains than school sector. Key recommendations for policy and practice would focus on programs that seek to provide more support to both public and private preschools, particularly in the areas of teacher training and continued professional development.

4.0. ANALYSIS OF PRIVATE ECE PARTICIPATION IN LMICS

The second key analytical output of this research project involves the analysis of national household surveys as a means of better understanding the determinants of private vs. public ECE participation across demographic groups in LMICs. This effort seeks to provide new insights into the types of individuals accessing private ECE services, the costs of private vs. public ECE attendance, and other information to help us better understand the behavior of private ECE markets. To these ends, this section is guided by the following research questions:

Enrollment and provision

- What percentage of children are enrolled in preprimary school?
- What is the share of enrollment across provider types?
 - How does this vary by child age?

Access

- What are the determinants of private (vs. public) preschool enrollment?
 - Are private preprimary schools less accessible to vulnerable population (e.g., girls, low income, rural, ethnic or religious minorities, or children with disabilities)?
- Is accessibility to private ECE different than general ECE accessibility?

Affordability

- What is the household cost of attending a public or private preprimary school?
- What percentage of income do households allocate to school related expenses?

4.1. Background

The analysis in this section builds upon existing research on access to early childhood education, including constraints for particular sociodemographic groups. Prior studies have found that (similar to trends at the primary and secondary school levels) certain groups of children are less likely to be accessing early childhood education opportunities. Some of the more common risk factors for low-ECE-participation include geographic location, gender, wealth, and disability. Data from prior Global Monitoring Reports show that children in urban centers are up to twice as likely to be participating in formal pre-schooling programs as compared to children in rural locations (UNESCO, 2011). The ECE participation gap between the poorest and wealthiest children is similar in size (Manji & Arnold, 2015). Income is a consistent and particularly restrictive barrier to accessing ECE opportunities (Woodhead et al., 2009). Delprato et al. (2016) produced a rigorous analysis, analyzing factors that influence pre-school access in 21 LMICs; the authors found that low socioeconomic as well as poor health factors were significant barriers restricting

pre-school enrollment. While some of these constraints have been shown to affect child participation in ECE in general, there has been less attention to the specific determinants of private ECE participation. The analysis presented in this section contributes new evidence to this discussion.

4.2. Methodology

In order to gain a better understanding of trends in private ECE participation across LMICs, I draw upon two sources of data: nationally-representative household surveys through the World Bank's Living Standards Measurement Study (LSMS) and country census microdata through the Integrated Public Use Microdata Series (IPUMS). The LSMS project has conducted nationally representative surveys of households in dozens of countries since 1980, with the objective of producing data on household behavior and well-being to assess individual welfare and influence social and economic policy making in developing countries (Grosh & Glewwe, 1998). The LSMS database includes raw data from over 120 separate country projects. The IPUMS program makes available data across 82 countries, publishing individual-level microdata collected across 277 different historical and contemporary census projects around the world. Other potential sources of data that were explored for this analysis included (i) UNICEF's Multiple Indicator Cluster Survey (MICS) program, (ii) the Demographic and Health Surveys (DHS) project, and the Young Lives initiative.

The primary criterion for identifying datasets to include in this analysis was the presence of variables capable of answering the research questions above. This required that each dataset include, at a minimum, the following measures: a list of household members (specifically, children of ECE-age¹⁶)

the age of all children in the household; the school enrollment status of each ECE-age child in the household (enrolled or unenrolled); and the type of school attended by the child (public, private, faith-based, community, etc.). These variables served as the minimum requirements for any dataset to justify inclusion in the study. With these variables alone, I can answer the questions concerned with enrollment and provision. Beyond these variables nearly every dataset included additional measures of individual- and household-level characteristics (e.g., household consumption expenditure, parent education, urban vs. rural location, gender, ethnic/racial status, language status, disability, etc.) to support the investigation of the determinants of ECE participation (both general and in the non-state sector). The availability of these variables varied from country to country; but, each provided multiple potential predictors of school

¹⁶ ECE-age is operationalized to include children from age 0 up until the age that children begin primary school. This primary-start-age varies from country to country, and is identified using UIS data on official primary and pre-primary entrance ages.

enrollment. Lastly, where available, some datasets included variables measuring annual household expenditures on education for each child, allowing for the comparison of public and private ECE cost.

The biggest challenge in locating viable datasets proved to be the variable identifying the sector of the child's pre-school (i.e., public versus private). Wherein most of these sources of data consistently contained variables related to child school enrollment (although, in some instances, distinctions between ECE and primary schooling are not made), data on the type of institution providing those school services was much harder to come by. In some cases, school sector is specified for children's primary schools but not pre-primary schools. Across each of these potential sources of data—LSMS, IPUMS, DHS, MICS, and Young Lives—I searched program databases to identify instances where questionnaires captured all of the required variables.

These searches produced a set of 26 datasets that included the identified variables from the LSMS, IPUMS, DHS, and Young Lives programs (had the analysis been focused on the primary school level, the MICS data would have included all of the necessary variables; however, these surveys do not differentiate between school provider types at the pre-primary school level). A few additional inclusion criteria were applied to the 26 datasets located during the initial search process. First, I limited the analysis to English-language datasets, thus leaving out 3 French and 1 Spanish-language dataset in the cases of Mali, Niger, Burkina Faso, and Panama (all LSMS datasets). Lastly, I restricted the final set of datasets by the year that data were collected, removing those more than ten years old to avoid presenting results that would be less relevant for current policy considerations.¹⁷ This criterion eliminated any data collection through the DHS and Young Lives programs, as the public/private ECE data from these initiatives (in Egypt, Ethiopia, Peru, India, and Vietnam) were collected prior to 2010. Ultimately, this search process produced a set of 9 country datasets collected between the years 2010 and 2020 with data on public/private ECE participation and a set of related household and individual characteristics.¹⁸

Sampling

The LSMS program typically applies a multi-stage stratified cluster sampling design. Commonly, pre-defined strata (e.g., urban/rural location, state, or other geographic boundaries) constitute categories within which sampling takes place. For instance, in the case of Malawi's 2016-2017 sampling approach,

¹⁷ An argument might be made against the relevance of data ten years old; however, I have elected to retain these older datasets to avoid the sample size for this analysis becoming too small.

¹⁸ The included countries include: Uganda (2018-2019), Nigeria (2018-2019), Malawi (2016-2017), Ethiopia (2015-2016), Tanzania (2014-2015), Albania (2012), South Africa (2011), Ecuador (2010), and Ghana (2010).

sampling strata included geographic districts and urban/rural location. Within each of these strata, smaller geographic enumeration areas (EAs) serve as the primary sampling units within a cluster-randomized sampling process, with households subsequently selected at random from each cluster. The result of this multi-stage design is a sample that should be representative of the population at national, urban/rural, regional, and district-levels. However, the complex nature of this sampling design (particularly in the application of random selection through methods other than simple random sampling) necessitates that statistical analyses accurately account for the study's selection strata, primary sampling units, and probability weights. The sampling approach utilized within the IPUMS census initiatives apply similar techniques of stratification, clustering, and probability weighting. I use a similar complex sampling analytical approach to account for this sampling design.

LSMS data collected from households include information on topics such as basic demographic characteristics, education, health, housing, food and non-food consumption and expenditures, labor and employment, social safety nets, and agriculture, among others. The data used for this study come primarily from the household roster, education, and consumption/income questionnaires. Education questionnaires include items regarding the education experiences (including current enrollments) of members of the household; as part of this, a majority of countries' surveys ask whether any household members are enrolled in early childhood or pre-primary education levels. In these instances, the data allow for the exploration of the predictors of public and private ECE participation. Unfortunately, the definitions of ECE and/or pre-primary schooling are not always consistent across countries; even so, the data available from these countries provides useful information on how households are engaging with state and non-state ECE providers. Data from the LSMS program, copies of study questionnaires, sampling and data collection methodologies, and other information about the program are publicly accessible through the World Bank's [microdata library](#). A few examples of the key questions from the LSMS and IPUMS questionnaires are included in appendix 8.8.

Analysis

As outlined above, the research questions driving the analysis within this section were organized in line with three broad themes: (i) enrollment and provision, (ii) access, and (iii) affordability. To answer the questions within each of these themes, I applied three different analytical procedures. The first involved descriptive analysis (using enrollment rates, standard deviations, and bar graphs) of the status of ECE-age students against three possible conditions: enrolled in ECE (public and private), enrolled in primary school (public and private), or not enrolled in any formal schooling program. Following this descriptive analysis,

similar procedures were applied to analyze the rate of participation by enrolled ECE students across all reported school providers (including, but not limited to, public, private independent, faith-based, NGO, and community schools), and finally broadly categorized in binary terms (public vs. non-state enrollment). Unfortunately, the included datasets do not provide information to distinguish between students in different types of ECD programs (e.g., childcare, nursery, and early childhood education versus preschool programs). Where questionnaires include questions on developmental and educational experiences prior to primary school, they are grouped into a single ECE/preschool/pre-primary bucket. I try to draw some distinctions between children of different developmental levels by disaggregating results according to child age. However, this approach is often limited as well, given that most questionnaires restrict data collection to children either 3 and above or 5 and above. On the other side of the age range, I include analyses that capture students past the age of primary school entry, to account for over-age students who may still be participating in ECE.

To answer the research questions related to school access, I apply two sets of logistic regressions; the aim is to identify predictors of (i) private ECE enrollment, and then (ii) ECE enrollment in general terms (inclusive of both public and private participation). Lastly where data is available,¹⁹ I apply descriptive analysis to assess the cost and affordability of attending a private preschool.

4.3. Findings

Enrollment and provision

Analysis on student participation in ECE finds that, across the nine countries in the sample, on average, 62% of children in the year prior to the official primary entrance age are enrolled in some type of formal learning program. Of course, this means that 38% of children are not enrolled in school in the year prior to primary 1. The range of enrollment rates includes a low of 24% in Malawi and a high of 92% in South Africa. However, it is important to point out that some of these enrollment figures include ECE-age children who are enrolled early in primary school. In the case of South Africa, children are meant to begin primary school at the age of 7; however, 89% of six-year-olds are enrolled in primary school (82.6% in public and 6.4% in private primary schools). The situation with the South Africa IPUMS data poses a particular problem in this regard, due to the way responses were coded in the questionnaire. If a child is enrolled in a pre-primary class that is attached to a public primary school, the enumerator is instructed to

¹⁹ There are only four country datasets—Ethiopia, Ghana, Tanzania, and Malawi—that include all necessary data on total household annual expenditures and ECE attendance costs to allow for the analyses of private ECE affordability.

record this under primary school enrollment. As such, the rate of early child participation in public primary school may be overestimated in the data. This peculiarity notwithstanding, there are a number of other countries who also experience high rates of early enrollment in primary school (and in these instance, the phenomenon is not driven by an artificial characteristic of the data collection process). In Ecuador, 39.3% of children in their last year of preschool age are already enrolled in primary school. These numbers are 29.2% for Nigeria, 27.7% for Ethiopia, 21.8% for Malawi, 20.6% for Tanzania, 20.4% for Ghana, and 11.6% for Uganda.

On the other side of the age spectrum, there are a few instances of high participation of over-age children in ECE (measured by children of primary-school age still enrolled in ECE)—for example, 48.8% in Uganda and 46.6% in Ghana. The over-age ECE rates are much lower in the remainder of the countries: 18.4% in Tanzania, 14.3% in Nigeria, 9.9% in Ecuador, 5.4% in South Africa, 3.8% in Ethiopia, and 0.7% in Malawi.²⁰ Figures and tables with the exact data from each country can be found in appendix 8.7.

Turning to the types of preschools in which children are enrolled in these countries, we see a wide range of public and private sector participation. Albania marks the lowest non-state ECE participation at 17%, and Uganda the highest at 84.6%. Other large non-state ECE sectors include Nigeria (75.6%) and Malawi (64.1%). In the remaining countries, the majority of ECE enrollments are provided by the public sector (Figure 4.3.1).

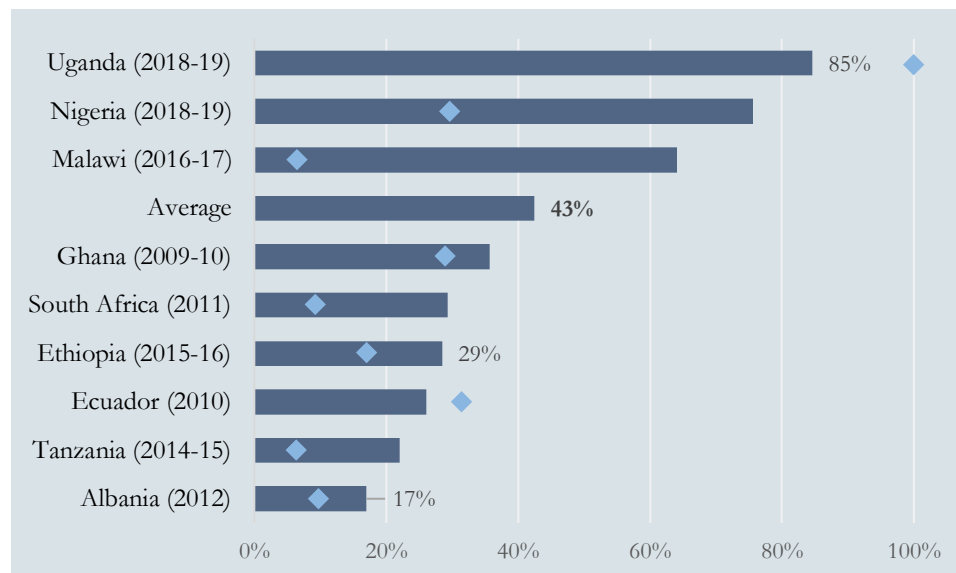
For six of the nine countries under consideration, the data collection surveys distinguished between different types of non-state providers. Across these countries, private independent schools account for the large majority of non-state enrollments. However, in a few cases there are other notable ECE providers, including faith-based, NGO, and community schools. Faith-based preschools account for 11.4% of ECE enrollments in Tanzania, 6.5% in Uganda, 5.9% in Ghana, 3.2% in Nigeria, and 1.7% in Ethiopia. NGOs are enrolling 1.3% of students in Uganda. Community schools account for small shares of enrollments in Tanzania and Ecuador (see appendix 8.7 for specific data).

Lastly, this section explores the relationship between measures of ECE participation (including non-state participation) taken from the household level, and those reported within government administrative data. Drawing from prior research on schooling markets at the primary school level in the Global South (Baum, Cooper, et al., 2018), this study hypothesizes that the presence of unrecognized/unregistered private

²⁰ All of the data for Malawi should be considered with some caution. The sample of ECE children from the country is low, and likely only includes those in pre-school programs attached to primary schools.

schools within education markets may cause discrepancies between household reporting of private ECE participation compared to what is recorded within government administrative data. More specifically, if unregistered private schools make up a non-trivial share of the market for ECE services, then government records of private enrollment (which are typically measured from the records of registered private schools) will underestimate participation in the non-state sector. I investigate this by comparing the data obtained from these household surveys with that from government records. 7 of 9 countries report higher shares of non-state enrollment in their household data compared to what is provided by national administrative data.²¹ Taking the median across all countries, government administrative data underestimates private ECE participation by 10%. This difference is significant at the $\alpha = .10$ significance level ($p = .065$; $t = -2.13$), which could be considered acceptable, given the extremely small sample size in this case ($n = 9$). While not conclusive, these results suggest a potential influence of an unregistered preschool market on official enrollment statistics. This would certainly be an important area for future research.

Figure 4.3.1. Share of ECE enrollments in non-state institutions, household data (■) and administrative data (◆)



²¹ The administrative data for Nigeria are the only instance where data do not come from the same academic year. In fact, the most recent available administrative data on non-state ECE enrollment in Nigeria come from the 2010-2011 academic year—8 years prior to the household data collection in the LSMS project. As such, this difference in administrative and household data should be interpreted with some caution.

Access

I next turn to investigating the determinants of enrollment in ECE generally and in private ECE more specifically. One of the primary considerations within this effort is to understand whether private preprimary schools are less accessible to vulnerable populations (e.g., girls, low income, rural, ethnic or religious minorities, or children with disabilities), and thus in need of greater government regulatory and supportive action. I am also interested to know whether there are substantial differences in the predictors of private ECE participation and participation in any type of ECE (regardless of sector). Results for individual countries are provided in detail in appendix 8.7.

To identify important predictors of ECE participation I look for patterns in the results of the logistic regression models across countries. Figure 4.3.2 provides the results of a vote-counting exercise, which tallies the total number of negative significant, non-significant, and positive significant variables across the set of 9 country regressions. However, it should be noted that only three variables—female, household size, and rural— were present in each of the nine statistical models. Six of the regression models include variables related to household consumption expenditure. Other variables such as mother and father education (2), ethnic minority (4 coefficients from 2 models), physical and cognitive disability (1), and religious and language minority (1) occur at different rates across countries.

First addressing enrollment in private ECE, I find only one instance of any differences by child sex, where female students in Malawi have greater odds of being enrolled in a private preschool than male students. Apart from Malawi, boys and girls consistently demonstrate equal likelihood of being enrolled in a private preschool. For predicting non-state ECE enrollment there are a few consistent findings. In 5 of 9 statistical tests, living in a rural location is associated with a significantly lower likelihood of attending a private pre-primary school. In three instances, this effect is not significant. In Ethiopia, children living in rural areas have odds of attending private ECE 3.9 times higher than children living in urban areas. Most commonly, however, living in a rural location makes an individual less likely to attend a non-state preschool. Children in the wealthiest two quintiles are attending private preschools at significantly higher rates than the poorest quintile of children in 4 out of 6 countries. In all 4 instances (South Africa and Ecuador) where ethnic minority dummy variables are included, they indicate lower odds of private ECE participation compared to their non-minority counterparts.

Only in two countries (Ecuador and South Africa) did the data provide information about student physical and cognitive disabilities. In Ecuador, students with cognitive disabilities have lower odds of attending a private preschool. The other three disability coefficients were not statistically significant

in their models. Lastly, of interest is the fact that the effect of household size varies across countries. In one-third of instances household size is positively associated with private ECE attendance. In another third of countries household size and private ECE are negatively associated. In the remaining three countries there is no effect of household size.

Figure 4.3.2. Predictors of private ECE enrollment

	Negative significant	Non-significant	Positive significant	Total coefficients
Female	0	8	1	9
Wealth quintile 2	1	5	0	6
Wealth quintile 3	1	4	1	6
Wealth quintile 4	0	2	4	6
Wealthiest quintile	0	2	4	6
Household size	3	3	3	9
Rural	5	3	1	9
Religious minority	0	1	0	1
Language minority	0	0	1	1
Ethnic minority	4	0	0	4
Physical disability	0	2	0	2
Cognitive disability	1	1	0	2
Mother education	0	1	1	2
Father education	0	2	0	2

Analysis of ECE participation more generally reveals a few similar patterns. For instance, girls are, for the most part, equally likely to be attending preschool as boys. In Albania, girls are participating at a higher rate while in Tanzania boys are enrolled at a higher rate. The three wealthiest quintiles are likelier to participate in ECE than the poorest quintile in 2 out of 6 countries. However, the size of the advantage for the wealthiest quintile is substantially larger when it is significant. The effect of household size is slightly less balanced than in the previous analyses. In 5 out of 9 countries household size is not associated with ECE enrollment. Where household size is related to ECE enrollment, children from larger households tend to be less likely to be enrolled in preschool.

Rural location is also less consistent than it was when predicting private ECE participation. In 4 of 9 tests, rural is non-significant. In 3 of the 9 countries, children in rural locations are less likely to be enrolled in ECE. In 2 countries, rural students participate at higher rates than their urban counterparts. Lastly, the effect of minority status is also split between 2 positive and 2 negative coefficients.

Figure 4.3.3. Predictors of any ECE enrollment

	Negative significant	Non-significant	Positive significant	Total coefficients
Female	1	7	1	9
Wealth quintile 2	0	6	0	6
Wealth quintile 3	0	4	2	6
Wealth quintile 4	0	4	2	6
Wealthiest quintile	0	4	2	6
Household size	3	5	1	9
Rural	3	4	2	9
Religious minority	0	1	0	1
Language minority	1	0	0	1
Ethnic minority	2	0	2	4
Physical disability	0	1	0	1
Cognitive disability	0	1	0	1
Mother education	0	2	0	2
Father education	0	2	0	2

Affordability

As discussed above, full ECE cost and household expenditure data were only available in four countries—Ethiopia, Ghana, Tanzania, and Malawi. Private ECE appears to be the most affordable Malawi²² and Tanzania. In Tanzania, households sending their children to public ECE are allocating 0.8% of their annual consumption to do so. Households sending their children to private ECE are allocating 1.9% of their consumption expenditure to do so. The average cost of public ECE is roughly 1.7% the annual expenditure of household in the poorest quintile, 0.4% of the wealthiest quintile. The average cost of private ECE is roughly 5.9% the annual consumption of the poorest quintile, 1.5% of the wealthiest quintile. 4.0% for the second poorest quintile. This could possibly be challenging to afford for households in these two quintiles.

Private ECE cost is similar in Malawi. In Malawi, households sending their children to public ECE are allocating 0.5% of their annual expenditure to do so. Households sending their children to private ECE are allocating 1.2% of their annual expenditure to do so. The average cost of public ECE is roughly 0.7% the annual expenditure of a household in the poorest quintile, 0.1% for a household in the wealthiest quintile.

²² Although the data from Malawi may not be fully representative.

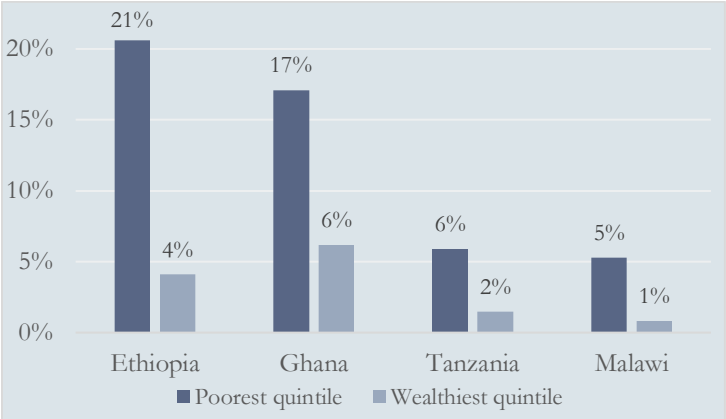
The average cost of private ECE is roughly 5.3% the annual consumption of the poorest quintile, 0.8% of the wealthiest quintile, 2.3% for the second poorest quintile.

The data presented from these two countries seems to offer indicative evidence that there are some relatively low-fee private preschools operating within these countries. This also may help to explain the high share of enrollments in private ECE within Malawi.

The case for private ECE affordability looks very different in the cases of Ethiopia and Ghana. In Ethiopia, public ECE is highly affordable. Households are only using .6% of their annual consumption to send their child to a public preschool. On the other hand, private ECE is much less affordable. Households are using, on average, 4.9% of their annual consumption to send their child to a private preschool. Private ECE is particularly unaffordable for the poorest 20% of the population, costing roughly 20.6% of their annual consumption for one child to attend. These numbers are 10% and 9% for the next two quintiles, and only 4% for the wealthiest quintile.

Ghana is also located on the higher end of the cost spectrum for private ECE attendance. On average, households sending their children to private ECE allocate 9.4% of their annual expenditure to do so. The cost of *public* school is the highest of any of the four countries (5.1%). For a household in the poorest quintile to send their child to public ECE would require allocating 7.2% of their annual expenditure (2.6% for the wealthiest). For a household in the wealthiest quintile to send their child to private ECE would require allocating 17.1% of their annual expenditure (6.2% for the wealthiest).

Figure 4.3.4. Average private ECE cost as share of average household expenditure



4.4. Discussion

The findings in this section have provided insights into some of the national-level private ECE contexts across multiple countries. The data from these household surveys provide further evidence of the fact that the non-state sector is an active participant in the provision of education services at ECE levels. On average across these countries over 42% of all children enrolled in ECE are in non-state institutions. This non-state sector is comprised primarily private independent schools, with other providers (churches, NGOs, and communities) filling smaller roles in certain contexts.

Some of the trends that we've seen (from prior research) around equitable access to a quality ECE experience seem to also be found when understanding access to non-state ECE opportunities. Disadvantages seem to exist across lines of geography (specifically, rural location), wealth, and race. However, there does not appear to be much systematic inequity in terms of private ECE access by gender. Successful ECE expansion policies would do well to address the needs of these at-risk groups.

With regards to the finding on early primary school enrollment, based on previous research by King et al. (2020), this is not a surprising finding. In countries where ECE access is low (with the implication being that supply is low/inadequate), households more frequently enroll their children in primary school early. This definitely seems to be the case in a number of the countries in this analysis. Given such, we should have some concerns about the validity of the SDG indicator 4.2.2., as it doesn't require that children in the year prior to primary 1 are enrolled in ECE/pre-primary, but simply that they are enrolled in some type of educational experience (not requiring that it is one which is developmentally appropriate).

Lastly, some initial evidence indicates that there may be a discrepancy between the measurement of private ECE participation at the household and government levels. One potential explanation is that unregistered schools may be offering ECE services in some of these countries. Previous research on the regulation of non-state primary schools (Baum, Cooper, et al., 2018) would suggest that regulations focused on teacher support, professional development, and student learning are likely to be the most effective at supporting schools towards a transition of registration and successful development.

5.0. ANALYSIS OF THE CHARACTERISTICS OF PRIVATE ECE MARKETS IN KENYA, NIGERIA, AND TANZANIA

This section offers a close look at the markets for private ECE services in three African countries: Kenya, Nigeria and Tanzania. The data from these countries were collected as part of separate studies of non-state education provision between 2014 and 2016. The Nigeria and Tanzania data were part of the World Bank's *Systems Approach for Better Education Results-Engaging the Private Sector (SABER-EPS)*. The data from Kenya come from an additional study of ECE in Nairobi. In each of these countries, data was collected from all of the private (and in Nigeria, a random sample of the public) schools in a select urban location, to gain a thorough understanding of the supply-side of the ECE market.

5.0.1. Cross-country method and instruments

The data for this analysis were collected following a census mapping of all public and private schools within the identified locations. Every school²³ within these locations was identified and geo-mapped. All previously-known schools in these areas were visited first, and additional schools in nearby streets and neighborhoods were then located through snowballing methods. The census was complete once all public and private schools within the identified enumeration area were identified. This technique, which is often used to identify hidden populations, worked well as many of the schools are not currently represented within official records.

Primary data across Nigeria, Tanzania, and Kenya come from a survey of the head teacher²⁴ within a subset of the mapped schools. This instrument was administered over a period of 60-90 minutes, covering topics such as (i) the affordability of services; (ii) school registration and inspection requirements; (iii) school financial viability and operating model; equity and admissions; human resources (teacher qualifications); and management capacity. Following the successful identification of schools within these defined geographic boundaries, private schools were selected to be visited. In Tanzania and Nigeria, all private schools completed the administered surveys. In Kenya, 96 private schools were randomly selected to take

²³ Snowball sampling—otherwise known as chain-referral sampling—uses a small pool of initial informants (e.g. schools) and the community around them to nominate other participants who meet the eligibility criteria (private K-12 schools). Thus, study subjects and residents around the schools contribute their knowledge towards locating future subjects. In our sample, school heads are asked to identify their three nearest competitors, thereby identifying other neighboring institutions. It is impossible to be entirely confident that this process found every single operating school within these ward boundaries; however, the effectiveness of such snowball sampling methods have been shown successful in many other studies at identifying schools with a high degree of accuracy.

²⁴ A sample of questions from the head teacher questionnaire are provided in Annex 8.1. The full questionnaire can be accessed [here](#).

part in a detailed interview and observation protocol, which included two additional data collection instruments:

1. **Classroom observation**²⁵ (Kenya only). The instruments used for the observation of one pre-unit (age 5-6, the year before primary school) classroom in each school were adapted from the Measure of Early Learning Environments (MELE) instruments. These tools were designed by the Measuring Early Learning Quality and Outcomes (MELQO) consortium, a group of stakeholders from around the world that developed the measurement tools to assess the quality of early childhood school and classroom environments. The tools were specifically designed to measure the quality of ECE environments in low- and middle-income countries. The instruments are similar in purpose to school and classroom observation protocols designed for research in high-income countries, such as the Early Childhood Environmental Rating Scale (ECERS) and Classroom Assessment Scoring System (CLASS) (Burchinal, 2018), but adapted to better suit the contexts and local standards of lower-income country contexts. Specifically, the classroom observation tool is useful in its measurement of both structural (facilities, materials, and resources within schools and environments) and process quality (teaching practices, curricula, and pedagogy) indicators within ECE learning environments, allowing for the analysis of factors meant to influence student learning and developmental outcomes. The MELE tools have been used to assess early learning environments in countries such as Colombia, Ghana, Malawi, Tanzania and Indonesia.

The psychometric properties of such instruments are explored in a number of studies, with findings providing significant, if small, evidence of predictive validity between measures of quality of classroom environments and students' developmental outcomes (Brunsek et al., 2017; Burchinal, 2018; Perlman et al., 2016). Conceptual and psychometric analysis of the MELE classroom observation instrument has demonstrated (i) content validity of previously validated measures of classroom quality and relevance to local ECE standards in Sub-Saharan Africa; (ii) a valid internal structure of the core constructs being measured (health and safety; materials and activities; and teacher-child interactions); (iii) moderately strong internal consistency between items measuring these latent constructs; but (iv) low predictive validity between the classroom environment quality constructs and child outcomes (Raikes et al., 2020).

²⁵ A sample of items from the classroom observation instrument are provided in Annex 8.2. The full questionnaire can be accessed [here](#).

Over the course of two hours, enumerators observed a single pre-unit classroom, and recorded scores across a range eleven different domains: school environment; classroom environment; teacher-student interactions; discipline and behavior; inclusiveness; numeracy; literacy; instructional practices; class resources; indoor/outdoor activities and free time; and singing and rhymes. The items within each of these domains were combined to create eleven composite variables, one measuring each school quality construct. The result is a set of scores across these domains, indicating the overall quality of the education experience within the ECE classroom. A full list of items is provided in the appendix. For ease of interpretation, each of these school quality variables is standardized to have a mean of 0 and a standard deviation of 1. Lastly, an overall school quality variable is generated by summing the scores of each of the eleven individual domains (this overall school quality variable is also standardized with a mean of 0 and standard deviation of 1).

2. **Teacher questionnaire**²⁶ (Kenya only). The enumerators met with the teacher of the observed classroom over the course of 30-45 min to discuss the expectations placed upon them as teachers; the professional development, curricular, and instructional supports offered by school management; their level of background experience and qualification, etc. The aim is to gain a glimpse into the influence of the teacher, and ideally see how these factors have an impact upon the performance of the teacher and the classroom.

Results and conclusions from the analysis of this data focus on important issues such as the affordability of services, the drivers of growth in the private market, the relative efficiency of public and private preschools, school registration and inspection requirements, school financial viability and operating models, the relationship between direct/indirect school costs and school quality, and the household cost of attending a private versus a public preschool, including equity implications for the poorest. Additionally, the classroom observation data from Kenya are used to represent the overall quality of the education experience within the ECE classroom.

5.1. Kenya

5.1.1. Background

²⁶ A sample of questions from the teacher questionnaire are provided in Annex 8.3. The full questionnaire can be accessed [here](#).

In 2015 in Nairobi, the government charged the Nairobi City County Education Trust (NCCET²⁷) with responding to a crisis of both quality and access in public ECE provision. A 2014 Education Taskforce Report (Nairobi City County, 2014) found the coverage of ECE providers and the quality of provision to be very low. In total, the study found 21 stand-alone preschools (with no new schools added over the prior 15 years) and 186 pre-units (age 5-6) attached to government primary schools. Given the capacity of both stand-alone and attached schools, the number of available government preschools was sufficient to cover only 10% of the ECE-age population in Nairobi City County. Moreover, the results of this study found no government preschools in Nairobi's informal settlements.

Enrollment in and demand for ECE is substantially higher in urban areas compared to rural areas. In Kenya, the enrolment rate in early years education is 29% across the country (EFA GMR 2014), compared to 60% in Nairobi (Nairobi City County, 2014). Demand for places in existing ECE centers is high, with many schools facing oversubscription. However, given the aforementioned limited access to public ECE centers, parents are often forced to opt for private provision. However, the prior data shows that private ECE provision does not cater to the poorest and fees remain a barrier to many children (Nairobi City County, 2014). These findings parallel the more developed research base regarding private provision within basic education.²⁸

The NCCET's response to these findings included an ambitious reform program focusing on early childhood education (ECE). The policy included the building of 96 new ECE centers across Nairobi in 2016 and 2017, to be run by a combination of public and private operators. The data for this study were collected as a means of providing data to the government regarding the existing ECE market in preparation for the rollout of the program.

Non-state schools in Kenya are regulated by Kenya's Basic Education Act of 2013 and the Ministry of Education's Registration Guidelines for Alternative Provision of Basic Education and Training (APBET, 2016). APBET governs the approval and operation of non-state education providers in the country, including for-profit providers, community schools, religiously affiliated institutions, and NGO-administered educational programs. The stated intent behind the APBET regulatory framework is to establish an environment within which quality education and training opportunities can be provided by non-state institutions to support the state in the provision of universal education. Schools are required to

27 A quasi-independent body made up of representatives of the government and NGOs.

28 A DFID-funded systematic review found that private schools often fail to include the most marginalized children including the poorest, girls, and those with special needs (Ashley et al., 2014).

satisfy registration requirements in order to gain “access to government services such as quality assurance, funding, staffing and registration for examinations among others” (APBET, 2016, p. 4). The requirements for non-state school registration include some of the following:

- Curriculum organization and management
 - Provision of co-curricular and entertainment activities to enhance the holistic development of learners
 - Participation of students in national examinations in available courses
- Teaching, learning, and assessment
 - “Teachers shall meet the minimum entry requirements in terms of teacher training for the level they will be teaching” (p. 11).
 - “A minimum 30% of the teachers at an institution of APBET shall have obtained a relevant teacher training certificate from a recognised teacher training institution at registration. The rest must be undertaking recognised in-service training and management of the institution shall progressively ensure that all their teachers are registered with the TSC by the third year of registration of the institution” (p. 11).
 - “The Pupil Teacher Ratio (PTR) in a primary or secondary school shall not exceed 55:1 and 45:1 respectively, or as approved by the MoEST” (p. 12).
 - “The minimum Pupil Text Book Ratio (PBR) in lower primary shall be 3:1, whereas in upper primary and secondary schools it shall be a minimum of 2:1” (p. 12).
 - Schools shall “ensure effective teaching of all subjects including nonexaminable subjects as per the approved curriculum” (p. 12).
 - All teachers “shall prepare and maintain professional and administrative documents to ensure quality learning /teaching.”
 - Non-state institutions shall only be established “in the informal settlements within the cities of Nairobi, Mombasa and Kisumu and urban areas as designed by Law...[and] in pockets of poverty in arid and semi arid regions” (p. 12).
- Requirements for Student Progression and Achievement
 - Non-state schools are required to track and keep records on student “admissions, daily attendance, progression, transition, transfers and placement of learners accordingly” (p. 12).
 - Schools are expected to track student performance and achievement growth through “value added progress” procedures.
- Requirements for physical facilities
 - “[I]nstitutions shall provide tuition facilities such as classrooms and libraries/resource centre that may be smaller than the standard set for public schools but shall maintain a spacing of at least 0.3 metre aisles for pre-primary, primary and secondary schools” (p. 14).

Positively, the regulations governing non-state education seem to be equally concerned with both structural and process quality within the schools; however, the requirements over student learning and quality of instruction tend to be broad, with little explanation in terms of expected outcomes. There is little differentiation in expectations for non-state schools by ECE, primary, or secondary levels, with almost all regulations being constant across levels (the only exception being different pupil-teacher ratios for primary and secondary schools, with no specification for pre-primary schools. Additionally, the regulatory requirements do not appear to differ according to school ownership type (e.g., NGO, faith-based, for-profit, or community). Of note is that there are no regulations (caps or top-ups) with respect to the fees charged by non-state schools, with providers seemingly unlimited in the amounts they are able to charge their students for tuition and non-tuition fees.

5.1.2. Method

Data were collected between February and March 2016.²⁹ The data for this study were collected through two phases of data collection across a number of administrative wards within Nairobi. Locations were selected from a list of 35 wards being targeted by Nairobi City County (NCC) for the construction of new ECE centers. These wards were stratified according to level of affluence, with groups categorized as high-income, middle-income, low-income, and very-low-income. The aim was to identify a range of private schools that would represent the heterogeneity of non-state provision within Nairobi, as well as uncover potential providers of the new ECE centers. From each of these ward-level strata, either one or two wards were selected, with a total of six wards being selected for inclusion in the study: Mountain View (high income), Kilimani (high income), California (middle-income), Dandora Phase III (low-income), Githurai (low-income), and Kiamaiko (low-income).

The census mapping procedure (described above) was used to identify and geo-map all formal and non-formal, registered and unregistered, public and private, attached and unattached preschool in these six wards. All previously-known schools in these areas were visited first, and additional schools in nearby streets and neighborhoods were then located through snowballing methods. The census was complete once all public and private schools within the identified enumeration area were identified. This technique,

²⁹ The study was funded by and carried out in collaboration with Ark (Absolute Returns for Kids) and Research Solutions Africa. The research was reviewed and approved for inclusion of human subjects by the Institutional Review Board (IRB) of Brigham Young University and carried out with the support of the Minister for Education of Nairobi City County.

which is often used to identify hidden populations, worked well as many of the schools had not been previously captured within official records.

Enumerators visited each school with official (and signed) letters of support from NCC and the major private school associations, including APBET Complementary Schools Association, and others. A few key questions were asked to each of these schools, to help identify critical information, including public/private status, grade levels served, and whether the school would be willing to take part in phase-two of the study. This phase identified every school within these wards that currently serves students at the pre-unit early childhood grade. Following the successful identification of schools within these defined geographic boundaries, private schools were randomly selected from across these six wards to be visited. In total, 96 private schools were randomly selected to take part in a detailed interview and observation protocol, which included the three data collection instruments described above.

5.1.3. Results

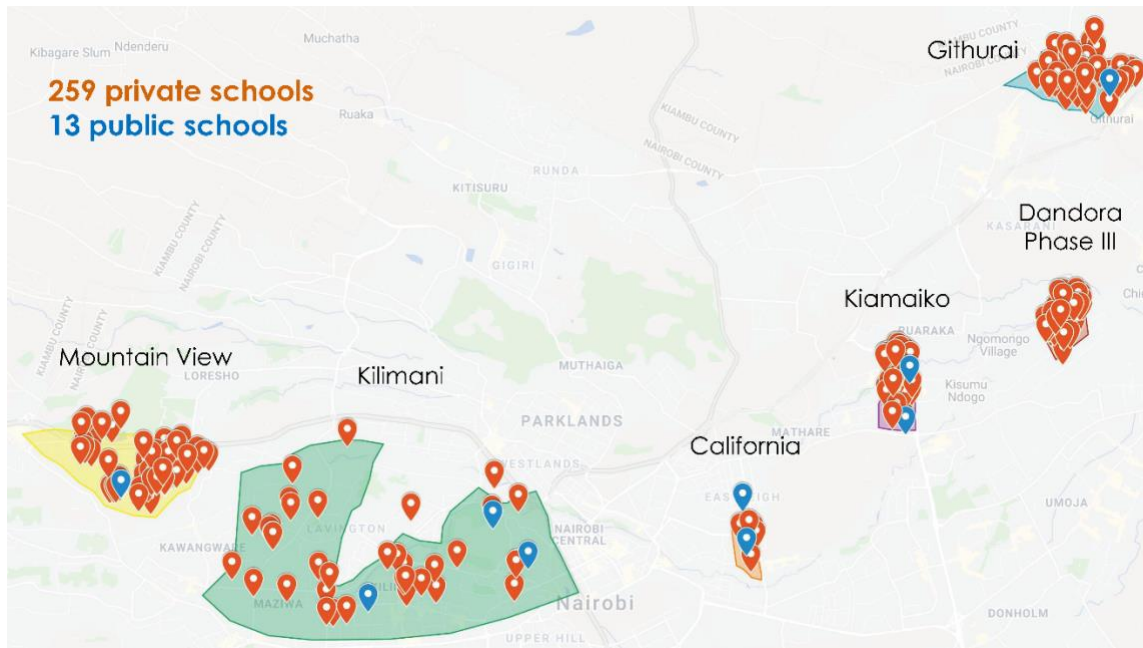
Census mapping results. The results from the school census offer a number of insights into the characteristics of the education market within Nairobi. For example, Figure 5.1. provides a visual representation of the geographic distribution and density of schools within these wards. From this figure, it is clear that the large majority of ECE providers within these areas are private. Indeed, of the 272 schools with pre-unit classrooms identified, only 13 (5%) are public, with the remaining 259 (95%) being private schools.

Of these 272 preschools, 194 (71%) are attached to schools that also provide primary education services, while 78 (29%) are stand-alone preschools, without any other grade levels being offered. Additionally, roughly 33% are unregistered or unrecognized by the government as official education institutions. The 259 private preschools in the census are operated by a range of providers: 52% private business, 24% community, 14% faith-based organizations, and 4% NGOs.

As mentioned above, from the census stage, 96 schools were randomly selected for inclusion in the study. Of these, 16 schools refused participation; as such, 16 replacement schools were randomly selected, and none refused to participate. This selection included a spread of schools from across the wards of focus:

- California: 2 schools
- Dandora Phase III: 15 schools
- Githurai: 24 schools
- Kiamaiko: 18 schools
- Kilimani: 13 schools
- Mountain View: 24 schools

Figure 5.1. Distribution of public and private ECE providers in sampled wards



School characteristics. Of the 96 schools in the sample, 12 are part of larger school chains, although only four of these chains include more than two schools (Table 5.1). School chains often grow following the success and expansion of an individual private school; although, in some instances, organizations begin offering school services with the longer-term aim of expanding to multiple schools within and across cities, regions, and countries (as is the case with Omega Schools in Ghana or Bridge International Academies in Kenya, Liberia, Nigeria, and Uganda). The growth of school chains can produce competitive advantages for private providers (e.g., economies of scale, expanding networks of government and non-government partners, and development expertise in successful educational practices). Overall, a majority of the ECE providers are recognized by the government: 32 (one-third) of the 96 surveyed schools are unofficial/unregistered organizations.

Table 5.1. School chains and size

School chain size	Frequency
1 school	84
2 schools	8
3 schools	1
4 schools	1
5 schools	1
19 schools	1

School costs. From the administered surveys, a host of findings emerged. With respect to household cost for education, the median total annual fee (tuition + non-tuition) to attend a private school is KSh 8,152. This average cost holds relatively constant across wards, with one exception. In the highest-income ward of the sample – Kilimani – the median annual private school cost is roughly 15 times the amount of the median fee in all other wards (Figure 5.2).

Figure 5.2. Average cost of ECE attendance (KSh) and average ECE quality, by ward

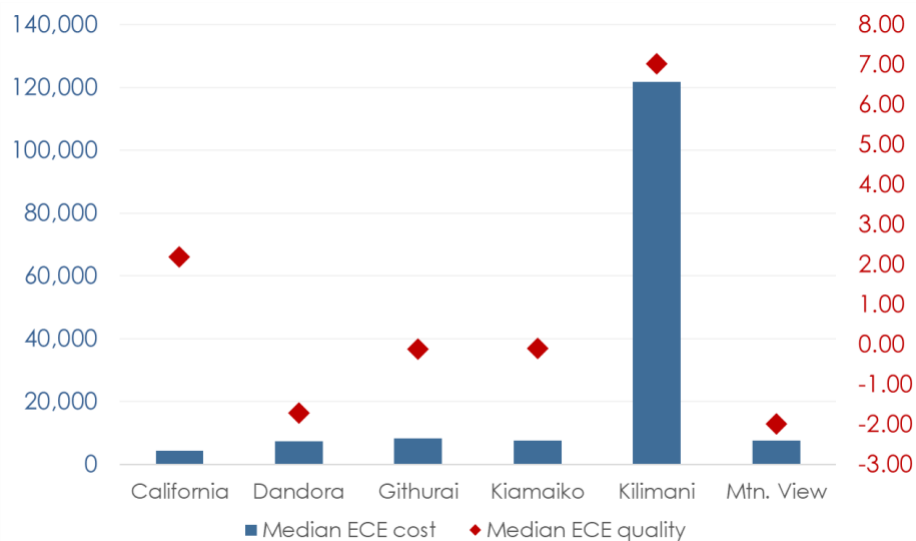


Table 5.2 provides a breakdown of the types of non-tuition fees charged by providers, with the average amount of the fee and number of schools charging that particular fee. The most common non-tuition fee charged by schools is a registration fee – however, the relative size of this fee compared to some others is nominal (KSh 6.8). The largest non-tuition cost to students is a feeding fee, for provision of school meals, with a cost of KSh 959.9; this fee is charged in 55% of the surveyed schools. Roughly 16% of schools are charging students an average of KSh 158.7 for the provision of extra classes.

There are no significant differences in cost between schools by ownership type (see Table 5.6). In addition to the funds received from students through tuition and non-tuition fees, a small number of the community, faith-based, and NGO schools in the sample receive funding from outside sources (Table 5.3).

Table 5.2. Annual non-tuition fees, Kenyan Shillings

Fee	Average fee amount	Number of schools charging this fee
Registration fee	6.8	83
Feeding fee	959.9	52
Transportation fee	97.9	11
Textbook fee	13.1	7
Uniform fee	4.8	9
Extra class fee	158.7	15
Extracurricular fee	23.1	14
Total annual non-tuition fees	756.9	95

Table 5.3. Number of schools receiving funding from outside sources

School type	Number of schools receiving outside funding	Percentage of school type receiving outside funding	Sources of funding
Private (for-profit)	1	2%	NGO
Community	6	24%	Donations; NGOs; Foundations
Faith-based	5	31%	Church;
NGO	2	40%	Donations; NGOs; Foundations

School location is a statistically significant determinant of annual school costs; however, this is driven solely by the high fees of the schools in Kilimani. As evident from the summary characteristics provided on the sample of 96 schools in Table 5.4, the average non-state school in these wards is roughly 8 years old; costs just over KSh 8,000 per year to attend; is relatively small in size, with the largest number of students at the primary level, and fairly small class sizes (around 20).

Additionally, two other school characteristics are associated with school costs: attached vs. standalone schools and approved vs. unapproved schools. Standalone ECE preschools (those separate from primary and secondary school grades) charge substantially more than preschools attached to primary and secondary schools (KSh 59,620 vs. KSh 17,067). Similarly, approved pre-primary schools cost significantly more than unapproved schools (KSh 35,653 vs. KSh 7,483).

Table 5.4. Summary characteristics of schools by ownership type, from six wards in Nairobi

Variable	Average	NGO schools	Community schools	Faith-based schools	Private schools
Number of schools	96	5	25	16	50
School age (median)	8 years	17 years	8 years	8.5 years	6.5 years
Number of total students (median)	118	202	130	56	92
Number of students by level (median):					
Baby	14.5	22	14	13	14.5
Nursery	20.5	40	20	14	20
Pre-unit	18	38	20	9	14.5
Primary	33.5	60	87	13	15
Secondary	2.6	0	0	0	0
Share of female students (mean)	53%	50%	54%	51%	52%
*Average class size (pre-unit) (median)	20	32	20	20	16.5
Percentage of approved schools (mean)	70%	100%	68%	75%	67%
†Total annual fee (tuition + non-tuition) (median)	KSh 8,152	KSh 9,052	KSh 7,001	KSh 10,317	KSh 9,011
Average annual teacher salary (pre-primary certified teacher)	KSh 63,000	KSh 90,000	KSh 56,250	KSh 68,625	KSh 85,992
*Share of certified pre-primary teachers (mean)	80%	100%	75%	77%	83%
Schools with English as primary language of instruction	73%	80%	64%	75%	76%
Schools with Swahili as primary language of instruction	27%	20%	36%	25%	24%
Headmaster has degree, certificate, or formal course in Ed	65%	100%	54%	62%	69%
Headmaster has degree, certificate, or formal course in ECE	56%	50%	54%	60%	57%
†School quality index	-0.17	2.73	-1.37	-0.44	0.40

†Note: Differences in cost between school types are not statistically significant

*Note: Indicators governed by regulatory requirements under APBET (2016)

Affordability. This research is driven, in part, by a desire to better understand the existing opportunities for accessing ECE services for households regardless of background. In particular, some of the proponents of private schooling in developing countries claim that private schools are capable of delivering high-quality services at a price-point affordable to even the poorest households (Tooley & Dixon, 2005). In effort to better understand the accessibility of non-state ECE, I look into the affordability of services within these wards of Nairobi – particularly for those living at or near the poverty line. Below, I build upon this investigation by testing whether there is any relationship between the financial cost of enrollment and

the quality of services provided. Unfortunately, as this study did not involve the collection of data directly from students or households, I am unable to present figures on school costs as a direct ratio of household income. As an alternative, to estimate the affordability of non-state ECE participation, I compare the cost data presented above relative to data on household incomes in Nairobi.

Data from 2015/2016 suggest that the annual household poverty line in Nairobi is KSh 178,411 (Kenya National Bureau of Statistics, 2018). According to data from Nairobi City County (2014), the cost of attendance in a public ECE center is KSh 1,800 per year. For a family living at the poverty line, the direct cost of public ECE attendance for each child would be roughly 1% of the household's annual income. In comparison, the cost of attendance in a median-cost non-state pre-school would require roughly 4.5% (KSh 8,152) of the annual income for a household at the poverty line.

Principal and teacher characteristics.

Teacher salaries. There aren't large differences in salary between teachers at the pre-primary and primary levels; although, certified teachers at both of these levels make about 40 percent more than their uncertified counterparts (KSh 5,000 vs KSh 7,000 respectively). Moreover, teachers at the secondary level, on average, make roughly 40 percent more than their pre-primary and primary peers, as both certified and uncertified salaries go (Figure 5.3). There appear to be larger salary differences between teachers according to school type, with certified pre-primary teachers in NGO schools making the highest salaries (KSh 90,000), followed by those in for-profit schools (KSh 85,992), faith-based schools (KSh 68,625), and then community schools (KSh 56,250).

One important finding from the systematic literature review was the fact that non-state ECE teachers are subject to some degree of instability with respect to their remuneration. Private pre-school teachers are sometimes faced with low levels of pay (Edwards et al., 2019a) as well as inconsistent reception of paychecks (Sitati et al., 2016), with teachers sometimes being at risk of non-payment for work. In the Nairobi data, we find evidence to support both of these teacher payment concerns. With respect to the amount of pay, taking the average salary for teachers across schools types, a household in Nairobi with two certified pre-primary teachers as income earners would bring in a total of KSh 168,000 per year, placing the household below the KSh 178,411 annual poverty line. On the matter of consistency of teacher payments, there is variation across provider types. Teachers in NGO schools within the sample reported always being paid on time. On-time teacher payments drop slightly for faith-based (93.3%) and for-profit (89.8%) schools, with the most frequent incidence of late payments occurring in community schools (72.7% on-time payments).

Figure 5.3. Teacher salaries by level and certification status

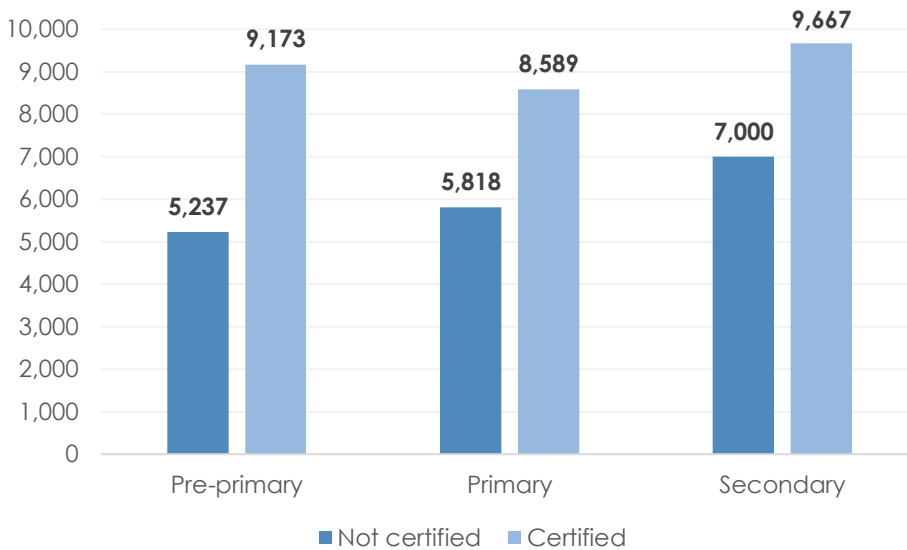
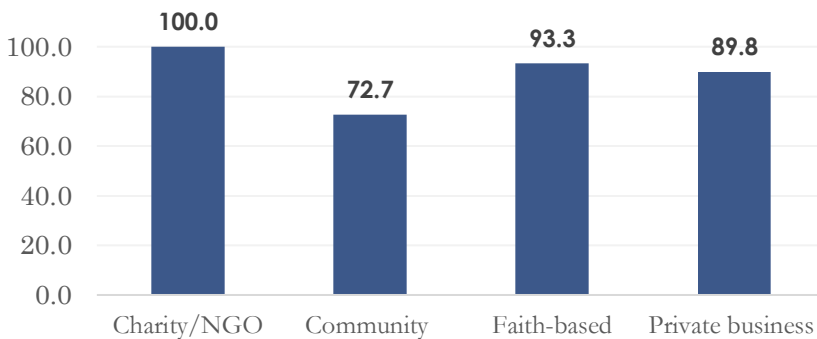


Figure 5.4. Percentage of teachers paid on time, by school type



Teacher and principal certification. Teachers are much more likely to hold official teaching certification at the lower levels, with pre-primary teachers having the highest incidence (nearly 80 percent) of teaching certification (79.8%) followed by primary (72.6%) and the secondary teachers (66.7%). These results should not be related to regulatory requirements, as the different schooling levels are subjects to the same standards for teacher certification.

There are minimal systematic differences in teacher and principle characteristics between schools by ownership type. For example, there are no statistically significant differences between for-profit, community, faith-based, and NGO schools in head teacher certification or percentage of certified teachers (See Table 5.5). However, the data from Table 5.5. show a clear gap in the ECE certifications rates between teachers and principals, with teachers having between a 17-percentage-point (in faith-based schools) and

45-percentage-point (in NGO schools) advantage in terms of ECE certification. Principals tend to have higher levels of education than ECE teachers, as shown in Figure 5.5. Principals hold diplomas, bachelor’s degrees, and master’s degrees at higher rates than ECE teachers. However, as show previously, teachers are more likely to have a formal ECE certificate than principals.

Table 5.5. Teacher and principal certification rates by school type

School Ownership	Teacher ECE certification rates*	Principal ECE certification rates*	Teacher vs. principal certification gap
NGO	95%	50%	45%
Community	76%	54%	22%
Faith-based	77%	60%	17%
Private business	83%	57%	26%

*Note: Differences between school types are not statistically significant

Quality assurance. As outlined within the APBET (2016) regulatory requirements, non-state schools are supposed to have their courses or subjects summatively evaluated by the Kenya National Examinations Council or other accredited body, as determined and authorized by the Ministry of Education, Science and Technology. Additionally, non-state schools are subject to review by the Education Standards and Quality Assurance Council, the state agency responsible for standards assessment, monitoring, and quality assurance of schools. However, neither of these requirements stipulate the expected terms or frequency of such quality assurance activities for non-state providers. Data from the school head questionnaires provide information about the frequency of school inspections by provider type. NGO, faith-based, and private for-profit schools are inspected, on average, at a rate less than once per year, with community schools being inspected roughly once per year. Faith-based providers have the lowest frequency of inspection (0.53 times per year), followed by for-profit providers (0.69 times per year) (Figure 5.6). There are also substantial gaps in inspection rates by school approval/registration status. As stated within the APBET (2016) regulations, schools without official registration status are unable to access government services such as quality assurance. The data bear this out when examining the rate at which approved (16%) and unapproved schools (62%) have never been inspected by an external agency. This has potential implications for school quality – something that will be explored in more detail below.

Figure 5.5. Principal and ECE teacher education levels

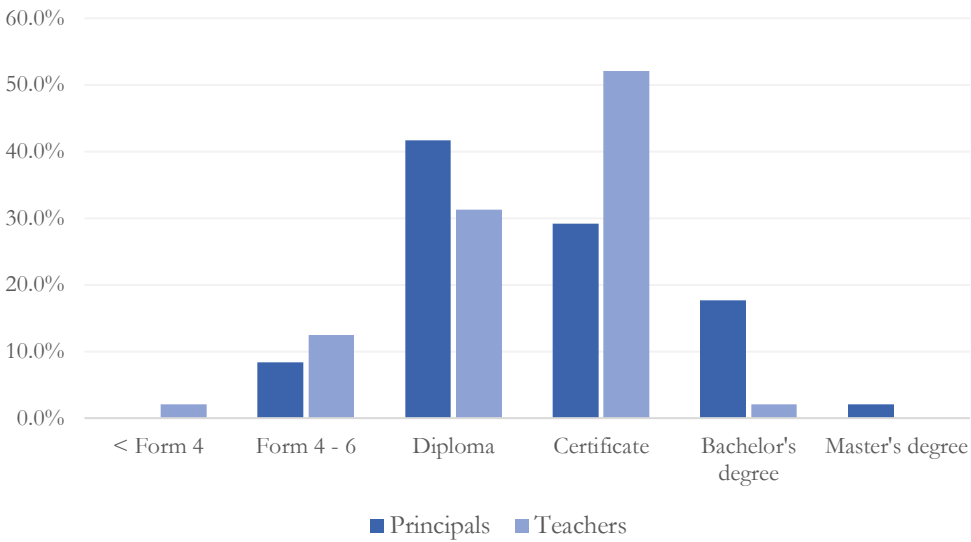
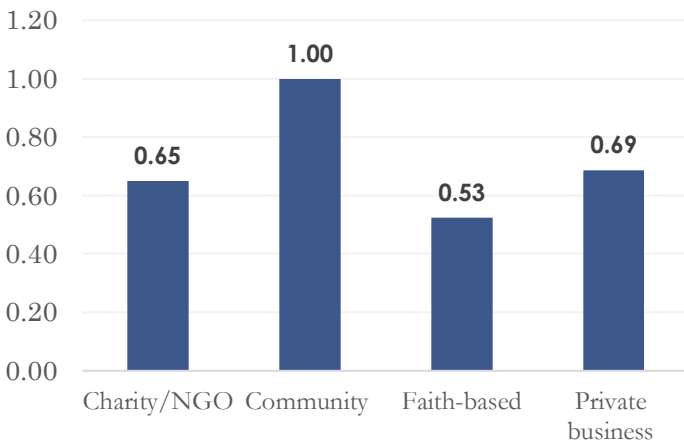


Figure 5.6. School inspection frequency (num. times in previous year), by provider type



School Quality

Next, I turn to the data from the school and classroom observations to analyze various aspects of school quality within the non-state ECE sector. The observation protocols provide data about the school and classroom environments, as represented by 11 sub-constructs, grouped into 3 constructs (see Appendices 8.1 and 8.4 for the complete descriptions of all items included in this instrument):

1. Health and safety
 - a. School environment
 - b. Classroom environment
2. Materials, curricula, and activities

- a. Numeracy
 - b. Literacy
 - c. Instructional practices
 - d. Class resources
 - e. Singing and rhymes
 - f. Indoor/outdoor activities and free time
3. Teacher-child interactions
- a. Interactions
 - b. Discipline and behavior
 - c. Inclusiveness

A composite score for each sub-construct was derived from a set of items representing that sub-construct. Composite scores were created by taking a linear summation of all sub-construct items. Each composite variable was then standardized with a mean equal to 0 and standard deviation equal to 1. The 11 standardized composite scores were then summed to create one overall school quality indicator. Descriptive statistics show that the NGO schools in the sample have the highest school quality score (2.73), followed by private businesses (0.39), then faith-based (-0.44), and finally community pre-schools (-1.37). However, due both to small sample sizes and large standard deviations, these differences are not statistically significant.

Table 5.6. School quality index, by school ownership.

School Ownership	Mean†	Std. Dev.	Frequency
NGO	2.73	1.96	4
Community	-1.37	3.90	24
Faith-based	-0.44	5.46	15
Private business	0.39	4.90	47

†Note: Differences between school types are not statistically significant

Likewise, there are observed (but not statistically-significant) differences in school quality by school approval status. Approved schools have higher observed quality (0.31) than unapproved schools (-1.3), but these differences are not statistically significant. When looking at differences across the individual sub-constructs, approved private preschools score significantly higher than unapproved schools on the following: classroom resources (books, blocks, activity centers) and teacher-student interactions (wait time between activities, teacher response to child questions, teacher uses open-ended questions, and teacher helps student work through problems or errors). However, there are no measured differences between approved and unapproved schools on any other sub-constructs.

There are observed differences in school quality when comparing pre-schools that are attached to primary and secondary schools relative to standalone ECE centers; standalone pre-schools score much higher (3.15 vs. -1.04) (Table 5.7). Having found a significant difference between standalone and attached schools on the overall quality index, I explore potential differences between these school types on the individual sub-constructs. I find that standalone ECE centers score higher than attached ECE centers on a mix of school structural and process quality indicators: class resources, class environment, discipline and behavior, and instructional practices.

Table 5.7. School quality differences, attached vs. standalone ECE centers

School Ownership	Mean	Std. Err.	N
Standalone	3.15	1.39	19
Attached	-1.04	0.45	73
Difference	4.18***	1.13	92

*** $p < .001$

Table 5.8. Individual quality differences, by standalone/attached

	Class resources	Class environment	Discipline and behavior	Inclusiveness	Indoor/outdoor activities	Instructional practices
Attached vs. Standalone difference	-0.814***	-0.774***	-0.718***	-0.0230	-0.362	-0.673***
(Std. Err.)	(0.234)	(0.235)	(0.237)	(0.249)	(0.245)	(0.243)
Observations	96	96	96	94	96	95
R-squared	0.115	0.103	0.089	0.000	0.023	0.076
	Teacher-child interactions	Literacy	Numeracy	School environment	Singing and rhymes	
Attached vs. Standalone difference	-0.344	-0.318	0.0875	-0.204	0.132	
(Std. Err.)	(0.246)	(0.246)	(0.248)	(0.252)	(0.248)	
Observations	96	96	96	95	96	
R-squared	0.020	0.017	0.001	0.007	0.003	

As a final analysis of the determinants of school quality within Nairobi's non-state ECE sector, I run two multiple regression models with many of these school characteristics as predictors of school quality. Results are presented in Table 5.8. In the first model, the predictors include cost of attendance in the pre-school, school approval status, school attached vs. standalone, and a set of dummy variables to indicate

the school's ownership type. There are two significant predictors of school quality in this model. More expensive schools have higher quality scores, and standalone ECE centers have higher quality scores than attached pre-schools. However, in Model 2, I add dummy variables to account for differences between wards. After including this set of dummy variables, there are no longer any significant predictors of school quality.

Table 5.8. Determinants of school quality

VARIABLES	(1) School quality	(2) School quality
ECE school cost	.00002*** (.000006)	.000005 (.000008)
School is approved	0.962 (1.006)	0.313 (1.031)
School is attached	-3.571*** (1.183)	-1.787 (1.372)
NGO/charity	4.571 (4.207)	4.180 (4.135)
Faith-based	-0.439 (1.395)	-0.319 (1.422)
Private business	0.147 (1.089)	0.0407 (1.120)
Dandora		-3.710 (3.090)
Githurai		-3.155 (2.945)
Kiamaiko		-4.065 (3.027)
Kilimani		2.554 (3.674)
Mountain View		-4.557 (2.958)
Constant	1.189 (1.513)	3.754 (3.376)
Observations	84	84
R-squared	0.292	0.397

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

5.2. Tanzania

5.2.1. Background

Tanzania's regulatory environment establishes some political commitment to providing universal preprimary education. In 1995, the Tanzanian government, assuming the responsibility to educate

children between five³⁰ and six years old, incorporated two years of non-compulsory preprimary education into the formal education system (Mtahabwa & Rao, 2010). This policy mandated each public primary school to have at least one pre-primary classroom for children to attend without any cost; however, there is evidence to suggest that implementation of this policy has been lagging on both the availability of classrooms and the tuition-free attendance (World Bank, 2012). Moreover, a lack of resources supporting ECE provision means that these attached pre-primary classrooms are often overcrowded, with student-teacher ratios averaging 100:1 country-wide (World Bank, 2012). As of 2011, the Tanzanian government requires all preschools to be registered and recognized by the government and follow government standards on teacher qualification and service delivery (World Bank, 2012). According to national standards, state pre-primary teachers must finish secondary school with two years of full-time pre-service training (World Bank, 2012). The training requirement is less strict for non-government schools. Teachers who finish a few weeks of training in private organizations are considered to be qualified (World Bank, 2012). Non-state pre-schools in Tanzania are regulated and subject to the same standards and requirements as non-state primary and secondary schools. Requirements for establishing and registering a non-state school in Tanzania are governed by the country's 1978 Education Act No. 25. Criteria for school registration focus on "the safety and suitability of buildings, facilities, and equipment; teacher qualifications and conditions of work; and the gap that the proposed school will fill in educational services" (World Bank, 2015, p. 15). Additionally, school providers must demonstrate ownership of their buildings and land in order to qualify for government approval.

Regulatory standards for non-state schools include limits on class sizes (set at a maximum of 40 at all school levels). Private schools are to be inspected at a minimum of once per year by the country's School Inspectorate Division. The inspection process is supposed to involve determining goals and targets for school/student progress, outlining curriculum design, and monitoring school operations (World Bank, 2015). Non-state schools do not face restrictions in determining tuition and non-tuition fees, setting teacher and staff salaries, deploying and dismissing teachers; but teacher standards are set by the state (World Bank, 2015).

Today, Tanzania has higher participation in pre-primary education than any of its East African neighbors; although, the nation remains far from universal pre-primary access (Table 5.9). Perhaps in part because Tanzania started early to expand access to free pre-primary schooling in public schools, the country has a

³⁰ The pre-primary school entry age is higher in Tanzania than in many countries. For example, in Kenya and Ethiopia, the preschool entry ages are three and four years, respectively (World Bank, 2012).

low proportion of students enrolled in private preschools. This offers a stark contrast to many other countries in East Africa – Ethiopia, Uganda, and Rwanda – whose pre-primary education is nearly exclusively provided in the non-state sector.

Table 5.9. Pre-primary net enrollment rates and share of private enrollment, select East African countries

	Tanzania	Kenya	Zimbabwe	Ethiopia	Uganda	Rwanda	Burundi
Net enrollment rate	31%	29%	25%	16%	14%	12%	5%
Share of enrollments in private schools	5%	38%	10%	97%	100%	99%	36%

Source: World Bank (2016)

5.2.2. Method

The data for Tanzania presented in this section were collected from pre-primary schools in Morogoro, Tanzania between February and April of 2015, as part of the World Bank’s *Systems Approach for Better Education Results—Engaging the Private Sector (SABER-EPS)* initiative.³¹ The sampling procedure for both Tanzania and Nigeria differs from the approach used to sample schools in Kenya. Whereas the sampling in Nairobi was specific to the pre-primary level, with the snowball sampling identifying both attached and standalone preschools, the data collection in Tanzania and Nigeria was focused on primary and secondary schools. As such, data on pre-primary schooling was collected for primary and secondary schools that also have attached pre-primary levels, and thus do not represent the larger market of standalone preschools in these regions. In these two countries, pre-primary education was defined to capture any students enrolled in formal education programs (regardless of age) within the school prior to enrollment in the first grade of primary school.

5.2.3. Results

School characteristics

The census identified 142 schools operating primary and secondary services within Morogoro, with 79 schools (56%) also offering pre-primary services. Of these 79 pre-primary schools, 61 (77%) were private and 18 (23%) were public. Overall, the private primary/secondary schools are far more likely to offer pre-primary education (71%) than the public primary/secondary schools (32%). The private schools are owned

³¹ The SABER-EPS work program was partially supported with funding from The Department for International Development (DFID) under the World Bank/DFID Partnership for Education Development (PFED).

and operated by four different types of organizations: 51% faith-based organizations, 43% for-profit private businesses, 3% NGOs, and 3% community organizations. The faith-based schools have the largest number of ECE students (94.4), on average, followed by for-profit schools (67.0), NGO (47.5), and community schools (25.0). By their share of female enrollments, the NGO (84.6%) and community schools (62.8%) appear to be providing services more targeted to girls, while the for-profit schools have slightly lower enrollments for girls (48.3%) than for boys.

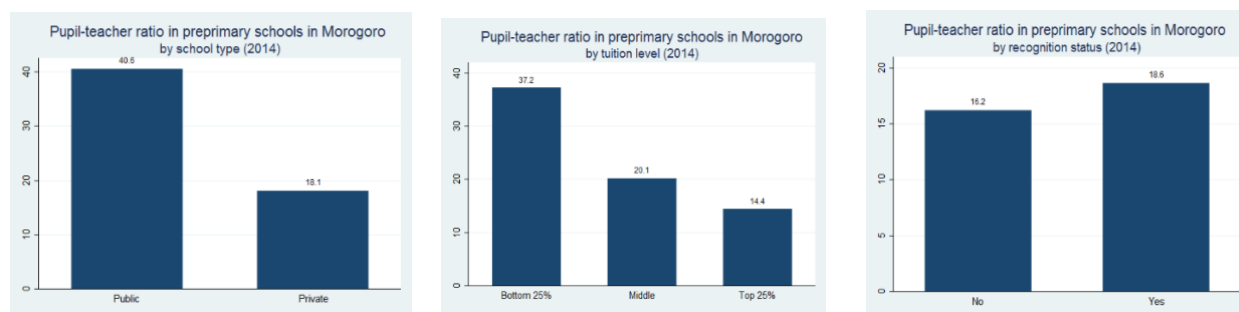
Table 5.10. Summary characteristics of schools by ownership type, Morogoro

Variable	Average	NGO schools	Community schools	Faith-based schools	For-profit private schools
Number of schools	61	2	2	31	26
School age	8.7	10.5	9.0	9.7	7.3
Number of pre-primary students	78.9	47.5	25.0	94.4	67.0
Share of female students	50.7%	84.6%	62.8%	49.7%	48.3%
*Pupil-teacher ratio	21.5	16.2	18.2	27.2	15.4
Percentage of approved schools	75%	100%	100%	73%	73%
Total annual fee (tuition + non-tuition) (median in USD PPP)	636.0	246.3	252.8	302.1	443.6
Average annual teacher salary (pre-primary certified teacher; median in USD PPP)	2,049.3	1,703.8	787.6	3,214.6	1,952.9
*Share of certified pre-primary teachers	93.7%	100%	100%	95.7%	90.1%

*Note: Indicators governed by regulatory requirements

Pupil-teacher ratio. In Morogoro, the average pupil-teacher ratio of all preprimary schools is 23:1. Private pre-primary schools tend to have smaller class sizes than public schools. The pupil-teacher ratio in public pre-primary schools (39:1) 86% higher than in private pre-primary schools (21:1). This suggests that non-state pre-primary schools are well under the regulatory requirement of 40 students per class. This could indicate that demand for small class sizes influences school resource decisions beyond the minimum requirements outlined in government policy. The fact that the for-profit private schools provide the smallest pupil-teacher ratio (15.4:1, see Table 5.10) suggests that this may be an approach used to attract more students). Pupil-teacher ratios also vary by school tuition level and recognition status (Figure 5.7). Of note is the fact that recognized private schools have slightly higher pupil-teacher ratios (18.6:1) than non-recognized schools (16.2:1); however, neither of these differences are statistically significant.

Figure 5.7. Pupil-teacher ratio of preprimary schools in Morogoro, by school type, tuition level and recognition status



School costs. The average tuition of private preprimary schools in Morogoro is USD PPP 445, and median tuition is USD PPP 289. In the case of public pre-primary schools, only one school had a tuition fee (USD PPP 169), while all other public schools' tuition levels were zero. Approved³² preprimary schools have mean tuition rates that are nearly four times higher than unapproved schools (USD PPP 544 vs. 168). In addition, the tuition rates of private primary schools (USD PPP 788) is 45% higher than at the preprimary level. Non-tuition fees for private pre-primary schools in Morogoro are nine times higher than non-tuition fees for public pre-primary schools. Recognized schools have higher non-tuition fees than non-recognized schools (Figure 5.8). Compared to pre-primary schools, primary schools have higher non-tuition fees: USD PPP 22 for public schools and USD PPP 209 for private schools. Across provider types, for-profit schools have the highest fees (443.6), followed by faith-based (302.1), community (252.8), and NGO schools (246.3) (Table 5.10).

In Morogoro, the gap between private and public pre-primary school total fees is substantially large. Private pre-primary schools' mean total fee (USD PPP 636) is nearly 20 times higher than that of public schools (USD PPP 32) (Figure 5.9). However, the total school fee is not evenly distributed across private ECE schools. The mean school fee is highly skewed positive, which leads to an overestimation of the cost of attending a 'typical' private preprimary school in the region. The median (perhaps a better estimate of the 'typical' cost of private ECE participation) total school fee in private preschools is USD PPP 346.

³² Of the 61 private preschools in Morogoro, 75% are approved by the government and 25% are unapproved; although, the majority (73%) of unapproved schools are in process of becoming approved.

Figure 5.8. Non-tuition fees of preprimary schools in Morogoro, by school type and recognition status

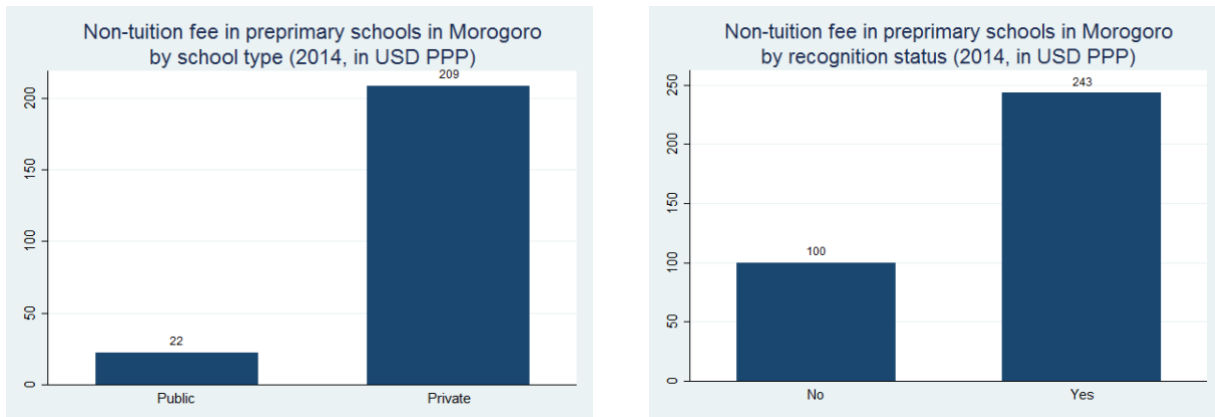


Figure 5.9. Total (tuition + non-tuition) fees of preprimary schools in Morogoro, by school sector and recognition status

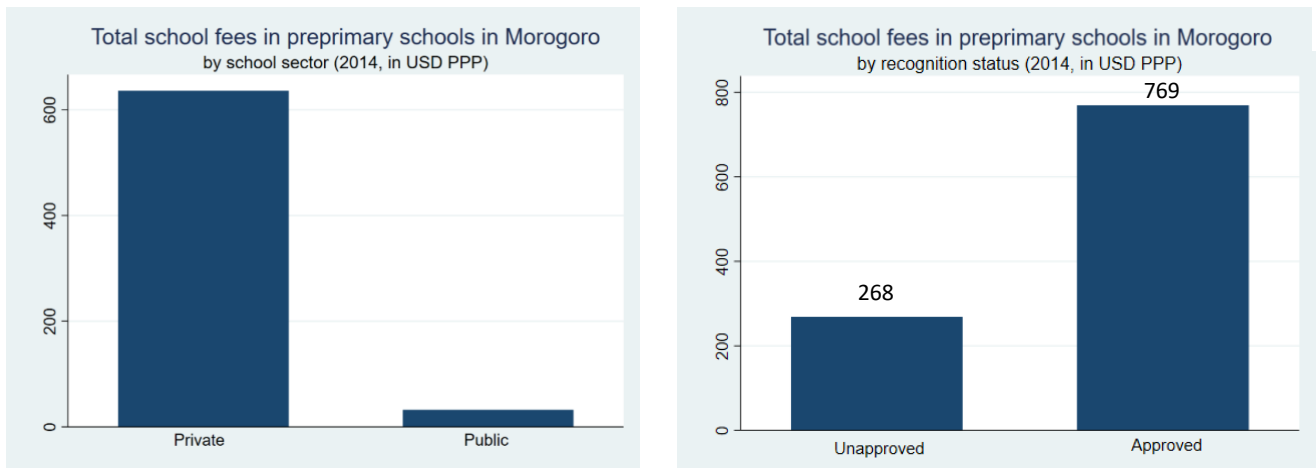
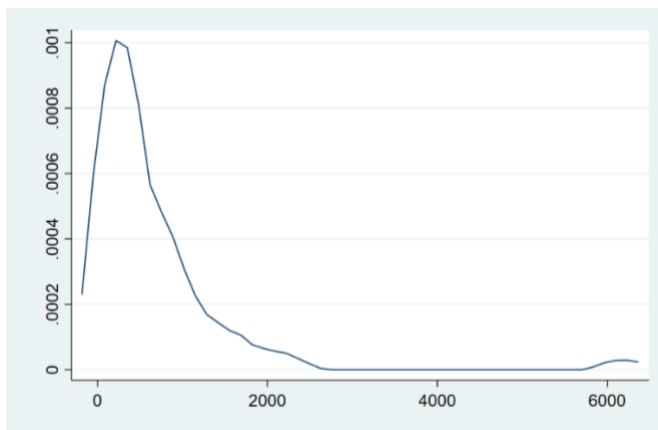


Figure 5.10. Distribution of total school fees, private preprimary schools in Morogoro



Affordability. Recent data from Tanzanian Household Budget Surveys suggest that average household consumption for mainland Tanzania is TZS 416,927 or USD PPP 6,900 per year. The basic needs poverty line for the average-sized household³³ in Tanzania is roughly USD PPP 2,900 per year. For a household at this basic needs poverty line to send a child to a median-cost private pre-school in Morogoro would require 11.9% of the household’s annual consumption—certainly a burdensome amount for a family at this level of consumption. A household at the national average for annual consumption would need to spend roughly 5% of that annual consumption to send a single child to a median-cost private pre-school. These findings suggest that private ECE participation may be affordable for middle-income households in Morogoro, but are likely out of reach for lower-income households, particularly those below the poverty line.

Regulation and oversight of private ECE in Tanzania.

In Morogoro, pre-primary schools experience a relatively high degree of government oversight, particularly as compared to those in Lagos (see below). Over 75% of the private preschools in Morogoro are registered with the government. Additionally, 64% of the private preschools have received a school inspection within the previous 6 months (87% within the previous 2 years). High-tuition schools³⁴ are inspected slightly more frequently (95% within the previous 2 years) than schools with lower tuition (84% within the previous 2 years). In addition, the inspection rates are roughly equivalent by provider type (87% for private schools and 88% for public schools). Interestingly, the inspection rate does not vary by recognition status. However, the highest tuition schools are significantly more likely to be approved by the government (Figure 5.11).

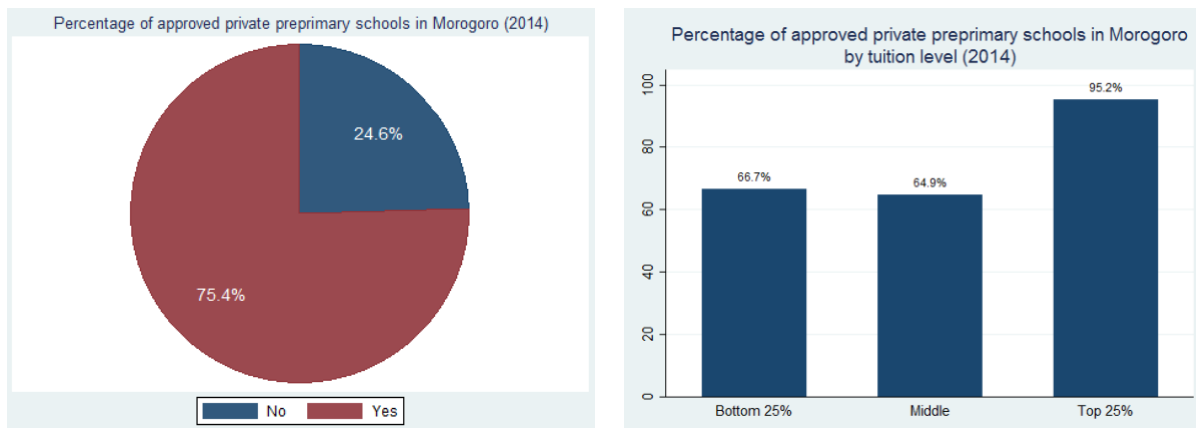
Teacher characteristics

Teacher certification. For private preschools to be approved by the Tanzanian government, they are required to employ teachers that hold at least a secondary school degree and specific training in early childhood education. I present here data on the extent to which preschool teachers in Morogoro meet these government requirements, by first calculating the number of teachers in private and public schools by type (certified teachers, non-certified teachers and teaching assistants) and then calculating the rate of certified teachers as a share of total teachers and assistants.

³³ The average household size in Tanzania is 4.8.

³⁴ High-tuition schools are defined as those in the top quartile of tuition costs.

Figure 5.11. Percentage of approved private preprimary schools in Morogoro, all schools and by tuition level



In both public and private schools in Morogoro, there are more certified teachers than non-certified teachers and teaching assistants. On average, public schools have roughly 2.9 pre-primary teachers and private schools have roughly 5.2, with 95% of pre-primary teachers being certified (99% in private schools and 94% in public schools). Morogoro pre-primary schools with higher tuition have a higher share of certified teachers than schools with lower tuition. Approved schools have a 12-percentage-point advantage in certified teachers (96%) over unapproved schools (84%).

The high rates of teacher certification within private institutions in Tanzania are likely driven, in part, by the fact that the requirements for private pre-school teacher certification are as light as completing a couple weeks of training in ‘certificate’ courses (World Bank, 2012). The training standards are much higher for public ECE teachers, who are required to complete two years of full-time pre-service training (in addition to their secondary school degree) (World Bank, 2012).

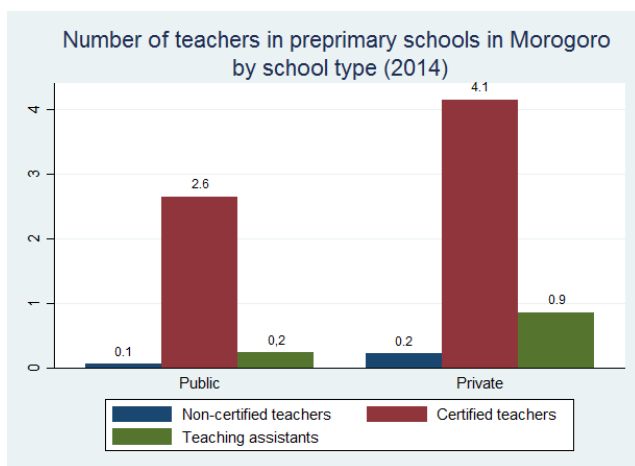
Private preschools in Morogoro do not completely meet the state standard on teacher education levels – nearly one-third (32.9%) of ECE teachers in private schools do not hold a secondary school diploma. However, the education level of teachers is significantly higher in the approved private schools than in those currently unapproved, wherein more than 76% of ECE teachers are employed without having received a secondary school diploma.

Teacher salaries. Teachers in public pre-primary schools are paid more than teachers in private pre-primary schools. In fact, the average salary of certified teachers in public pre-primary schools is roughly 4 times higher than those in private schools. Both in public and private pre-primary schools, teachers with certification have higher salaries than teachers without certification and teaching assistants. In the private

preschools, the mean salaries are USD PPP³⁵ 1,804 for non-certified teachers, USD PPP 2,778 for certified teachers, and USD PPP 1,902 for teaching assistants. All types of teachers earn higher salaries in recognized private schools.

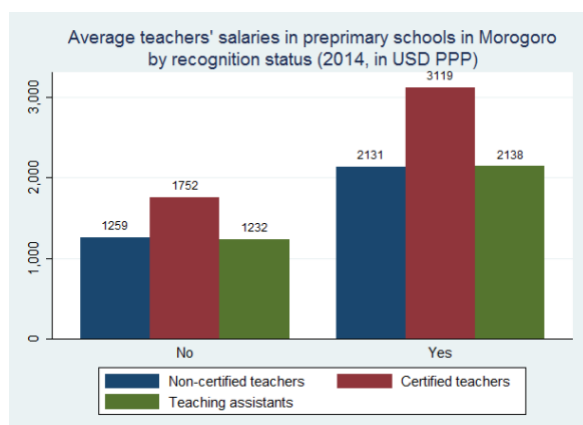
Drawing again from the data on household consumption in Tanzania (average national household consumption is USD PPP 6,900 per year and the basic needs poverty line is USD PPP 2,900 per year), to place the ECE teacher salary data into perspective – if a single household were to have two adults working as certified teachers within the typical Morogoro private preschool, their combined salaries would place the household’s combined income at USD PPP 5,556; this is below the average household consumption, but well above the national poverty line. However, if those two certified teachers were both employed by a non-recognized private school, their combined salaries of USD PPP 3,504 would barely be enough to place the household above the national poverty line. Based on this data, certified ECE teachers in private schools in Morogoro appear to be making a better living wage than those in Nairobi; however, for teachers within unapproved private preschools, there are concerns about the viability of the teaching profession, and the ability for the sector to adequately support strong growth in the teaching workforce.

Figure 5.12. Average number of teachers in preprimary schools in Morogoro, by school type



³⁵ Values converted using 2014 PPP conversion rates from World Bank Data. They are 85.92 for Nigeria and 622.15 for Tanzania.

Figure 5.13. Teachers' yearly salaries in preprimary schools in Morogoro, by recognition status



5.3. Nigeria

5.3.1. Background

Nationwide, Nigeria has lower participation in pre-primary education (11%) than both Kenya (29%) and Tanzania (31%). Of the three countries, Kenya has the highest share of students enrolled in private preschools (38%), followed by Nigeria (28%), and then Tanzania (5%) (see Table 5.11). Compared to its West African neighbors, Nigeria is near the average on both measures of enrollment.

Table 5.11 Pre-primary net enrollment rates and share of private enrollment, select West African countries

	Ghana	Cameroon	Togo	Nigeria	Niger	Mali	Burkina Faso	Benin
Net enrollment rate	95%	25%	15%	11% ³⁶	5%	4%	4%	10%
Share of enrollments in private schools	24%	63%	39%	28%	13%	72%	81%	23%

Source: World Bank (2016)

It is worth mentioning that a similar number of boys and girls are enrolled in preprimary education in both Tanzania and Nigeria (MOEVT, 2012; UNESCO, 2015b; IPA, 2014). However, access to preschool is highly unequal across regions, much more so than access at the primary school level. In the case of Tanzania, pre-primary gross enrollment is as low as 19 percent in Dar es Salaam and as high as 90 percent in Mwanza province (World Bank, 2012). In Nigeria, net enrollment rates range from 2 percent in the state of Sokoto to 82 percent in the state of Abia (World Bank, 2013). In Nigeria, there has been an expansion of low-cost

³⁶ The data presented for Nigeria comes from UNESCO 2006, which seems to provide the most recent available figure on net enrollment for the country.

private schools in peri-urban areas, making the private sector the main provider of preschool education in some regions; in Agege, Lagos, 83% of pre-primary students were found to be attending private schools (K. Bidwell & Watine, 2014).

Nigeria's regulatory environment establishes some political commitment to providing universal preprimary education. In 2004, Nigeria introduced the Universal Basic Education (UBE) Act, which identifies early childhood care and education as critical components of the nation's educational responsibilities. Much like Tanzania's legal mandate, the UBE Act required all existing public primary schools to expand their provision to include two years of free pre-primary education (World Bank, 2013); however, according to data from the Nigerian Ministry of Education (2012) only 39 percent of public private schools have actually expanded to the pre-primary grades. The slow expansion of services in Nigeria have failed to keep up with demand in many locations, as evidenced by the sizable enrollments in private schools (Figure 4) and overcrowding in the available, particularly urban, public schools: in multiple states, student-teacher ratios are over 80:1 (World Bank, 2013).

In the case of Nigeria, schools must obtain registration and accreditation, and teachers should have an upper secondary education diploma and a Nigeria Certificate in Education (NCE). Moreover, in 2012, the National Policy on Education of Nigeria committed to providing oversight of private pre-primary schools by establishing and providing guidelines for their administration and standardizing a national preprimary curriculum (FRN, 2012).

For approved private schools to be able to operate within the government's regulatory guidelines, annual fees (tuition and other) may not exceed ₦50,000. According to Section 10 of the Guidelines for the Establishment of Private Schools in Lagos State, "[t]he School shall employ adequate number of teachers at all times to cater for pupils, and the ratio of teacher to pupils per class shall be 1:25 in the nursery, while it shall not be more than 1:35 for both primary and secondary levels." Regulations note that non-state schools (which includes pre-primary, primary, and secondary schools) are to be subject to "periodic inspection, monitoring and supervision," as conducted by the State Ministry of Education (MoE) Quality Assurance (QA) Department (World Bank, 2014); however, this policy fails to outline the required (or expected) frequency of such school monitoring and quality assurance visits.

Private schools in Lagos face some of the strictest requirements for satisfying government approval conditions, as compared to many other countries in sub-Saharan Africa (Baum, Cooper, et al., 2018). A majority of these requirements for non-state school registration outline stringent expectations on school infrastructure and physical facilities, including: minimum requirements for land size, building type and

structure (e.g., school buildings must have been constructed with the explicit intent of housing a school, thus limiting the creation of schools in non-purposefully-built buildings), classroom sizes and placement, furniture type and size, etc.) (World Bank, 2014). Such restrictive regulations over the non-state education sector have implications for the ability of schools to operate legally, and may in fact inadvertently induce the growth of unauthorized private provision (Baum, Cooper, et al., 2018).

5.3.2. Method

The data for Nigeria presented in this section were collected from pre-primary schools in the Local Government Area of Ajeromi-Ifelodun in Lagos, Nigeria between January and February of 2014, as part of the World Bank's *Systems Approach for Better Education Results—Engaging the Private Sector* (SABER-EPS) initiative. The snowball sampling in this region focused only on the private primary and secondary schools, identifying a total of 724 private schools in the region. Additionally, data from government administrative records showed 71 public schools operating in this area during the 2014 school year, for a total of 795 primary and secondary schools in Ajeromi-Ifelodun. Data were collected from all 724 private schools (unfortunately, there was no public school data collected). Of these private primary and secondary schools, 692 (96%) also provide pre-school services.

5.3.3. Results

School characteristics

The non-state schools in the sample are operated by three different types of organizations: 93% for-profit private businesses, 7% faith-based organizations, 0.3% community organizations. The for-profit schools have the largest number of ECE students (55.2), on average, followed by faith-based providers (46.1), and then community schools (20.0). The for-profit and faith-based schools have slightly higher rates of enrollments for girls than for boys (52.2% and 51.3%, respectively).

Student-teacher ratio. In the sample of private preschools, the mean pupil-teacher ratio is roughly 19 students to every teacher (median is 17:1). Pupil-teacher ratios vary by school characteristics. High-tuition pre-primary schools have the lowest pupil-teacher ratio and mid-level tuition schools have the highest ratio. The ratio at high-tuition schools is 15:1, followed by 19:1 for mid-tuition schools and low-tuition schools. Recognized schools have a lower average pupil-teacher ratio (15:1) than non-recognized schools (18:1); this gap is statistically significant. These low numbers are likely influenced by the state requirement for non-state pupil-teacher ratios to be below 25:1 at the early childhood level. For-profit providers have the highest ratio (19.8:1), followed by faith-based (15.7:1), and community schools (11.7:1).

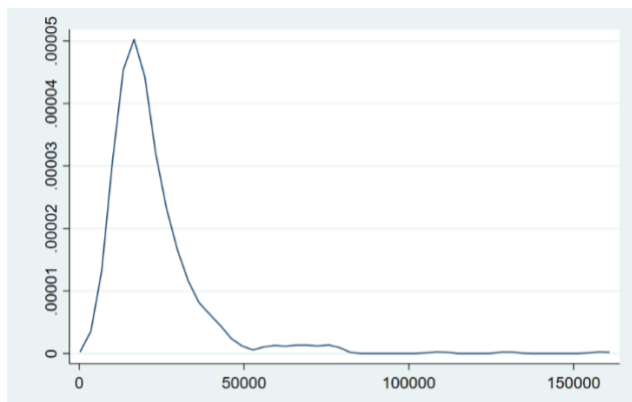
Table 5.12. Summary characteristics of schools by ownership type, Morogoro

Variable	Average	Community schools	Faith-based schools	For-profit private schools
Number of schools	691	2	48	641
School age	10.6	7.5	12.1	10.5
Number of pre-primary students	54.4	20.0	46.1	55.2
Share of female students	52.1%	49.7%	51.3%	52.2%
*Pupil-teacher ratio	19.5	11.7	15.7	19.8
Percentage of approved schools	9%	0%	8.3%	9.1%
Total annual fee (tuition + non-tuition) (median)	₦18,777	₦18,241	₦19,642	₦18,575
Average annual teacher salary (pre-primary certified teacher)	₦55,739	₦75,000	₦65,833	₦55,010
*Share of certified pre-primary teachers	37.2%	25%	44.9%	36.6%

*Note: Indicators governed by regulatory requirements

School costs. The median total cost of attending a non-state pre-school in Ajeromi-Ifelodun is ₦18,777 per year, which is lower than the mean of ₦22,200. However, the gap between these two values is much smaller than what was observed in the case of Tanzania – suggesting a more uniform distribution of school costs across schools (i.e., less heterogeneity; although still with a few outliers on the more expensive end) (see Figure 5.14). Of note is that there is little variation in cost across provider types, particularly as measured by the median (for-profit = ₦18,575; faith-based = ₦19,642; community = ₦18,241). There is a bit more variation when measuring the mean school cost, with for-profit schools falling slightly higher on the cost distribution (₦22,304) as compared to the faith-based (₦21,217) and community providers (₦18,241). The average cost to attend a private pre-school is only slightly less expensive than attending a private primary school (₦22,357), both of which, however, are substantially less costly than attending a private school at the junior secondary (₦48,486) or senior secondary (₦63,000) levels in Ajeromi-Ifelodun (Figure 5.15).

Figure 5.14. Distribution of total school fees, non-state pre-primary schools (Ajeromi-Ifelodun)



Affordability. As done in previous sections, in attempt to contextualize the cost of attending a non-state pre-school in this area of Lagos, I compare this data to an estimated household income for a family that might be facing a decision on whether to send their child to a private preschool. Pulling data from both national household surveys and global poverty benchmarks Abdul-Hamid et al. (2017) estimate a Lagos State poverty line of ₦270,026 per year for an average-sized household (two parents and 3 children) in Ajeromi-Ifelodun. At this household income level, the cost of sending a single child to an average-priced (as measured by the median) non-state pre-school would represent 7% of the household’s annual income. These findings place our sample of schools in Lagos closer in cost to what households pay in Nairobi (4.5%) as opposed to Morogoro (11.9%). In any case, 7% of annual income would likely represent a challenging expense for a family at the poverty line, and certainly a burdensome one for families any meaningful distance below the poverty line. Again, I interpret this as evidence towards a conclusion that participation in non-state pre-school opportunities is likely to be out of reach for the poor in these three countries (with perhaps some room for access in Nairobi). Given the realities of the financial costs involved, attendance in non-state ECE is likely to be more within the grasp of middle- and upper-class households in these three countries. In terms of cost, the public schooling option (₦785) in Ajeromi-Ifelodun is 96% less costly than private ECE (Figure 5.15).

Providing one more perspective to our understanding of non-state ECE affordability, I explore the relationship between school cost and the approval status of non-state schools. There are substantial cost differences between non-state schools who are approved by the state (₦37,841), as compared to those unapproved (₦17,914) and those in process of approval (₦23,654). The financial burden of accessing a state-approved private ECE experience (in the form of a fully registered and recognized non-state school) would be require roughly 14% of the annual income for a household at the poverty line. It seems quite

unlikely that many (if any) low-income students are engaged in anything but an unapproved private ECE experience. Notably, the fees charged by these approved schools fall well below the state’s ₦50,000 tuition cap for registered schools.

Figure 5.15. Average private school fees including non-tuition fees by level in private and public schools

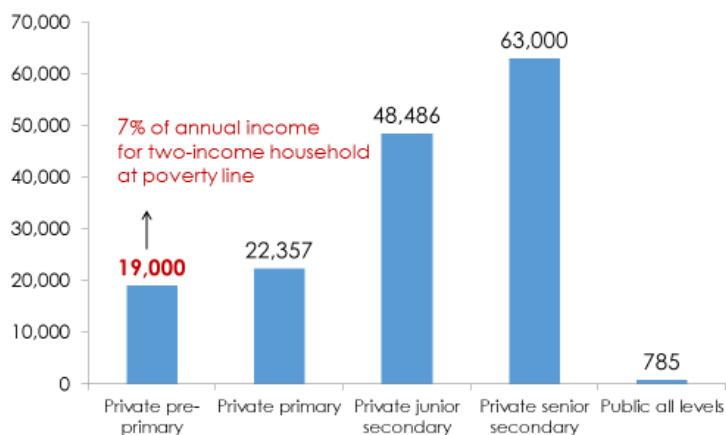
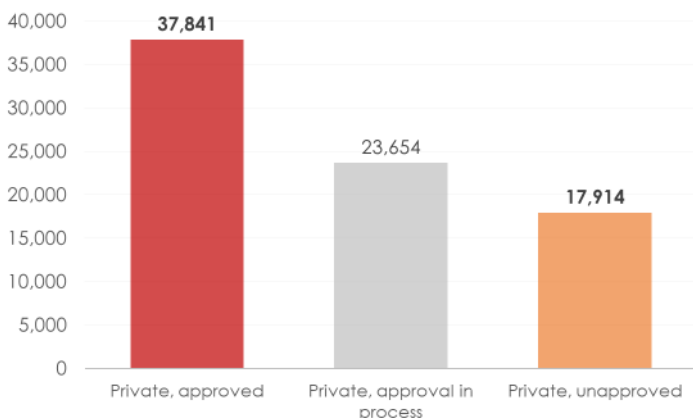


Figure 5.16. Private pre-primary annual fees, by approval status



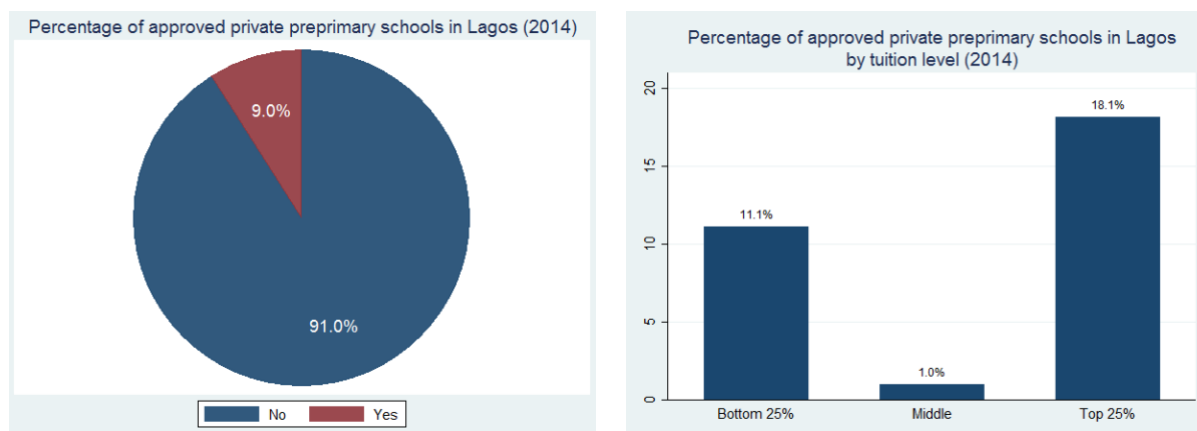
Regulation and oversight of private ECE in Lagos

One of the big takeaways from the descriptive data provided in Table 5.12 is that non-state education providers (this includes faith-based, for-profit, and community providers across pre-primary and primary school levels) demonstrate an extremely low rate of approval with the government. Among 690 private preprimary schools in Ajeromi-Ifelodun, only 62 non-state schools (9%) are officially recognized by the government. This marks a sharp contrast to the findings of the case studies from Nairobi and Morogoro, where substantially higher rates of school approval were observed (70% and 75%, respectively). A large

majority of schools, on an open-ended question asking about the primary reason for the school's unapproved status, cited the inability to meet the regulatory measures requiring a sufficiently-sized plot of land and/or a purpose-built school building.

There is variation in recognition rates by school cost. Schools in the highest tuition quartile are more likely to be recognized compared to schools with low or moderate tuition costs. Figure 5.17 shows the recognition rates of all private preprimary schools and recognition rates of preprimary schools by tuition level. Interestingly, the lowest-cost schools have a higher rate of recognition than those in the middle two quartiles.

Figure 5.17. Percentage of approved private preprimary schools in Lagos, all schools and by tuition level



In Lagos, private preprimary schools are not widely monitored by the government. Both the inspection rate (the share of schools that have been inspected within the previous two years) and recognition rate (i.e., the share of schools that are officially registered with the government) of private preprimary schools are very low – 56% and 9% respectively). High tuition schools are inspected more frequently (68%) than schools with lower tuition (48%). Similar to the results in Tanzania, the inspection rate is larger by school tuition levels than by school approval status; recognized schools are inspected at a rate of 66% (within the previous two years) as compared to 55% for non-recognized schools (Figure. 5.18). At first glance, it seems surprising that the rate of inspection between approved and unapproved schools would be so similar. However, looking at the open-ended descriptions of each school's cited inspection visit reveals that while approved non-state schools are primarily receiving inspection visits from the Ministry of Education and other education agencies for the purposes of quality assurance (i.e., attention to the process quality of the schooling experience), the inspection visits for the unapproved schools appear to predominantly take

the form of an inspection of the school's physical facilities in attempt to satisfy the school registration criteria. Unapproved private schools are receiving little in the way of support for qualitative improvements to their provided services.

Teacher characteristics

Teacher certification. In Lagos, non-certified teachers account for the largest share of total teachers within the average private pre-primary school, followed by certified teachers and teaching assistants³⁷ (Figure 5.19). On average, 33% of private pre-primary teachers are certified. In terms of variation among subsamples, schools with higher tuition have a higher share of certified teachers (45%) than the lowest-tuition schools (30%) (Figure 5.20). Interestingly, schools with mid-level tuition have the lowest rates of certified teachers (25%). Recognized schools have nearly twice the share of certified teachers (57%) as non-recognized schools (31%). However, the gaps in teacher certification, tuition level, and recognition status are not statistically significant.

Teacher salaries. With respect to teacher salaries in the non-state sector, certified teachers (₦50,352) working in unapproved schools actually make less than non-certified teachers (₦60,687). Teaching assistants in those same unapproved schools are paid substantially less money (₦14,250). By a wide margin, the teachers making the most money within the non-state ECE sector are certified teachers working in approved schools (₦112,096) (Figure 5.21). For every group of teachers within this non-state sector, the salaries received place them below the state-level poverty line. Assuming a household with two certified ECE teachers in approved schools, the income earners' combined wages (₦224,192) still place them below the poverty line of ₦270,026. And any uncertified teachers (or certified teachers in unapproved schools) are at far greater risk of earning an inadequate wage in their efforts as ECE teachers.

³⁷ The current regulations governing non-state ECE does not appear to outline any standards or expectations for teaching assistants.

Figure 5.18. Share of inspected private preprimary schools in the past two years in Lagos, all schools and by recognition status

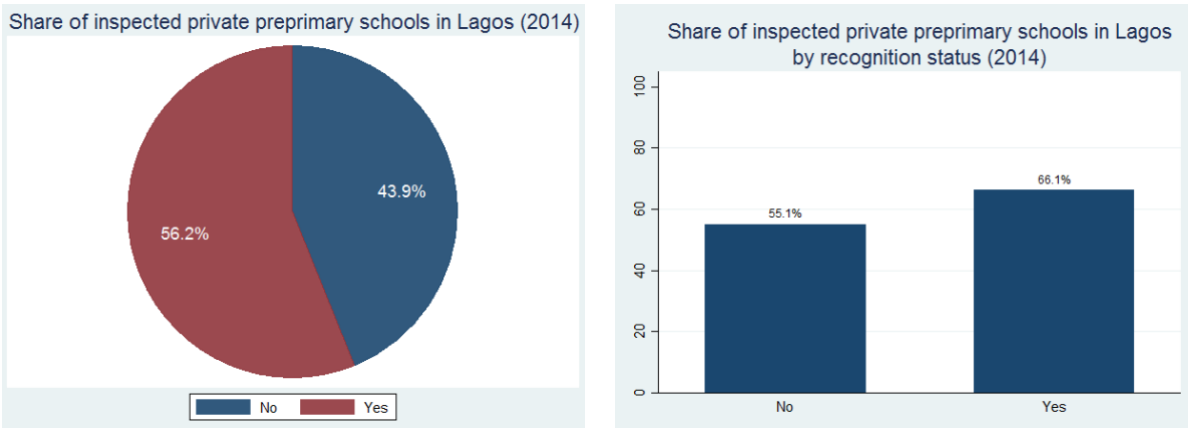


Figure 5.19. Average number of teachers in private preprimary schools in Lagos

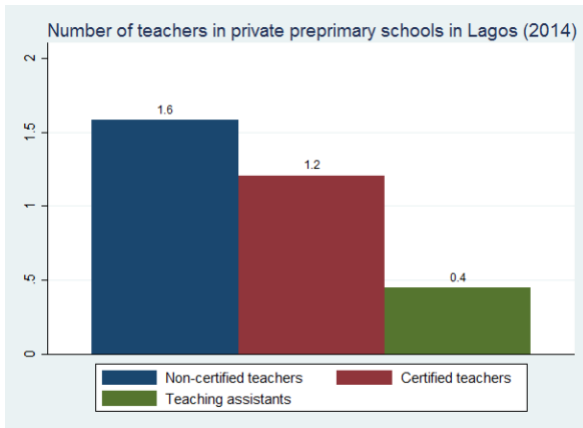


Figure 5.20. Share of certified teachers in private preprimary schools in Lagos, by tuition level and recognition status

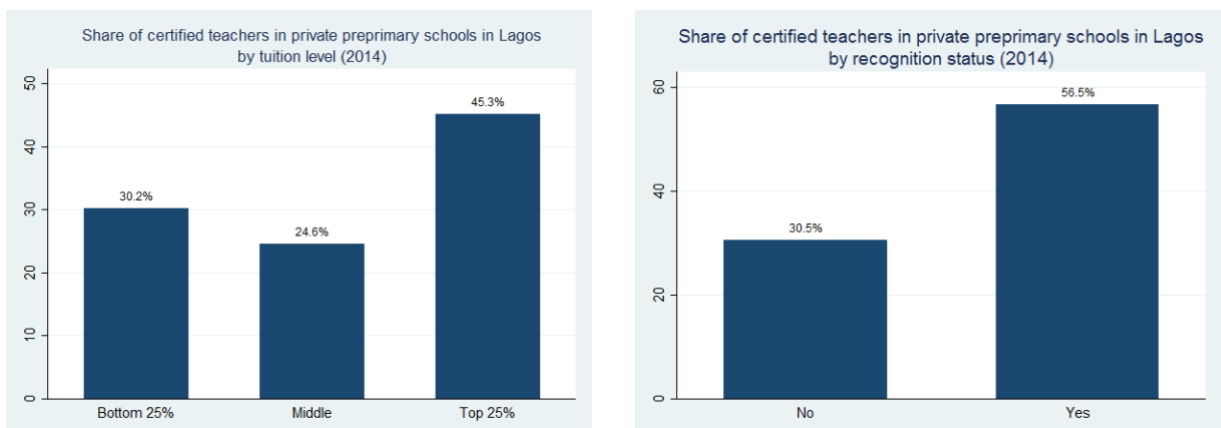
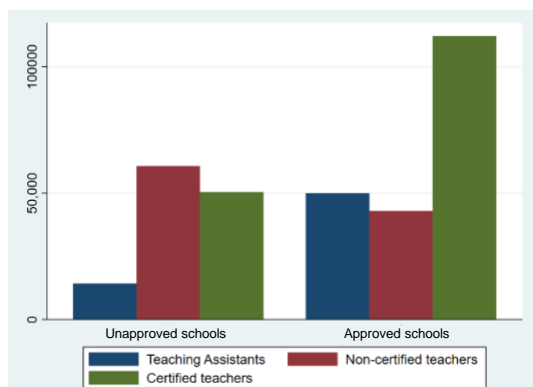


Figure 5.21. Teachers’ yearly salaries in private preprimary schools in Lagos, by recognition status



5.4. Discussion and conclusions: non-state ECE in Kenya, Tanzania, and Nigeria

The analysis of private ECE provision across these three cases finds several commonalities. In all three countries, non-state schools enroll more female than male students (53% in Nairobi, 50.7% in Morogoro, and 52.1% in Lagos). Pupil teacher ratios across these contexts are all near 20:1. Regulation of non-state ECE also includes similarities. Data from each of these countries lends support to the notion that non-state actors are serving as important contributors to national ECE delivery. In both Nairobi and Lagos, government provision of ECE services is very low. In the sampled wards in Nairobi, 95% of identified preschools (standalone and attached) are operated by non-state organizations. In Lagos’ Ajeromi-Ifelodun, 91% of identified primary schools are private, and 96% of these provide pre-primary schooling. The non-state ECE sector appears to be responding to the excess demand in these education markets by offering broad coverage to non-state ECE services. The number of children enrolled in private preprimary schools is much lower in Tanzania than in both Nigeria and Kenya.

In Nairobi and Lagos, the largest operator of non-state schools are private for-profit organizations (52% and 93% of non-state providers, respectively). For-profit organizations operate 43% of attached ECE services in Morogoro. Faith-based providers are also consistent providers of ECE services across countries (51% in Morogoro, 14% in Nairobi, and 7%, in Ajeromi-Ifelodun). Community organizations account for nearly a quarter (24%) of non-state provision in Nairobi, 3% in Morogoro, and less than 1% in Ajeromi-Ifelodun. Lastly, NGOs offer a small share of services in Nairobi (4%) and Morogoro (3%).

Across these contexts, non-state governance is predominantly focused on the structural inputs of schools, with much less attention (and specifically little in the way of concrete, actionable support) for the improvement of process quality in pre-schools. In both Morogoro and Lagos, requirements for registering a private school include restrictive measures regarding school facilities and infrastructure, building and

land ownership, teacher qualifications and work conditions. In the case of Lagos, these onerous measures keep most private schools from becoming approved by the state (only 9% are officially registered with the government). In Nairobi and Morogoro, the process of approval is less restrictive; in these contexts, 67% (Nairobi) and 75% (Morogoro) of private schools are approved.

In only one country – Nigeria – do government regulations place limits on tuition rates in non-state schools (₦50,000). Current regulation of the non-state ECE sector in Nairobi appears to provide some attention to both structural and process quality indicators; however, the process quality measures are a bit more generalized, with little direction on how to improve in these areas. More careful attention to supporting non-state schools in increasing process quality would be an important point of emphasis in the progress towards raising student development outcomes.

In all three countries, the existing regulatory environment outlines some type of process for school monitoring and quality assurance. In Nairobi, non-state schools were inspected on average .75 times in the prior academic year. In Morogoro, 64% of non-state preschools have been the recipients of a school inspection within the previous 6 months (87% within the previous 2 years). In Lagos, recognized schools are inspected at a rate of 66% (within the previous two years) as compared to 55% for non-recognized schools; however, the nature of inspections is quite different for approved and unapproved schools in Lagos. The inspection visits for unapproved schools appear to predominantly take the form of an inspection of the school's physical facilities in attempt to satisfy the school registration criteria. Unapproved private schools are receiving little in the way of support for qualitative improvements to their provided services, whereas approved non-state schools are primarily receiving inspection visits from the Ministry of Education and other education agencies for the purposes of quality assurance (i.e., attention to the process quality of the schooling experience).

Non-state ECE teachers in Lagos have low rates of certification (37%) compared to those in Nairobi (80%) and Morogoro (94%). However, the high certification rates in Tanzania are partly explained by the lax requirements for teacher certification; many teachers only complete a certificate course over the period of a few weeks, as opposed to an official pre-service higher education program. The relatively high rates of ECE certification across different provider types in Nairobi perhaps offers indicative evidence of a good starting point for teachers in their knowledge of effective teaching practices. This could offer a good foundation upon which to build with further teacher professional development opportunities.

There is evidence to suggest that, at least in some locations, teacher salaries may not be high enough to adequately incentivize high quality teachers into the profession, and perhaps not even enough to provide

a solid living wage for ECE teachers. In Nairobi, the salary for a certified ECE teacher in a typical non-state school would place that teacher at 94% (i.e., 6 percentage points under) the local poverty line. In Lagos certified ECE teachers earn a salary roughly 83% (i.e., 17 percentage points under) the national poverty line. Only in Morogoro do teachers appear to earn a living wage: 191% of the poverty line in an approved school and 120% of the poverty line in an unapproved school. In the case of Nairobi, there is some evidence (in the case of community schools at least) of late payments to teachers, which has the potential for deleterious impacts on teacher motivation, retention, etc. Policies should consider better professional protections for teachers working in non-state schools.

Evidence from all countries (but particularly in the cases of Lagos and Morogoro) indicates that fee-based ECE is likely cost-prohibitive for families living under the poverty line (which constitutes sizable shares of the populations in all three countries). For a household at the local poverty line to send a single child to a median-cost non-state preschool would require 4.5% of annual household consumption in Nairobi, 7% in Lagos, and 11.9% in Morogoro. In most instances, there are also relationships between the costs of attending a school and its proxies of quality. In Morogoro, attending an approved non-state school requires paying more than four times as much in school fees (as compared to an unapproved school). In each of the three countries, there are differences in costs between approved and unapproved non-state preschools. There is some evidence that private preschools in Lagos have lower structural quality than their counterparts in Morogoro. Private schools in Lagos have a similar pupil–teacher ratio, but significantly lower share of certified teachers compared to private schools in Morogoro. However, the affordability of private services in Morogoro is much lower.

In Kenya (the only country in which school quality was estimated), there is some evidence (although not overwhelming) that quality may be better in standalone ECE centers (as measured by class resources; classroom environment; discipline and behavior; and instructional practices). After accounting for the elite private schools in one of the city’s wealthier wards, paying for a more expensive private schools does not deliver a higher-quality education experience. However, there are some possible predictors of quality within the ECE market. Approved private pre-schools provide higher quality environments as measured by 2 out of 11 indicators (one structural and one process quality indicator). Additionally, standalone pre-schools provide a higher quality environment in 4 out of 11 indicators, with a similar mix of structural and process quality).

Though private schools may help expand enrollment, the government should be wary about the quality of the education that these private schools provide. Lagos currently distributes policy guidelines to private

preprimary centers, but does not actively monitor their educational activities. It is recommended that the government monitor the performance of private schools. Although there are no direct indicators of school instructional quality in this study, there is data to suggest that private schools have very low school recognition rates and school inspection rates. In order to ensure quality education, the government may want to consider policies such as more frequent inspection of private schools, relaxed recognition standards (in terms of the physical requirements of school buildings and land), and technical support to private preprimary schools to increase their recognition rate. Technical support examples include offering informational sessions on government recognition standards, disseminating relevant documents, and conducting field visits to recognized schools.

6.0. STUDENT LEARNING OUTCOMES IN PUBLIC AND PRIVATE ECE IN NIGERIA

The final analytical output of this study involves the investigation of differences in achievement levels among children and youth in Nigeria. This analysis contributes new findings to the growing body of research on student performance across school sectors in LMICs (as described in section 3, above). Prior research demonstrates that achievement gaps between students of different social and economic backgrounds often already exist by the time students begin primary school (Paxson & Schady, 2007; Zieleniak, 2014). And notwithstanding the fact that some of these gaps come with students into pre-primary schooling, there is evidence that deficiencies are less pronounced at these early ages (Paxson & Schady, 2007). Facilitating similar learning trajectories for students across socioeconomic groups requires access to high quality learning environments, with early childhood education playing a key role.

Additionally, this section will present the results of analyses estimating the short-to-medium term cognitive impacts of ECE participation. Making use of available data on individuals from ECE through secondary education, I compare the literacy and numeracy performance of primary and secondary school students who did and did not participate in ECE. Findings contribute to the growing literature base from LMICs that typically find ECE attendance to be associated with increases in cognitive outcomes for students in primary (and sometimes secondary) school (Aboud & Hossain, 2011; Aguilar & Tansini, 2012; Berlinski et al., 2009; Campbell et al., 2002; Cortázar, 2015; Gove et al., 2018; Rao et al., 2012; Shafiq et al., 2018; R. Singh & Mukherjee, 2018; Woldehanna, 2016).

The following research questions drive the analysis of student achievement within this section:

1. Are there differences in the literacy and numeracy capabilities of children in public ECE, children in private ECE, and children unenrolled in any formal ECE program?
2. Are there differences in the literacy and numeracy capabilities of public and private ECE students, before and after accounting for differences in student and household characteristics?
3. Are the literacy and numeracy capabilities of primary and secondary school students moderated by their prior participation in ECE? In other words, do primary and secondary students perform at differential rates according to whether they attended ECE?

6.1. Data

The data used in this analysis are drawn from the LEARNigeria program. LEARNigeria is one of the more recent partners of the People's Action for Learning (PAL) Network, a consortium of stakeholders in LMICs contributing to the generation of student achievement data through the administration of home-based,

citizen-led assessments of student literacy and numeracy competencies (Alcott et al., 2020). These civil society projects owe their genesis to the India ASER program, established in 2005 as an independent (i.e., non-government) attempt to influence the quality of education provision through the measurement and open dissemination of the results of student achievement assessments. A similar initiative was established in Pakistan in 2008. In 2009, the UWEZO program instituted their version of the program in Kenya, Tanzania, and Uganda. Today, the PAL Network organizes and coordinates efforts across assessment providers in 15 countries (PAL Network, 2020).³⁸ LEARNigeria joined the group in 2015, and administered their first full assessment in 2017-18.

The LEARNigeria assessment provides data on learning outcomes from over 49,000 children across 26,000 households in six of the country's states: Akwa Ibom, Ebonyi, Kano, Lagos, Plateau, and Taraba. Surveys are drawn using a multi-stage cluster sampling design, randomly sampling households from 850 enumeration areas across 34 local government areas in the six states. One benefit to the home-based sampling approach is that the survey offers coverage of children regardless of their school enrollment status, capturing those who attend school regularly as well as those who have dropped out or never enrolled. LEARNigeria is designed to construct samples of children between the ages of 5 and 15 that are representative to the state level. However, following the random selection of households within enumeration areas, data is collected on all children in the household between the ages of 3 and 15.

Data collection is carried out through two primary instruments:

1. a household survey of parents, providing data on the background and demographic characteristics of both the household (e.g., age, sex, and education of the household head; number of household members; household possessions/assets) and the child (e.g., age, sex, disability, school enrollment status, grade), as well as a few basic school characteristics (e.g., public/private, language of instruction); and
2. a direct assessment of child literacy and numeracy skills.

The child direct assessment is designed to measure student competencies relative to the requirements of the Nigerian national curriculum. The highest proficiency level is benchmarked to the expected abilities of students at the end of Grade Two. Two measures of student performance are used within this study. The first measure assesses student fluency in letter, syllable, and word recognition, in addition to

³⁸ India, Pakistan, and Nepal (ASER); Kenya, Tanzania, and Uganda (UWEZO); Mali (Bεεkunko); Senegal (Jàngandoo); Mexico (MIA); Nigeria (LEARNigeria); Bangladesh; Mozambique (TPC); Botswana (Young 1ove); and Nicaragua (ABACOnRED).

paragraph and story comprehension. This ordinal measure comprises six levels of student proficiency ranging from beginner-level competency to story-reading fluency (Table 6.1.1). The proficiency levels in this literacy variable are coded 1-6, with higher values representing higher reading fluency. The child numeracy outcome provides a similar measure, including seven proficiency levels (coded 1-7) ranging from beginner-level proficiency to competency with more advanced mathematical operations such as addition, subtraction, and multiplication.

As shown in Table 6.1.1., the numeracy outcome captures more variation in student performance than the literacy outcome, with student scores more consistently distributed across proficiency levels. The literacy measure exhibits a positively skewed distribution, with a larger share of observations at the lowest level of proficiency. This potentially signals a floor effect in the literacy indicator; results on all models attempting to explain student literacy performance should be interpreted with this fact in mind. More details on the specific procedures for administering the literacy and numeracy assessments are provided in LEARNigeria (2019).

Table 6.1.1. Child proficiency levels on literacy and numeracy assessments

Literacy proficiency level	Frequency	Percentage	Numeracy proficiency level	Frequency	Percentage
Beginner	14,634	49.2%	Beginner	6,589	17.4%
Letter	2,278	7.7%	Counting	5,176	13.7%
Syllable	4,778	16.1%	Number recog. (0-9)	6,183	16.3%
Word	3,307	11.1%	Number recog. (10-99)	4,608	12.2%
Paragraph	1,871	6.3%	Addition	4,638	12.2%
Story	2,874	9.7%	Subtraction	3,947	10.4%
			Multiplication	6,746	17.8%
Total	29,742	100%	Total	37,887	100%

The variables in Table 6.1.1. are not used for the final analysis. For ease of interpretation, these variables are standardized around a mean of 0 with a standard deviation of 1 (Table 6.1.2.). Additionally, some analyses exploit variation between siblings of different grade levels. To avoid inconsistencies in comparisons of student outcomes across grades, I compute variables by differencing each individual child's literacy and numeracy scores from the average scores at their grade level. The result is a set of continuous outcome measures that better facilitate the comparison of students across grades. The full set of student, household, and school variables used in the subsequent analyses is provided in Table 6.1.2. The household 'Assets' variable is derived from a linear summation of a set of binary variables

representing household ownership of various items, including: a television, computer, radio, telephone, motor vehicle, motorcycle, and bicycle.

Table 6.1.3. shows the differences in key variable means by public/private ECE enrollment. Results from this table demonstrate that students in private ECE are more likely to be male, less likely to have a disability, are likelier to participate in ECE for more years (as indicated by the smaller value on the 'Grade' variable), come from households with more parent education, a higher number of household assets, and (without accounting for any differences between students) score higher on the measure of numeracy. These findings provide strong evidence of observed systematic differences (and are thus suggestive of unobserved differences) between students across these two sectors. Thus, any attempt to compare the achievement of students needs to adequately account for these differences – both observed and unobserved.

Figure 6.1.1. Distributions on final literacy and numeracy indicators

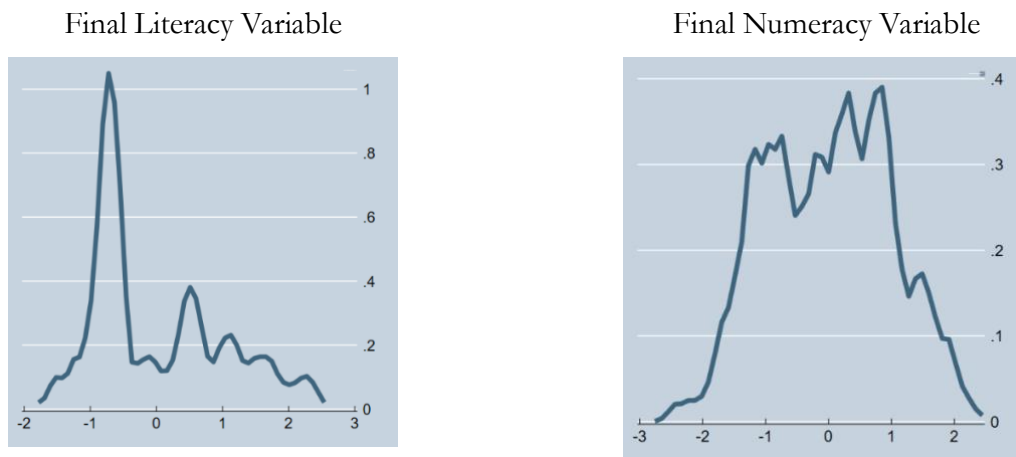


Table 6.1.2. Descriptive Statistics (all observations)

Variable	Obs.	Mean	Std. Dev.	Min	Max
Female (child)	49,362	.447	.497	0	1
Child age	46,103	8.763	3.51	3	15
Disability status	41,404	.023	.15	0	1
Grade	40,866	6.818	3.403	1	15
Household head female	49,370	.109	.312	0	1
Household head primary education	39,268	.236	.425	0	1
Household head junior secondary education	39,268	.069	.254	0	1
Household head senior secondary education	39,268	.293	.455	0	1
Household head higher education	39,268	.181	.385	0	1
Household assets index	49,349	2.739	1.515	0	7
Private school enrollment	44,182	.241	.427	0	1
Public school enrollment	44,182	.593	.491	0	1
Literacy (standardized)	29,286	0	1	-1.667	2.421
Numeracy (standardized)	37,335	0	1	-2.651	2.336

Table 6.1.3. Public vs. private ECE means (children aged 4-6)

Variable	Public mean	Private mean	Mean difference
Female (child)	.523	.446	0.077***
Child age	4.87	4.87	0
Disability status	.022	0	0.022***
Grade	2.151	1.758	0.393***
Household head female	.115	.12	-0.005
Household head primary education	.209	.231	-0.022
Household head junior secondary education	.057	.074	-0.017
Household head senior secondary education	.376	.322	0.054*
Household head higher education	.197	.263	-0.066***
Household assets index	2.942	3.196	-0.254***
Literacy (standardized)	-.042	.052	-0.094
Numeracy (standardized)	-.108	.035	-0.143**

N = 3,038.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

6.2. Method

I apply two different models towards answering research questions 1-3. The first model (equation 1) applies simple ordinary least squares (OLS) regression to represent the raw difference in achievement (Y_i)

between students in public and private ECE centers. P is a binary variable identifying student attendance in a private vs. public school.³⁹

$$Y_i = \beta_0 + \beta_1 P_i + \varepsilon_i \quad (1)$$

Following the estimation of Model 1, I add a vector of child-level, household-level, and state-level⁴⁰ covariates (X_i in equation 2), to control for observed differences in student characteristics between school sectors. To account for the sampling approach in which households are selected from within enumeration areas (EA), models 1 and 2 cluster standard errors at the EA level. For answering research questions 1 and 3, slight adjustments are made to the included covariates (e.g., in the case of model 1, this involves an added dummy variable for public ECE attendance for the purpose of comparing both public and private ECE students to those who are unenrolled).

$$Y_i = \beta_0 + \beta_1 P_i + \beta_2 X_i + \varepsilon_i \quad (2)$$

The primary concern with respect to both (1) and (2) is the likely influence of selection bias. While Model 2 accounts for observed characteristics of students and households, public and private school students may systematically differ in ways that the available data do not fully identify. The consistent existence of systematic differences between the households of public and private school attenders is conclusively attested to in the literature (and borne out across a number of observed characteristics in the current sample; see Table 6.1.3.). The presence of unobserved differences may be partially captured by β_1 in Models 1 and 2, and thus spuriously attribute household (dis)advantages to public vs. private school productivity. To adequately account for this bias, statistical models must account for observed and unobserved between-household heterogeneity. The final model (3) attempts to correct this bias using within-household fixed effects.

$$Y_{ih} = \alpha_i + \beta_1 P_{ih} + \beta_2 X_{ih} + \varepsilon_{ih} \quad (3)$$

Household fixed-effects models take advantage of the availability of observations from multiple individuals (i.e., siblings) within a single household. Y_{ih} represents the standardized achievement score of child i in household h . The fixed-effects estimator, α_i , controls for the household-invariant characteristics that are shared between siblings within a single family. This approach facilitates the removal of any

³⁹ In the case of research question 3, P represents prior ECE attendance (relative to no ECE attendance) and β_1 represents the performance difference between students who did and did not attend ECE.

⁴⁰ The state-level covariates include a set of dummy variables to represent the six states in the sample.

observed and unobserved characteristics that do not vary within households – most importantly those that may cause households to differentially select into public and private schools in ways that might affect cognitive achievement. Given the influence of many household characteristics on student learning outcomes, the ability to account for such biases offers a substantial step towards identification of causal effects. However, such an approach may not account for differences in selection behavior within the households (e.g., if families prioritize private or public school enrollment for children according to gender, disability status, student intellectual ability, or other child-specific characteristics). The outcome (Y_{ih}) provides the achievement difference between the ECE student and his/her older siblings. These sibling-level fixed-effects take the difference in the grade-standardized learning outcome of the ECE student in household h and the average grade-standardized learning outcome of the student's siblings in primary and secondary school. A positive coefficient for β_1 in this model would suggest that ECE students in private schools perform better, relative to their older siblings, than ECE students in public schools.

I use this same fixed effects framework (Model 3) to answer research question 3; in this instance, P represents prior ECE attendance (relative to no ECE attendance) for primary and secondary school students, and β_1 represents the performance difference between siblings who did and did not attend ECE.

6.3. Findings

Do public and/or private students perform better than unenrolled children?

The first research question aims to identify any existing differences in literacy and numeracy performance between students across three groups: those enrolled in private schools, those enrolled in public schools, and those not enrolled in any formal ECE institution. With respect to this research question, the results from model 1 (Table 6.3.1) show a raw performance advantage for students enrolled in ECE on 3 of 4 measured outcomes. Public ECE students score higher than unenrolled children by 0.23 standard deviations in literacy (public ECE students score higher than unenrolled children by 0.13 standard deviations in numeracy, but the difference is not statistically significant). Private ECE students significantly outperform unenrolled children in both literacy (0.36 SD) and numeracy (0.26 SD). After controlling for student-, household-, and state-level characteristics (model 2 in Table 6.3.1), there is no longer any performance advantage for public ECE students relative to unenrolled children. The performance advantage for private school students decreases in both literacy (0.21 SD) and numeracy (0.17 SD) after controlling for these observed characteristics. Importantly, these models do not account for any unobserved differences between these three groups of students; and, the low R^2 value in these models

(the largest is 0.21), suggests that there is a substantial amount of unexplained variation, increasing the likelihood that unobserved factors could be biasing these estimates.

Table 6.3.1. Achievement differences between public, private, and unenrolled ECE students

VARIABLES	(1)		(2)	
	Literacy	Numeracy	Literacy†	Numeracy†
Private ECE	0.363*** (0.0819)	0.259*** (0.0666)	0.206** (0.0959)	0.171** (0.0730)
Public ECE	0.226*** (0.0676)	0.127 (0.0804)	0.131 (0.0834)	0.0322 (0.0670)
Female			0.0832* (0.0483)	-0.00790 (0.0478)
Disability			0.00317 (0.264)	0.307* (0.183)
Household head female			0.0649 (0.0869)	0.240*** (0.0912)
Household head primary education			-0.0650 (0.0753)	0.114 (0.0731)
Household head junior secondary education			-0.0496 (0.109)	0.298** (0.116)
Household head senior secondary education			-0.0665 (0.0947)	-0.0164 (0.0714)
Household head higher education			0.207* (0.124)	0.373*** (0.0941)
Household assets index			-0.00822 (0.0181)	-0.00200 (0.0197)
Constant	-0.183*** (0.0472)	-0.228*** (0.0413)	0.436*** (0.0942)	-0.318** (0.130)
Observations	1,323	1,962	831	932
R-squared	0.029	0.010	0.210	0.109

EA-clustered standard errors in parentheses.

†Model includes state-level dummy indicators

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Are there performance differences between public and private students?

The second research question aims to estimate any differences in performance between public and private ECE students. When measuring the raw performance difference between public and private students (model 1 in Table 6.3.2), private students score higher in numeracy (0.21 SD) without any significant difference between the two sectors on the measure of literacy. After controlling for observable student, household, and state characteristics (model 2 in Table 6.3.2), the numeracy advantage remains for private ECE students, with a reduced coefficient of 0.13 standard deviations. The third model offers

the most internally valid estimate of the sector achievement difference, by estimating the private ECE coefficient using household fixed effects. After accounting for the household-invariant unobservables within this model, we find a reversal of the school sector coefficient for both literacy and numeracy outcomes. In the literacy model, public ECE students outperform their private counterparts by 0.9 standard deviations, although this result is not statistically significant. In the numeracy model, we find a public ECE performance advantage of 0.19 standard deviations. Other significant coefficients in this model include a female performance advantage in numeracy, a child age effect in numeracy, and higher performance of children in Nursery 1, relative to those in Nursery 2.

Are there lasting performance advantages from attending ECE as a child progresses through primary and secondary school?

The final research question is interested in the potential lasting effects of ECE participation as children progress through the school system. To this end, I assess the achievement differences between students based on whether they previously attended preschool. Separate analyses are conducted for students at the primary and secondary school levels to determine the extent to which observed effects diminish over time. Following the approach used for answering the previous research questions, first models look at the raw achievement differences between students who did and did not attend ECE. For students at the primary school level, there is a 0.26 and 0.38 performance advantage in literacy and numeracy for former preschool attendees (Table 6.3.3). These coefficients are smaller (yet still statistically significant) for secondary school students: 0.22 in literacy and 0.25 in numeracy (Table 6.3.4). Controlling for student, household, and state observable characteristics reduces this performance difference for primary students. In fact, results from the primary-level Model 2 show a performance advantage for former ECE attendees in numeracy only (0.20 SD), with no significant difference in literacy (Table 6.3.3). At the secondary level, the ECE participation performance advantage decreased in literacy (0.18 SD) and increased in numeracy (0.28).

Findings from the more rigorous fixed effects models show a lasting numeracy advantage for primary school students who took ECE in numeracy (0.14 SD), with no difference in measured literacy outcomes (model 3, Table 6.3.3). Likewise, after accounting for within-household invariant differences, there is no lasting effects on ECE participation as measured by secondary school achievement outcomes. These findings provide evidence of some lasting ECE participation effects; but it appears that these diminish students progress further in their educational careers.

Table 6.3.2. Achievement differences between public and private ECE students

VARIABLES	(1)		(2)		(3)	
	Literacy	Numeracy	Literacy†	Numeracy†	Literacy (household fixed effects)	Numeracy (household fixed effects)
Private ECE	0.0278 (0.0722)	0.209*** (0.0702)	0.0743 (0.0569)	0.134** (0.0676)	-0.0897 (0.125)	-0.188** (0.0887)
Female			0.103** (0.0520)	0.00354 (0.0565)	0.0148 (0.0784)	0.135** (0.0587)
Disability			0.416 (0.324)	0.298 (0.214)	0.679 (0.666)	0.297 (0.383)
Child age			-0.159* (0.0875)	0.187*** (0.0692)	0.0275 (0.0179)	0.0359*** (0.0116)
Nursery 1			0.0629 (0.0901)	0.332*** (0.0797)	0.383*** (0.113)	0.186** (0.0810)
Kindergarten			0.302** (0.125)	0.170 (0.104)	0.0626 (0.112)	-0.0578 (0.128)
Household head female			-0.0168 (0.0735)	0.335*** (0.0914)		
Household head primary education			-0.138* (0.0793)	0.0473 (0.0913)		
Household head junior secondary education			-0.0464 (0.118)	0.164 (0.129)		
Household head senior secondary education			-0.178* (0.0911)	0.0462 (0.0805)		
Household head higher education			0.0546 (0.118)	0.402*** (0.105)		
Household assets index			0.0106 (0.0173)	-0.00725 (0.0212)		
Constant	0.0813* (0.0491)	-0.183*** (0.0491)	1.298*** (0.474)	-1.302*** (0.403)	-0.343* (0.192)	-0.252** (0.124)
Observations	699	830	699	830	8,256	12,329
R-squared	0.000	0.015	0.265	0.148	0.064	0.074

EA-clustered standard errors in parentheses (Model 3 provides HH-clustered standard errors)

†Model includes state-level dummy indicators

*** p<0.01, ** p<0.05, * p<0.1

Table 6.3.3. Student achievement, accounting for prior ECE participation (primary students)

VARIABLES	(1)		(2)		(3)	
	Literacy	Numeracy	Literacy†	Numeracy†	Literacy (household fixed effects)	Numeracy (household fixed effects)
ECE participation	0.266*** (0.0291)	0.382*** (0.0333)	0.0439 (0.0318)	0.200*** (0.0263)	-0.0691 (0.0782)	0.140** (0.0660)
Private			0.156*** (0.0344)	0.0464* (0.0275)	0.0840 (0.170)	-0.304** (0.124)
Female			-0.00734 (0.0202)	0.0501** (0.0196)	0.0900 (0.111)	0.101 (0.0936)
Child age			0.0215*** (0.00779)	0.0554*** (0.00607)	0.0414 (0.0456)	0.0475 (0.0314)
Grade			-0.0834*** (0.0120)	-0.0743*** (0.00917)	-0.158** (0.0622)	-0.0482 (0.0430)
Age at which child started school			-0.0483*** (0.0119)	0.00798 (0.0126)	0.121* (0.0646)	-0.00189 (0.0532)
Disability			0.753*** (0.194)	-0.0492 (0.106)	1.621*** (0.578)	-0.351 (0.469)
Household head female			-0.00125 (0.0397)	0.0679** (0.0331)		
Household head primary education			0.0405 (0.0385)	0.151*** (0.0349)		
Household head junior secondary education			0.203*** (0.0583)	0.199*** (0.0480)		
Household head senior secondary education			0.0653* (0.0386)	0.228*** (0.0366)		
Household head higher education			0.122*** (0.0471)	0.383*** (0.0428)		
Household assets index			0.0249** (0.00973)	0.0238*** (0.00895)		
Constant	-0.150*** (0.0232)	-0.228*** (0.0295)	-1.163*** (0.219)	0.236** (0.104)	-0.320 (0.406)	-0.0883 (0.296)
Observations	17,162	21,604	8,135	10,441	6,141	8,569
R-squared	0.019	0.032	0.078	0.253	0.097	0.049

EA-clustered standard errors in parentheses (Model 3 provides HH-clustered standard errors)

†Model includes state-level dummy indicators

*** p<0.01, ** p<0.05, * p<0.1

Table 6.3.4. Student achievement, accounting for prior ECE participation (secondary students)

VARIABLES	(1)		(2)		(3)	
	Literacy	Numeracy	Literacy†	Numeracy†	Literacy (household fixed effects)	Numeracy (household fixed effects)
ECE participation	0.223*** (0.0528)	0.253*** (0.0399)	0.181*** (0.0663)	0.284*** (0.0416)	-0.255 (0.402)	0.105 (0.127)
Private			0.0929 (0.0655)	-0.0378 (0.0427)	1.046 (0.824)	0.329 (0.221)
Female			-0.00264 (0.0476)	0.0422 (0.0299)	-0.0858 (0.521)	0.279 (0.181)
Child age			0.0371** (0.0165)	0.0721*** (0.0118)	0.102 (0.153)	-0.00313 (0.0793)
Grade			0.0128 (0.0199)	-0.0534*** (0.0137)	-0.0291 (0.266)	-0.0292 (0.0715)
Age at which child started school			-0.0776*** (0.0298)	-0.0518*** (0.0178)	0.258 (0.648)	-0.177 (0.126)
Disability			0.292 (0.206)	-0.0229 (0.121)		
Household head female			0.144 (0.0879)	0.0701 (0.0464)		
Household head primary education			-0.0497 (0.0799)	0.107** (0.0536)		
Household head junior secondary education			0.0165 (0.102)	0.0254 (0.0742)		
Household head senior secondary education			-0.0516 (0.0815)	0.129** (0.0584)		
Household head higher education			0.186** (0.0840)	0.243*** (0.0610)		
Household assets index			0.0544*** (0.0202)	0.0184 (0.0116)		
Constant	-0.154*** (0.0414)	-0.173*** (0.0360)	-0.351 (0.403)	0.0615 (0.189)	-2.837 (4.234)	1.150 (0.894)
Observations	6,029	8,740	2,573	4,093	1,832	3,274
R-squared	0.008	0.014	0.039	0.179	0.081	0.162

EA-clustered standard errors in parentheses (Model 3 provides HH-clustered standard errors)

†Model includes state-level dummy indicators

*** p<0.01, ** p<0.05, * p<0.1

6.4. Discussion

The analyses conducted in this section offer new evidence along two primary streams of research: the first is concerned with the value of ECE participation, and the second assesses whether the public or private ECE sector produces more relative value, with both being measured by child cognitive abilities. Through the observation of performance differences between students who do and do not participate in

formal pre-schooling, we can estimate the value-added of ECE participation. Results from household fixed-effects models align with much of the prior research, suggesting that pre-school attendance in these six states of Nigeria is associated with higher academic capabilities that follow students into their primary school years, at least as measured by student numeracy capabilities. Results, however, appear to fade out as children progress through secondary school.

Given the fact that ECE participation seems to have measurable value for students in their academic and cognitive development, there is interest in the ability for ECE providers to deliver a high-quality development experience for their students. The investigation comparing the performance of public and private ECE students is motivated towards better understanding the quality of services available to children in Nigeria. Findings provide evidence of a substantial selection effect, with students in private preschools typically coming from more advantaged household environments. However, after accounting for between-household differences, the analyses found a performance advantage for public preschools as measured by student numeracy outcomes. These results align with the findings from the systematic review of the research in section 3.0, where it is more common to find public sector advantages in ECE structural quality. Although this study is not positioned to parse out the mechanisms driving differences in school quality, future research could add to this discussion by more frequently investigating the linkages between school quality as measured by observation of classroom teaching practices and learning environments with outcomes in students learning.

7.0. CONCLUSION

The aim of this work was to provide a comprehensive look at a topic that is still young in its development as a target of professional or scholarly research. While a growing number of more recent studies have begun to consider the implications of non-state ECE in individual cases, none has yet offered a comprehensive assessment of topic across a wide set of LMICs. The importance of better understanding private ECE is apparent (i) given the large potential impact that interventions in the early years have on later life outcomes, and (ii) given the large number of children currently attending non-state school across the Global South. The growth of private ECE across many LMICs has been demonstrated drawing upon prior research within the framework of the systematic review. Provision is not isolated to for-profit ECE providers, but rather spread across non-government, faith-based, and for-profit organization. There is strong evidence that in many locations, non-state schooling is growing in response to excess demand in the ECE schooling system – that is, in contexts where governments provide limited public ECE services.

Public-private partnerships are being used by governments in several countries as one form of investment into early childhood. Funding for the operation of both public and private institutions are investments that the state can make into increasing the availability of ECCE services. Evidence suggests that the spending of funds in both public and private sectors should be carried out with at-risk communities and students in mind, as a means to maximize the contributions of both public and private sectors.

Regulation of the private ECE sector is focused largely on controlling school inputs (i.e., structural school quality). Government regulation of the sector needs to be paired with adequate oversight and quality assurance of private schools' curricula and pedagogies, as well as support for teacher training in both public and private sectors. More attention to process quality is needed. Governments would also be wise to consider policies such as India's Right the Education Act, which has helped to expand access for poorer segments of society by requiring private schools to reserve places within their schools. Additionally, regulations for private schools should include requirements for the physical resources and materials necessary to support students with disabilities. These students should be free to select any school and not be restricted because of the school's inability to meet their needs. On the whole, it is recommended that governments consider adapting policies that more adequately address the dual needs of increasing process quality as well as access to private ECE centers within their jurisdictions.

Parents often make judgements about public and private schools using tenuous signals of school quality (quality of infrastructure, English instruction, academic instructional practices). Some of these may actually be perpetuating the delivery of a low-quality educational experience, as this is what parents

demand. There could be great value in designing some national information campaigns to increase public knowledge about what a quality ECE experience looks like. If parents can learn that higher-quality ECE instruction is likely to be child-centered, self-driven, play-based, and in the child's native language, they will be more likely to demand such high quality services, as opposed to maintaining demand for the status quo defined by inadequate instructional approaches.

On a majority of structural variables, the public versus private preschool advantage appears to vary by country. Private preschools are more likely to have higher quality infrastructure. Public schools are more likely have teachers with ECE-specific training, but also face challenges related to teacher absenteeism. Analysis of process quality indicators suggest that public schools have a slight advantage in delivering high-quality curriculum and pedagogy, and being more likely to do so in a student's native language. Students enter the ECE system already experiencing inequalities in (non-)cognitive performance – much of this is driven by differences in household characteristics, including motivation, wealth, cultural capital, etc. Overall, quality of instruction appears to be more important for producing student learning gains than school sector. Key recommendations for policy and practice would focus on programs that seek to provide more support to both public and private preschools, particularly in the areas of teacher training and continued professional development.

Findings from the analysis of household surveys provide further evidence of the fact that the non-state sector is an active participant in the provision of education services at ECE levels. On average across these countries over 42% of all children enrolled in ECE are in non-state institutions. This non-state sector is comprised primarily private independent schools, with other providers (churches, NGOs, and communities) filling smaller roles in certain contexts.

Some of the trends that we've seen (from prior research) around equitable access to a quality ECE experience seem to also be found when understanding access to non-state ECE opportunities. Disadvantages seem to exist across lines of geography (specifically, rural location), wealth, and race. However, there does not appear to be much systematic inequity in terms of private ECE access by gender. Successful ECE expansion policies would do well to address the needs of these at-risk groups.

The analysis of private ECE provision in Kenya, Nigeria, and Tanzania offered a more detailed looking into the behavior of non-state ECE markets and schools. Data from each of these countries lends support to the notion that non-state actors are serving as important contributors to national ECE delivery. In both Nairobi and Lagos, government provision of ECE services is very low. In the sampled wards in Nairobi, 95% of identified preschools (standalone and attached) are operated by non-state organizations. In Lagos'

Ajeromi-Ifelodun, 91% of identified primary schools are private, and 96% of these provide pre-primary schooling. The non-state ECE sector appears to be responding to the excess demand in these education markets by offering broad coverage to non-state ECE services. Across these contexts, non-state governance is predominantly focused on the structural inputs of schools, with much less attention (and specifically little in the way of concrete, actionable support) for the improvement of process quality in pre-schools. In both Morogoro and Lagos, requirements for registering a private school include restrictive measures regarding school facilities and infrastructure, building and land ownership, teacher qualifications and work conditions. In the case of Lagos, these onerous measures keep most private schools from becoming approved by the state (only 9% are officially registered with the government). In Nairobi and Morogoro, the process of approval is less restrictive; in these contexts, 67% (Nairobi) and 75% (Morogoro) of private schools are approved. Current regulation of the non-state ECE sector in Nairobi appears to provide some attention to both structural and process quality indicators; however, the process quality measures are a bit more generalized, with little direction on how to improve in these areas. More careful attention to supporting non-state schools in increasing process quality would be an important point of emphasis in the progress towards raising student development outcomes.

There is evidence to suggest that, at least in some locations, teacher salaries may not be high enough to adequately incentivize high quality teachers into the profession, and perhaps not even enough to provide a solid living wage for ECE teachers. In the case of Nairobi, there is some evidence (in the case of community schools at least) of late payments to teachers, which has the potential for deleterious impacts on teacher motivation, retention, etc. Policies should consider better professional protections for teachers working in non-state schools. Evidence from nearly all countries in both school-level and household-level analyses, indicates that fee-based ECE is likely cost-prohibitive for families living under the poverty line (which constitutes sizable shares of the populations in the countries analyzed in this study). In some instances, where measured, there are also relationships between the costs of attending a school and its proxies of quality. In Kenya (the only country in which school quality was estimated), there is some evidence (although not overwhelming) that quality may be better in standalone ECE centers (as measured by class resources; classroom environment; discipline and behavior; and instructional practices). After accounting for the elite private schools in one of the city's wealthier wards, paying for a more expensive private schools does not deliver a higher-quality education experience.

Lastly, this research provided new focused on the value of ECE participation in general terms and in relative terms when comparing public and private sector, as measured by child cognitive abilities. Results

from household fixed-effects models align with much of the prior research, suggesting that pre-school attendance in Nigeria is associated with higher academic capabilities that follow students into their primary school years, at least as measured by student numeracy capabilities. Results, however, appear to fade out as children progress through secondary school.

Given the fact that ECE participation seems to have measurable value for students in their academic and cognitive development, there is interest in the ability for ECE providers to deliver a high-quality development experience for their students. The investigation comparing the performance of public and private ECE students is motivated towards better understanding the quality of services available to children in Nigeria. Findings provide evidence of a substantial selection effect, with students in private preschools typically coming from more advantaged household environments. However, after accounting for between-household differences, the analyses found a performance advantage for public preschools as measured by student numeracy outcomes. These results align with the findings from the systematic review, where it is more common to find public sector advantages in ECE structural quality. Although this study is not positioned to parse out the mechanisms driving differences in school quality, future research could add to this discussion by more frequently investigating the linkages between school quality as measured by observation of classroom teaching practices and learning environments with outcomes in students learning.

Overall, this research provides a large amount of new evidence and discussion on the issue of non-state early childhood education. Data and findings may be used to facilitate policy discussion and decisions to influence child participation and learning throughout their early childhood learning experience.

8.0. APPENDICES

8.1. School head questionnaire – sample questions⁴¹

Demographics and staffing

- Year school was established
- Number and average age of students by level (Baby, Nursery, Pre-unit, Primary, Secondary)
- Number and salary of staff by level and certification status
- Teacher pre-service training and education levels
- In-service teacher training
- Head teacher characteristics

School expenditures

- School's recurring expenses/expenditures in addition to staff salaries: rent or loan payment for building and facilities; utilities; equipment/learning materials; maintenance; taxes; registration/approval fees; all other recurring expenses

School fees and income

- Per-student tuition fee rates by education level
- Other student fees: registration; feeding; transportation; textbooks and materials; uniform; extra classes; extracurricular activities; all other fees

Scholarships

- Does the school offer any scholarships, bursaries, or reduced fees to pre-primary students?

Funding

- Support from the government in the form of funding, provided staff, or materials (textbooks, technology, etc.)
- Funding from sources other than the government or students

Other topics

- School management; obstacles and constraints for school development; program structure and curriculum; health, hygiene and protection

⁴¹ The full head teacher questionnaire can be accessed [here](#).

8.2. School/classroom observation – sample items⁴²

Health, hygiene, and protection

- Mark all of the hazardous conditions that exist outside and inside the classroom
- Are the toilets shared or separate for boys and girls? What condition are the toilets in?
- Is drinking water available for children inside or outside the school premise?

Classroom space

- Is there enough room for all attending children to do all activities, without constraint?

Interactions

- Does teacher ask open-ended questions to children to express personal opinions and ideas?
- Do staff verbally respond to child-initiated questions or comments?

Discipline

- Is student misbehavior addressed by the teacher? Do the teachers demonstrate verbal or physical abuse towards the students?
- Do the teachers coach the students to resolve their own issues and deal with misbehavior?
- Do teachers smile, clap or show positive emotion towards their students?
- Are children allowed to communicate freely during session?

Inclusiveness

- How many children with physical disabilities are observed in the classroom?
- How much effort is made to integrate the disabled child(ren)?
- Do teachers seem to be aware that some children may have special needs or they may be struggling with learning? Is the level of material and teachers demands at the same level regardless of student's ability?
- Is teacher engagement with the students focused on a select few students or spread evenly to most of the students?

Program structure and curriculum

- Do children participate in child-initiated play, games, and activities?
- Are all activities carried out as whole group or also in small groups?
- Does the teacher read a story during the observed class time? Are children encouraged to discuss story through open-ended questions, where for example, vocabulary and events are discussed?
- Do children have the opportunity to read or write numbers?
- What percentage of children participated in outdoor activities?
- Is singing or movement observed?
- Do children have indoor play during the observed lesson?

⁴² The full school/classroom observation protocol can be accessed [here](#).

8.3. Teacher questionnaire – sample questions⁴³

Teacher training and experience

- Years worked at pre-primary level; years worked in teaching overall
- Class levels currently taught
- Highest education level completed
- Certification and pre-service training in ECE
- In-service training
- During the last 12 months, how often have you been observed in your classroom teaching as a part of supervision, monitoring or training?
- During the last 12 months, how often have you discussed specific teaching strategies with peers (other teachers)?

Family and community engagement

- Do you provide information to parents about parenting (for example, about how to engage, talk to or play with children; nutrition or health; or how to manage child behavior)?
- Do parents of children in this program: provide food for the class; make or buy materials for the class; help with school facility, garden, or grounds; monitor attendance of children or teachers; serve on governance for the program; monitor school/class spending?
- Are there written guidelines for teaching children with disabilities in your pre-primary school?

Program structure and curriculum

- What languages do you use to communicate with the students?
- Which of these areas would you like more help in teaching advice or suggestions?
- Is there a curriculum outlining basic competencies on specific skill and knowledge areas that students should be meeting?
- How many age-appropriate story books with text and illustrations are available among teacher's resources?

Health, hygiene, and protection

- How many times have you talked about the health or education services of the program with health worker(s) in the last 3 months?
- Have you had contact with social protection workers?
- Does your preprimary program have written guidelines on child protection?
- Have you received a workshop or training on child protection in the last year?

⁴³ The full teacher questionnaire can be accessed [here](#).

8.4. Detailed description of school quality indices

<i>School Quality Indicators</i>	<i>Included variables in school quality indices</i>
School Environment	<ul style="list-style-type: none"> ● Area around school is clean and hygienic- number of hazards around school (Open defecation or urination, stagnant water, open dump, other). ● Adequate and separate toilet facilities for boys and girls. ● Children have access to safe drinking water (outside or inside school). ● Number of hazards outside the classroom (motor vehicle traffic, open well or pond, nails, broken glass, saws, large animal tied or roaming, open sewer holes or drains, construction material, etc.)
Classroom Environment	<ul style="list-style-type: none"> ● Children are seated on materials, not bare ground. ● Number of hazards inside classroom (broken or uneven floors, broken furniture, sharp or rusting play materials, leaking roofs, holes in ceiling, broken wall plaster, inadequate natural light, inadequate ventilation, door which cannot be locked or latched, dangerous kitchen, etc.) ● Adequate covered classroom space for number of children attending. ● Items of children’s individual or group work on the walls of classroom. ● Print displays at children’s eye level. ● Adequate toilet facilities for boys and girls.
Teacher-Student Interactions	<ul style="list-style-type: none"> ● Children experience little waiting time between activities. ● Staff respond to child-initiated questions or comments. ● Teacher encourages children with open-ended questions to express memorized vs. new thoughts. ● Scaffolding /support by teacher to help a child work through problems.
Discipline and Behavior	<ul style="list-style-type: none"> ● Discipline supports behavior for full and appropriate participation. ● Rough physical or verbal interactions between teacher and student. ● Evidence of effort to enroll disabled children and encourage participation and integration. ● Children of different learning needs are catered to. ● Teacher equally calls on boys and girls and spreads their attention evenly between genders. ● Time of classroom instruction that is teacher-led or child initiated learning and play. ● Teacher arranges learning in small groups rather than always whole-group activities.
Inclusiveness	<ul style="list-style-type: none"> ● Evidence of effort to enroll disabled children and encourage participation and integration. ● Children of different learning needs are catered to.

	<ul style="list-style-type: none"> ● Teacher equally calls on boys and girls and spreads their attention evenly between genders.
Numeracy	<ul style="list-style-type: none"> ● Children have the opportunity to count numbers, add/subtract and read/write simple numbers ● Children have the opportunity to construct combinations of shapes. ● Children use objects to learn math concepts.
Literacy	<ul style="list-style-type: none"> ● Children have the opportunity to read/write letters and use writing implements. ● Teacher reads an age-appropriate illustrated storybook with text. ● Teacher introduces children to new vocabulary.
Instructional Practices	<ul style="list-style-type: none"> ● Time of classroom instruction that is teacher-led or child initiated learning and play. ● Teacher arranges learning in small groups rather than always whole-group activities.
Class Resources	<ul style="list-style-type: none"> ● Children are free to choose from different interest center during indoor play. ● Children have access to blocks for construction. ● Children have access to books during free-choice time.
Indoor/Outdoor activities and Free Time	<ul style="list-style-type: none"> ● Age-appropriate outdoor activities are supervised and led by the teacher. ● Children are given time for indoor free-choice activities.
Singing and Rhymes	<ul style="list-style-type: none"> ● Children are observed to sing and dance or engage in making music. ● Children say or sing rhymes.

8.5. Description of the systematic review search process

For the first step of this process, I searched the following databases for relevant literature:

- 1. Early Childhood Search terms
 - “early childhood education” OR “early childhood school*” OR “early childhood care” OR preprimary OR “pre-primary” OR preschool* OR “pre-school*” OR prekindergarten OR kindergarten OR pre-kindergarten OR nursery OR crèche OR “early grade”

- 2. Private sector search terms
 - “private school” OR NGO OR “non-government*” OR “community school” OR “community-run school” OR “non-profit school” OR “not for profit school” OR “charter” OR “concession school” OR “contract school” OR “non-state” OR “non state” OR “independent school” OR “unrecognized school” OR madrassa* OR “for-profit” OR “low fee private” OR “low fee school” OR “low cost private school” OR “low cost school” OR “dependent school” OR “subsidized school” OR voucher OR “school choice”

- 3. Geographic search terms
 - Africa* OR Asia* OR Central America* OR South America* OR Pacific OR Caribbean OR “low-income countr*” OR “low* income countr*” OR “middle income countr*” OR “developing countr*” OR “developing nation*” OR “global south” OR “third world” OR Afghanistan OR Benin OR Burkina Faso OR Burundi OR “Central African Republic” OR Chad OR Comoros OR Congo OR Eritrea OR Ethiopia OR Gambia OR Guinea OR Guinea-Bissau OR Haiti OR Korea OR Liberia OR Madagascar OR Malawi OR Mali OR Mozambique OR Nepal OR Niger OR Rwanda OR Senegal OR Sierra Leone OR Somalia OR South Sudan OR Syria OR Tajikistan OR Tanzania OR Togo OR Uganda OR Yemen OR Zimbabwe OR Angola OR Bangladesh OR Bhutan OR Bolivia OR “Cabo Verde” OR “Cape Verde” OR Cambodia OR Cameroon OR Congo OR “Côte d'Ivoire” OR Djibouti OR Egypt OR “El Salvador” OR Georgia OR Ghana OR Honduras OR India OR Indonesia OR Kenya OR Kiribati OR Kosovo OR Kyrgyz* OR Lao* OR Lesotho OR Mauritania OR Micronesia OR Moldova OR Mongolia OR Morocco OR Myanmar OR Nicaragua OR Nigeria OR Pakistan OR “Papua New Guinea” OR Philippines OR “São Tomé” OR “Solomon Islands” OR Sri Lanka OR Sudan OR Swaziland OR “Timor-Leste” OR “East Timor” OR Tunisia OR Ukraine OR Uzbek* OR Vanuatu OR Vietnam OR “West Bank” OR Gaza OR Zambia OR Albania OR Algeria OR Samoa OR Armenia OR Azerbaijan OR Belarus OR Belize OR Bosnia OR Herzegovina OR Botswana OR Brazil OR Bulgaria OR China OR Colombia OR “Costa Rica” OR Cuba

OR Dominica OR "Dominican Republic" OR Ecuador OR "Equatorial Guinea" OR Fiji
OR Gabon OR Grenada OR Guatemala OR Guyana OR Iran OR Iraq OR Jamaica OR
Jordan OR Kazak* OR Lebanon OR Libya OR Macedonia OR Malaysia OR Maldives OR
Marshall Islands OR Mauritius OR Mexico OR Montenegro OR Namibia OR Nauru OR
Paraguay OR Peru OR Romania OR Russia* OR Serbia OR "South Africa" OR Lucia OR
"St. Vincent" OR "Saint Vincent" OR Grenadines OR Suriname OR Thailand OR Tonga
OR Turkey OR Turkmen* OR Tuvalu OR Venezuela

Where necessary, search phrases, characters, and operators were adjusted to meet the requirements of specific database search engines. For example:

- Scopus database – early childhood and private sector search terms:
 - TITLE-ABS-KEY ({private school} OR {NGO school} OR {non-government school} OR {non-governmental school} OR {community school} OR {community-run school} OR {non-profit school} OR {not for profit school} OR {not-for-profit school} OR {charter school} OR {concession school} OR {contract school} OR {non-state school} OR {non state school} OR {independent school} OR {unrecognized school} OR madrassa* OR {for-profit school} OR {low fee school} OR {low-fee school} OR {low-cost school} OR {low cost school} OR {dependent school} OR {subsidized school} OR voucher OR {school choice}) AND ({early childhood education} OR {early childhood school} OR preprimary OR {pre-primary} OR preschool OR preschooling OR {pre-school} OR {pre-schooling} OR prekindergarten OR kindergarten OR {pre-kindergarten} OR crèche OR creche OR {early grade})
- ProQuest dissertation database – early childhood and private sector search terms:
 - ab("early childhood education" OR "early childhood school*" OR preprimary OR "pre-primary" OR preschool* OR "pre-school*" OR prekindergarten OR kindergarten OR pre-kindergarten OR nursery OR crèche OR crèche OR "early grade") AND noft("private school" OR "NGO school" OR "non-government* school" OR "community school" OR "community-run school" OR "non-profit school" OR "not for profit school" OR "charter school" OR "concession school" OR "contract school" OR "non-state school" OR "non state school" OR "independent school" OR "unrecognized school" OR madrassa* OR "for-profit school" OR "low fee private school" OR "low fee school" OR "low cost private school" OR "low cost school" OR "dependent school" OR "subsidized school" OR voucher OR "school choice")

8.6. Studies included in the systematic review (i.e., those meeting the inclusion criteria)

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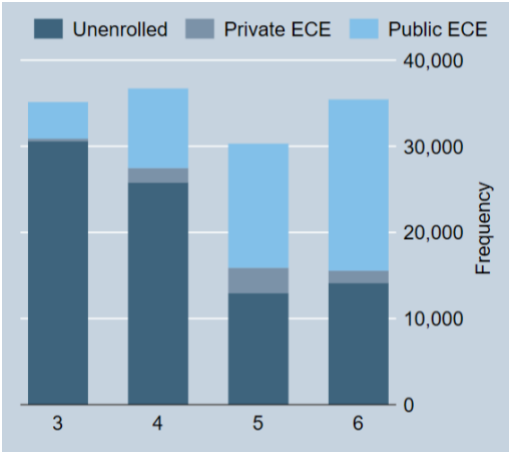
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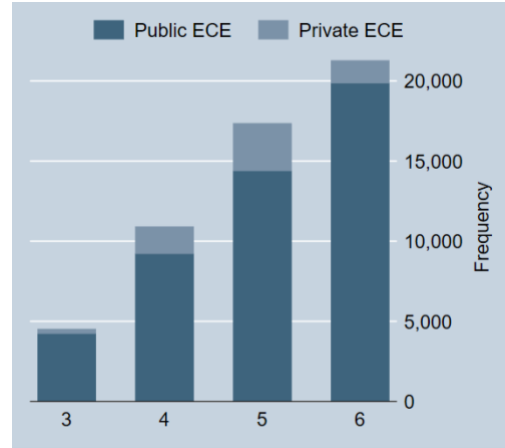
8.7. Tables and Figures – Analysis of ECE participation and affordability

8.7.1. Enrollment and provision

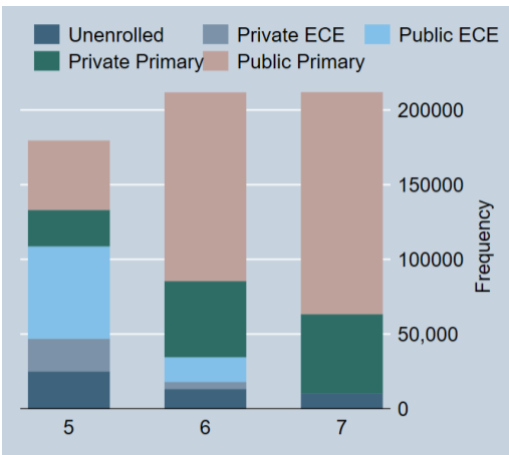
Enrollment status by age (Albania)



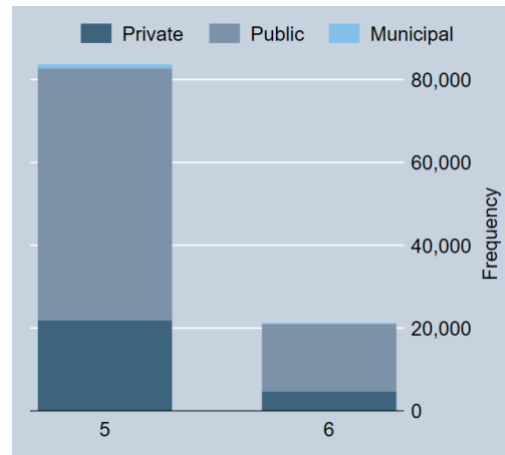
ECE enrollments by school type (Albania)



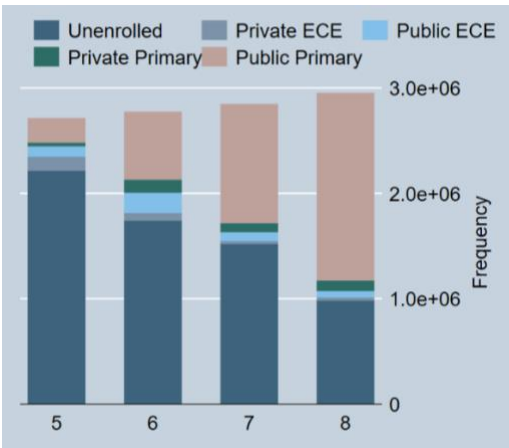
Enrollment status by age (Ecuador)



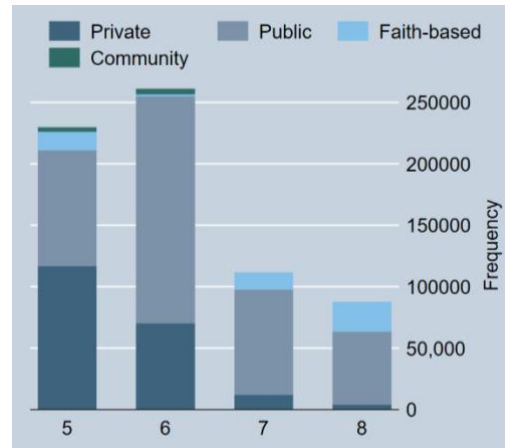
ECE enrollments by school type (Ecuador)



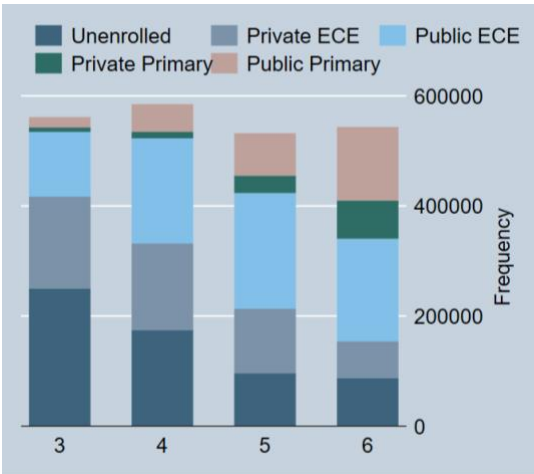
Enrollment status by age (Ethiopia)



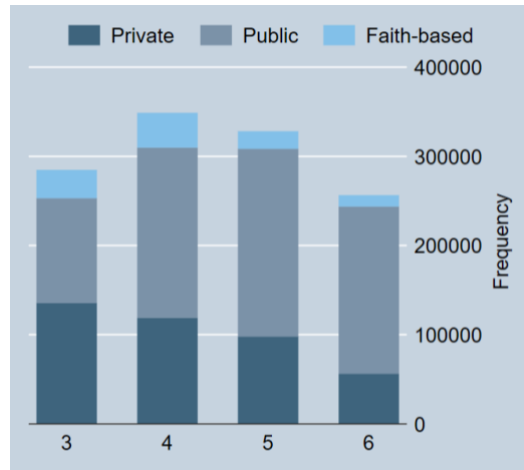
ECE enrollments by school type (Ethiopia)



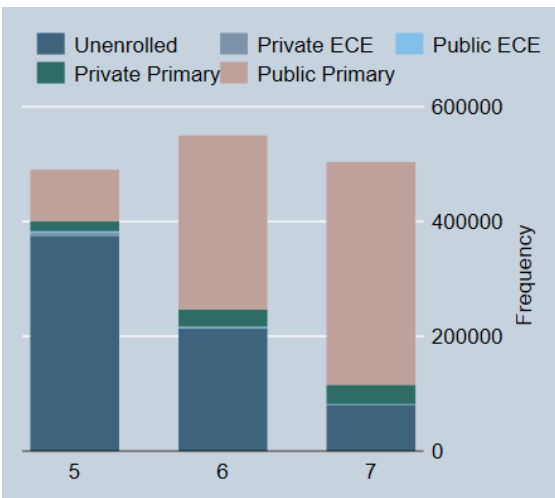
Enrollment status by age (Ghana)



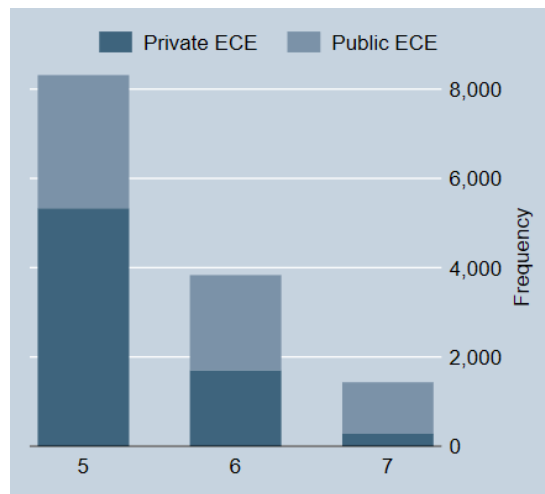
ECE enrollments by school type (Ghana)



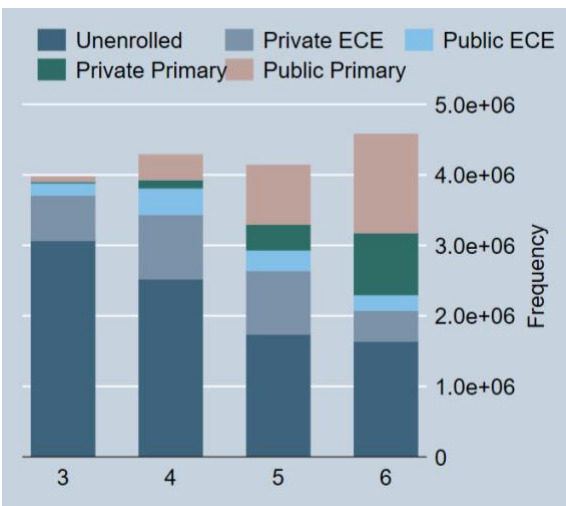
Enrollment status by age (Malawi)



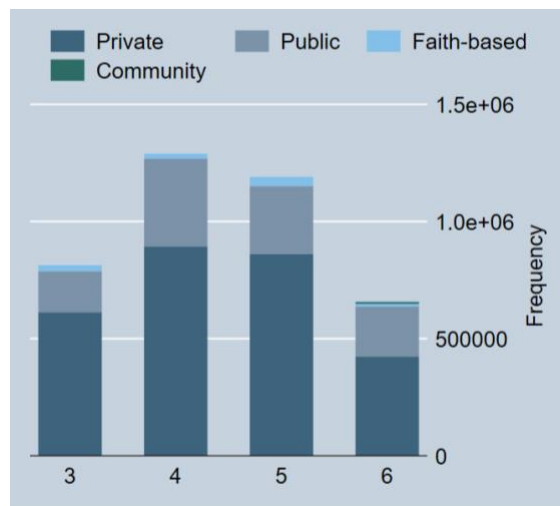
ECE enrollments by school type (Malawi)



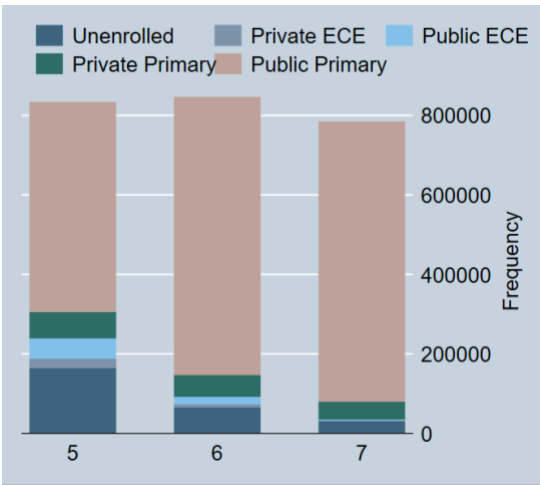
Enrollment status by age (Nigeria)



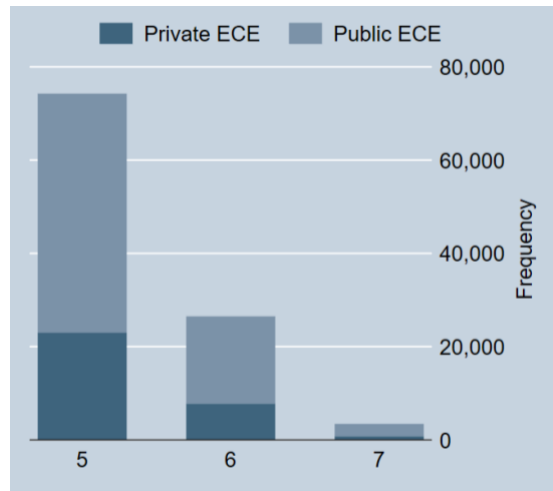
ECE enrollments by school type (Nigeria)



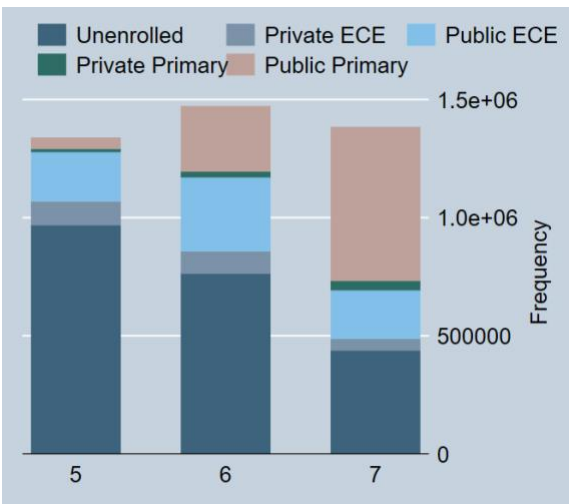
Enrollment status by age (*South Africa*)



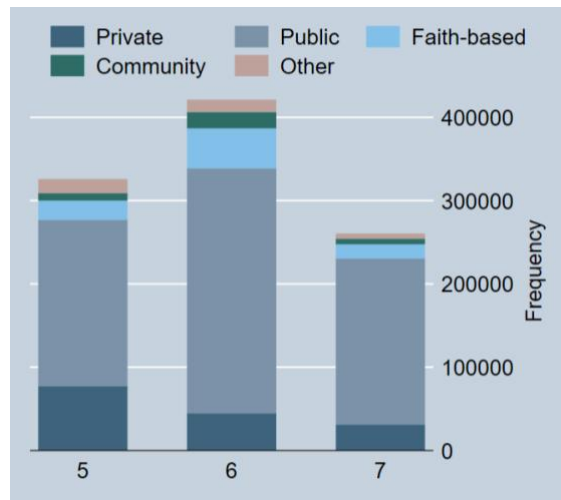
ECE enrollments by school type (*South Africa*)



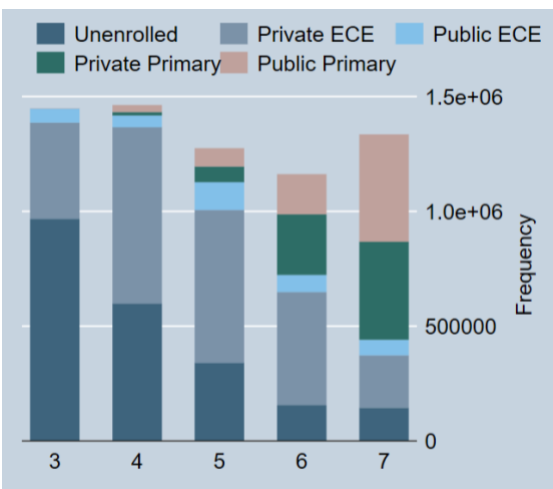
Enrollment status by age (*Tanzania*)



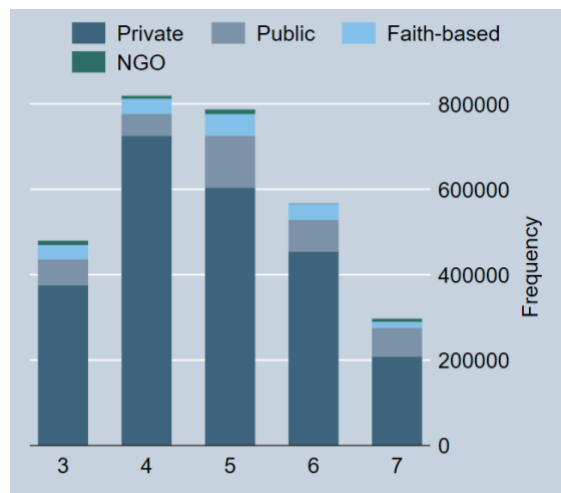
ECE enrollments by school type (*Tanzania*)



Enrollment status by age (*Uganda*)



ECE enrollments by school type (*Uganda*)



Enrollment status by age (Albania)

Enrollment status	Count	%	Count	%	Count	%	Count	%
	Age 3		Age 4		Age 5*		Age 6	
Unenrolled	245	87.1%	198	70.2%	114	42.6%	116	39.9%
Private ECE	2	0.8%	13	4.6%	25	9.7%	12	3.9%
Public ECE	34	12.0%	70	25.1%	127	47.5%	163	56.0%
Total	282	100%	283	100%	268	100%	290	100%

*Note: Age 5 is the last year of pre-primary school, prior to entrance into primary school at age 6.

Enrollment status by age (Ecuador)

Enrollment status	Count	%	Count	%	Count	%
	Age 5*		Age 6		Age 7	
Unenrolled	2,505	13.9%	1,329	6.2%	1029	4.8%
Private ECE	2,187	12.1%	469	2.2%	0	0%
Public ECE	6,181	34.4%	1,651	7.7%	0	0%
Private Primary	2,439	13.5%	5,092	24.0%	5,306	25.0%
Public Primary	4,644	25.8%	12,637	59.6%	14,864	70.1%
Total	17,956	100%	21,178	100%	21,199	100%

*Note: Age 5 is the last year of pre-primary school, prior to entrance into primary school at age 6.

Enrollment status by age (Ethiopia)

Enrollment status	Count	%	Count	%	Count	%	Count	%
	Age 5		Age 6*		Age 7		Age 8	
Unenrolled	548	81.6%	422	62.8%	352	53.3%	234	33.3%
Private ECE	33	4.8%	17	2.5%	6	0.9%	7	0.9%
Public ECE	24	3.6%	46	6.8%	20	2.9%	14	2.0%
Private Primary	9	1.2%	30	4.5%	20	3.0%	24	3.3%
Public Primary	58	8.6%	156	23.2%	262	39.7%	423	60.3%
Total	671	100%	671	100%	660	100%	702	100%

*Note: Age 6 is the last year of pre-primary school, prior to entrance into primary school at age 7.

Enrollment status by age (Ghana)

Enrollment status	Count	%	Count	%	Count	%	Count	%
	Age 3		Age 4		Age 5*		Age 6	
Unenrolled	207	44.5%	153	29.8%	81	18.0%	75	16.1%
Private ECE	138	29.8%	139	27.0%	100	22.1%	57	12.2%
Public ECE	97	21.0%	168	32.6%	179	39.6%	161	34.4%
Private Primary	7	1.5%	11	2.0%	27	5.9%	60	12.7%
Public Primary	15	3.3%	44	8.5%	66	14.5%	115	24.6%
Total	465	100%	515	100%	453	100%	468	100%

*Note: Age 5 is the last year of pre-primary school, prior to entrance into primary school at age 6.

Enrollment status by age (Malawi)

Enrollment status	Count	%	Count	%	Count	%
	Age 5*		Age 6		Age 7	
Unenrolled	1,276	76.4%	694	38.8%	260	16%
Private ECE	18	1.1%	5	0.3%	1	0.1%
Public ECE	10	0.6%	6	0.4%	4	0.2%
Private Primary	57	3.4%	96	5.4%	108	6.6%
Public Primary	307	18.4%	987	55.1%	1,251	77%
Total	1,669	100%	1,789	100%	1,624	100%

*Note: Age 5 is the last year of pre-primary school, prior to entrance into primary school at age 6.

Enrollment status by age (Nigeria)

Enrollment status	Count	%	Count	%	Count	%	Count	%
	Age 3		Age 4		Age 5*		Age 6	
Unenrolled	495	77.1%	410	58.6%	300	41.9%	284	35.7%
Private ECE	103	16.0%	149	21.3%	155	21.7%	75	9.5%
Public ECE	28	4.3%	61	8.7%	50	7.0%	38	4.8%
Private Primary	3	.4%	19	2.7%	63	8.7%	152	19.1%
Public Primary	12	1.9%	60	8.5%	147	20.5%	245	30.7%
Total	642	100%	699	100%	715	100%	795	100%

*Note: Age 5 is the last year of pre-primary school, prior to entrance into primary school at age 6.

Enrollment status by age (South Africa)

Enrollment status	Count	%	Count	%	Count	%
	Age 5		Age 6*		Age 7	
Unenrolled	15,261	19.7%	6,070	7.7%	2,919	4.0%
Private ECE	2,129	2.7%	720	0.9%	74	0.1%
Public ECE	4,742	6.1%	1,733	2.2%	242	5.3%
Private Primary	6,147	7.9%	5,091	6.4%	4,149	5.7%
Public Primary	48,895	63.3%	64,807	82.6%	65,328	89.8%
Total	77,177	100%	78,423	100%	72,713	100%

*Note: Age 5 is the last year of pre-primary school, prior to entrance into primary school at age 6.

Enrollment status by age (Tanzania)

Enrollment status	Count	%	Count	%	Count	%
	Age 5		Age 6*		Age 7	
Unenrolled	331	72.3%	253	51.9%	145	31.6%
Private ECE	34	7.5%	31	6.3%	16	3.5%
Public ECE	71	15.6%	104	21.3%	68	14.9%
Private Primary	5	1.0%	8	1.7%	13	2.9%
Public Primary	17	3.6%	92	18.9%	216	47.1%
Total	458	100%	488	100%	458	100%

*Note: Age 6 is the last year of pre-primary school, prior to entrance into primary school at age 7.

Enrollment status by age (Uganda)

Enrollment status	Count	%	Count	%	Count	%	Count	%	Count	%
	Age 3		Age 4		Age 5*		Age 6		Age 7	
Unenrolled	330	66.8%	211	41.0%	133	26.7%	61	13.5%	61	10.8%
Private ECE	143	28.9%	271	52.5%	259	52.2%	192	42.4%	96	17.1%
Public ECE	21	4.2%	18	3.5%	47	9.5%	29	6.4%	29	5.1%
Private Primary	0	0.0%	5	1.0%	26	5.3%	103	22.7%	179	31.9%
Public Primary	0	0.1%	11	2.0%	31	6.3%	68	15.0%	196	35.0%
Total	494	100%	516	100%	497	100%	453	100%	560	100%

*Note: Age 5 is the last year of pre-primary school, prior to entrance into primary school at age 6.

ECE enrollments by school type (Albania)

Enrollment Status	Count	%	Count	%	Count	%	Count	%
	Age 3		Age 4		Age 5*		Age 6	
Private	2	6.4%	13	15.5%	25	17.0%	12	6.6%
Public	34	93.6%	69	84.4%	121	82.9%	168	93.3%
Total	36	100%	82	100%	146	100%	180	100%

*Note: Age 5 is the last year of pre-primary school, prior to entrance into primary school at age 6.

ECE enrollments by school type (Ecuador)

Enrollment Status	Count	%	Count	%
	Age 5*		Age 6	
Private	2,187	26.1%	469	22.1%
Public	6,085	72.7%	1,626	76.6%
Municipal/community	96	1.1%	25	1.1%
Total	8,368	100%	2,120	100%

*Note: Age 5 is the last year of pre-primary school, prior to entrance into primary school at age 6.

ECE enrollments by school type (Ethiopia)

Enrollment Status	Count	%	Count	%	Count	%	Count	%
	Age 5		Age 6*		Age 7		Age 8	
Private	32	50.8%	19	26.8%	4	10.9%	1	4.6%
Public	26	41.1%	50	70.7%	28	76.3%	20	67.5%
Faith-based	4	6.5%	1	1.7%	5	12.7%	8	27.7%
Community	1	1.5%	1	1.7%	0	0%	0	0%
Total	64	100%	71	100%	37	100	30	100%

*Note: Age 6 is the last year of pre-primary school, prior to entrance into primary school at age 7.

ECE enrollments by school type (Ghana)

Enrollment Status	Count	%	Count	%	Count	%	Count	%
	Age 3		Age 4		Age 5*		Age 6	
Private	94	47.5%	86	34.1%	77	29.8%	43	21.8%
Public	82	41.3%	138	54.6%	165	64.1%	145	73.1%
Faith-based	22	11.1%	28	11.1%	15	5.9%	10	4.9%
Total	198	100%	252	100%	257	100%	198	100%

*Note: Age 5 is the last year of pre-primary school, prior to entrance into primary school at age 6.

ECE enrollments by school type (Malawi†)

Enrollment Status	Count	%	Count	%	Count	%
	Age 5*		Age 6		Age 7	
Private	21	64.1%	6	44.3%	1	19.4%
Public	11	36.8%	8	55.7%	2	80.5%
Total	32	100%	14	100	3	100%

†Note: ECE participation in Malawi is low, which has led to a small sample size in the public/private enrollment data. Results should be interpreted with some caution.

ECE enrollments by school type (Nigeria)

Enrollment Status	Count	%	Count	%	Count	%	Count	%
	Age 3		Age 4		Age 5*		Age 6	
Private	108	75.3%	165	69.3%	151	72.3%	73	64.5%
Public	301	21.5%	69	29.0%	51	24.4%	37	32.5%
Faith-based	4	3.2	4	1.6%	7	3.2%	2	1.7%
Community	0	0%	0	0%	0	0%	1	1.1%
Total	143	100%	238	100%	209	100%	114	100%

*Note: Age 5 is the last year of pre-primary school, prior to entrance into primary school at age 6.

ECE enrollments by school type (South Africa)

Enrollment Status	Count	%	Count	%	Count	%
	Age 5*		Age 6*		Age 7	
Private	2,099	30.9%	705	29.3%	73	23.4%
Public	4,675	69.1%	1,696	70.7%	240	76.6%
Total	6,775	100%	2,401	100%	313	100%

*Note: Age 6 is the last year of pre-primary school, prior to entrance into primary school at age 7.

ECE enrollments by school type (Tanzania)

Enrollment Status	Count	%	Count	%	Count	%
	Age 5		Age 6*		Age 7	
Private	289	23.6%	16	10.6%	10	11.8%
Public	75	61.3%	103	69.7%	62	76.5%
Faith-based	8	7.0%	17	11.4%	5	6.5%
Community	3	2.7%	7	4.6%	2	2.5%
Other	6	5.2%	5	3.5%	2	2.4%
Total	122	100%	147	100%	81	100%

*Note: Age 6 is the last year of pre-primary school, prior to entrance into primary school at age 7.

ECE enrollments by school type (Uganda)

Enrollment status	Count	%	Count	%	Count	%	Count	%	Count	%
	Age 3		Age 4		Age 5*		Age 6		Age 7	
Private ECE	104	78.2%	205	88.6%	204	76.8%	163	80.1%	91	70.0%
Public ECE	17	12.7%	14	6.3%	41	15.4%	27	13.2%	30	22.9%
Faith-based	9	7.0%	10	4.3%	17	6.5%	14	6.7%	6	4.8%
NGO	3	2.1%	2	0.8%	4	1.3%	0	0.1%	3	2.3%
Total	133	100%	231	100%	265	100%	204	100%	130	100%

*Note: Age 5 is the last year of pre-primary school, prior to entrance into primary school at age 6.

8.7.2. Determinants of public and private ECE access

Determinants of private vs. public ECE enrollment, and general ECE enrollment (Albania)

VARIABLES	(1)		(2)	
	Private ECE enrollment (coefficient)	Private ECE enrollment (odds ratio)	ECE enrollment (coefficient)	ECE enrollment (odds ratio)
Female	0.0144 (0.454)	1.015 (0.460)	0.346** (0.170)	1.413** (0.241)
Age 4	1.534* (0.834)	4.638* (3.867)	1.085*** (0.284)	2.960*** (0.840)
Age 5	1.471* (0.799)	4.356* (3.478)	2.423*** (0.285)	11.28*** (3.220)
Age 6	0.163 (0.824)	1.177 (0.969)	2.573*** (0.288)	13.11*** (3.775)
Wealth quintile 2	-2.178** (0.987)	0.113** (0.112)	0.631* (0.352)	1.880* (0.662)
Wealth quintile 3	-1.709* (0.995)	0.181* (0.180)	1.272*** (0.332)	3.567*** (1.183)
Wealth quintile 4	-0.0463 (0.905)	0.955 (0.864)	1.160*** (0.356)	3.189*** (1.135)
Wealthiest quintile	0.699 (0.876)	2.011 (1.763)	1.280*** (0.387)	3.595*** (1.390)
Household size	0.0719 (0.195)	1.075 (0.209)	-0.0893 (0.0711)	0.915 (0.0650)
Rural	-0.904* (0.532)	0.405* (0.215)	-0.600*** (0.203)	0.540*** (0.111)
Religious minority	-0.178 (0.520)	0.837 (0.435)	0.188 (0.259)	1.207 (0.313)
Language minority	2.673* (1.587)	14.48* (22.98)	-0.981** (0.424)	0.375** (0.159)
Ethnic minority			-1.734** (0.819)	0.177** (0.145)
Constant	-2.919* (1.698)	0.0540* (0.0917)	-2.286*** (0.596)	0.102*** (0.0606)
Observations	439	439	1,123	1,123
Pseudo R ²	0.207	0.207	0.203	0.203

** p<0.01, * p<0.05, * p<0.1. EA-clustered standard errors in parentheses. The reference group for the age dummies is 3-years-old. The reference group for the wealth quintiles is the poorest 20% of households.

Determinants of private vs. public ECE enrollment, and general ECE enrollment (Ecuador)

VARIABLES	(1)		(2)	
	Private ECE enrollment (coefficient)	Private ECE enrollment (odds ratio)	ECE enrollment (coefficient)	ECE enrollment (odds ratio)
Female	-0.0635 (0.0486)	0.938 (0.0456)	-0.00692 (0.0229)	0.993 (0.0227)
Age 6	-0.121* (0.0623)	0.886* (0.0552)	-1.691*** (0.0263)	0.184*** (0.00484)
Age 7			-5.756*** (0.157)	0.00316*** (0.000496)
Household size	-0.127*** (0.0146)	0.881*** (0.0128)	0.0155*** (0.00543)	1.016*** (0.00552)
Rural	-1.309*** (0.0631)	0.270*** (0.0170)	-0.250*** (0.0253)	0.779*** (0.0197)
Physical disability	0.0448 (0.216)	1.046 (0.226)	-0.0242 (0.106)	0.976 (0.103)
Cognitive disability	0.760*** (0.272)	2.137*** (0.581)	-0.111 (0.146)	0.895 (0.130)
Indigenous	-1.488*** (0.180)	0.226*** (0.0407)	-0.128*** (0.0462)	0.880*** (0.0407)
Black	-0.430*** (0.0920)	0.651*** (0.0599)	0.172*** (0.0430)	1.188*** (0.0511)
Montubio	-0.545*** (0.122)	0.580*** (0.0707)	0.112** (0.0485)	1.119** (0.0543)
Constant	0.116 (0.0814)	1.123 (0.0914)	-0.784*** (0.0343)	0.457*** (0.0157)
Observations	9,779	9,779	82,232	82,232
Pseudo R ²	0.0873	0.0873	0.229	0.229

** p<0.01, * p<0.05, * p<0.1. Robust standard errors in parentheses. The reference group for the age dummies is 5-years-old. The reference group for the indigenous, black, and Montubio dummies are non-minority children.

Determinants of private vs. public ECE enrollment, and general ECE enrollment (Ethiopia)

VARIABLES	(1)		(2)	
	Private ECE enrollment (coefficient)	Private ECE enrollment (odds ratio)	ECE enrollment (coefficient)	ECE enrollment (odds ratio)
Female	-0.580 (0.528)	0.560 (0.296)	-0.299 (0.241)	0.742 (0.179)
Age 6	-0.823 (0.742)	0.439 (0.326)	-0.672** (0.319)	0.511** (0.163)
Age 7	-0.842 (0.889)	0.431 (0.383)	-1.927*** (0.317)	0.146*** (0.0461)
Age 8	0.996 (1.432)	2.707 (3.878)	-2.678*** (0.326)	0.0687*** (0.0224)
Wealth quintile	0.626*** (0.219)	1.870*** (0.409)	0.145 (0.108)	1.156 (0.125)
Household size	0.401** (0.156)	1.493** (0.233)	0.0140 (0.0888)	1.014 (0.0901)
Rural	3.938*** (1.227)	51.31*** (62.98)	0.850** (0.370)	2.339** (0.865)
Mom primary ed.	-0.381 (0.814)	0.683 (0.556)	0.442 (0.330)	1.557 (0.513)
Dad primary ed.	0.0403 (0.751)	1.041 (0.782)	0.0100 (0.331)	1.010 (0.334)
Constant	-7.349*** (2.545)	0.000643*** (0.00164)	-1.152 (0.757)	0.316 (0.239)
Observations	195	195	1,186	1,186
Pseudo R ²	0.411	0.411	0.224	0.224

** p<0.01, ** p<0.05, * p<0.1. EA-clustered standard errors in parentheses. The reference group for the age dummies is 5-years-old.

Determinants of private vs. public ECE enrollment, and general ECE enrollment (Ghana)

VARIABLES	(1)		(2)	
	Private ECE enrollment (coefficient)	Private ECE enrollment (odds ratio)	ECE enrollment (coefficient)	ECE enrollment (odds ratio)
Female	-0.101 (0.185)	0.904 (0.168)	-0.0331 (0.148)	0.967 (0.143)
Age 4	-0.576** (0.240)	0.562** (0.135)	-0.650** (0.262)	0.522** (0.137)
Age 5	-0.926*** (0.248)	0.396*** (0.0981)	-1.135*** (0.240)	0.321*** (0.0771)
Age 6	-1.300*** (0.273)	0.273*** (0.0744)	-1.932*** (0.257)	0.145*** (0.0373)
Wealth quintile 2	0.340 (0.352)	1.405 (0.494)	-0.268 (0.254)	0.765 (0.194)
Wealth quintile 3	0.642 (0.448)	1.900 (0.851)	-0.389 (0.266)	0.677 (0.180)
Wealth quintile 4	1.348*** (0.416)	3.851*** (1.601)	-0.461* (0.256)	0.631* (0.162)
Wealthiest quintile	1.710*** (0.409)	5.527*** (2.261)	-0.307 (0.282)	0.736 (0.208)
Household size	-0.0480 (0.0633)	0.953 (0.0603)	-0.146*** (0.0347)	0.864*** (0.0300)
Rural	-0.968*** (0.249)	0.380*** (0.0947)	-0.0508 (0.209)	0.950 (0.198)
Constant	0.149 (0.583)	1.160 (0.677)	3.376*** (0.427)	29.25*** (12.50)
Observations	877	877	1,345	1,345
Pseudo R ²	0.174	0.174	0.0922	0.0922

Determinants of private vs. public ECE enrollment, and general ECE enrollment (Malawi)

VARIABLES	(1)		(2)	
	Private ECE enrollment (coefficient)	Private ECE enrollment (odds ratio)	ECE enrollment (coefficient)	ECE enrollment (odds ratio)
Female	2.318** (0.914)	10.15** (9.278)	-0.408* (0.229)	0.665* (0.152)
Age 6	0.559 (1.179)	1.748 (2.061)	-1.021*** (0.229)	0.360*** (0.0824)
Age 7	-3.132** (1.288)	0.0436** (0.0562)	-2.573*** (0.489)	0.0763*** (0.0373)
Wealth quintile 2	-1.011 (1.604)	0.364 (0.583)	-0.441 (0.364)	0.644 (0.234)
Wealth quintile 3	0.221 (1.954)	1.248 (2.438)	0.117 (0.397)	1.124 (0.446)
Wealth quintile 4	1.227 (1.716)	3.410 (5.850)	0.269 (0.365)	1.308 (0.477)
Wealthiest quintile	3.477* (1.987)	32.36* (64.31)	0.723* (0.416)	2.060* (0.857)
Household size	0.762** (0.328)	2.144** (0.702)	0.0934* (0.0509)	1.098* (0.0558)
Rural	0.647 (0.961)	1.911 (1.837)	-0.396 (0.371)	0.673 (0.250)
Mother education	1.059** (0.478)	2.883** (1.378)	0.0345 (0.154)	1.035 (0.159)
Father education	-0.591* (0.324)	0.554* (0.179)	-0.102 (0.122)	0.903 (0.110)
Constant	-6.979** (3.466)	0.000931** (0.00323)	-3.021*** (0.615)	0.0488*** (0.0300)
Observations	49	49	5,198	5,198
Pseudo R ²	0.354	0.354	0.0901	0.0901

** p<0.01, * p<0.05, * p<0.1. EA-clustered standard errors in parentheses. The reference group for the age dummies is 5-years-old. The reference group for the wealth quintiles is the poorest 20% of households.

Determinants of private vs. public ECE enrollment, and general ECE enrollment (Nigeria)

VARIABLES	(1)		(2)	
	Private ECE enrollment (coefficient)	Private ECE enrollment (odds ratio)	ECE enrollment (coefficient)	ECE enrollment (odds ratio)
Female	0.244 (0.285)	1.276 (0.363)	-0.0611 (0.157)	0.941 (0.148)
Age 4	-0.410 (0.329)	0.664 (0.218)	0.406* (0.239)	1.500* (0.359)
Age 5	-0.256 (0.360)	0.774 (0.279)	-0.354 (0.223)	0.702 (0.157)
Age 6	-0.507 (0.355)	0.602 (0.214)	-1.462*** (0.211)	0.232*** (0.0489)
Household size	-0.0746** (0.0336)	0.928** (0.0312)	-0.0874*** (0.0259)	0.916*** (0.0237)
Rural	-0.999*** (0.336)	0.368*** (0.124)	0.115 (0.249)	1.121 (0.279)
Constant	2.492*** (0.404)	12.09*** (4.890)	0.708** (0.337)	2.031** (0.685)
Observations	704	704	1,662	1,662
Pseudo R ²	0.0576	0.0576	0.107	0.107

** p<0.01, * p<0.05, * p<0.1. EA-clustered standard errors in parentheses. The reference group for the age dummies is 3-years-old.

Determinants of private vs. public ECE enrollment, and general ECE enrollment (South Africa)

VARIABLES	(1)		(2)	
	Private ECE enrollment (coefficient)	Private ECE enrollment (odds ratio)	ECE enrollment (coefficient)	ECE enrollment (odds ratio)
Female	0.0527 (0.0489)	1.054 (0.0515)	-0.0158 (0.0208)	0.984 (0.0204)
Age 6	-0.239*** (0.0566)	0.788*** (0.0446)	-1.291*** (0.0234)	0.275*** (0.00644)
Age 7	-0.344** (0.154)	0.709** (0.109)	-3.355*** (0.0549)	0.0349*** (0.00192)
Wealth quintile 2	0.0978 (0.0873)	1.103 (0.0962)	-0.0398 (0.0316)	0.961 (0.0304)
Wealth quintile 3	0.362*** (0.0990)	1.436*** (0.142)	0.152*** (0.0379)	1.164*** (0.0441)
Wealth quintile 4	0.833*** (0.0979)	2.300*** (0.225)	0.250*** (0.0410)	1.284*** (0.0526)
Wealthiest quintile	1.492*** (0.0846)	4.446*** (0.376)	0.591*** (0.0356)	1.806*** (0.0642)
Household size	-0.125*** (0.0142)	0.883*** (0.0125)	-0.0692*** (0.00578)	0.933*** (0.00539)
Rural	-0.741*** (0.0772)	0.476*** (0.0368)	-0.914*** (0.0259)	0.401*** (0.0104)
Non-white	-0.310*** (0.0680)	0.733*** (0.0499)	-0.881*** (0.0360)	0.414*** (0.0149)
Constant	-0.500*** (0.109)	0.607*** (0.0664)	-0.680*** (0.0486)	0.507*** (0.0247)
Observations	9,437	9,437	221,678	221,678
Pseudo R ²	0.123	0.123	0.175	0.175

Determinants of private vs. public ECE enrollment, and general ECE enrollment (Tanzania)

VARIABLES	(1)		(2)	
	Private ECE enrollment (coefficient)	Private ECE enrollment (odds ratio)	ECE enrollment (coefficient)	ECE enrollment (odds ratio)
Female	-0.472 (0.361)	0.624 (0.225)	-0.504** (0.202)	0.604** (0.122)
Age 6	-0.391 (0.384)	0.676 (0.260)	-1.533*** (0.326)	0.216*** (0.0703)
Age 7	-0.484 (0.470)	0.616 (0.290)	-2.933*** (0.323)	0.0533*** (0.0172)
Wealth quintile 2	0.764 (0.714)	2.147 (1.533)	-0.0802 (0.376)	0.923 (0.347)
Wealth quintile 3	0.462 (0.670)	1.587 (1.064)	-0.153 (0.375)	0.858 (0.322)
Wealth quintile 4	1.516** (0.676)	4.553** (3.078)	-0.277 (0.381)	0.758 (0.289)
Wealthiest quintile	2.540*** (0.737)	12.67*** (9.341)	-0.820* (0.420)	0.440* (0.185)
Household size	0.151** (0.0601)	1.164** (0.0699)	0.0628 (0.0405)	1.065 (0.0431)
Rural	-0.676* (0.359)	0.509* (0.182)	-0.183 (0.260)	0.832 (0.216)
Constant	-2.453*** (0.861)	0.0860*** (0.0741)	2.118*** (0.555)	8.314*** (4.615)
Observations	339	339	716	716
Pseudo R ²	0.155	0.155	0.168	0.168

** p<0.01, * p<0.05, * p<0.1. EA-clustered standard errors in parentheses. The reference group for the age dummies is 5-years-old. The reference group for the wealth quintiles is the poorest 20% of households.

Determinants of private vs. public ECE enrollment, and general ECE enrollment (Uganda)

VARIABLES	(1)		(2)	
	Private ECE enrollment (coefficient)	Private ECE enrollment (odds ratio)	ECE enrollment (coefficient)	ECE enrollment (odds ratio)
Female	-0.256 (0.255)	0.774 (0.197)	-0.222 (0.186)	0.801 (0.149)
Age 4	0.944** (0.466)	2.570** (1.198)	-3.639*** (1.068)	0.0263*** (0.0281)
Age 5	-0.000276 (0.440)	1.000 (0.440)	-5.077*** (1.034)	0.00624*** (0.00645)
Age 6	0.165 (0.444)	1.179 (0.524)	-6.306*** (1.025)	0.00182*** (0.00187)
Age 7	-0.356 (0.478)	0.701 (0.335)	-7.690*** (1.024)	0.000457*** (0.000468)
Household size	-0.0250 (0.0329)	0.975 (0.0321)	0.00122 (0.0290)	1.001 (0.0290)
Rural	-1.142*** (0.322)	0.319*** (0.103)	0.414** (0.202)	1.513** (0.306)
Constant	2.911*** (0.500)	18.38*** (9.198)	6.407*** (1.033)	606.0*** (625.7)
Observations	963	963	1,548	1,548
Pseudo R2	0.0633	0.0633	0.317	0.317

** p<0.01, * p<0.05, * p<0.1. EA-clustered standard errors in parentheses. The reference group for the age dummies is 3-years-old.

8.7.3. Affordability⁴⁴

Relative cost of private and public ECE participation (*Ethiopia*)

	Mean household expenditure on ECE participation (SDs)	ECE spending as share of total household consumption (SDs)		Average <i>public</i> ECE cost as share of average household consumption, by quintile	Average <i>private</i> ECE cost as share of average household consumption, by quintile
Public ECE	130.3 (24.25)	0.6% (0.138)	Poorest Quintile	1.2%	20.6%
			Wealth Quintile 2	0.6%	9.7%
Private ECE	2,164 (340.6)	4.9% (0.765)	Wealth Quintile 3	0.6%	9.2%
			Wealth Quintile 4	0.4%	7.0%
			Wealthiest Quintile	0.2%	4.1%
Observations	201	201		198	198

Relative cost of private and public ECE participation (*Ghana*)

	Mean household expenditure on ECE participation (SDs)	ECE spending as share of total household consumption (SDs)		Average <i>public</i> ECE cost as share of average household consumption, by quintile	Average <i>private</i> ECE cost as share of average household consumption, by quintile
Public ECE	111.8 (20.45)	5.1% (0.636)	Poorest Quintile	7.2%	17.1%
			Wealth Quintile 2	5.3%	12.7%
Private ECE	266.5 (28.43)	9.4% (0.863)	Wealth Quintile 3	4.4%	10.4%
			Wealth Quintile 4	2.9%	7.0%
			Wealthiest Quintile	2.6%	6.2%
Observations	290	290		290	290

⁴⁴ Cost data are not available for the following countries: Albania (90% of cost data is missing)



Relative cost of private and public ECE participation (Malawi)

	Mean household expenditure on ECE participation (SDs)	ECE spending as share of total household consumption (SDs)		Average <i>public</i> ECE cost as share of average household consumption, by quintile	Average <i>private</i> ECE cost as share of average household consumption, by quintile
Public ECE	2,885 937.9	0.5% (0.0955)	Poorest Quintile	0.7%	5.3%
			Wealth Quintile 2	0.5%	3.7%
Private ECE	20,737 11,628	1.2% (0.121)	Wealth Quintile 3	0.4%	3.1%
			Wealth Quintile 4	0.3%	2.3%
			Wealthiest Quintile	0.1%	0.8%
Observations	43	43		12,632	12,632

Relative cost of private and public ECE participation (Tanzania)

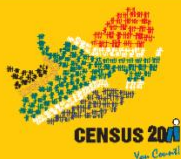
	Mean household expenditure on ECE participation (SDs)	ECE spending as share of total household consumption (SDs)		Average <i>public</i> ECE cost as share of average household consumption, by quintile	Average <i>private</i> ECE cost as share of average household consumption, by quintile
Public ECE	32,643 (5,691)	0.8% (0.884)	Poorest Quintile	1.7%	5.9%
			Wealth Quintile 2	1.2%	4.0%
Private ECE	114,331 (25,067)	1.9% (0.311)	Wealth Quintile 3	0.8%	2.8%
			Wealth Quintile 4	0.7%	2.3%
			Wealthiest Quintile	0.4%	1.5%
Observations	339	339		350	350

8.8.1 Example IPUMS questionnaire – South Africa

HOUSEHOLD QUESTIONNAIRE

FOR STATISTICAL USE ONLY



CENSUS 2011
Your Census!

STATISTICS ACT NO. 6 OF 1999 (CONFIDENTIALITY)

17(1) Despite any other law, no return or other information collected by Statistics South Africa for the purposes of official or other statistics that relates to an individual or a household may be disclosed to any person.

17(3b) Any person who is involved in the collection of, or who may use, that information or data, must first take an oath of confidentiality.

18(1e) Any officer of Statistics South Africa who wilfully discloses any data or

18(1g) information obtained in the course of such employment to a person not authorised to receive that information is guilty of an offence and liable on conviction to a fine not exceeding R10 000, or to imprisonment for a period not exceeding 6 months or to both.

FOR OFFICE USE ONLY

ENUMERATION AREA NUMBER

Province Local municipality

Main place Sub-place

Physical identification of the dwelling unit

Postal code Landline/Cell phone of enumerated household

PARTICULARS OF THE HOUSEHOLD

Dwelling unit number Total number of persons in the household Males Females Total

Household number

Total number of households at this dwelling Questionnaire of completed for this household

Map reference number

Listing record number

If more than one questionnaire is used in the household, write the barcode of the 1st questionnaire below

METHOD OF QUESTIONNAIRE COMPLETION - Mark the appropriate circle with an X

A fieldworker through an interview A household member through self-completion

FIELD STAFF

Fieldworker ID No.

Supervisor ID No.

Signature Signature

RESPONSE DETAILS

Visit No.	Date (actual)	Interview		Result Code	Next Visit (Planned)	
		Start Time	End Time		Date	Time
1						
2						
3						
4						

RESULT CODE	RESPONSE DETAILS
11	Completed
12	Partly completed
21	Non-contact
22	Refusal
31	Unoccupied
32	Vacant
33	Demolished
34	New dwelling under construction

Comments and full details of all non-response / unusual circumstances

.....

.....

.....

FINAL RESULT CODE

SHOULD YOU ENCOUNTER ANY DIFFICULTIES IN THE COMPLETION OF THE QUESTIONNAIRE, PLEASE CONTACT:

..... ON

OR PHONE THE CENSUS HOTLINE, TOLL FREE, ON 0800 110 248

Census 2011 - AF Statistics South Africa, November 2010



X-123456789



A0C

SECTION A: DEMOGRAPHICS - ASK OF EVERYONE LISTED ON THE FLAP

P-01 DATE OF BIRTH	P-02 RELATIONSHIP	P-03 MARITAL STATUS	P-04 SPOUSE OR PARTNER	P-05 POPULATION GROUP	P-06 LANGUAGE
<p>What is (name's) date of birth?</p> <p><i>The head or acting head is the person listed in row 1 of the first questionnaire, if more than one questionnaire has been completed for this household.</i></p> <p>01 = Head/Acting Head 02 = Husband/Wife/Partner 03 = Son/Daughter 04 = Adopted Son/Daughter 05 = Stepchild 06 = Brother/Sister 07 = Parent (Mother/Father) 08 = Parent-in-law 09 = Grand/Great Grandchild 10 = Son/Daughter-in-law 11 = Brother/Sister-in-law 12 = Grandmother/Father 13 = Other relative 14 = Non-related person</p> <p><i>Write the appropriate code in the boxes.</i></p>	<p>What is (name's) relationship to the head or acting head of the household?</p> <p><i>The head or acting head is the person listed in row 1 of the first questionnaire, if more than one questionnaire has been completed for this household.</i></p> <p>01 = Head/Acting Head 02 = Husband/Wife/Partner 03 = Son/Daughter 04 = Adopted Son/Daughter 05 = Stepchild 06 = Brother/Sister 07 = Parent (Mother/Father) 08 = Parent-in-law 09 = Grand/Great Grandchild 10 = Son/Daughter-in-law 11 = Brother/Sister-in-law 12 = Grandmother/Father 13 = Other relative 14 = Non-related person</p> <p><i>Write the appropriate code in the boxes.</i></p>	<p>What is (name's) PRESENT marital status?</p> <p>1 = Married 2 = Living together like married partners 3 = Never married 4 = Widower/widow 5 = Separated 6 = Divorced</p> <p><i>Write the appropriate code in the box.</i></p> <p>If 3-6, Go to P-05</p>	<p>Who in this household is (name's) spouse or partner?</p> <p><i>Write the person number of the spouse or partner in the appropriate boxes. If the spouse or partner does not reside in the household, write 98.</i></p> <p>Note: Refer to person on flap e.g. 02</p>	<p>How would (name) describe him/herself in terms of population group?</p> <p>1 = Black African 2 = Coloured 3 = Indian or Asian 4 = White 5 = Other</p> <p><i>Write the appropriate code in the box.</i></p>	<p>Which two languages does (name) speak most often in this household?</p> <p>01 = Afrikaans 02 = English 03 = IsiNdebele 04 = IsiXhosa 05 = IsiZulu 06 = Sepedi 07 = Sesotho 08 = Setswana 09 = SiSwati 10 = Tshivenda 11 = Xitsonga 12 = Sign language 13 = Other</p> <p><i>Write the appropriate code in the boxes. If no other language, write 00 in the second box.</i></p> <p>First <input type="text"/> <input type="text"/></p> <p>Second <input type="text"/> <input type="text"/></p>
<p>Example</p> <p>1 9</p> <p>0 4</p> <p>1 9 7 9</p>					
<p><input type="text"/> <input type="text"/></p> <p><input type="text"/> <input type="text"/></p> <p><input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p>	<p><input type="text"/> <input type="text"/></p>	<p><input type="text"/></p>	<p><input type="text"/> <input type="text"/></p>	<p><input type="text"/></p>	<p>First <input type="text"/> <input type="text"/></p> <p>Second <input type="text"/> <input type="text"/></p>

SECTION D: PARENTAL SURVIVAL AND INCOME (Continued)

P-15a FATHER PERSON NUMBER	P-16 INCOME CATEGORY																										
<p>Who in this household is (name's) biological father?</p> <p><i>If the person's father does not reside in the household (not listed on the flap), write 98.</i></p> <p>Note: Refer to person number on flap e.g. 02</p>	<p>What is the income category that best describes the gross monthly or annual income of (name) before deductions and including all sources of income?</p> <table border="0"> <tr> <td>Monthly</td> <td>Annual</td> </tr> <tr> <td>01 = No income</td> <td>No income</td> </tr> <tr> <td>02 = R1 - R400</td> <td>R1 - R4 800</td> </tr> <tr> <td>03 = R401 - R800</td> <td>R4 801 - R9 600</td> </tr> <tr> <td>04 = R801 - R1 600</td> <td>R9 601 - R19 200</td> </tr> <tr> <td>05 = R1 601 - R3 200</td> <td>R19 201 - R38 400</td> </tr> <tr> <td>06 = R3 201 - R6 400</td> <td>R38 401 - R76 800</td> </tr> <tr> <td>07 = R6 401 - R12 800</td> <td>R76 801 - R153 600</td> </tr> <tr> <td>08 = R12 801 - R25 600</td> <td>R153 601 - R307 200</td> </tr> <tr> <td>09 = R25 601 - R51 200</td> <td>R307 201 - R614 400</td> </tr> <tr> <td>10 = R51 201 - R102 400</td> <td>R614 401 - R1 228 800</td> </tr> <tr> <td>11 = R102 401 - R204 800</td> <td>R1 228 801 - R2 457 600</td> </tr> <tr> <td>12 = R204 801 or more</td> <td>R2 457 601 or more</td> </tr> </table> <p><i>Gross income should include all sources of income e.g. Social grants, UIF, remittances, rentals, investments, sales or products, services, etc.</i></p>	Monthly	Annual	01 = No income	No income	02 = R1 - R400	R1 - R4 800	03 = R401 - R800	R4 801 - R9 600	04 = R801 - R1 600	R9 601 - R19 200	05 = R1 601 - R3 200	R19 201 - R38 400	06 = R3 201 - R6 400	R38 401 - R76 800	07 = R6 401 - R12 800	R76 801 - R153 600	08 = R12 801 - R25 600	R153 601 - R307 200	09 = R25 601 - R51 200	R307 201 - R614 400	10 = R51 201 - R102 400	R614 401 - R1 228 800	11 = R102 401 - R204 800	R1 228 801 - R2 457 600	12 = R204 801 or more	R2 457 601 or more
Monthly	Annual																										
01 = No income	No income																										
02 = R1 - R400	R1 - R4 800																										
03 = R401 - R800	R4 801 - R9 600																										
04 = R801 - R1 600	R9 601 - R19 200																										
05 = R1 601 - R3 200	R19 201 - R38 400																										
06 = R3 201 - R6 400	R38 401 - R76 800																										
07 = R6 401 - R12 800	R76 801 - R153 600																										
08 = R12 801 - R25 600	R153 601 - R307 200																										
09 = R25 601 - R51 200	R307 201 - R614 400																										
10 = R51 201 - R102 400	R614 401 - R1 228 800																										
11 = R102 401 - R204 800	R1 228 801 - R2 457 600																										
12 = R204 801 or more	R2 457 601 or more																										
<p><input type="text"/> <input type="text"/></p>	<p><input type="text"/> <input type="text"/></p>																										

SECTION E: EDUCATION - ASK OF ALL PERSONS AGED 5 YEARS AND OLDER LISTED ON THE FLAP

P-17 SCHOOL ATTENDANCE	P-18 EDUCATIONAL INSTITUTION	P-19 PUBLIC OR PRIVATE
<p>Does (name) presently attend an educational institution?</p> <p>1 = Yes 2 = No 3 = Do not know</p> <p><i>Mark the appropriate circle with an X.</i></p> <p><i>Attendance includes all part-time and full-time studies, whether in person or as a distance learner.</i></p> <p>If 2-3, Go to P-20</p>	<p>Which of the following educational institutions does (name) attend?</p> <p>1 = Pre-school (including day care, crèche, Grade R and Pre-Grade R in an ECD centre) 2 = Ordinary school (including Grade R learners who attend a formal school, Grade 1-12 learners & learners in special class) 3 = Special school 4 = Further Education and Training College (FET) 5 = Other College 6 = Higher Educational Institution (University/University of Technology) 7 = Adult Basic Education and Training Centre (ABET Centre) 8 = Literacy classes (e.g. Kha Ri Gude, SANLI) 9 = Home based education/home schooling</p> <p><i>Write the appropriate code in the box.</i></p>	<p>Is the institution that (name) is attending public or private?</p> <p>1 = Public (Government) 2 = Private (Independent) 3 = Do not know</p> <p><i>Mark the appropriate circle with an X.</i></p>
<p><input type="radio"/> 1 Yes</p> <p><input type="radio"/> 2 No</p> <p><input type="radio"/> 3 Do not know</p>	<p><input type="text"/></p>	<p><input type="radio"/> 1 Public</p> <p><input type="radio"/> 2 Private</p> <p><input type="radio"/> 3 Do not know</p>

SECTION E: EDUCATION (Continued)

P-20 LEVEL OF EDUCATION	P-21 FIELD OF EDUCATION
<p>What is the highest level of education that (name) has completed?</p> <p>98 = No schooling 00 = Grade 0 01 = Grade 1/Sub A 02 = Grade 2/Sub B 03 = Grade 3/Std 1/ABET 1 (Kha Ri Gude, SANLI) 04 = Grade 4/Std 2 05 = Grade 5/Std 3 / ABET 2 06 = Grade 6/Std 4 07 = Grade 7/Std 5 / ABET 3 <i>If 98 or 00-07, Go to P-22</i> 08 = Grade 8/Std 6 / Form 1 09 = Grade 9/Std 7/Form 2/ ABET 4 10 = Grade 10/Std 8/Form 3 11 = Grade 11/Std 9/Form 4 12 = Grade 12/Std 10 /Form 5 <i>If 08-12, Go to P-23</i> 13 = NTC I/N1/ NIC/(V) Level 2 14 = NTCII/N2/ NIC/(V) Level 3</p> <p><i>READ OUT: Diploma or certificate should have been at least six months study duration full-time (or equivalent).</i></p>	<p>In which field is (name's) highest post-school qualification?</p> <p>UNIVERSITY/TECHNIKON/COLLEGE 01 = Agriculture or Renewable Natural Resources 02 = Architecture or Environmental Design 03 = Arts, Visual or Performing 04 = Business, Commerce or Management Sciences 05 = Communication 06 = Computer Sciences 07 = Education, Training or Development 08 = Engineering or Engineering Technology 09 = Health Care or Health Sciences 10 = Home Economics 11 = Industrial Arts, Traders or Technology 12 = Languages, Linguistics or Literature 13 = Law 14 = Libraries or Museums 15 = Life Sciences or Physical Sciences 16 = Mathematical Sciences 17 = Military Sciences 18 = Philosophy, Religion or Theology 19 = Physical Education or Leisure 20 = Psychology 21 = Public Administration or Social Services 22 = Social Sciences or Social Studies 23 = Other</p> <p>FURTHER EDUCATION AND TRAINING (FET) 24 = Management 25 = Marketing 26 = Information Technology and Computer Science 27 = Finance, Economics and Accounting 28 = Office Administration 29 = Electrical Infrastructure Construction 30 = Civil Engineering and Building Construction 31 = Engineering 32 = Primary Agriculture 33 = Hospitality 34 = Tourism 35 = Safety in society 36 = Mechatronics 37 = Education and Development 38 = Other</p> <p><i>Write the appropriate code in the boxes.</i></p> <p style="text-align: right;">Any response, Go to P-23</p>
<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>

SECTION E: EDUCATION (Continued)

P-22 LITERACY
<p>Does (name) have difficulty in doing any of the following?</p> <p>A = Writing his/her name B = Reading (e.g. newspapers, magazines, religious books etc) in any language C = Filling in a form (e.g. social grants forms) D = Writing a letter in any language E = Calculating/working out how much change he/she should receive when buying something F = Reading road signs</p> <p>1 = No difficulty 2 = Some difficulty 3 = A lot of difficulty 4 = Unable to do 5 = Do not know</p> <p><i>Write the code in the appropriate box.</i></p>
<input type="radio"/> Writing his/her name (A) <input type="radio"/> Writing a letter (D) <input type="radio"/> Reading (B) <input type="radio"/> Calculating (E) <input type="radio"/> Filling a form (C) <input type="radio"/> Reading road signs (F)

SECTION F: EMPLOYMENT - ASK OF ALL PERSONS AGED 15 YEARS AND OLDER LISTED ON THE FLAP

P-23 EMPLOYMENT STATUS			
<i>(Answer all three questions and then follow the skip instruction below)</i>			
<p>In the SEVEN DAYS before 10 October ... P-23a</p> <p>Did (name) work for a wage, salary, commission or any payment in kind (including paid domestic work), even if it was for only one hour?</p> <p>1 = Yes 2 = No 3 = Do not know</p> <p><i>Mark the appropriate circle with an X.</i></p>	<p>In the SEVEN DAYS before 10 October ... P-23b</p> <p>Did (name) run or do any kind of business, big or small, for herself/himself or with one or more partners, even if it was for only one hour?</p> <p>1 = Yes 2 = No 3 = Do not know</p> <p><i>Mark the appropriate circle with an X.</i></p>	<p>In the SEVEN DAYS before 10 October ... P-23c</p> <p>Did (name) help without being paid in any kind of business run by her/his household, even if it was for only one hour?</p> <p>1 = Yes 2 = No 3 = Do not know</p> <p><i>Mark the appropriate circle with an X.</i></p>	
If 1 (Yes) to any of P-23a, P-23b or P-23c, Go to P-29a			
<input type="radio"/> 1 Yes <input type="radio"/> 2 No <input type="radio"/> 3 Do not know	<input type="radio"/> 1 Yes <input type="radio"/> 2 No <input type="radio"/> 3 Do not know	<input type="radio"/> 1 Yes <input type="radio"/> 2 No <input type="radio"/> 3 Do not know	

8.8.2 Example LSMS questionnaire – Ethiopia



CENTRAL STATISTICAL AGENCY
2015/16 ETHIOPIAN SOCIOECONOMIC SURVEY

Form ERSS-H (15/16)

STRICTLY CONFIDENTIAL



Household Questionnaire

COVER

1		2		3		4		5		6		7	
Region		Zone		Woreda		Town (For rural code 8)		Subcity (For rural code 88)		Kebele/FA		EA	
Code		Code		Code		Code		Code		Code		Code	
8		9		10		11		12					
Household ID		Household Size				Household Head Name				Village name where the HH lives			

SECTION 1: HOUSEHOLD ROSTER

I N D I V I D U A L I D	4c.	4d.	4e.	4f.	4g.	4h.	5.	6.	7.	8.
	Is [NAME] still a member of this household?	Is the sex recorded on flap F accurate?	What is the correct sex of [NAME]?	CHECK IF THE AGE RECORDED ON THE PRINTOUT IS THE SAME AS THE ANSWER GIVEN FOR Q4.	What is [NAME]'s day, month, and year of birth?	What is [NAME]'s correct age?	For how many months during the last 12 months was [NAME] away from the household?	IS RESPONDENT 10 YEARS AND OLDER?	What is [NAME]'s main religion?	What is [NAME]'s marital status?
	YES.....1 NO.....2 (►Q22)	YES.....1 NO.....2 (►Q4f)	MALE.....1 FEMALE...2	YES, THE SAME.....1 (►Q5) NO, DIFFERENT...2	CODES FOR MONTHS SEPTEMBER...1 OCTOBER...2 NOVEMBER...3 DECEMBER...4 JANUARY...5 FEBRUARY...6 MARCH...7 APRIL...8 MAY...9 JUNE...10 JULY...11 AUGUST...12 PAGUME...13			YES.....1 NO.....2 (►Q11)	ORTHODOX.....1 CATHOLIC.....2 PROTESTANT...3 MUSLEM.....4 TRADITIONAL...5 PAGAN.....6 WAKIFATA.....7 OTHER (Specify)..8	NEVER MARRIED.....1 (►Q11) MARRIED (MONOGAMOUS)...2 MARRIED (POLYGAMOUS)...3 DIVORCED.....4 (►Q11) SEPERATED.....5 (►Q11) WIDOWED.....6 (►Q11)
					DAY MONTH YEAR		NUMBER OF MONTHS			
1										
2										

<p>16. Does [NAME]'s biological mother live in this household?</p> <p>YES.....1 NO.....2 (▶Q18)</p>	<p>17. RECORD ROSTER ID OF [NAME]'S BIOLOGICAL MOTHER.</p> <p>COPY ID FROM ROSTER (▶Q19)</p>	<p>18. Is [NAME]'s biological mother alive?</p> <p>YES.....1 NO.....2</p>	<p>19. What is/was [NAME]'s biological mother's highest educational level completed?</p> <p>(USE ATTACHED EDUCATION CODES)</p> <p>LEVEL</p>	<p>20. What is/was [NAME]'s biological father's main industry of occupation?</p> <p>AGRICULTURE.....1 MINING.....2 MANUFACTURING.....3 PROFESSIONAL/SCIENTIFIC/TECHNICAL ACTIVITIES.....4 ELECTRICITY.....5 CONSTRUCTION.....6 TRANSPORTATION.....7 BUYING AND SELLING.....8 FINANCIAL SERVICES.....9 PERSONAL SERVICES.....10 EDUCATION.....11 HEALTH.....12 PUBLIC ADMINISTRATION...13 OTHER (SPECIFY).....14 HOUSEHOLD CHORES.....15 HOUSEWIFE).....16 UNEMPLOYED).....17 DON'T KNOW18</p>	<p>21. What is/was [NAME]'s biological mother's main industry of occupation?</p> <p>AGRICULTURE.....1 MINING.....2 MANUFACTURING.....3 PROFESSIONAL/SCIENTIFIC/TECHNICAL ACTIVITIES.....4 ELECTRICITY.....5 CONSTRUCTION.....6 TRANSPORTATION.....7 BUYING AND SELLING.....8 FINANCIAL SERVICES.....9 PERSONAL SERVICES.....10 EDUCATION.....11 HEALTH.....12 PUBLIC ADMINISTRATION...13 OTHER (SPECIFY).....14 HOUSEHOLD CHORES.....15 HOUSEWIFE).....16 UNEMPLOYED).....17 DON'T KNOW18</p> <p>▶ NEXT PERSON</p>
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SECTION 2- EDUCATION
FOR CHILDREN 5-10 YEARS, ASK THEIR CAREGIVER THE QUESTIONS.

<p>1. MARK 'X' IF MEMBER IS 5 YEARS OR OLDER ONLY ASK QUESTIONS IF MEMBER IS 5 YEARS AND OLDER</p>	<p>2. Can [NAME] read and write in any language?</p> <p>YES.....1 NO.....2</p>	<p>3. Has [NAME] ever attended school?</p> <p>YES.....1</p>	<p>4. What was the main reason [NAME] never attended school?</p> <p>WORKING (JOB).....1 WORKING (HOME).....2 PARENTS DON'T THINK IT'S IMPORTANT..3 EXPENSIVE.....4 LACK OF MONEY.....5 TOO FAR AWAY.....6 MARRIAGE.....7 DISABILITY.....8 ILLNESS.....9 FAMILY MEMBER DISABILITY.....10 DEATH OF PARENT/S.....11 SEPARATION OF PARENTS.....12 IGNORANCE.....13 TOO YOUNG.....14 TOO OLD.....15</p> <p>(▶ Q18)</p>	<p>5. What is the highest grade [NAME] completed?</p> <p>USE ATTACHED EDUCATION CODES</p> <p>LEVEL</p>	<p>6. Is [NAME] currently attending school?</p> <p>YES.....1 (▶Q8) NO.....2</p>
--	--	---	---	--	---

<p>7. Why is [NAME] not currently in school?</p> <p>HAD ENOUGH CHOOING....1 AWAITING DMISSION.....2 NO SCHOOL/LACK OF TEACHERS.....3 NO TIME/NO INTEREST.....4 LACK OF MONEY.....5 MARITAL OBLIGATION.....6 SICKNESS.....7 DISABILITY...8 SEPARATION OF ARENTS...9 DEATH OF PARENTS.10 TOO OLD TO ATTEND.....11 DOMESTIC BLIGATION...12 OTHERS (SPECIFY) 13</p> <p>(▶ Q18)</p>	<p>8. If the answer to Q6 is Yes; Which grade is [NAME] attending?</p> <p>USE EDUCATION CODES AT THE END OF THE QUESTIONNAIRE</p> <p>GRADE</p>	<p>9. What kind of organization runs the school that [NAME] is attending?</p> <p>GOVERNMENT.....1 MISSION/RELIGIOUS WITH FEE.....2 MISSION/RELIGIOUS FREE OF CHARGE.....3 PRIVATE.....4 COMMUNITY.....5 INTERNATIONAL COMMUNITY.....6 OTHER (SPECIFY)7</p>	<p>10. Was [NAME] absent from school last semester for more than a week continuously?</p> <p>YES.....1 NO.....2 (▶Q12)</p>	<p>11. What is the main reason for being absent from school?</p> <p>SICK.....1 DEATH IN THE MILY...2 HAD TO WORK....3 OTHER (SPECIFY)....4</p>
--	--	--	--	--

12.	13.	14.	15.	16.	17.	18.
By what means does [NAME] mainly go to school? FOOT1 BICYCLE2 MOTORCYCLE...3 PRIVATE CAR...4 TAXI.....5 BUS.....6 ANIMAL TRANSPORT (HORSE/MULE/ CAMEL/DONKEY)...7 BAJAJ.....8 OTHER (SPECIFY)...9	How much time does it take [NAME] to get to school? (in minutes) 0 - 15...1 16 - 30...2 31 - 45...3 46 - 60...4 61 - 90...5 91- 120...6 120	Does [NAME] receive any scholarship or assistance to attend school from any organization or the government or any individual other than a household member during the current school year? YES...1 NO...2 (►Q16)	For the current school year, what is the value of this assistance, including the value of in-kind assistance and cash?	For the current school year, what did the household spend on [NAME]'s school fees ENTER 0 IF NOTHING WAS SPENT	During the past 12 months, what did the household spend on [NAME]'s school books, uniforms, stationary etc.. for school? ENTER 0 IF NOTHING WAS SPENT	Does [NAME] plan to attend school next year? YES.....1 NO.....2
	CODE		BIRR	BIRR	BIRR	

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