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EXAMINING WHAT WORKS IN PRE- PRIMARY: A REVIEW OF THE EVIDENCE

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ACRONYMS

ARNEC	Asia-Pacific Regional Network for Early Childhood
CLASS	Classroom Assessment Scoring System
CPD	Continuous Professional Development
DHS	Demographic and Health Survey
ECD	Early Childhood Development
ECE	Early Childhood Education
ECCE	Early Childhood Care and Education
ECERS	Early Childhood Environmental Rating Scale
ELDS	Early Learning Development Standards
EMIS	Educational Management Information Systems
EQUIP	Educational Quality Improvement Programme
ESP	Education Sector Plan
FBO	Faith-Based Organization
G20	Group of Twenty
GDP	Gross Domestic Product
GER	Gross Enrollment Rate
GPE	Global Partnership for Education
HCI	Human Capital Index
HIC	Higher-Income Country
IDELA	International Development Early Learning Assessment
LAC	Latin America and the Caribbean
LMIC	Low- and Middle-Income Country
MELE	Measuring Early Learning Environments
MELQO	Measuring Early Learning Quality and Outcomes
MICS	Multiple Indicator Cluster Survey
MODEL	Measure of Development of Early Learning
NAEYC	National Association for the Education of Young Children (United States)
NGO	Non-Governmental Organization
PTR	Pupil-Teacher Ratio
SABER	Systems Approach for Better Education Results
SDG	Sustainable Development Goal
SECT	Standardized ECD Costing Tool
SEL	Social-Emotional Learning
SSA	Sub-Saharan Africa
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNICEF	United Nations Children’s Fund
USAID	U.S. Agency for International Development
WHO	World Health Organization
WIDE	World Inequity Database on Education

DISCUSSION OF KEY TERMS

The terms used to discuss interventions in early childhood vary within the literature can be highly nuanced, may refer to a range of services, and are sometimes used differently across contexts. For the purposes of this review, each of these terms will be defined in the following ways.

Early Childhood Development (ECD) – This term refers to the full range of human development between conception and eight years of age. This includes the social, emotional, cognitive, physical, and motor development of young children. ECD is used both to describe the process of development as well as programs designed to support young children during this period. ECD programs typically include one or more aspects of the Nurturing Care Framework, such as the provision of adequate nutrition, good health, responsive caregiving, safety and security, and opportunities for early learning (World Health Organization, UNICEF, World Bank Group 2018). Pre-primary education is one component of ECD; however, the terms are not interchangeable. ECD encompasses a much broader scope of services.

Early Childhood Care and Education (ECCE) – This term generally refers to the combination of childcare and education services for young children and ideally includes a holistic approach to meeting children’s developmental needs. Many ECCE services are linked to nutrition and feeding programs, parenting education programs, and other ECD programming; however, the focus is generally on safe caregiving and cognitive stimulation. Pre-primary education is one type of service included within the scope of ECCE, but ECCE addresses a wider age group and range of services. This term is not interchangeable with pre-primary education. Given this review’s focus on pre-primary education, this term is only used when referring to a cited study or specific country policy that uses the term.

Pre-Primary Education, Early Childhood Education (ECE) – These terms are used interchangeably throughout this review to refer to the one to three years of organized schooling immediately prior to primary school. The target age range for these programs is typically three to six years old; however, overage and underage enrollment is common. Pre-primary includes any public or private program, and may be center-based, school-based, or community-based. As described in the 2018 USAID Education Policy, “the most effective approaches to pre-primary education support the holistic development of a broad set of early skills across physical, social-emotional, cognitive, and other domains.”

Preschool and Kindergarten – This review uses these terms on a limited basis, and usually in relation to a specific study or country-context. For the purposes of this review, when these terms appear, they are used interchangeably with pre-primary education.

School Readiness – In keeping with the most common usage of the term within the cited sources, this review uses the term school readiness to refer to a child’s acquisition of the foundational skills that will allow them to learn and succeed upon entry to primary school (see page 11 for a comprehensive overview of school readiness). School readiness skills cover a broad range of necessary skills, including the pre-academic knowledge and skills needed to support primary level learning, as well as social-emotional skills, physical health and development, and the growth of positive approaches to learning. (Maxwell 2004; NAEYC 2009; Niklas 2018; UNICEF 2012). While this review uses the term school readiness to refer to an individual child’s readiness, the term can have a broader meaning. In some contexts, school readiness can refer to not only children’s abilities and skills, but also the preparedness of schools to receive and teach children of varying abilities, and the ability of families and communities to support young learner’s success in school.

Developmentally Appropriate – This term refers to content and pedagogy that are suited for the age and developmental level of young children. Determining which practices are developmentally appropriate is based on an understanding of child development and the types of concepts, interactions, and information they can readily understand and learn from.

A NOTE ON HOLISTIC ECD AND PRE-PRIMARY EDUCATION

As discussed in the definitions above, early learning is a core pillar within the wider landscape of holistic ECD. Evidence related to pre-primary, typically supporting children ages 3–6, is often presented within or strongly linked to the larger body of evidence on holistic ECD. In line with best practice, pre-primary education programs also often include broader elements of ECD, including nutrition supplementation, improved health and sanitation support, and others. Examining how other components of ECD interact with and strengthen pre-primary is critical to an accurate analysis of the current evidence base and an understanding of its impact.

This review focuses specifically on pre-primary education, which USAID recognizes as a critical component of the holistic development of young children. However, the presentation of pre-primary-specific research is not intended to disregard the significance of ECD evidence, the impact of early childhood interventions, and early learning prior to age three. For more information on the critical period of early childhood and the importance of holistic development, the Nurturing Care Framework (World Health Organization 2018) is an important resource.

Through the United States Government Basic Education Strategy USAID recognizes the importance of holistic ECD and works to support ECD programming through its different sectors, including health, social protection, and education. As established in the 2018 USAID Education Policy, the USAID Office of Education has a mandate to improve Basic Education, which includes pre-primary education

EXECUTIVE SUMMARY

Despite significant investments over the past two decades to increase access and improve the quality of education for all children, learning outcomes remain alarmingly low. Fewer than half of the world's school-aged children are learning to read on grade level or gaining basic numeracy skills (The World Bank 2019). Research suggests part of the reason for poor learning outcomes in the early grades can be attributed to the fact that many young learners are entering school unprepared to succeed and lack the foundational skills they need to master the content of grade-level academics (UNICEF 2020).

Pre-primary education offers a promising approach to help mitigate this challenge by advancing children's learning and improving the efficiency and effectiveness of primary schools. A large body of evidence exists from higher-income countries (HICs) and increasingly from low- and middle-income countries (LMICs) demonstrating that quality pre-primary programs can meaningfully improve school readiness and the foundational academic and non-academic skills essential to supporting grade-level learning. Children who enter the early primary grades with these foundational skills show an increased likelihood of achieving grade level proficiency later in school, a decreased likelihood of dropping out of school early or repeating grades, are more likely to complete primary school, continue to higher levels of education, and attain higher levels of income generation over their lifetime (Raikes 2020; Rao 2018; Tanner 2015).

Yet today, most children around the world still lack access to early learning programs. The nearly 175 million pre-primary aged children who do not participate in pre-primary education and who will start formal schooling without the foundational skills they need to succeed represent a lost opportunity to improve educational outcomes for all children (UNICEF 2019).

As the evidence base demonstrating the importance and the need for pre-primary, governments and organizations are responding by prioritizing pre-primary education. While policy reform and funding have been slow to materialize, the shift in political will and interest for investing earlier in education is clear: 193 countries have officially signed on to the Sustainable Development Goals (SDGs), which include goal 4.2: "By 2030, ensure that all girls and boys have access to quality early childhood development, care, and pre-primary education so that they are ready for primary education." (UN General Assembly 2015). In 2018, the Group of Twenty (G20) adopted the Initiative for Early Childhood Development, stating "We [the G20] ... stand ready to join all stakeholders in enhancing quality and sustainably financed early childhood programs that consider the multidimensional approach of ECD as a means of building human capital to break the cycle of intergenerational and structural poverty, and of reducing inequalities, especially where young children are most vulnerable." (G20 2018).

With this growing level of interest, there is a need to ensure that future policy and programming benefit from what the research and evidence demonstrate are best practices in the sector. This review seeks to fulfill that need by summarizing the evidence on early learning and pre-primary programs in a range of countries where USAID works.

Primarily, it seeks to answer the following guiding questions:

1. What does the research conclude about the impact of pre-primary education on learning outcomes as it relates to a) school readiness, b) academic achievement in primary school, and c) longer-term academic achievement?
2. What quality characteristics of pre-primary programming are essential for achieving learning outcomes?
3. How does the environment around pre-primary programs work to support their long-term impact?
4. What is the current landscape for pre-primary in each of the regions within USAID's geographic portfolio?

The following key findings summarize the conclusions of this review.

KEY FINDINGS

School-readiness skills gained through high-quality pre-primary programming continue to support children's learning throughout their primary education and into adulthood.

Children who enter primary school developmentally on-track and school-ready are more likely to master grade-level content and successfully transition into higher grades. They have an increased probability of completing primary and secondary school. Evidence from low-income populations within HICs demonstrates that children who attend pre-primary programs are more likely to be employed as adults, gain a higher-level of income, be less likely to commit crimes, and have better overall physical and mental health. While these findings are correlational and rely on a number of intermediate steps and supports, they lay the groundwork for the strong economic case for investing in pre-primary and its potential for life-long impact.

Large inequities exist within pre-primary enrollment and attendance, especially for the most marginalized and vulnerable.

While gender parity is reasonably strong within pre-primary education, inequity along other marginalizing factors is persistent. Poverty, location, religion, ethnicity, and disability are key factors contributing to these inequities. Considerations for equity and inclusion must be at the core of pre-primary education program design in order to overcome these pervasive challenges.

Access is not enough; to be effective, quality must be a frontline priority when developing pre-primary programs.

High-quality pre-primary education programs are effective in building children's school readiness skills (the foundational social-emotional, emergent literacy and numeracy, and motor skills that support primary-level learning). Low-quality programming, such as programming that uses teaching practices inappropriate for early childhood, fails to support the development of strong, positive relationships, between pupils, teachers, and peers. Programming that does not apply an evidenced-based, coherent curriculum is not likely to produce the school-readiness skills children need to be successful.

Quality standards and program design should be informed by global guidance and defined locally.

Quality measures developed in HICs have provided important insight into quality constructs that have the potential to be applied globally. Working within the evidence-based framework of quality outlined by the research to date, programs must work with country stakeholders in LMICs to define quality within the context and, importantly, develop quality assurance frameworks for monitoring and gaining additional understanding of the factors that drive learning at the local level.

Pre-primary education requires dedicated and influential leadership throughout the sector.

Ideally, pre-primary fits within a holistic ECD framework that involves stakeholders from multiple sectors, and it is critical that key leaders and responsible ministries for pre-primary program design and implementation be clearly identified. Clear policies, strategies, and costed implementation plans that delegate roles and responsibilities, support coordination across sectors, and have the political backing and leadership to secure financial and human resources are essential. These considerations allow pre-primary to fill a defined space as distinct from primary school (supporting developmentally appropriate practices and content) while remaining closely aligned with the rest of the system (ensuring educational coherence in the education system).

Development of a specialized and well-trained early childhood teaching workforce should be a topline priority.

Though quality is affected and measured by many factors, learning outcomes are largely driven by teachers and teaching interactions. However, many pre-primary teachers have received minimal education and training, and are poorly compensated. Specialized pre-service and in-service training are necessary to improve teaching practices in a way that improves learning outcomes.

Large gaps exist in the data that make it difficult to conduct comprehensive analyses at the country-level and to make global comparisons.

The evidence base for pre-primary is wide, but still emerging. There is a great deal of program-based research on pre-primary education, but there is a lack of scaled and longitudinal evidence. There is also a dearth of evidence for highly marginalized and vulnerable populations, such as children living in crisis and conflict, migrant children, and children with disabilities. An investment in research and better data and assessment will support continued learning and future programming for country governments, bilateral and multilateral donors, non-governmental organizations (NGOs), and faith-based organizations (FBOs).

INTRODUCTION

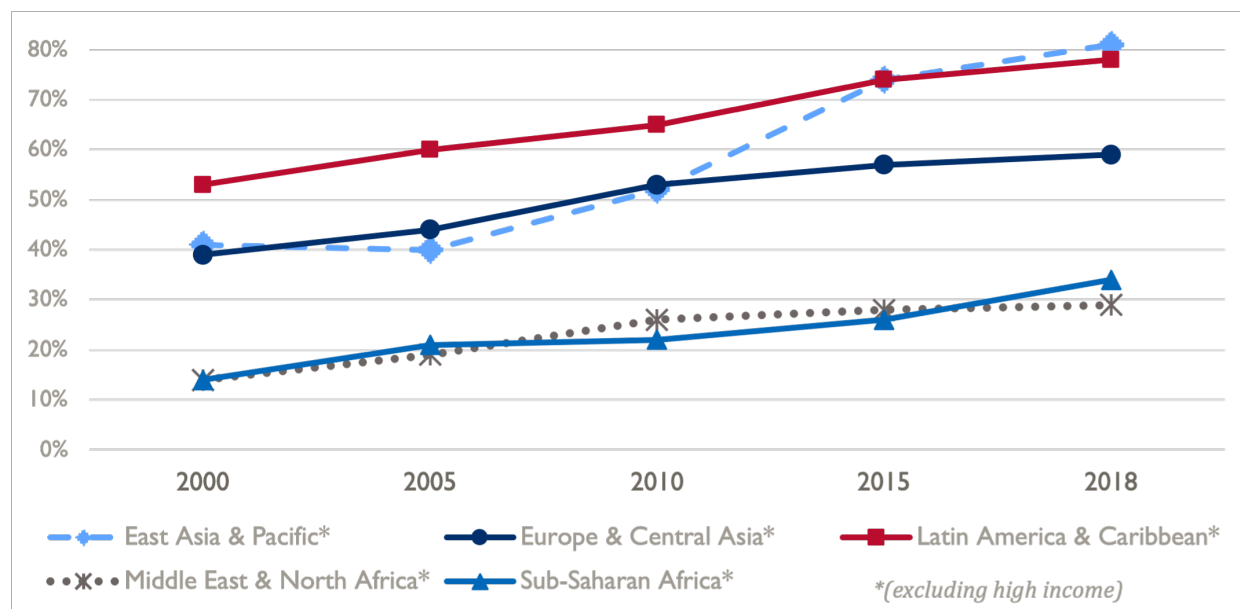
The evidence supporting the importance of pre-primary education in LMICs is strong and growing. In recent years, research has moved progressively from documenting the existence of pre-primary’s impact to examining the system- and program-level factors that drive learning gains.

The relationship between pre-primary participation and future learning outcomes is well documented within HICs and increasingly in LMICs. Particularly, these studies show a strong positive correlation between participation in high-quality pre-primary programs and school readiness skills. For example, McCoy (2016) found that pre-primary attendance in Zambia improved performance across seven domains, including receptive vocabulary, letter naming, non-verbal reasoning, fine motor skills, executive function, prosocial behavior, and task orientation. These findings are consistent with other composite reviews of pre-primary programs, for example, in Mongolia, social-emotional and language skills were improved through kindergarten attendance, and in Kenya, Uganda, and Zanzibar, preschool attendance improved overall cognitive scores for children aged 3–5 (Engle 2011; Rao 2017).

In addition to providing important support to children’s ongoing learning, pre-primary programs offer families access to essential services. They can be a source of trustworthy childcare, offer entry points to health and nutrition services, and critically, provide opportunities for early identification and intervention for disabilities.

Due to these benefits, pre-primary programs are in high demand. However, in LMICs, access is still extremely limited. For example, the pre-primary gross enrolment rate (GER) in Djibouti is only nine percent for all income levels (World Bank Open Data). Today, only 69 percent of the world’s children, and only 41 percent of children in lower-income families, have access to any amount of pre-primary education (Global Education Monitoring Report Team 2020; see Figure 1).

FIGURE 1: PRE-PRIMARY ENROLLMENT PROGRESS SINCE 2000



Source: UNESCO Institute for Statistics

In many countries, the provision of pre-primary programming is in its nascent stage and lacks the policy, planning, and financial support needed to be effective. On average, low- and middle-income countries spend less than three percent of their total education budget on the pre-primary level, compared to the international recommendation of ten percent (UNICEF 2019). Only 46 of the 132 USAID countries reviewed in this report have policies in place to provide at least one free year of pre-primary education. Only 15 percent of pre-primary educators in LMICs hold professional qualifications (UNESCO, UNICEF, The World Bank 2017) and even so, qualification standards range dramatically in different countries (Neuman 2013).

These findings have a number of important implications for governments and the international donor community. Primarily, they underline the importance of investing in pre-primary education programs in order to improve education system efficiencies and support children to succeed throughout their educational career (UNICEF 2019).

This review summarizes the current evidence on pre-primary in LMICS, including gaps in the research, in the following sections:

A Case for Pre-Primary discusses several key arguments made in favor of pre-primary investments. Among these are: 1) the financial return on investment that has been consistently documented in economic literature, 2) the evidence of learning gains and improved academic outcomes from educational research, and 3) the evidence on system efficiencies driven by pre-primary participation, particularly a decrease in drop-out and grade repetition at primary.

Understanding Quality in Pre-Primary Education outlines the elements of quality most closely tied to improved learning outcomes and other positive impacts of pre-primary education. This includes the environmental (structural) and experiential (process) quality factors of these programs.

Establishing an Enabling Environment provides an overview of the supportive environment in which pre-primary can effectively operate, including the policy framework and coordination needed to support delivery of and participation in pre-primary education, the financing support for pre-primary delivery, and an in-depth look at the workforce.

Following this review of the global landscape, regional reviews are provided to provide an overview of the regional contexts where USAID works. Finally, we provide some key recommendations for future research and potential action in support of pre-primary education for all.

METHODOLOGY

An extensive search of scholarly databases was conducted in order to identify peer-reviewed studies, books, and reports with relevance to the questions above. Framework papers, literature reviews, program evaluations and reports, and scientific online editorial content (such as blog posts) from credible sources were also reviewed. Additional literature, including grey literature such as program evaluations, unpublished studies, and professional presentations, were obtained through expert consultations and an open call for papers. A total of 178 documents were selected for inclusion in this review.

The following list of criteria guided the selection of relevant literature.

For peer-reviewed studies, grey literature related to program results (such as program evaluations):

- Studies focused specifically on the age-range of pre-primary education (3–6 years of age).
- Studies examined some models of group-based education, whether formal or non-formal, center- or home-based, public, or private, etc.¹
- Studies included a focus on learning outcomes aligned to one or more developmental domains.
- Studies that examined quality factors as a driver of student outcomes.
- Studies conducted in one or more LMIC (highest relevance) or with highly marginalized and vulnerable populations within a higher income country (HIC).²
- Studies conducted within the last 20 years, with higher relevance attributed to studies within the last ten years.
- Studies including an in-depth analysis of pre-primary education programs (or aspects of programs) as they relate to specific populations or contexts relevant to this review, for example, children with disabilities, and refugee and displaced children.

For framework papers, literature reviews, and editorials:

- The work introduced, discussed, and/or analyzed concepts and/or tools that have been applied broadly to the field of ECE in developing contexts.
- The work analyzed questions aligned with the guiding questions focusing this review.
- The work is peer reviewed and/or developed by a credible international organization (e.g., the World Bank, UNICEF).
- The work was either published or reviewed/revise for relevance within the last ten years.³

¹ Some examples of parenting education programs were included when documented in comparison to group-based programming.

² Some examples of general population research in higher income countries were included in so far as they relate to explaining concepts and tools that have been applied to more relevant contexts.

³ For example, the UN Convention on the Rights of the Child was enacted in 1990, however it is continuously monitored, discussed, and occasionally amended through the oversight of the Committee on the Rights of the Child.

TABLE I LIST OF DOCUMENTS REVIEWED BY TYPE

TYPE	EXAMPLE	QUANTITY
Randomized controlled trials and studies	Peer-reviewed articles published in scientific journals	80
Literature reviews and meta-analyses	Reviews of literature or analyses of multiple studies to draw conclusions of a topic of interest for pre-primary	11
Program evaluations	Mid-line and end-line reports of donor-funded programs	15
Global or regional frameworks and reports	Documents that provide evidence-based and data-supported statements to draw conclusions and present a position about pre-primary or a related topic, such as Nurturing Care Framework and the World Bank Learning Poverty Report	26
Briefings and policy working papers	Documents prepared to inform global reports, such as those submitted to inform the Global Monitoring Reports and policy briefs	25

LIMITATIONS OF THE REVIEW AND GAPS IN THE LITERATURE

While pre-primary education and, more broadly, early childhood development are burgeoning topics in international development, there are still significant gaps in the research base. Given the small population of children accessing pre-primary in LMICs, there have been limited opportunities to study its impact and, especially, to conduct comparative research such as the effect of specific approaches in different contexts. There is a significant lack of longitudinal studies that could help connect the logic chain between early interventions and later academic, social, and economic success (see Gertler 2013 and Jung 2016 for notable exceptions).

Additionally, much of the research related to pre-primary education has been focused on HICs, and there are large gaps in the evidence base related to LMICs. Acknowledging the existing need to invest more heavily in pre-primary research in LMICs, this review has drawn upon the most relevant research available to complete a comprehensive review of the pre-primary evidence. To the greatest extent possible, details are included on the specific geographic and socio-economic context within which studies were undertaken.

This balance is essential to advance our understanding of the field, including the gaps, obstacles, and opportunities. Evidence on the impact of marginalized children in the United States has been a compelling catalyst for additional research in other HICs and, increasingly, in LMICs. However, overgeneralizing program effects from HICs can be detrimental to designing relevant programs for LMIC contexts. For example, in a systematic meta-analysis of 70 early childhood interventions, Rao et al (2017) found that comprehensive intervention programs (programs that offered a combination of services such as cognitive stimulation, nutrition supplementation, parenting education, etc.) showed the highest degree of long-term impact for children. However, there were comparatively fewer comprehensive programs conducted other than single-focus programs (programs that offered only one type of intervention such as just cognitive stimulation or just nutrition supplementation).⁴ The

⁴ The review was able to examine four comprehensive early childhood programs versus 37 early education-only programs and 22 parenting education programs.

researchers posit this may be because evidence on comprehensive vs, single interventions programs from HICs is not compelling. In HICs little difference is observed in terms of the long-term impact on learning gains between comprehensive programs and single-intervention programs.⁵ Further contextualized research is essential to advance understanding of how programs can be designed and systems can be strengthened to support improved learning in the diverse contexts currently found in USAID partner-countries.

Individual studies made up the largest category of literature examined and were primarily utilized to identify specific issues in depth. For example, individual studies were used to examine the impact of specific program designs on learner outcomes and context-specific issues, such as delivering certain types of programs within specific cultural contexts. These studies offer important insights into key issues within pre-primary and lay the foundation for future research. However, as a whole, there are many limitations to this work.

Scale. Many independent studies of pre-primary programs tend to be small in scale. Where studies find promising (or discouraging) results, readers should consider the limitations of the small scale and potentially non-representative sample of the wider population. Program evaluations tend to be larger and as such are critical sources of evidence. For example, the mid-line report of an Accelerated School Readiness Pilot in Mozambique assessed 1,200 (600 treatment, 600 control) children, representative of a program covering 11,000 children (Bonilla 2018).

Time. Given the complexity and cost of longitudinal social studies, many research teams are not able to study impact beyond a few years, and many studies cover much shorter periods than this. These shorter-term studies make it difficult to draw clear and consistent conclusions about the long-term impact of pre-primary education. Advancing the longitudinal research should be a key priority for future investment.

Counterfactual. Studies are often framed as comparing “children who attend a pre-primary program and those that do not.” However, this produces an imprecise and unclear counterfactual analysis. These studies often do not clarify what the children who do not attend the pre-primary program being studied are doing instead. For example, are they attending a different kind of program, such as a childcare program without an educational component? Are they at home with a qualified caregiver, such as a parent, or an unqualified caregiver, such as an older child? Clarifying these types of questions would help stakeholders understand the findings in a more meaningful way (see Cambridge Education 2016 Review of the Educational Quality Improvement Programme (EQUIP)-Tanzania School Readiness Program for a good example of clarifying these control conditions.).

Approaches. Within the current research base, studies often discuss the effect of attendance in pre-primary programs, with little or no mention of the approaches used by the program, such as specific teaching pedagogies, access to play materials, the role of parental engagement, and so on (see Raikes 2020; Rao 2017; and Tanner 2015 for some notable exceptions). This makes it difficult to determine which approaches (or combined approaches) may have the most impact.

⁵ See Barnett, WS. (1995) “Long-Term Effects of Early Childhood Programs on Cognitive And School Outcomes” for a discussion on Head Start interventions and their effects.

Additionally, there is a significant gap in the literature about how to create equitable and inclusive pre-primary education programs and how to support children with disabilities in LMICs. This may be the result of lower enrollment for this group, driven by marginalizing attitudes of parents, teachers, and communities toward children with disabilities. Another cause may be underrepresentation of children with disabilities, who are not identified due to a lack of effective screening tools. To further highlight this challenge, several systematic reviews and meta-analyses utilized for this review found that despite a desire to include information on this topic, they were unable to do so given the dearth of research and evidence. To the greatest extent possible, each key topic is reviewed with an inclusive lens for children with disabilities, drawing where possible from evidence in HICs and from research conducted in the early primary-level. This is a notable gap that should be addressed in future research.

Another key gap in the literature relates to children living in crisis and conflict environments. This is likely due to a lack of pre-primary provision within these contexts. Additionally, the literature available focuses primarily on child mental health in conflict settings and the development of social and emotional skills, regulation, and prosocial behaviors. This focus is highly relevant and useful for these contexts, however, none of the studies reviewed looked specifically at learning outcomes and programmatic effectiveness.

A CASE FOR PRE-PRIMARY

Pre-primary education is a good investment for individuals, communities, and wider national interests. As detailed throughout this review, quality early learning experiences and the foundational skills they support are associated with numerous positive outcomes including a greater likelihood of academic success (Duncan 2007), lower incidence of grade repetition (Crouch 2017) and drop out (Beitenbeck 2019), and attainment of higher levels of education over their lifetime (Krafft 2015). Correlated benefits that stem from attendance in a quality pre-primary program can include better overall health, reduced likelihood of crime, and increased adult income (Black 2016).

In this chapter, we review the evidence and arguments related to the:

- Economic return of pre-primary investments for individuals, communities, and societies; and
- Improvement in learning performance and education system efficiencies that stem from quality pre-primary attendance.

INVESTING EARLY

Investing in young children's education increases economic return in several ways, both directly as it relates to the benefits to children and their later earning potential, and indirectly by increasing the income potential of parents and caregivers, especially mothers. While the rate of return is affected by a range of factors, such as the quality and duration of interventions, increasing enrollment in pre-primary by 50 percent in LMICs could result in global lifetime earnings gains as high as \$34 billion (Sayre 2015).

Economics, neuroscience, and understanding of child development intersect around the following established, linked theories that help explain the high return on investment for pre-primary education:

1. Investments that are made earlier in a person's life have a longer time to accrue benefits. As these early investments tend to affect an individual's cognition, behavior, and social-emotional competency, the potential of these benefits to both the individual and the community are substantial (Becker 1962; Ben-Porath 1967).
2. Children's flexibility, capacity for learning, and brain development are greatest in early childhood, increasing the likelihood that interventions will result in cognitive and behavioral changes that make a lasting, life-long impact (Knudsen 2006).
3. The skills targeted in pre-primary education are foundational and support future learning (often referred to as the "skills beget skills" model). As such, gaining these early in life can provide a multiplier effect, rocketing individuals to higher-level learning faster and more effectively than those who learn these skills later, or not at all (Cunha 2007).

Economic return estimates also extend beyond individual children, as pre-primary can increase engagement in the workforce for parents and caregivers, provide economic opportunities for early

childhood education providers, and positively affect society as a whole through reductions in social welfare costs. These effects can be broadly explained as follows:

1. Parents who can access high-quality pre-primary education for their children are able to engage with the workforce earlier and longer than parents who bear the primary responsibility of childcare. This has the potential to increase the immediate earning potential of the family and contribute to higher income over time. This has the strongest impact on mothers and on older female siblings of young children. For example, in Argentina, preschool attendance of the youngest child in a household was found to significantly increase the probability of full-time employment of the mother (Berlinski 2007). In Indonesia, the addition of a public preschool per 1,000 age-appropriate children equated to a rise in maternal employment by 11-16 percent (Halim 2019). In Mozambique, pre-primary attendance of a household's youngest child resulted in an increase in maternal employment by 26 percent and a 6 percent increase in school attendance of 10-15-year-old female siblings (Martinez 2012).
2. Correlational societal benefits, also called “positive externalities,” of pre-primary include reduced crime rates (and the associated cost to society), lower expenditures on health care, and decreased expenditures related to grade repetition (Hjalmarsson 2011). These benefits are correlated with pre-primary based on evidence that children who attend pre-primary programs typically advance farther in their educational careers, are more economically productive, and engage in fewer high-risk behaviors over their lifetime.

IMPROVING SCHOOL READINESS AND LEARNING OUTCOMES

Attendance in a quality pre-primary program is a strong predictor of whether children will attain the school readiness skills needed to succeed in primary school (UNICEF 2019). In Bangladesh, pre-primary attendance improved performance on five early learning competencies, including speaking, writing, reading, oral math, and written math (Aboud 2011). In the 2019 *A World Ready to Learn* report, the United Nations Children's Fund (UNICEF) found that 44 percent of children attending pre-primary programs in LMICs demonstrated on-track literacy and numeracy skills at school entry, compared to only 12 percent of children not attending pre-primary programs.

Table 2 offers an overview of the school readiness skills children should gain and practice in pre-primary education,⁶ noting that children entering pre-primary at age three may not be exposed to practice in all these areas initially and older children may still be working on these skills as they exit pre-primary and transition to primary school (LEGO Foundation 2018; UNICEF 2019). It is essential to note that foundational skills are complex and require time and practice to build. Foundational early learning skills are also closely interrelated. For example, early mathematical competencies are tied not only to later math achievement, but also to reading and writing abilities (MacDonald 2019). Phonological awareness is tied not only to reading, but also arithmetic performance (Vanbinst 2020). Executive functioning and self-regulation are tied to a range of academic performance markers (Willoughby 2019; Birgisdottir 2016).

⁶ The school readiness skills in Table 2 are documented in numerous frameworks, studies, and discussion papers on early childhood education. See the UNICEF Conceptual Framework for School Readiness (2012), Brookings Toward Universal Learning: What Every Child Should Learn (2013), UNESCO Overview: MELQO (2017), and The Learning Policy Institute Early Childhood Essentials (2019) for some good examples.

Developmentally appropriate programs that seek to develop the holistic school readiness skills (see Table 2), are most likely to produce wide-ranging and long-lasting results (UNICEF 2012).

TABLE 2: DOMAINS OF SCHOOL READINESS

DOMAIN	DEFINITION
Social-Emotional Learning	The skills necessary to support children’s ability to adapt and thrive to the classroom social environment including, but not limited to, forming positive relationships with peers and adults; the ability to work and play in a group; thinking and acting independently; solving conflicts; managing responsibilities; the ability to identify, express, and regulate emotions; exhibit self-esteem; and show respect toward others. The cultural context of the host country may place more or less emphasis on certain skills and/or require others to be added to this list.
Language and Literacy	The wide body of skills that support children to learn through oral and written communication, including, broadly: Language development skills, such as listening and speaking; non-verbal communication, including sign languages; receptive and expressive vocabulary development; grammar usage and understanding; appreciation and response to storytelling and conversation; and Emergent literacy skills, such as print concepts, phonological awareness, phonemic awareness, alphabetic awareness, and analysis and comprehension of text.
Emergent Numeracy and Cognition	The general knowledge and skills that support effective learning and application of grade-level mathematics, science, and other academic subjects. Numeracy skills include, broadly, number sense, spatial awareness and geometry, ability to sort and classify, follow patterns and seriation, and simple mathematical operations.
Physical Development	This dimension refers to a child’s gross motor development, including the ability to sit, stand, and walk, as well as fine motor development, such as the ability to hold a pencil and grasp with two fingers.
Approaches to Learning	The skills and dispositions that foster children’s learning, including, but not limited to, the development of their attention, engagement, and persistence in learning tasks; positive learning behaviors such as cooperation and risk taking; creativity; curiosity and initiative; and logic, reasoning, and problem solving.

Several studies conducted in LMICs connect school readiness skills with improved grade-level learning outcomes:

- In Argentina, a review of the effect of universal preschool revealed attendance notably improved attention, behavior, and cognition – all aspects of school readiness. These improvements were associated with an average eight percent increase in third grade math and reading scores (Berlinski 2009).
- In Bangladesh, attendance in a one-year pre-primary program improved school-readiness measures at the end of the program, and learners showed consistently higher academic performance, particularly in mathematics, at the end of Grade 1 and Grade 2 when compared to peers who did not attend a pre-primary program (Aboud 2011).
- In Chile, attendance in at least one-year of pre-primary was associated with higher reading, mathematics, and social studies test scores in the fourth grade (Cortazar 2015).

In addition to improving overall learning outcomes, studies have shown that high-quality pre-primary education has the greatest impact on the most marginalized and vulnerable children, as they are least likely to have rich home learning environments. In a comparison of 70 early childhood interventions measuring the impact on learning outcomes of early childhood education programs, an average effect size for child-focused education programs of 0.64 was found in LMICs, compared to an average effect size of 0.35 in higher-income countries (Rao 2017). This means that children in more resource-scarce environments benefited at a much higher rate from pre-primary programming and that pre-primary has strong potential as an equity agent, driving learning outcomes for the most marginalized and vulnerable.

The benefits of pre-primary for the most marginalized and vulnerable are especially critical given that research has shown that socio-economic status has substantial impact on academic achievement and that significant divisions already exist at the start of primary school between children from the wealthiest and poorest families (Alcott 2017; Blandon 2010; Reardon 2012). These gaps do not close over time but rather widen as children move through their schooling. For example, in South Africa, by third grade, children from the wealthiest households were, on average, three grade levels ahead in math than their peers from lower income households. By ninth grade, this had expanded to four grade levels (Spaull 2015).

School readiness skills are also a strong predictor of later academic achievement (Duncan 2007) and primary school completion (Vargas-Baron 2006). At least one year of pre-primary education is associated with a 12 percent increase in primary school completion in low-income countries (Earle 2018). This is the result of many interrelated factors. Children who attend quality pre-primary programs are more likely to gain school readiness skills (UNICEF 2019), enroll in primary school on time (Martinez 2012), and perform on grade level in primary school⁷ (see examples below). Children who enroll on time and perform better in early primary are less likely to repeat grades and are more likely to complete primary school (Crouch 2017; Andre 2008). Broadly, the evidence suggests that supporting children's attendance in quality pre-primary education builds school readiness skills and encourages on-time enrollment, helps to eliminate the churn of over-enrollment, grade repetition, and drop-out in early primary school, supporting efficiencies throughout the education system and encouraging greater learning outcomes.

⁷ This finding is related to school readiness skills, not to on-time enrollment in primary school.

QUALITY IN PRE-PRIMARY EDUCATION

Quality in early childhood programs is based on positive relationships between teachers and pupils (OECD 2019), developmentally appropriate exposure to enriching content, and play-based experiences with new skills. These elements support healthy social-emotional and language development, which in turn support a child's ability to think critically, explore, and learn from their environment (UNICEF 2012). Additional drivers of quality include a developmentally appropriate curriculum that allows children to engage in meaningful play and develop foundational skills, competently delivered by a teacher who has been trained in child development, differentiates instruction for learners of different abilities, and routinely assesses children's learning.

There is strong evidence showing the relationship between high-quality programming and learning outcomes (McCoy 2018; Peisner-Feinberg 2004). Impact assessments show the effect size of pre-primary programs ranges widely from small to significant (Engle 2011), and where effect sizes are small or even absent in relation to control groups, low-quality provision is offered as an explanation (Raikes 2019). This underlines the paramount importance of ensuring quality, as a lack of quality programming often results in reduced or no learning gains (Aboud 2006; Rao 2012).

In this chapter, we examine:

- The characteristics of quality – specifically *structural quality* and *process quality*
- Measurement – current efforts to define and measure quality in LMICs
- Teachers – the program component that most directly drives quality

CHARACTERISTICS OF QUALITY

Quality characteristics are typically discussed in two ways: *structural quality*, which includes the characteristics of programs that are easier to regulate and are often influenced by external factors; and *process quality*, which refers to the interactive, actual experiences that children have within the pre-primary program. The former is designed to directly support improvements in the latter, which in turn directly supports children's learning outcomes (Cassidy 2005).

The quality elements discussed below do not provide a comprehensive view of structural and process quality. However, the overview represents the elements most commonly discussed in the literature, and which appear to have the greatest degree of comparability across contexts.

STRUCTURAL QUALITY

PERSONNEL QUALIFICATIONS AND TRAINING

Staff qualifications, including their level of education, initial training, and opportunities for continuous professional development, are associated with enhanced process quality, which in turn has been linked to better child outcomes (UNESCO 2018). Staff qualifications, particularly their specialized training, are strong predictors of the sensitive, responsive interactions between teachers and children that denote good quality in early childhood settings (Fukkink 2007). For example, in Cambodia, a review of three models of teacher preparation and continuous professional development showed a strong relationship between the amount and intensity of specialized training to positive student outcomes (Mitter 2018).

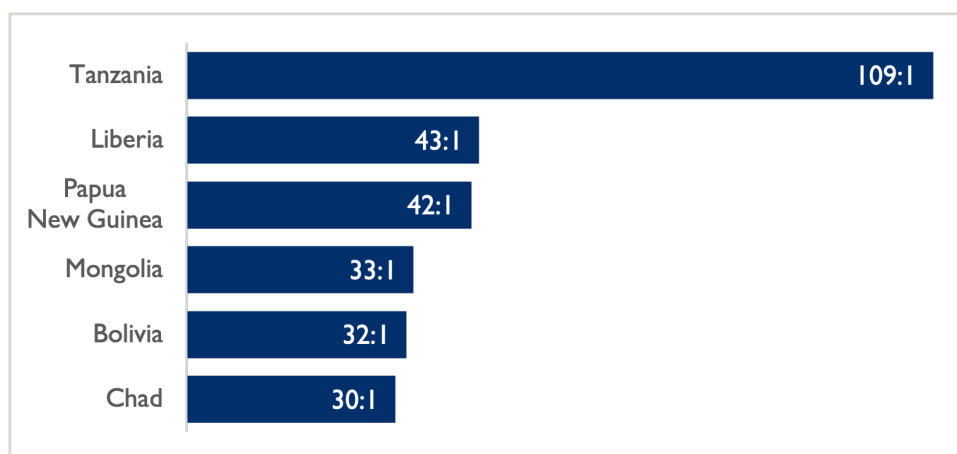
PHYSICAL SPACE

The physical space that programs provide for pre-primary instruction has a strong influence on the learning that can take place. For example, high-quality programming requires spaces that are safe and large enough to allow children to move easily around the classroom, access materials, socialize, and engage in play and other learning activities (Knauf, 2019). Ideally, these programs will have access to drinking water, handwashing facilities, and toilet facilities to encourage health and safety of students and teachers (UNICEF 2012). The requirements for a program’s physical space are often one of the first standards countries define for pre-primary programs as it is the easiest to observe and measure compliance.

CHILD-TEACHER RATIO

Another environmental factor that is strongly associated with improved student learning outcomes is child-teacher ratio, which is one of the most monitored quality indicators in LMICs (Global Monitoring Report 2016). A lower child-teacher ratio is strongly associated with better learner outcomes. Teachers with a lower and more manageable number of pupils experience less stress and have a greater ability to give individual attention to the social-emotional and early skill development of their learners (Neuman 2015). Larger-than-desirable child-teacher ratios are often due to the lack of trained personnel and the limited infrastructure available to support a growing number of pupils (Aboud 2019). As such, few countries meet the standards they set for themselves for the child-teacher ratio, representing a key challenge to quality. Figure 2 shows sample child-teacher ratios for several countries.

FIGURE 2: SAMPLE COUNTRY CHILD-TEACHER RATIOS⁸



Source: UIS Data

⁸ Numbers presented in the bar graph represent the number of children per 1 teacher/supervising adult.

PROCESS QUALITY

PEDAGOGY

Pedagogy refers to the curriculum, availability and use of materials, and various approaches that teachers take in the classroom to support learning, such as whole group or small group instruction, using open questioning and dialogue, conducting formative assessment, individualized instruction, etc. To be of high quality, a program's pedagogy must be developmentally appropriate, and tailored to the age and developmental needs of the young children it serves. Due to educator and parent misconceptions about early learning, there is a strong tendency in many LMICs for pre-primary to resemble primary school, with children sitting at desks and following along to a whole group lesson (McCoy 2016; Ng 2014; Wolf 2018). However, this practice is widely recognized as being inappropriate for the early childhood age group.

An essential component of developmentally appropriate pedagogy in pre-primary is the use of play-based learning.⁹ There is agreement within the study of human development that play is fundamental to early learning. In a pre-primary classroom, high-quality pedagogy should include opportunities for both guided and free play, which are known to support children's cognitive, social, emotional, and physical development (Dash 2019). Guided play is play for which a teacher has designed an environment with specific learning experiences in mind; free play is play in which children are encouraged to explore and follow their own interests within a safe and appropriate environment.

POSITIVE INTERACTIONS

Child-teacher interactions in pre-primary education are a strong predictor of the acquisition of language, pre-academic, and social skills (Burchinal 2008) and are associated with lower levels of conflict in early adolescents. Few studies exist in LMICs on the impact of interactions between children and teachers, but this topic has been studied extensively in HICs. Low-income children are more likely to achieve school readiness when they enjoy a trusting, communicative relationship with their teacher (Hatfield 2016).

FAMILY (PARENT) AND COMMUNITY ENGAGEMENT

Engagement of families (parents or caretakers) and communities is an important quality factor in pre-primary programs because this links school-based and home-based learning and develops a partnership between parents and teachers that support children's learning outcomes (UNICEF 2020). For example, in Madagascar and Ghana, researchers found there was a direct correlation between the level of engagement with parents and children's school readiness skills. Specifically, more informed parents were more engaged in their children's learning (Loomis 2012; Wolf 2018).

⁹ There is an enormous research base in HICs and LMICs discussing the importance of play. See <https://www.naeyc.org/resources/topics/play> and https://www.legofoundation.com/media/1063/learning-through-play_web.pdf for two knowledge repositories on this topic.

MEASUREMENT

A universally agreed definition of high-quality for pre-primary programs does not currently exist, but the characteristics of structural and process quality are widely agreed by international experts. Experts urge that countries define quality locally, to ensure it represents a country's cultural identity and values (Hu 2015; Tobin 2005). However, as pre-primary programming grows, the need both for a consistent quality framework and globally comparable monitoring tools is essential. (See Table 3, next page, for examples)

Building from the quality measurement work in HICs, different global efforts have begun to adapt and contextualize measurement tools to LMIC contexts. Offering a core foundation to this work is the extensive analysis of two widely used (in HICs) measurement tools: The Classroom Assessment Scoring System (CLASS), which evaluates the interactions between teachers and students, and the Early Childhood Environmental Rating Scale, 3rd Edition (ECERS-3), which evaluates a range of process and structural quality elements. Taking this work forward, a consortium of global partners including the United Nations Education, Scientific and Cultural Organization (UNESCO), the World Bank, the Center for Universal Education at the Brookings Institution, and UNICEF established the Measuring Early Learning Quality and Outcomes (MELQO) initiative to develop a measurement framework and tools designed to assess school readiness on a global scale.

In 2014, the MELQO team began a comprehensive review of quality research and quality monitoring tools in use around the world to develop a measurement instrument for gathering comparable country data (Raikes 2019). The MELQO assessment tools are currently in their fifth year of implementation and are still being analyzed and refined. However, in a recent review of MELQO's performance across countries, Raikes et. al. (2020) found that the tools are highly adaptable to different country contexts and often align well with country expectations of ECE quality.¹⁰ Table 3 presents several widely used tools for assessing aspects of quality in early childhood programs.

¹⁰ The authors also note that some of the quality constructs are less relevant in some contexts than others, and the tools may function differently across countries.

TABLE 3: TOOLS FOR MEASURING QUALITY IN EARLY CHILDHOOD PROGRAMS

TOOL	DESCRIPTION	DOMAINS
Scoring System Pre-K CLASS	Assesses classroom quality in settings for children ages 36 to 60 months. All observers are required to receive prior training and are encouraged to use videotape footage.	Ten dimensions of classroom quality across these three domains: emotional support, classroom organization, and instructional support.
Environment Rating Scale (ECERS-R)	Assesses group programs for children ages two to five. The tool is mostly used for policy development, program evaluation, advocacy, and training. ECERS-R includes classroom observation and a teacher’s interview from the enumerator. The enumerator or observer should receive prior training.	Seven domains: space and furnishings, personal care routines (health and safety), language and reasoning, activities, interactions, program structure, and parents and staff.
ACEI Global Guidelines Assessment (GGA)	GGA is mostly used for self-assessment by centers, to design new early childhood programs or to improve existing programs.	Domains for environment and physical space, curriculum content and pedagogy, educators and caregivers, partnerships with families and communities, and children with special needs.
International Step by Step (ISSA) Principles of Quality Pedagogy	Assesses quality in ECCE teaching practices and classroom environment and is primarily used for planning and improvement.	Eight focus areas: interactions, family and community, inclusion, diversity and values of democracy, assessment, and planning, teaching strategies, learning environment, and professional development.
Measure Early Learning Environments (MELE)	Measures the quality of early learning environments for children ages three to six. It includes a classroom observation tool, teacher/director survey, and parent survey.	The MELE addresses environment and materials, teacher-child interactions, pedagogy and approaches to learning, family and community engagement, inclusion, and play.
Stallings Classroom Snapshot instrument (or Stanford Research Institute Classroom Observation System)	Gathers information on the interaction between teachers and students in the classroom.	Focus areas are teachers’ use of instructional time, teachers’ use of materials, core pedagogical practices, and teachers’ ability to keep students engaged.

Source: Adapted from *Early Learning Partnership: Measuring the quality of early learning programs: Guidance Note*, page 12 (2016).

TEACHERS

Teachers are the primary driving force behind quality in pre-primary programs (UNICEF 2019). The pre-primary teacher workforce, however, is largely underdeveloped and unsupported. Typically younger and less experienced than the average teacher (Neuman 2015), pre-primary teachers are poorly paid (if they are paid at all), have lower levels of education than their colleagues teaching in primary school and above, and do not enjoy the professional standing of teachers at higher levels. Low levels of investment in the sub-sector leaves many teachers without specialized training opportunities and lacking the core competencies they need to successfully deliver quality pre-primary education. These working conditions make recruiting and retaining qualified pre-primary teachers extremely difficult in most LMICs.

While pre-primary enrollment remains low in LMICs compared to other areas of the world, it has expanded everywhere over the past ten years, and is out of step with the level of investment made in

both infrastructure and personnel. As a result, the child-teacher ratio is high in many LMICs (see Figure 2). This poses a challenging and stressful environment in which to teach young children, especially when quality is critically affected by a teacher’s ability to connect meaningfully with each child. The absence of this specialized workforce is a primary factor in limiting a country’s ability to deliver quality pre-primary at scale.

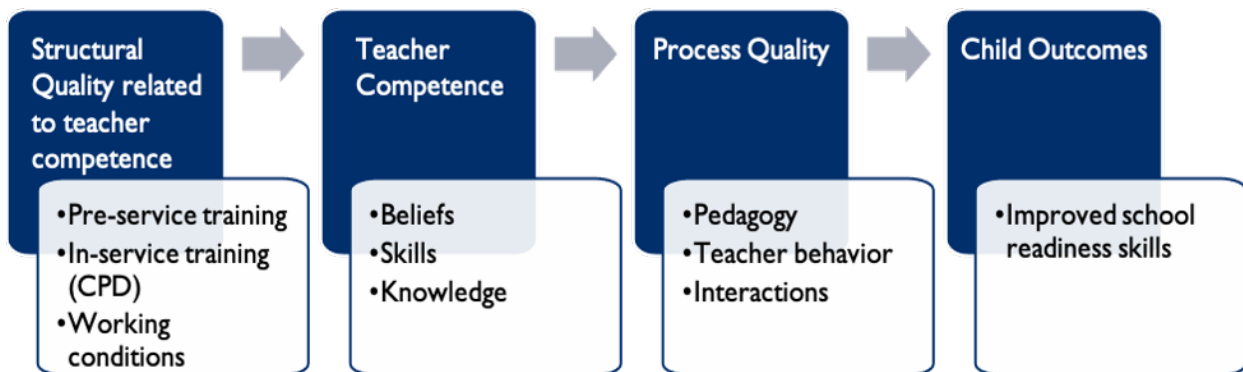
Due to the relative ease of measuring structural quality compared to process quality, the literature largely examines structural elements of the teacher workforce. These include child-teacher ratio (discussed above), competency framework and associated training, and teacher certifications.

COMPETENCY FRAMEWORK AND TRAINING

The existence of a competency framework and the training that responds to it are structural quality elements that directly affect process quality, as is illustrated throughout the literature (see Engle 2011, Fukkink 2007, and Neuman 2015 for examples). Figure 3 depicts this, offering a clear example of the relationship between structural and process quality.

Level 1 (on left) of the figure refers to structural quality elements related to teacher competence (the knowledge, skills, and beliefs that teachers hold). These are often depicted in a country’s *professional pre-primary teacher standards*, or *pre-primary teacher competency framework*, which outline the competencies that training and continuous professional development (CPD) programs should seek to build. These professional standards and the participation of staff in standards-aligned training and CPD activities are indicators of structural quality. This leads directly to the competencies that teachers gain through their training (Level 2) and the pedagogical behavior teachers exhibit (Level 3), which are indicators of process quality (Neuman 2015).

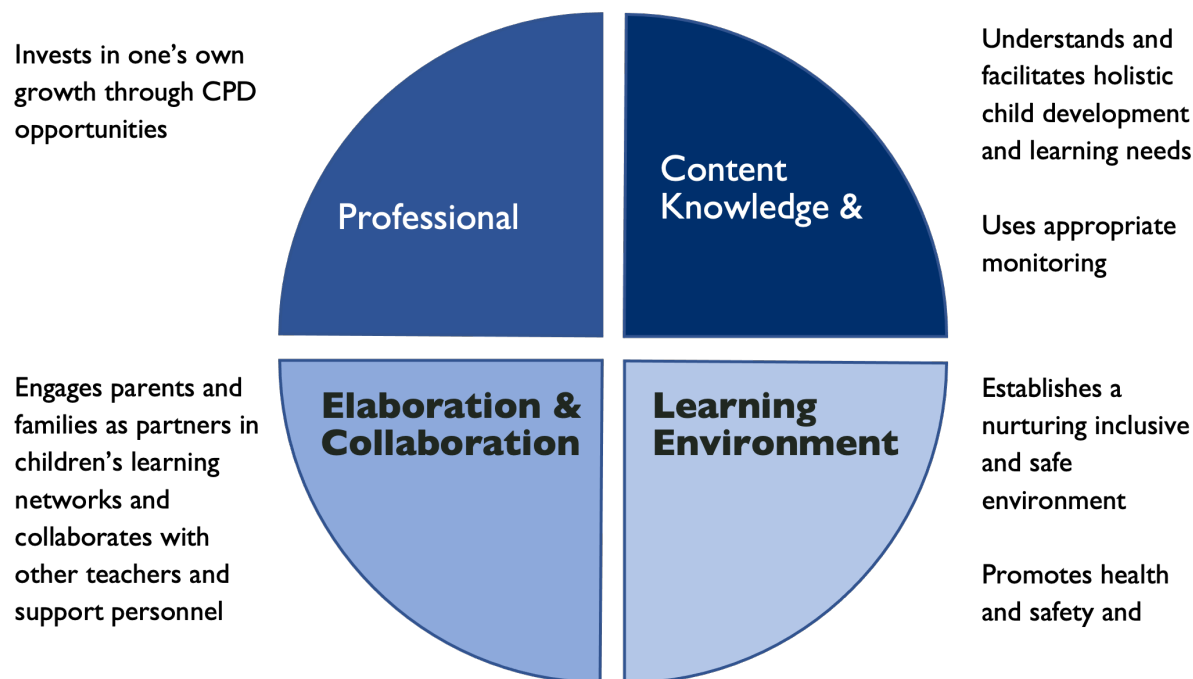
FIGURE 3: RELATIONSHIP BETWEEN STAFF PREPARATION AND STUDENT LEARNING OUTCOMES



Source: Adapted from Fukkink 2007

Figure 4 shows a sample competency framework adapted from the ECCE Teacher Competency Framework for Pacific Small Island Developing States (2018).

FIGURE 4: SAMPLE EARLY CHILDHOOD TEACHER COMPETENCY FRAMEWORK



Source: Adapted from UNESCO Office Bangkok and Regional Bureau for Education in Asia and the Pacific, *ECCE Teacher Competency Framework for Pacific Small Island Developing States*, page 11 (2018).

Note the inclusion in Figures 3 and 4 of teacher perceptions and beliefs. In addition to knowledge and skills, studies suggest that a teacher's perceptions of the effectiveness of developmentally appropriate practice are a strong predictor of their actual classroom practices (Hegde 2007). Parents also play an important role in driving teacher behavior, as parents' perceptions of what constitutes quality drive actual classroom and home-based learning practices in ways that can either support or undermine learning (Wolf 2019).

TEACHER CERTIFICATIONS AND QUALIFICATIONS

As discussed above, a common structural quality indicator of pre-primary programs is staff qualifications, as this points to the level of specialized training staff have received.¹¹ That said, more than half of LMICs have no recognized teacher certification requirements in pre-primary education, and of those that do, very few hold teachers and schools accountable for meeting them (The Global Monitoring Report Team 2017). In many LMICs, this issue is further aggravated by a lack of CPD opportunities and a total absence of professional standards. Many pre-primary teachers enter the workforce with no specialized training (UNICEF 2019).

¹¹ Recognized qualifications are also associated with remuneration and recognition, which are shown to positively affect teacher motivation.

In many contexts, the types, amount, and content of training that staff receive is often uneven (Neuman 2015). For example, in many Latin American countries, teachers must hold tertiary degrees and specialized certificates, while in many sub-Saharan African (SSA) countries, teachers may not have any formal training requirements (World Bank Data). Compliance with training requirements also varies enormously. For example, in 2014, 78 percent of pre-primary teachers in Latin America and the Caribbean (LAC) were compliant with training requirements, compared to only 45 percent of pre-primary teachers in SSA. (World Bank Data). Within each region, there is also variation: within Latin America, 100 percent of pre-primary teachers in Colombia received training compared to 45 percent in Barbados. In SSA, South Africa and Namibia both report training levels above 70 percent, while Tanzania reported only 18 percent (World Bank Data).

In its white paper on strengthening professional pathways in pre-primary, UNICEF (2019) recommends the following key supports to establishing a functional workforce:

- Development of a professional competence profile;
- Development of training competence profiles framing the pre- and in-service training programs for all teachers;
- Government recognition and monitoring of training and skills mastery in line with the professional competence profile; and
- The establishment of qualification requirements built from these competence profiles and used to inform teacher preparation and continuous professional development opportunities.

As discussed in this chapter, the literature examines many measurable program elements that influence quality in pre-primary programs. In many of the studies reviewed, it is evident that these factors influence quality in direct relation to how they support or detract from a teacher's ability to implement an evidence-based curriculum through developmentally appropriate approaches. However, the literature on this topic is not comprehensive and should be expanded to increase understanding of how different program elements affect learning, particularly for those factors that strongly dictate resources. For example, it is critical to understand whether child-teacher ratio influences learning outcomes in equal measure to teacher training, or whether the physical infrastructure of a program plays as great a role as access to toys and materials. These findings will offer greater support to advocates and policymakers in gaining resources for their pre-primary sub-sectors and offer better instruction to providers as they design and implement programs.

ESTABLISHING AN ENABLING ENVIRONMENT

Establishing an enabling environment means creating a policy and delivery framework in which quality, equitable, and inclusive pre-primary programs can be proactively designed, and effectively delivered, monitored, and evaluated. This is essential for building high-quality pre-primary programs, encouraging equitable participation by service providers and families, and ensuring sufficient financial resources are available for high quality provision for the most marginalized and vulnerable children (Neuman 2013).

This section reviews literature related to two key aspects of establishing an enabling environment:

- Governance, including ministerial leadership, cross-sectoral coordination, and policy and regulatory frameworks to support pre-primary at scale.
- Financing, including the importance of targeted financing for pre-primary education and the risks and opportunities that exist within the different sources of funds currently utilized in LMICs.

Another key factor of the enabling environment is the teacher workforce and overall capacity building in the sector. As this is such an important driver of quality, this has been addressed in the previous section.

GOVERNANCE

BACKGROUND

Pre-primary exists within the wider landscape of ECD, which can make the governance and coordination complex. In many countries, pre-primary is combined with other services and is offered in a variety of different models. For example, while pre-primary is typically viewed as covering the 3–6 age range, it is common for pre-primary services to be combined with childcare for younger (or older) children or in early childhood care and education (ECCE) programs. Programs may be center, school, or community-based; taught by trained or untrained teachers or volunteers; publicly or privately funded (or some combination of the two); use a nationally recognized curriculum, another curriculum, or none at all; or be play-based or more academically focused; scheduled as half-day, full-day, extended hours, or just a few hours a week (UNICEF 2020). Within this array, programs may offer nutritional services, parenting education, health screenings, and other integrated services. They may be explicitly designed as a pre-primary program or be an add-on to a program primarily focused on other work, such as a mother’s savings initiative, work program, or literacy instruction. Navigating this governance landscape is tricky, as roles, responsibilities, and funding can easily become entangled (Neuman 2005).

LEADERSHIP

Clarifying ministerial leadership by identifying an institutional anchor for pre-primary is a key driver of successful pre-primary policy implementation (GPE 2014; ILO 2012; Neuman 2013). An institutional anchor within a lead ministry helps to navigate this complicated landscape by taking ownership of the policies, strategies, and action plans, as well as results of the sector. Lack of ownership by a lead ministry frequently leads to poor cross-sector coordination, lack of funding for integrated services, and a fragmented pre-primary subsector that can exacerbate inefficiencies and erode quality and learning (Britto 2014).

According to SABER (Systems Approach for Better Education Results) country data,¹² about two-thirds of SABER countries have an identified institutional anchor responsible for pre-primary, but only half have staff assigned to lead this work. In a recent review of 85 LMICs, UNICEF (2019) found that in 76 percent of countries surveyed, Ministries of Education held responsibility for pre-primary education,¹³ while in 20 percent of countries either another ministry or multiple ministries were responsible for pre-

¹² Accessed 2020, most recent years available.

¹³ This responsibility does not necessarily correlate to policy, as many LMIC countries still lack dedicated policies related to ECD and ECE more specifically.

primary. In addition to a clear leader in the sector, there is a need for institutional capacity, top-level political will, and linkages to power brokers (such as finance ministries) and expert resources (such as universities, civil society, and professional institutions). Assigning dedicated and capable staff to institutional anchors is equally important to ensure the pre-primary subsector can tap into national, international, and local resources effectively (UNICEF 2019).

POLICIES AND LEGISLATION

The development of specific pre-primary policies makes it more likely that human and financial resources will be mobilized in support of ECE, which is essential for its success (UNICEF 2020). Nonetheless, as shown in Table 4, relatively few LMICs have these in place. Emerging research suggests that policies promoting the combination of free and compulsory pre-primary are the most important for significantly increasing attendance and improving learning outcomes, as compared to policies promoting only free access (Earle 2018). Globally, only 78 countries guarantee free pre-primary education, and only half of these make attendance compulsory (UNICEF 2019).

TABLE 4: NUMBER OF LMIC WITH POLICIES GUARANTEEING AT LEAST ONE YEAR OF FREE PRE-PRIMARY EDUCATION

REGIONS	# OF LMIC	COUNTRIES
Sub-Saharan Africa	8	Rep. of the Congo, Djibouti, Ghana, Madagascar, Mali, Mauritania, Sudan, Tanzania
Middle East and North Africa	5	Iraq, Jordan, Lebanon, Libya, Syria
East Asia and the Pacific	11	Bangladesh, Kazakhstan, Kyrgyzstan, Marshall Islands, Mongolia, Nauru, Nepal, Tajikistan, Thailand, Turkmenistan, Uzbekistan
Europe and Eurasia	5	Albania, Armenia, Azerbaijan, Cyprus, and Russia
Latin America and the Caribbean	19	Barbados, Bolivia, Brazil, Colombia, Cuba, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, St. Vincent and the Grenadines, Uruguay, Venezuela

Source: UIS Database and SABER country reports¹⁴

Investment in a highly participatory process for developing policies and policy instruments, including establishing cross-sectoral and vertically inclusive technical working groups, is central to ensuring effective governance (Britto 2013). The Global Partnership for Education (GPE) has supported and advanced pre-primary policy work through country grants focused on Education Sector Analyses and the development of Education Sector Plans (ESP) (GPE 2014). These documents support the development of policies that articulate a long-term vision for pre-primary, directly linked to wider country development goals. Equally important is the development of policy instruments to support the

¹⁴ This table is based on the latest information available through global databases and reports. While effort was made to double check the accuracy of these reports, the timeline of this work did not allow for an in-depth review of individual country policies.

strategic roll-out of the policy, such as strategy documents, costed implementation plans, standards, and regulations, etc. (Vargas-Baron 2015).

FINANCING

In researching the topic of cost and financing for pre-primary, two central themes emerged:

1. Identifying and articulating what is known about financing models for an effective pre-primary subsector; and
2. The significant gap in data on spending and financing for pre-primary programs.

This section will focus primarily on the former theme, but the latter also deserves a short discussion, as this information is essential for understanding the level of efficiency in the education system, and the degree to which resources are distributed equitably, and where funds should be invested more heavily to improve quality (GPE, UNESCO, UNICEF, & The World Bank 2014). Donors need an understanding of host country education efficiencies to determine where, how much, and in what form to invest in education development. (The Global Monitoring Report Team 2016).

THE FINANCING GAP

The Education for All Global Monitoring Report Policy Document 18 (2015) estimates that universally providing access to quality¹⁵ pre-primary, primary, and secondary education by 2030 will cost an average of \$340 billion per year in all LMICs. This is an increase of \$191 billion from 2012 education spending and leaves a financing gap of about \$39 billion per year. This model anticipates financing for pre-primary alone in LMICs will need to increase from an average \$4.8 billion per year to \$31.2 billion per year¹⁶ (Zubairi and Rose 2017).

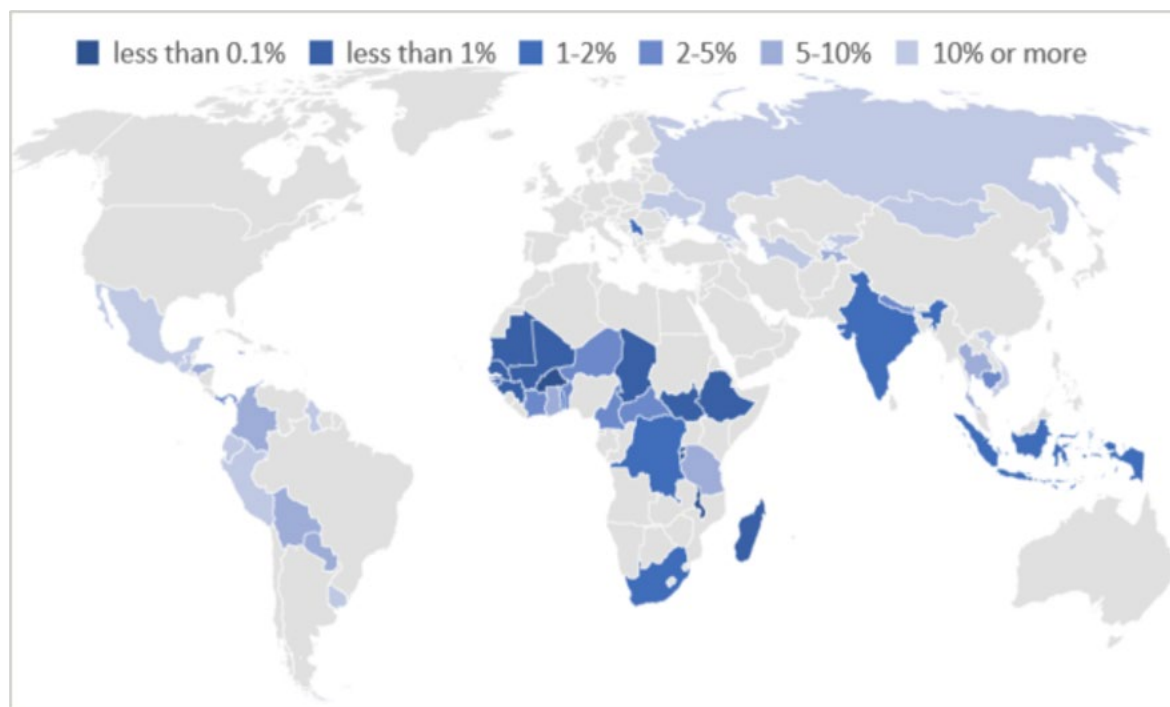
As of 2016, low-income countries spent approximately 2.9 percent of their total education budgets on pre-primary,¹⁷ compared to the ten percent of education spending recommended (Zubairi and Rose 2017). Of the 57 USAID partner-countries for which overall education spending and pre-primary spending data was available, 15 spend less than one percent on pre-primary education, 14 of which are in SSA. All the countries that spend ten percent or more are in Latin America or Eurasia (Figure 5, below).

¹⁵ Quality factors built into pricing models include renovations and new construction to provide adequate safe and inclusive infrastructure, a pre-primary child-teacher ratio of no greater than 20:1, a primary child-teacher ratio of no greater than 40:1, access to appropriate teaching and learning materials, and trained teachers receiving fair compensation.

¹⁶ In the Early Moments Matter Report, UNICEF estimates this cost at \$44 billion per year (Britto 2017).

¹⁷ This is compared to 9 percent for high-income countries.

FIGURE 5: PERCENTAGE OF EDUCATION SPENDING ON PRE-PRIMARY EDUCATION IN USAID PARTNER COUNTRIES¹⁸



Source: UIS Database

THE DATA GAP

A primary challenge in gathering information on financing for pre-primary is that international tools for tracking education financing data primarily use countries' treasury tracking systems, which rarely disaggregate pre-primary from primary education (Education for All Global Monitoring Report 2016). Financing for pre-primary can come from a variety of public and private resources, including external donors and private sector investors. Given the position of pre-primary within the wider scope of ECD, funding for pre-primary may also be channeled through sectors other than education, which can add to the complications in tracking expenditure and efficiencies of pre-primary education. Education Management Information Systems (EMIS) do not commonly consistently collect and analyze pre-primary data (UNICEF 2019), which is essential to ensure governments have the information they need to make critical policy and resourcing decisions (Abdul-Hamid 2014).

While The World Bank and UNESCO have made significant contributions to global data collection, significant gaps in financing data continue, as evidenced in the map in Figure 5. From 2005–2015, of the 132 USAID partner-countries tracked in the UNESCO Institute for Statistics (UIS) database, only 50 were able to provide disaggregated pre-primary data at least once every three years. An additional 22

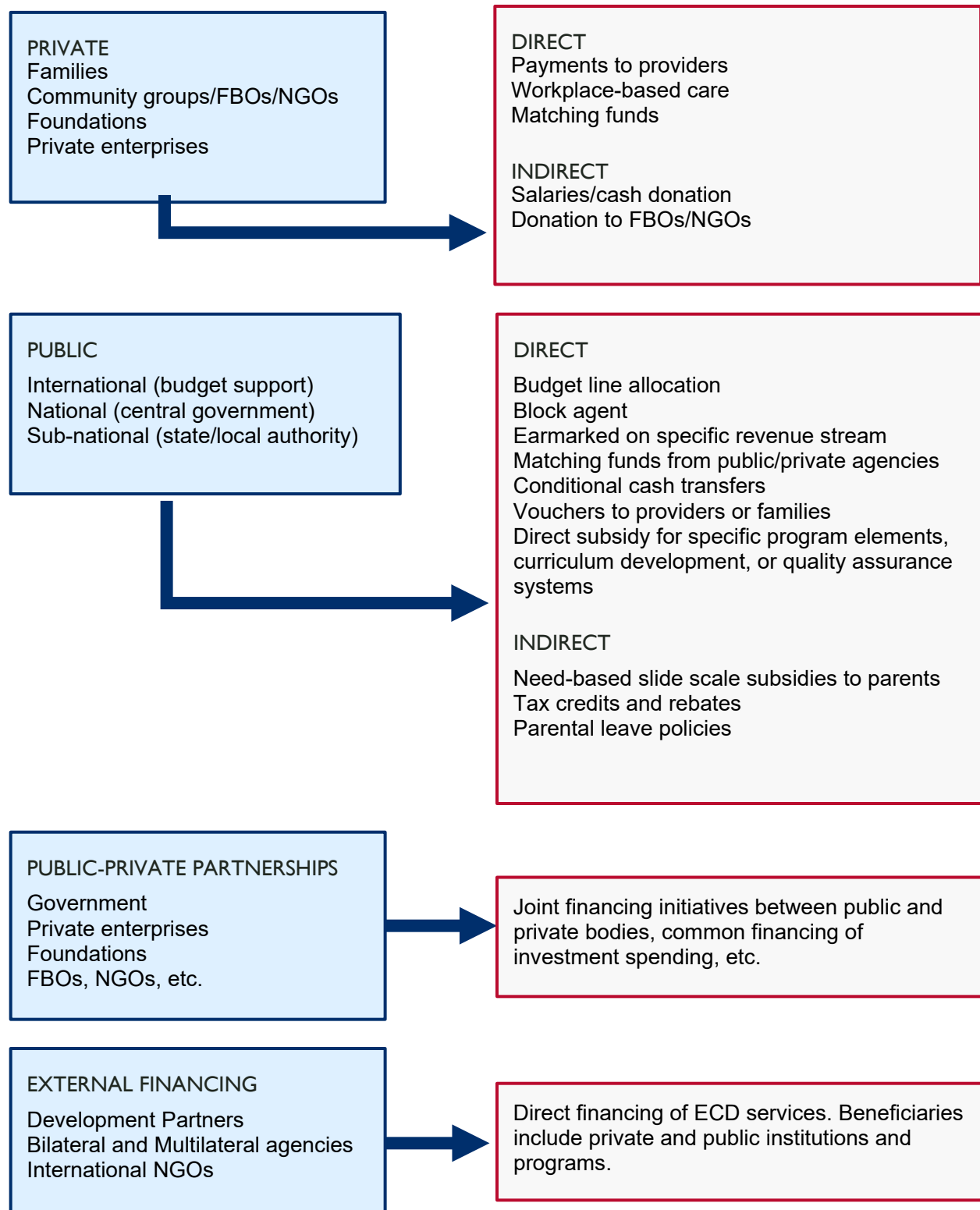
¹⁸ The UIS database publishes data on 'overall education spending' and 'total spending on pre-primary'. For countries for which both figures were available, the author has calculated pre-primary spending as a percentage of total education spending. For consistency in calculations, only the UIS database was used, as the most comprehensive global source for this information.

countries reported at least once during this ten-year period, and 60 countries reported no data for pre-primary at all (UIS Data).

GOVERNMENT EXPENDITURE – PUBLIC SPENDING

The use of public funds for pre-primary programming can take many forms (see Figure 6, next page). This may include total public coverage of pre-primary programming, partial subsidies offered to private providers of services, tuition vouchers, or cash transfers to beneficiaries to offset the cost of pre-primary education (school fees or other financial barriers). For example, in Kenya, pre-primary teachers' salaries are paid for by the central government, but local authorities and parents cover the operational and maintenance costs for pre-primary schools (The GPE 2014).

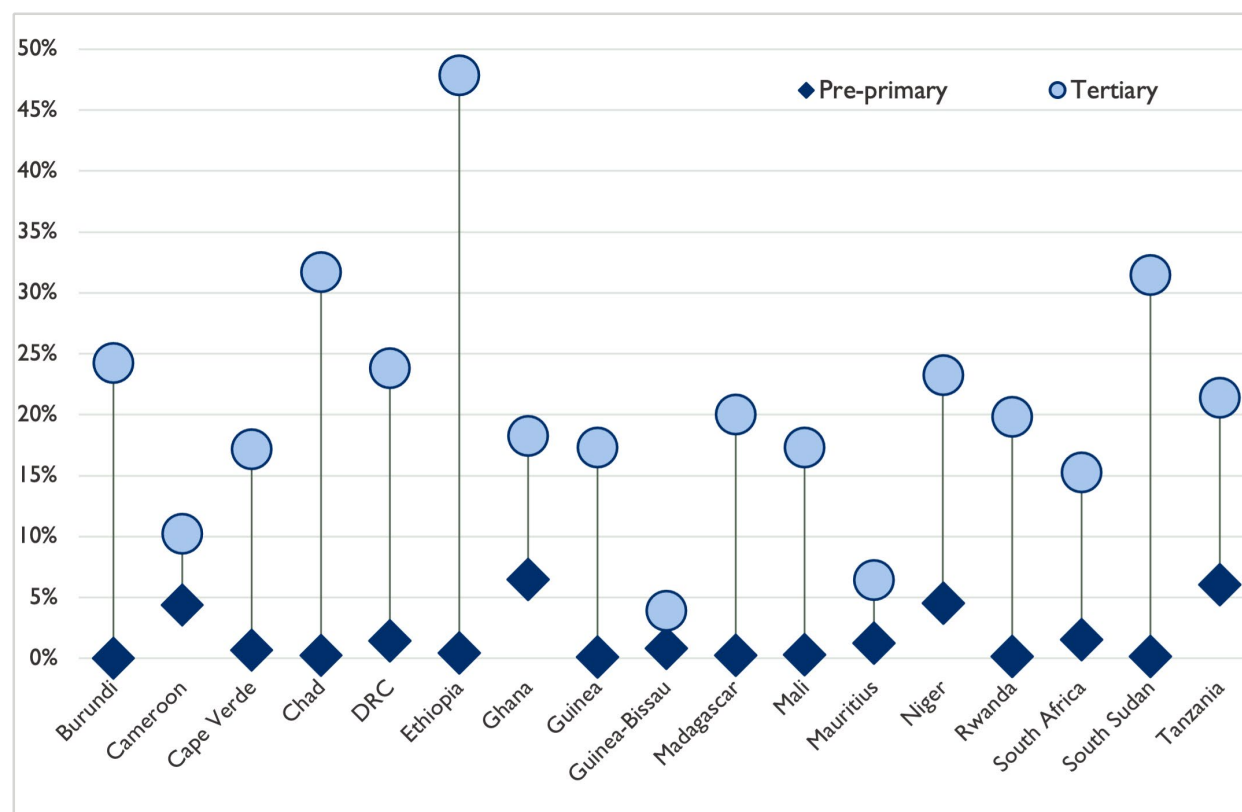
FIGURE 6: EXAMPLE OF PRE-PRIMARY FINANCING SOURCES AND MECHANISMS



Source: Adapted from *Mainstreaming ECE into Education Sector Planning, Module 3, pg.35* (UNESCO IIEP, GPE, UNICEF 2019)

Current public spending levels, in all forms, are insufficient to meet the access needs of young children, particularly for the most marginalized and vulnerable. Currently, 46 percent of all public education resources in LMICs are directed toward the ten percent most advantaged students (Wills 2015). In many LMICs, public spending is focused on higher levels of education, disproportionately benefiting the most advantaged learners, as they are the most likely to reach the upper levels of the education system (Zubairi and Rose 2017). For example, in sub-Saharan Africa, countries spend disproportionately more on tertiary education than pre-primary education, although this is accessible to a much smaller section of the population (see Figure 7 for sample countries). The uneven levels of spending are greatest in low-income countries (UIS data) according to the most recent year data is available.

FIGURE 7: TERTIARY VS. PRE-PRIMARY SPENDING, AS A PROPORTION OF OVERALL EDUCATION SPENDING



Source: UIS data

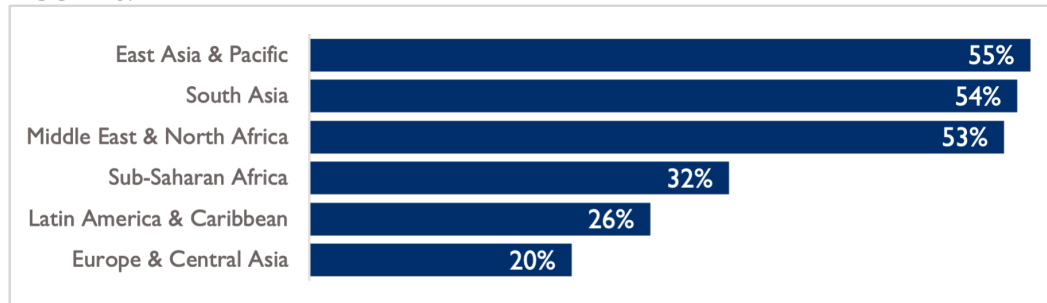
EXTERNAL FINANCING

External financing, including the funds contributed by bilateral and multilateral agencies, offers critical support to emerging pre-primary systems (UNICEF 2020). While several donors have contributed considerably to the early childhood sphere, to date, less than 1 percent of international aid funding goes to pre-primary education.

THE ROLE OF NON-STATE ACTORS

There has been a surge of interest in recent years in understanding the role of non-state actors in the ECE subsector, especially as an additional source of education financing (Steer 2015). In LMICs, private provision currently makes up 46 percent of pre-primary provision (Figure 8).

FIGURE 8: PROPORTION OF PRIVATE ECE PROVISIONS IN LMICs



Source: UIS data

The cost of this private education ranges enormously; Smith and Baker (2017) estimate the lower end of school fees to be around \$9 per month. UNESCO has established a working group to conduct a more in-depth analysis of school fees from household survey data.

These services, which draw customers from families who can afford private tuition, can lower the burden on public provision for pre-primary, allowing LMICs to focus their public spending on the most marginalized populations (UNICEF 2020).

To be effective, governments must work closely with non-state actors to ensure quality is in line with national standards. Currently, the lack of monitoring and regulation of private providers results in quality levels that range significantly and can trend toward lower levels of quality (Neuman 2015). The capacity of governments to carry out inspections and follow through with regulatory procedures is often limited; a review of private primary regulation by Baum et al (2018) in 20 Sub-Saharan African (SSA) LMICs suggests many countries do not yet have this capacity, rendering the regulation efforts unsuccessful.

Examples of donor support for leveraging non-state actors with greater success include:

- Provision of school vouchers or cash transfers to support at-risk families to enroll in private schools. This is especially important when there is no public provision available to families and when finances are identified as a critical barrier to entry. Georgia and Thailand both employ voucher systems, as do several HICs (OECD 2011).
- Support of improved quality within non-state schools through public-private partnerships. This is most effective when there is a strong market for private schools but an absence of quality. This support can include interventions to improve teaching, infrastructure and materials, management, and other components of programs (Anwar 2018).
- Development of quality standards, accreditation frameworks, and provision of consumer education on quality schools. This supports accountability of the private school network, allows parents to make a more informed choice, and offers government a clear monitoring framework for private schools (Cambridge Education 2018).

REVIEW OF REGIONAL LANDSCAPES FOR PRE-PRIMARY

The following sections provide an overview of landscape for pre-primary education in each of the five regions where USAID works: sub-Saharan Africa, the Middle East (and North Africa), East Asia and the Pacific, Europe and Central Asia, and Latin America and the Caribbean. These sections seek to identify the broad areas of need within each region and discuss some key opportunities that may exist.

In depth country-level reviews, such as those conducted during an Education Sector Analysis, will provide more salient insights into the specific barriers and opportunities within a given country. The focus of this review is broader, aiming to outline the regional-level situation in terms of access and equity. Utilizing enrollment data and household survey data,¹⁹ this section highlights enrollment trends and disparities observed for children in the region based on income, gender, age, race, ethnicity, migration status, disability, geographic location, and other salient characteristics.

Where reliable data exists, additional analysis was conducted on quality and learning, including the data available on structural quality indicators, such as pupil-teacher ratio (PTR) and teacher qualifications, and the qualitative evidence on teacher-student interactions and relationships and the preparation of CPD that supports good teaching practices. This section also addresses what is known about learning outcomes and analyzes how the two topics link together. Due to the relatively more advanced stage of the pre-primary subsector in Latin America, enabling environment has also been analyzed reviewing the policies and financing arrangements and gaps in that region.

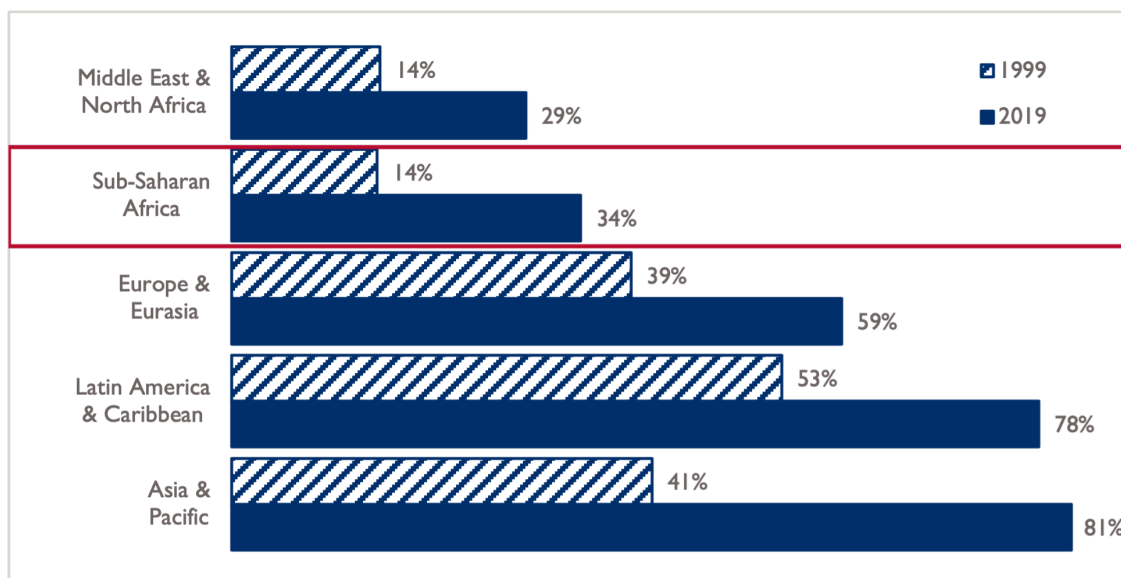
Each regional review begins with an analysis and discussion of the data informing on each of the above themes. To contextualize this data and illustrate key themes, country-level case studies are provided following the data review.

¹⁹ Unless otherwise specified, all data represented in the regional reviews is sourced from UIS data.

SUB-SAHARAN AFRICA

Pre-primary enrollment in (Sub-Saharan Africa) SSA is increasing, but compared to other regions of the world, growth is slower (Figure 9). In 1999, the regional gross enrollment rate (GER) was 19 percent, increasing to 35 percent by 2019.²⁰ As of 2018, only seven countries²¹ reported a pre-primary enrollment rate over 50 percent: São Tomé and Príncipe 50 percent; Cape Verde 75 percent; Kenya 76 percent; Malawi 83 percent; Seychelles, 97 percent; Ghana 120 percent; and Liberia 134 percent.²²

FIGURE 9: GROSS PRE-PRIMARY ENROLLMENT FROM 1999 TO 2019, SSA HIGHLIGHTED



Source: UNESCO Institute of Statistics

Despite overall low participation, many countries have made impressive gains. Figure 10, below, shows six sample countries that have significantly increased enrollment in the past 20 years. Between 2005 and 2010, for example, Benin more than tripled its enrollment, from 5 percent to 17 percent. Between 2010 and 2015, Ethiopia increased enrollment from 4 percent to 29 percent and Madagascar more than doubled enrollment from 8 percent to 18 percent.

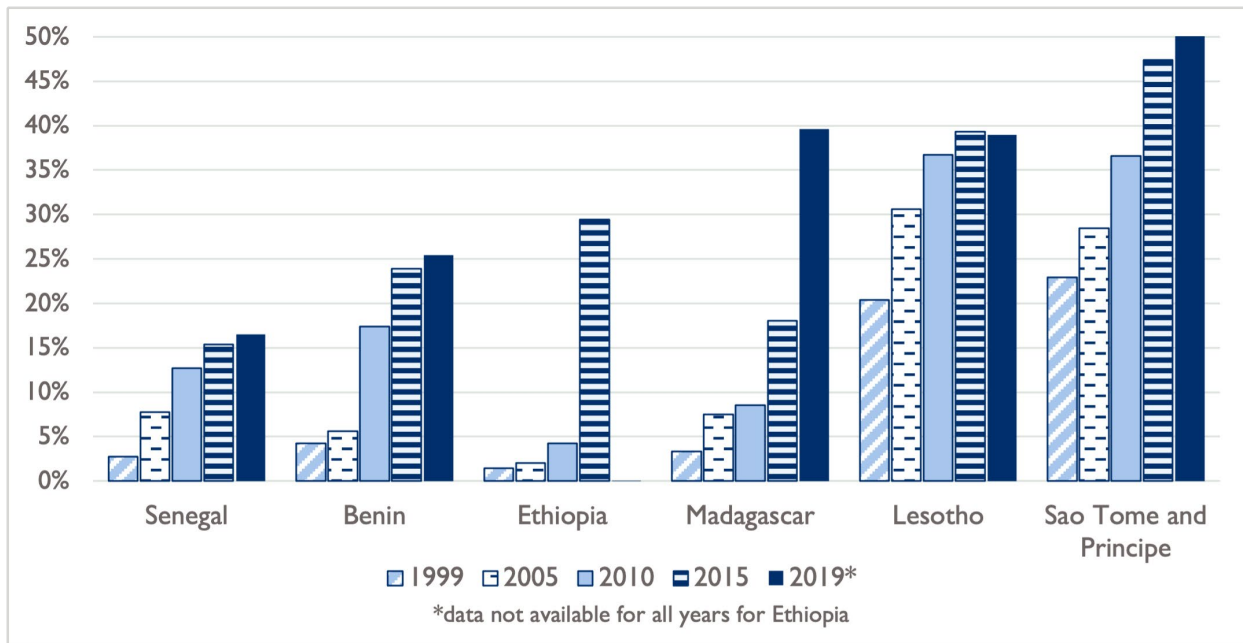
Other countries, however, have made little or no progress in pre-primary enrollment, as illustrated in Figure 11, below. For example, Chad has hovered around 1 percent since 2010, the first year that data was available. Mali has added approximately 1 percent to their GER every five years, topping out at 7 percent. Côte d'Ivoire has made the strongest gains, from around 2.5 percent in 2000 to 8 percent in 2018. Using the most recent data available since 2005, 11 countries report a pre-primary GER of less than ten percent.

²⁰ 2019 or the latest year data was available (>2016).

²¹ Of the 44 SSA countries where USAID works.

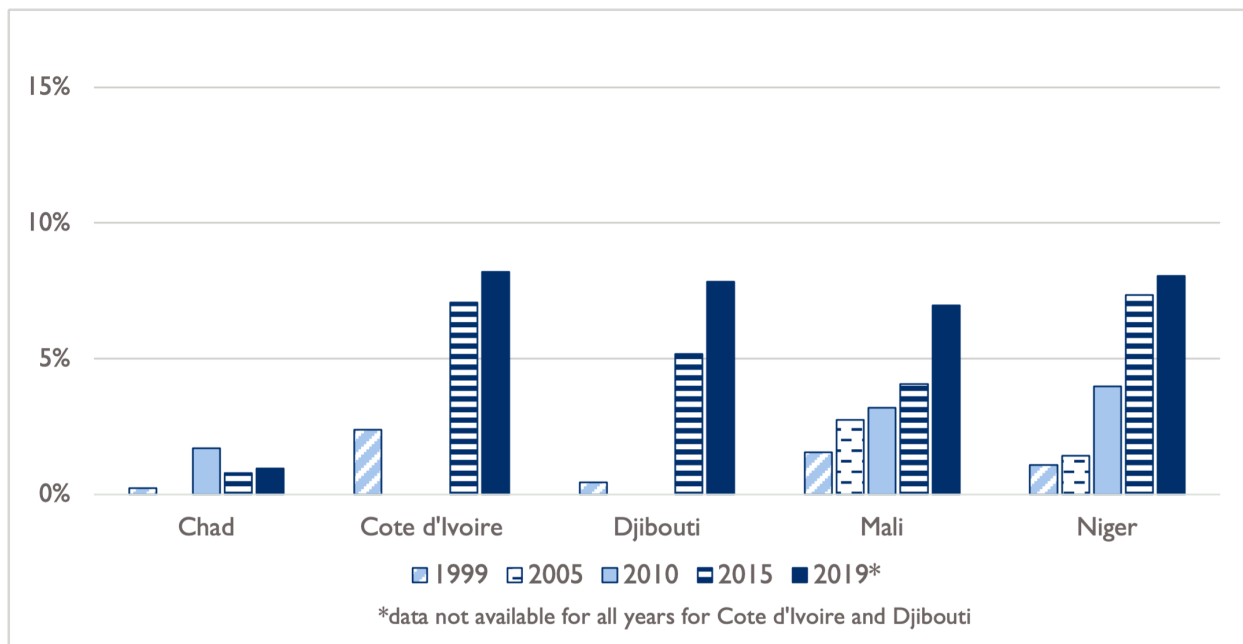
²² Gross enrollment rate measures the total individuals enrolled in comparison to the total population of children in this age group. A rate over 100 percent indicates that children outside of the age range are enrolling. In pre-primary education, underage enrollment is common, as parents can be motivated both by the need for childcare and a desire to push their children ahead.

FIGURE 10: HIGH ENROLLMENT PROGRESS IN SAMPLE SSA COUNTRIES



Source: World Bank Data Statistics

FIGURE 11: LOW ENROLLMENT PROGRESS IN SAMPLE SSA COUNTRIES



Source: World Bank Data Statistics

EQUITY

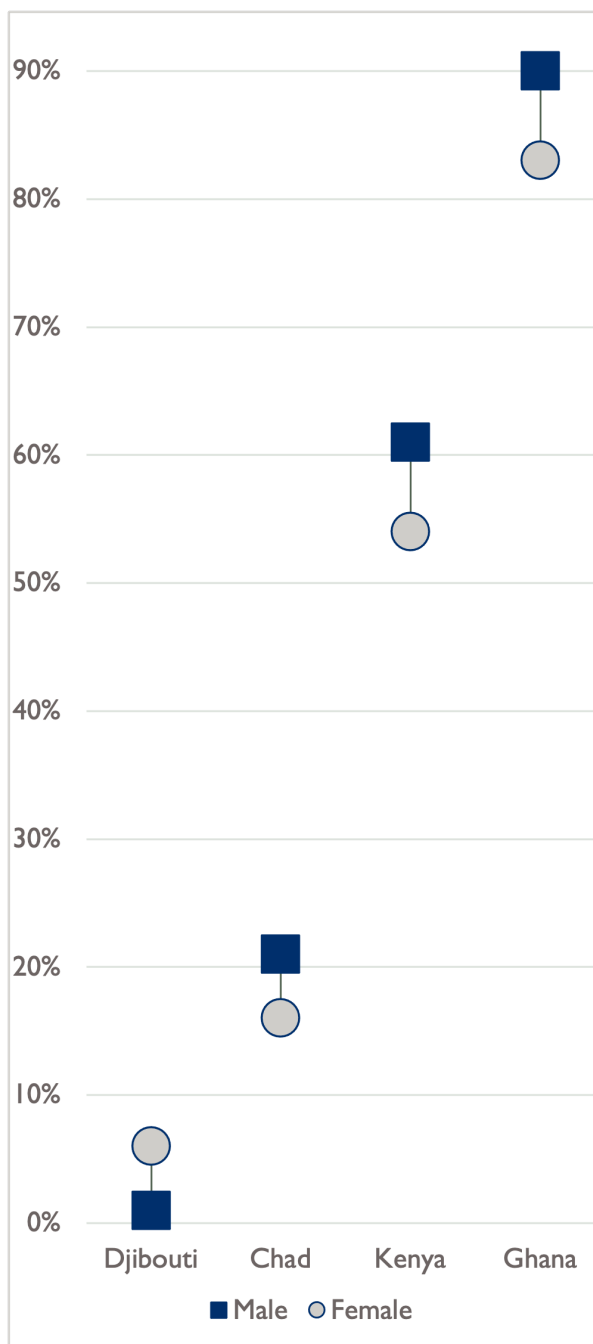
While gender parity remains a key challenge at higher levels of education in SSA, significant improvement has been made at the primary and pre-primary level.

According to the household data consolidated by the World Inequity Database on Education (WIDE), at the regional level, girls' enrollment in pre-primary averages 42 percent while boys' enrollment averages 43 percent.

Countries with lower levels of gender parity include Djibouti, Chad, Guinea-Bissau, Kenya, and Ghana (Figure 12).

Enormous gaps exist between the richest and poorest children in SSA countries. Across the region, enrollment between the highest and lowest quintiles looks relatively even (44 percent and 39 percent respectively, see Figure 13, next page). However, these averages hide significant disparities in enrollment between countries and issues of equity in others. For example, in Burkina Faso and Somalia, the enrollment rate for the poorest children is zero percent but enrollment for the richest children is only one percent. In countries that have invested heavily in public provision of pre-primary such as Ghana, the enrollment rate is 83 percent for children in the lowest quintile and 84 percent for those in the highest.

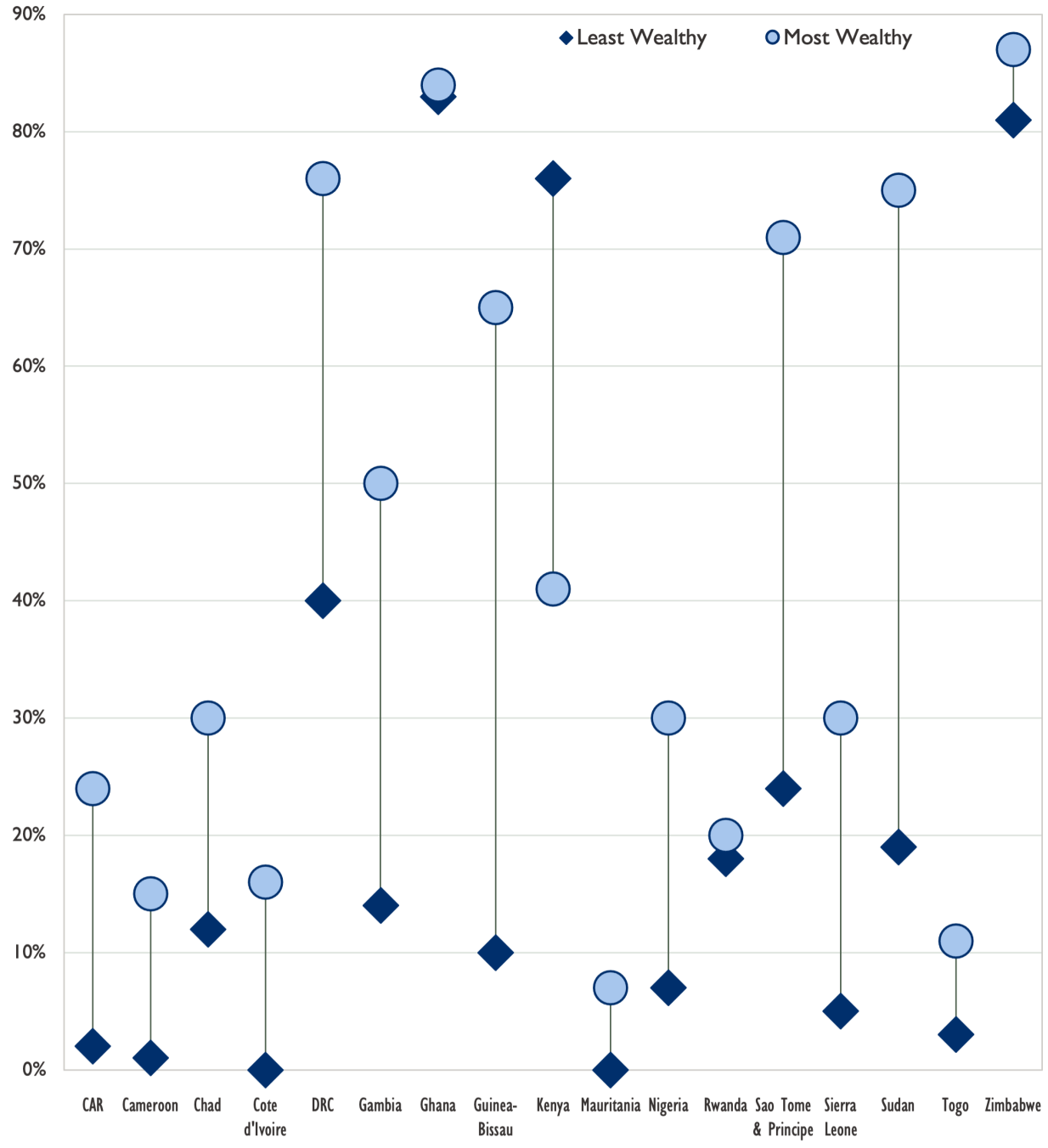
FIGURE 12: GENDER PARITY, SSA COUNTRIES WITH WIDEST GAPS IN PRE-PRIMARY ENROLLMENT



Source: MICS data, consolidated and analyzed by WIDE

Huge inequities remain on the basis of socio-economic status in some contexts. For example, in Sao Tome and Principe, where the average enrollment rate is around 50 percent, only 25 percent of children in the poorest quintile are enrolled, compared to 71 percent of the richest children (Figure 13).

FIGURE 13: PRE-PRIMARY ENROLLMENT DISPARITIES BASED ON WEALTH

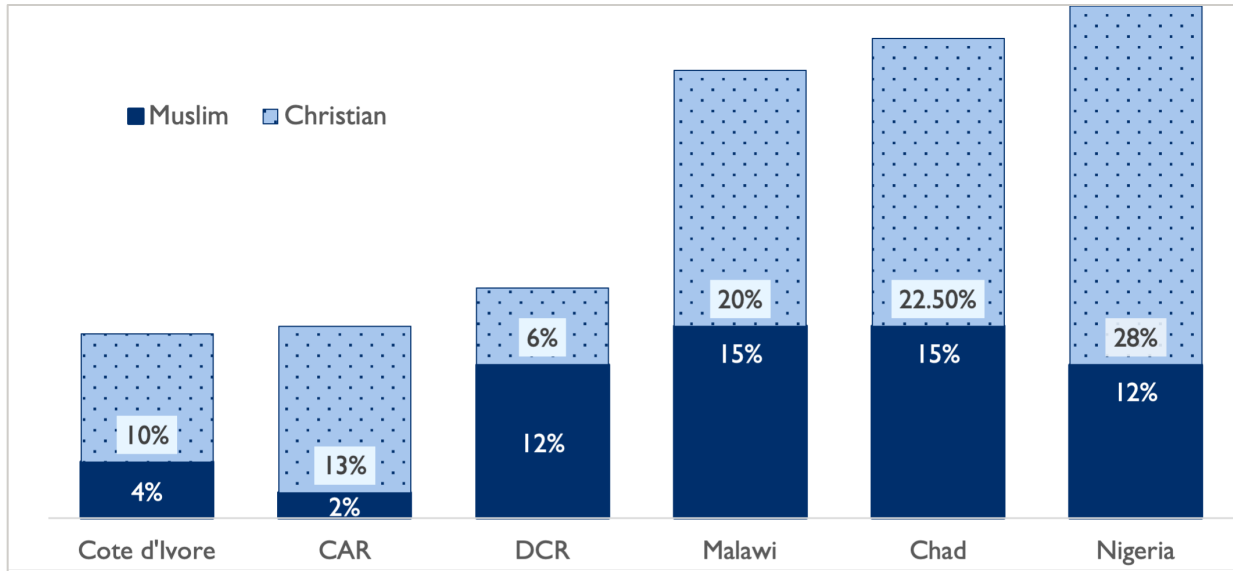


Source: MICS data, consolidated and analyzed by WIDE

Further inequities are highlighted when analyzing for rural vs urban enrollment, religious affiliations, and combinations of factors. For example, in 2010,²³ only two percent of Central African Republic’s rural children were enrolled in pre-primary, compared to ten percent of urban children. Given that much of private education in SSA is faith-based, for urban Catholics, this percentage increased to 23 percent, but dropped to three percent for urban Muslims.

This religious-based disparity in enrolment is a common theme through SSA (Figure 14).

FIGURE 14: ENROLLMENT BY RELIGIOUS AFFILIATION, SSA



Source: MICS data, consolidated and analyzed by WIDE; *The most common Christian denomination identified was Catholic

²³ Latest date for which MICS data is available.

INEQUITIES IN PRE-PRIMARY COUNTRY CASE: KYRGYZSTAN

Kyrgyzstan has increased enrollment significantly over the past ten years, from 106,000 children in 2010 to 221,000 in 2017. This was a key focus of Kyrgyzstan’s previous ESPs and to support this, a 100-hour (two-month) and 240-hour (four-month) accelerated school readiness programs was launched in 2011 for children who did not previously attend an early childhood education program and a full-year compulsory pre-primary program was launched in 2015. While Kyrgyzstan spends more than the ten percent recommended proportion of education spending on pre-primary, programs are not yet available universally and target only the most vulnerable populations. Key gaps in access are highlighted below in Figures 15, 16 and 17.

FIGURE 15: REGIONAL ATTENDANCE OF AT LEAST 1 YEAR OF PRE-PRIMARY

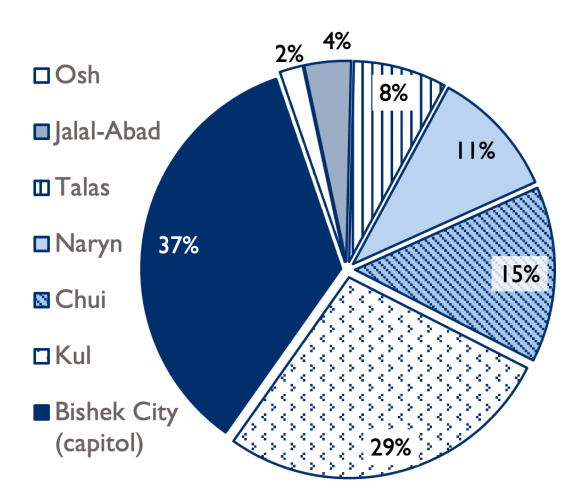


FIGURE 16: ATTENDANCE OF AT LEAST 1 YEAR OF PRE-PRIMARY, BY REGION AND AGE

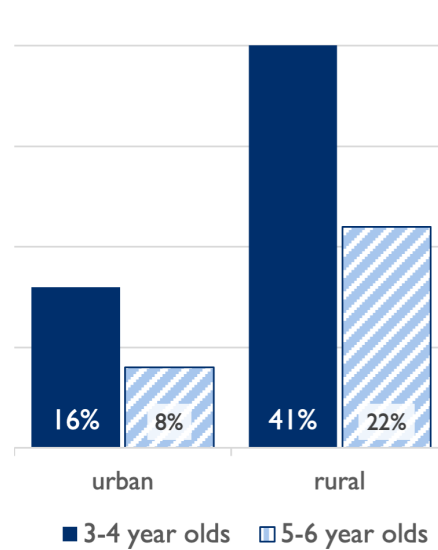
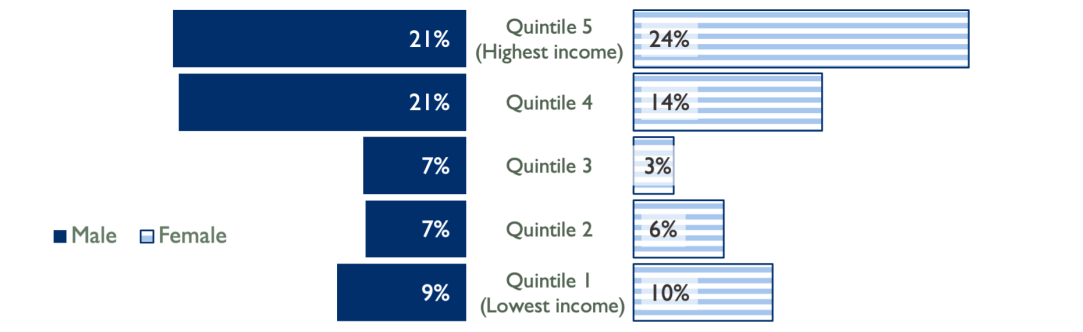


FIGURE 17: ATTENDANCE OF AT LEAST 1 YEAR OF PRE-PRIMARY, BY INCOME & SEX

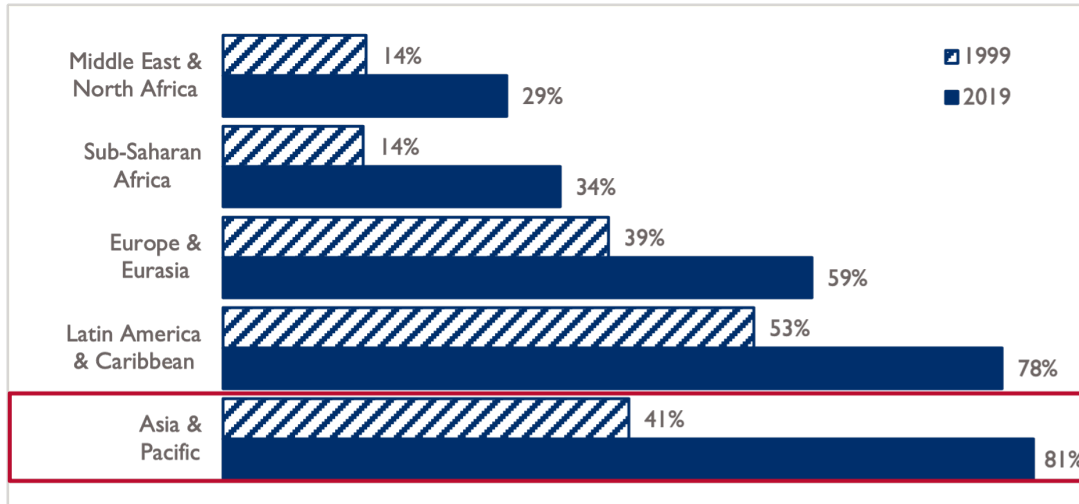


Sources: Results for development GPE Kyrgyzstan country report, 2020; Government of Kyrgyzstan Education Development Strategy 2012-2020; UNICEF Kyrgyzstan Country Study and Annual Report 2015; World Bank Data

ASIA

Pre-primary enrollment in Asia has increased significantly over the past 20 years, growing from an average regional enrollment rate of around 40 percent in 1999 to around 82 percent in 2019,²⁴ as illustrated in Figure 18.

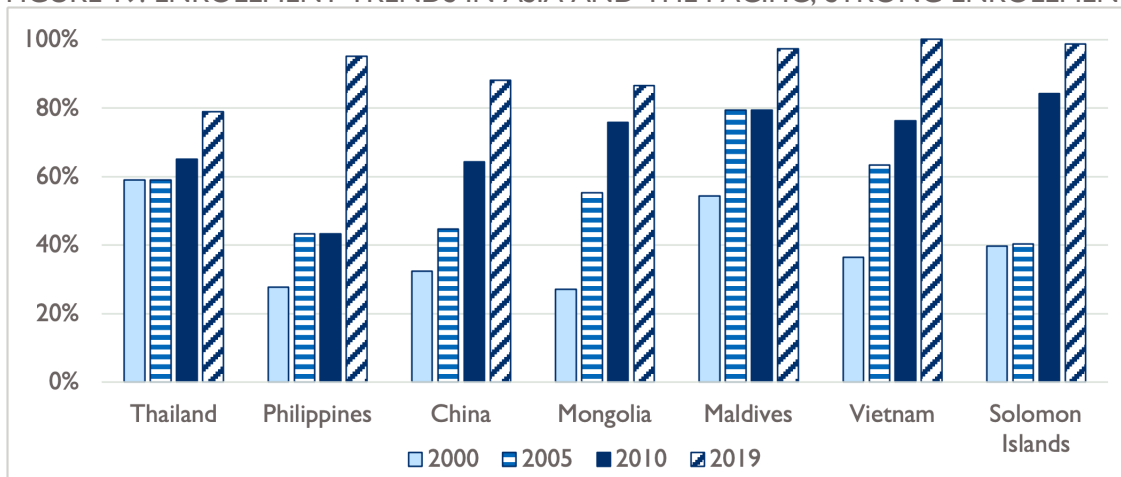
FIGURE 18: ASIA AND THE PACIFIC ENROLLMENT COMPARED TO GLOBAL



Source: UIS Data

With this growth, Asia and the Pacific Region enjoys the largest pre-primary enrollment rate for LMICs. This growth coincides with a shift toward policies supporting universal access to at least one year of free primary across the region and has been dramatic in many countries. For example, according to UIS data, participation in pre-primary in Mongolia increased from 27 percent in 2000 to 86.6 percent in 2018, China increased from 32 percent in 2000 to 88 percent in 2018, and Vietnam increased from 36 percent in 2000 to 100 percent in 2018 (Figure 19).

FIGURE 19: ENROLLMENT TRENDS IN ASIA AND THE PACIFIC, STRONG ENROLLMENT

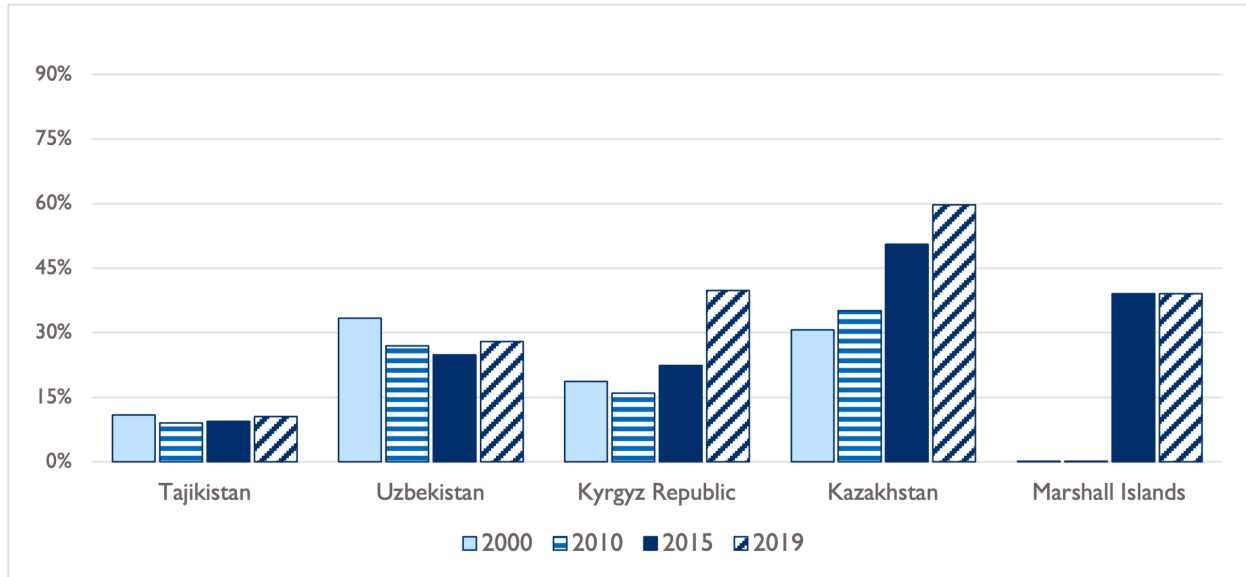


Source: UIS Data

²⁴ Or the latest year country-level data is available.

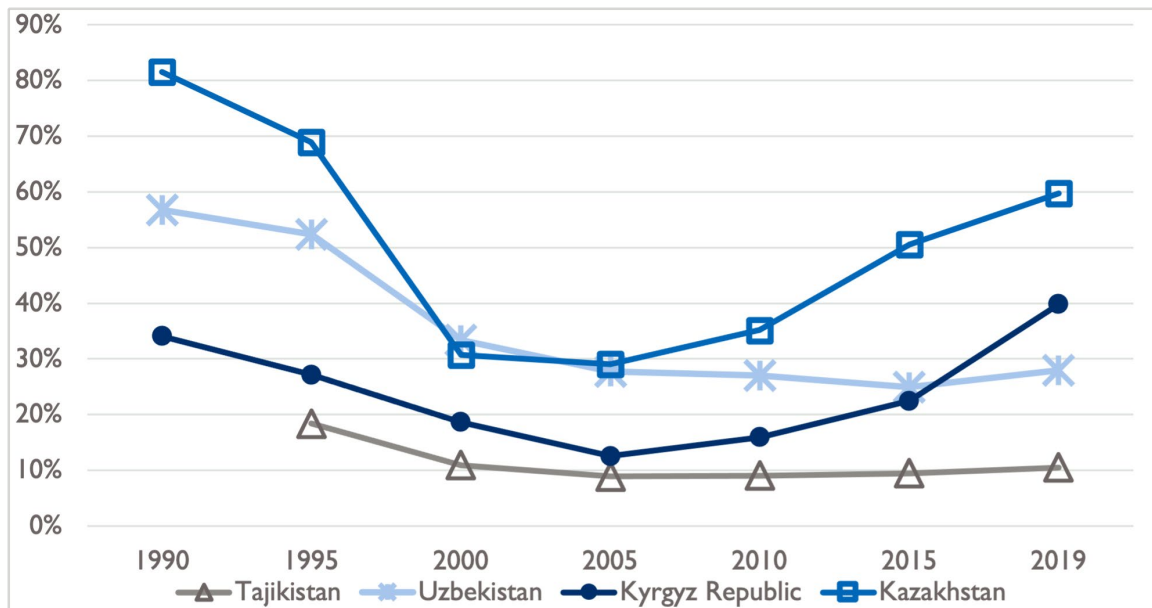
Progress has been slower in other countries however, with many lacking enough data to track trajectories, seen in Figure 20. In Central Asia, former-Soviet countries experienced a deep decline in enrollment after the fall of the Soviet Union 30 years ago, though the data suggest this is now trending back up (see Figure 21).

FIGURE 20: ENROLLMENT TRENDS IN ASIA AND THE PACIFIC, WEAK ENROLLMENT



Source: UIS Data

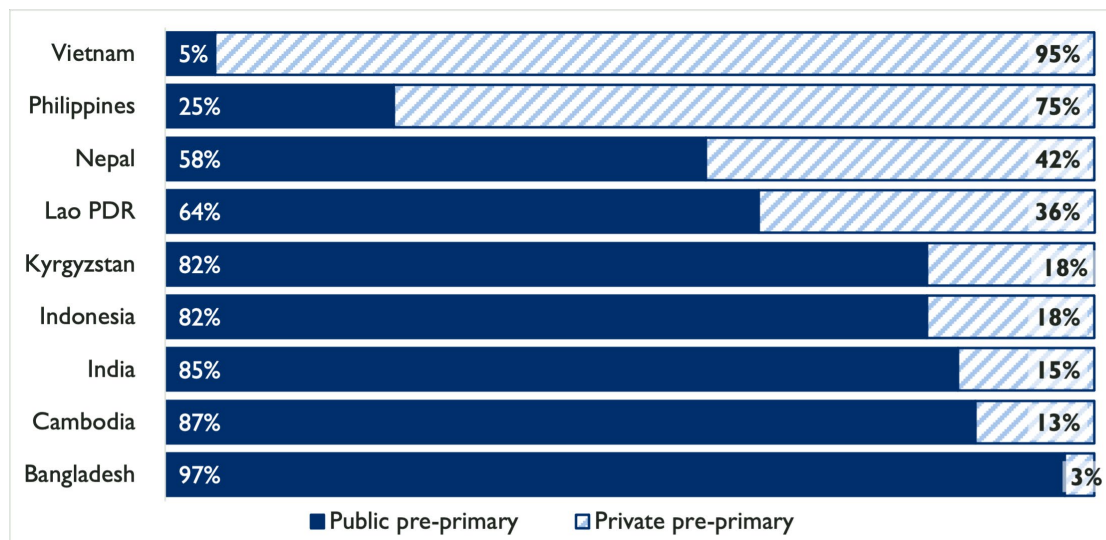
FIGURE 21: POST-SOVIET DECLINE IN PRE-PRIMARY ENROLLMENT IN CENTRAL ASIA



Source: UIS Data

On average, across Asia and the Pacific, about 35 percent of pre-primary attendance is in private institutions. In some countries, this percentage is much higher, such as Indonesia with 94.6 percent private provision, while in others, it is much lower, such as Kyrgyzstan, with only 3.2 percent private provision (see Figure 18).

FIGURE 22: PROPORTION OF PRIVATE PROVISION FOR PRE-PRIMARY IN ASIA AND THE PACIFIC



Source: Adapted from data presented in ACR-Asia Report, compiled from World Bank Education Statistics using data from 2016 or most recent year available (Sitabkhan 2018).

Gender Parity across Asia and the Pacific is quite even, with a male enrollment rate around 67 percent and a female enrollment rate around 66.67 percent. Table 5 breaks this down by sub-region and highlights at the top of the table (denoted with an * and light blue color) the countries with the highest degree of variance between gender access.

TABLE 5: GENDER PARITY IN ASIA REGION

REGION/COUNTRY	TOTAL	MALE	FEMALE
East Asia*	81%	82%	81%
Pacific Island small states*	59%	59%	60%
Central Asia*	59%	60%	59%
Tuvalu	96%	99%	94%
Nepal	90%	93%	87%
Pakistan	83%	89%	77%
Nauru	82%	85%	80%
Indonesia	63%	66%	60%
Samoa	49%	45%	53%

Source: MICS data, compiled by WIDE

Due to the high-level of public provision, there is relatively little disparity in access between the highest and lowest wealth quintiles. In Eastern and Southeast Asia, children from the wealthiest quintile access pre-primary at a rate of around 99 percent and the poorest at 98 percent; in Central and Southern Asia, children from the richest families access it at a rate of around 33 percent and the poorest at around 30 percent (MICS data, WIDE). The greatest gap in access is seen at the middle quintile, where children often lack the funds to cover private tuition but are not the targets of NGO-based support or public provision. For example, in Central and Southern Asia, children in the middle wealth quintile access pre-primary at a rate of only 16 percent.

QUALITY AND LEARNING

With support from UNICEF’s East Asia and Pacific Region, several countries have established early learning and development standards (ELDS). The development of ELDS is an important support for programming for quality as it lays the foundation for the program’s teaching and learning goals. Table 6 provides an overview of the ELDS developed for early childhood care and education programs in these countries. In keeping with best practice, ELDS are set at the local level to meet the local expectations of quality and learning, although they all follow a predictable outline of child development. All of the ELDS include standards for physical development, social-emotional development, and cognition.

TABLE 6: EARLY LEARNING DEVELOPMENT STANDARDS IN SELECT ASIAN COUNTRIES

COUNTRY	ELDS	PHYSICAL DEVELOPMENT, SOCIAL & EMOTIONAL DEVELOPMENT, & COGNITION	MORAL	LANGUAGE	ART	APPROACHES TO LEARNING
Cambodia	School Readiness Standards	Yes	Yes	Yes		
China	Early Learning & Development Guidelines	Yes		Yes	Yes	Yes
Fiji	Early Childhood Development and Education Standards	Yes	Yes	Yes	Yes	
Lao PDR	School Readiness Competencies	Yes		Yes		
Mongolia	Early Learning and Development Standards	Yes				
Philippines	Early Childhood Care and Development Standards	Yes	Yes	Yes		
Thailand	Early Childhood Behavioral Competencies	Yes	Yes	Yes	Yes	
Vietnam	Child Development Standards	Yes		Yes		Yes

Source: Saber ECD Data, 2012-2017

Several countries have other key quality supports in place, particularly established curricula and professional teaching standards. However, establishment of policies and standards is only a framework for quality support. As illustrated in Table 7, many countries establish standards but either do not have the resources or regulatory framework in place to ensure they are followed.

Another indicator of structural quality is the child-teacher ratio. According to SABER ECD country reports (World Bank), most countries in the Asia and Pacific region have a child-teacher ratio standard of 15:1. As evidenced in Table 8, actual child-teacher ratio varies widely.

TABLE 7: TEACHER PRE-SERVICE TRAINING REQUIREMENTS AND COMPLIANCE, SELECT ASIAN COUNTRIES

COUNTRY	TEACHER PRE-SERVICE TRAINING AND CERTIFICATION REQUIRED	REGULATORY AGENCY IN PLACE TO MONITOR COMPLIANCE	EXTENT TO WHICH TEACHER TRAINING REQUIREMENTS ARE FOLLOWED
China	Yes	Yes	Between 51% and 85% compliance
Indonesia	Yes	Yes	No compliance or unknown
Kiribati	Yes	No	Less than 50% compliance
Kyrgyz Republic	Yes	N/A	Between 51% and 85% compliance
Nepal	No	N/A	Over 85% compliance
Sri Lanka	No	No	No compliance or unknown
Tajikistan	N/A	N/A	Over 85% compliance
Tonga	No	No	No compliance or unknown
Tuvalu	Yes	Yes	Less than 50% compliance
Vanuatu	Yes	No	Over 85% compliance

Source: Saber ECD Data, 2012-2017

TABLE 8: PUPIL-TO-TEACHER RATIO IN SELECT ASIAN COUNTRIES

COUNTRY	PUPIL-TO-TEACHER RATIO	COUNTRY	PTR
Cambodia	33:1	China	17:1
Lao PDR	18:1	Indonesia	13:1
Sri Lanka	13:1	India	20:1
Maldives	16:1	Tajikistan	11:1
Myanmar	15:1	Timor-Leste	32:1
Mongolia	33:1	Tuvalu	8:1
Nepal	19:1	Uzbekistan	12:1
Nauru	23:1	Vietnam	17:1
Philippines	27:1	Vanuatu	16:1
Papua New Guinea	42:1	Samoa	12:1

Source: UIS Data, 2015 or more recent

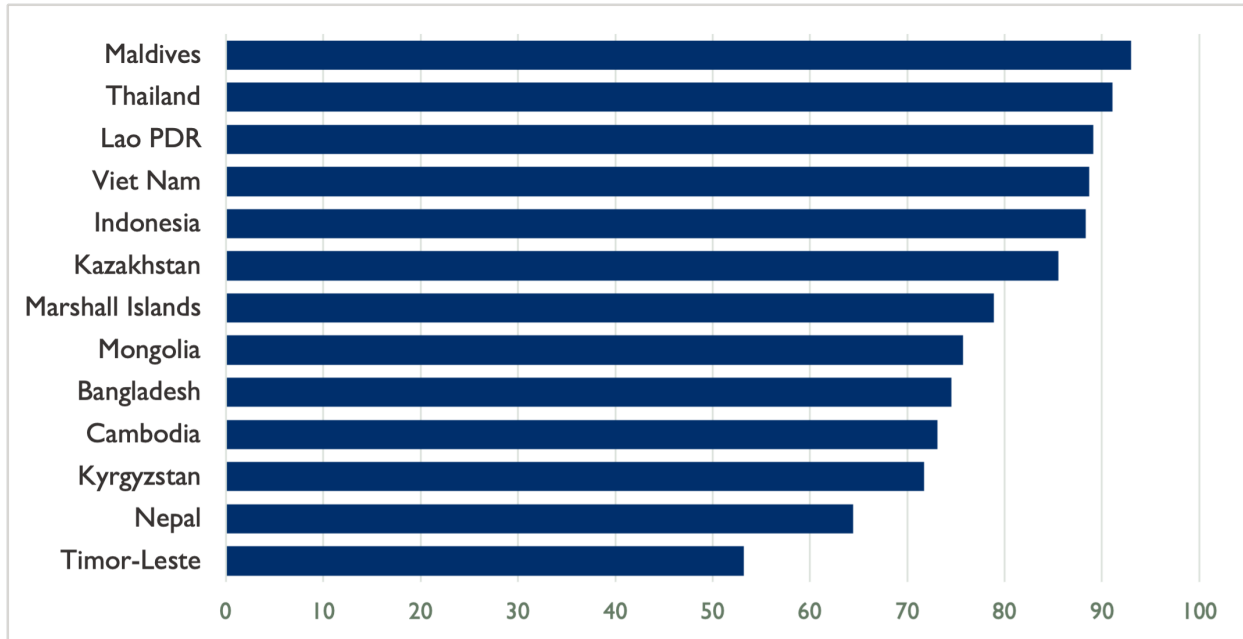
Where they are available, measures of process quality and indicators of children’s learning are ideal indicators of pre-primary quality. In the Asia and Pacific region, several measurement tools are employed to gather these data. Some of these are highlighted below (Table 9 and Figures 23,24,25).

TABLE 9: DEVELOPMENTALLY ON-TRACK ASSESSMENTS AND DOMAIN, ASIA REGIONAL REVIEW

ASSESSMENT	DOMAINS MEASURED	PURPOSE
UNICEF Multiple Indicator Cluster Surveys Early Child Development Index (MICS ECDI)	<ul style="list-style-type: none"> • Learning • Literacy and Numeracy • Physical Development • Socio-Emotional Development 	Population Monitoring
Save the Children International Development Early Learning Assessment (IDELA): 3–6 years	<ul style="list-style-type: none"> • Emergent Language/Literacy • Emergent Numeracy • Problem Solving • Motor Development • Social-Emotional 	Impact Evaluation
Measuring Early Learning Quality and Outcomes Measure of Development of Early Learning (MELQO MODEL): 4–6 years (UNESCO, 2017)	<ul style="list-style-type: none"> • Pre-Literacy • Pre-Numeracy • Fine Motor Skills • Executive Function • Socio-Emotional Skills 	Population Monitoring

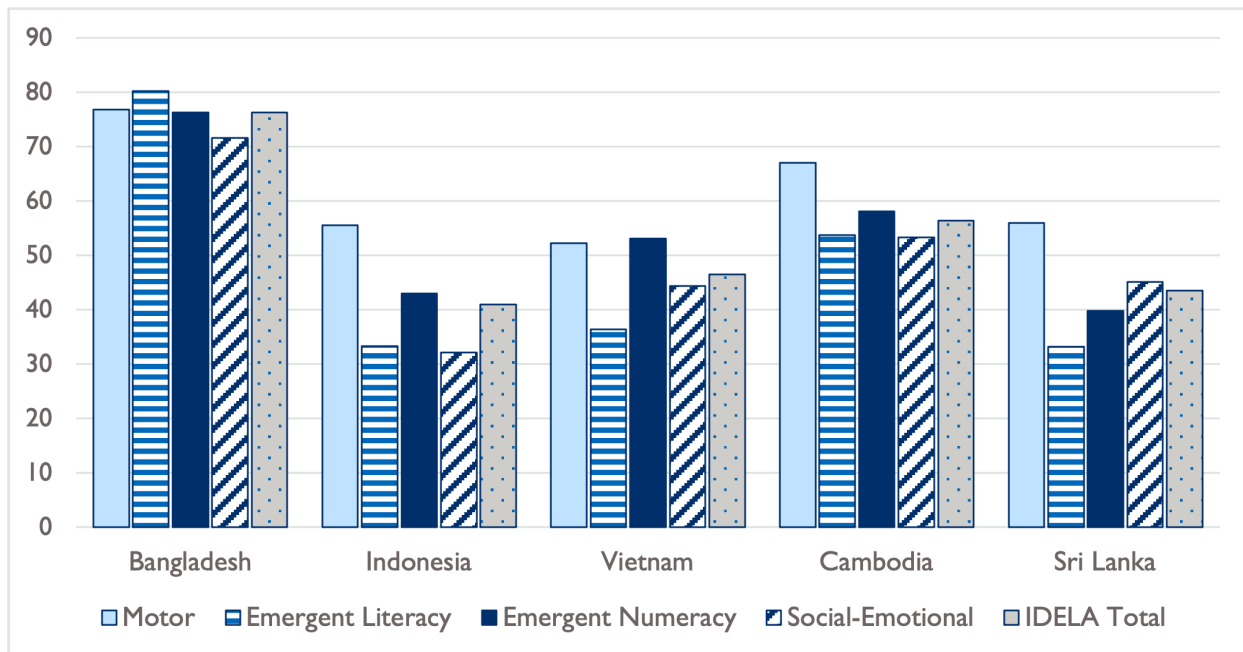
Sources: Sitabkhan 2018; Pisani 2015; UNESCO, UNICEF, World Bank. 2017

FIGURE 23: PERCENTAGE DEVELOPMENTALLY ON-TRACK AT ENTRY TO PRIMARY, ASIA AND PACIFIC COUNTRIES



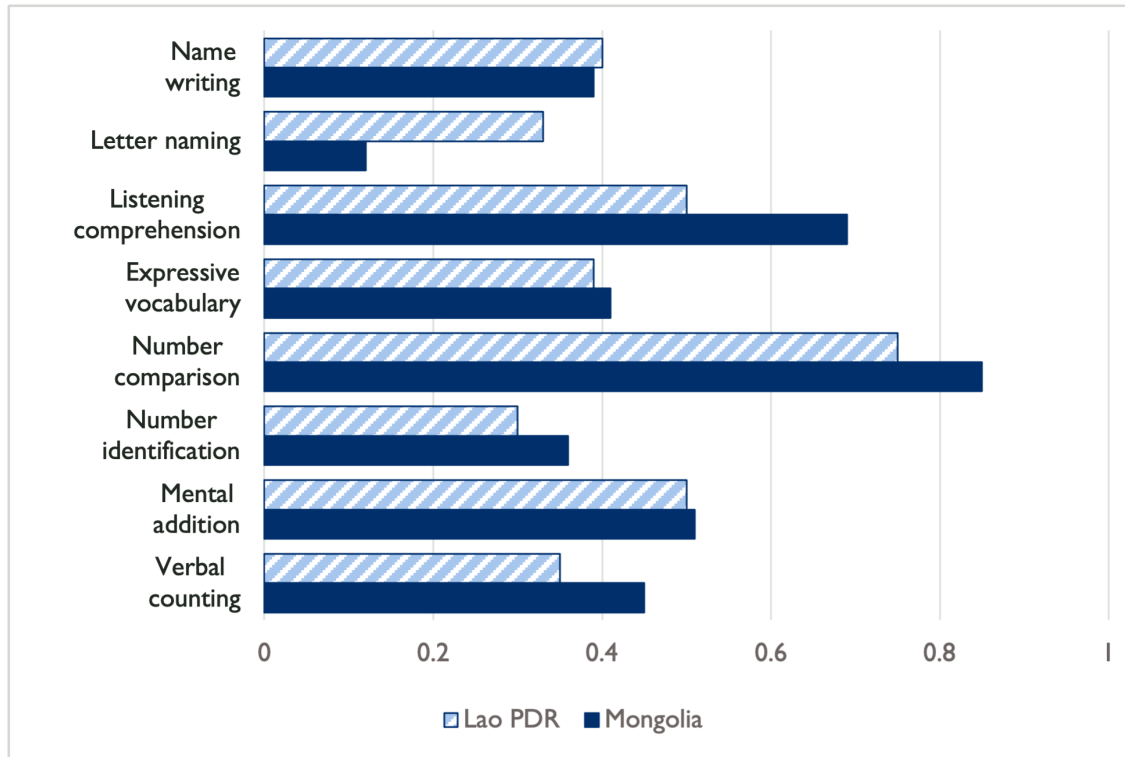
Sources: UIS Data 2014 or more recent

FIGURE 24: IDELA ASSESSMENT RESULTS, SAMPLE ASIA AND PACIFIC COUNTRY PROGRAMS



Sources: IDELA Data Explorer, Accessed September 2020

FIGURE 25: MELQO RESULTS; LAO PDR, AND MONGOLIA COUNTRY PILOTS



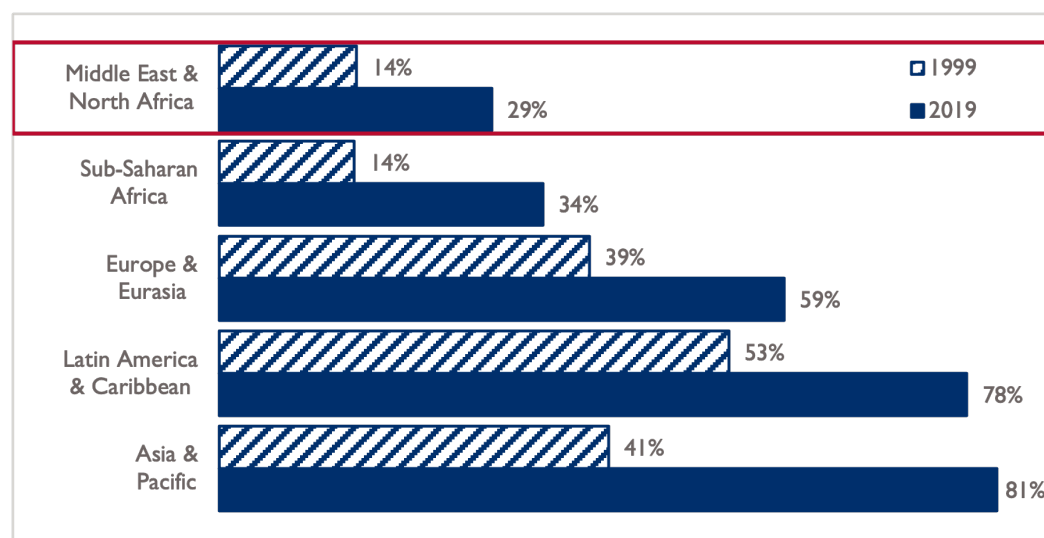
Source: UNESCO, UNICEF, World Bank. 2017

MIDDLE EAST AND NORTH AFRICA

ACCESS AND EQUITY

Significant numbers of children in the Middle East and North Africa are not attending pre-primary school (Figure 26). Across the region, the average enrollment rate is 28.5 percent, the lowest in the world (UIS Data). However, this regional GER masks significant differences between countries where enrollment is reasonably strong, and others where enrollment is virtually non-existent. For example, Morocco and the West Bank/Gaza each have an enrollment rate over 50 percent (UIS 2018) while Yemen and Iraq are both under two percent (UIS Data; Iraq MICS 2011).

FIGURE 26: MIDDLE EAST AND NORTH AFRICA ENROLLMENT COMPARED TO GLOBAL



Source: UIS Data

There is a severe lack of enrollment data for the Middle East North Africa region, making it difficult to ascertain the true landscape. For example, the UNESCO Institute for Statistics only reports data for four countries in the region since 2010, has only one data point for Libya, and has no data available at all for Lebanon (see Table 10 for the latest data available for all countries). In addition to the absence of data, there is a lack of continuity in the data that is available. See Box 3 for an example of how lack of clear data in the Middle East and North Africa significantly blurs the landscape, and as such, decision making.

TABLE 10: GROSS ENROLLMENT RATE FOR MIDDLE EAST AND NORTH AFRICAN COUNTRIES

COUNTRY	GER %	LATEST YEAR AVAILABLE
Jordan	27.2%	2019
Lebanon	No data	N/A
Libya	9.9%	2006
Yemen, Rep.	1.7%	2019

WEAK DATA FOR PRE-PRIMARY, COUNTRY CASE: JORDAN

UIS data lists a GER of 27.2 percent for Jordan in 2019. The UIS 2017 GER for Jordan at 25.99 percent, is consistent with this figure, However, according to a report developed for the Jordan Reading and Math Program (Shukri, DeStefano & Merseth 2018) presented at the Comparative and International Education Society 2018 Annual Conference, the official national pre-primary GER for Jordan in 2017 was 59 percent.

This study, conducted to ascertain recommendations for expanding access to pre-primary (in Jordan, kindergarten), found this data was also incomplete, and that access to kindergarten was likely much higher than officially reported. The researchers conducted household surveys with 10,582 parents of children enrolled in primary school, asking questions about children’s educational activities the previous year. The findings indicated that most children, including most migrant and refugee children, were in fact attending kindergarten, but this information was not included in official records. The findings fundamentally altered the decision-making process with government and donor stakeholders and signaled the need for a review of current data collection methods.

Their findings indicated an overall 84 percent attendance rate for kindergarten in Jordan. Attendance was 86 percent rural areas, 84 percent in urban areas, and 86 percent for females and 81 for males. (Figure 27). This higher rate of attendance was also seen in both Jordanians and refugee populations (Figure 28).

FIGURE 27: KINDERGARDEN ATTENDANCE RATE IN JORDAN, BY LOCATION, SEX, AND OVERALL

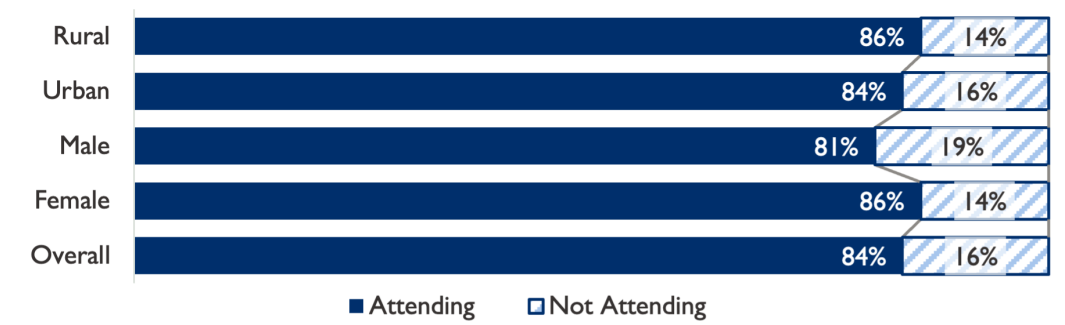
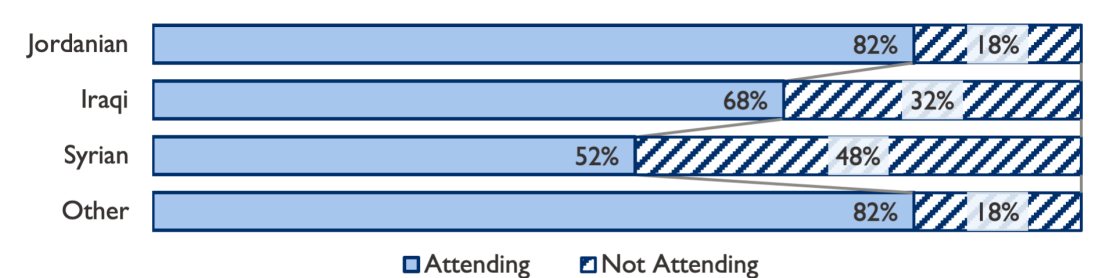


FIGURE 28: KINDERGARDEN ATTENDANCE RATE IN JORDAN, BY NATIONALITY



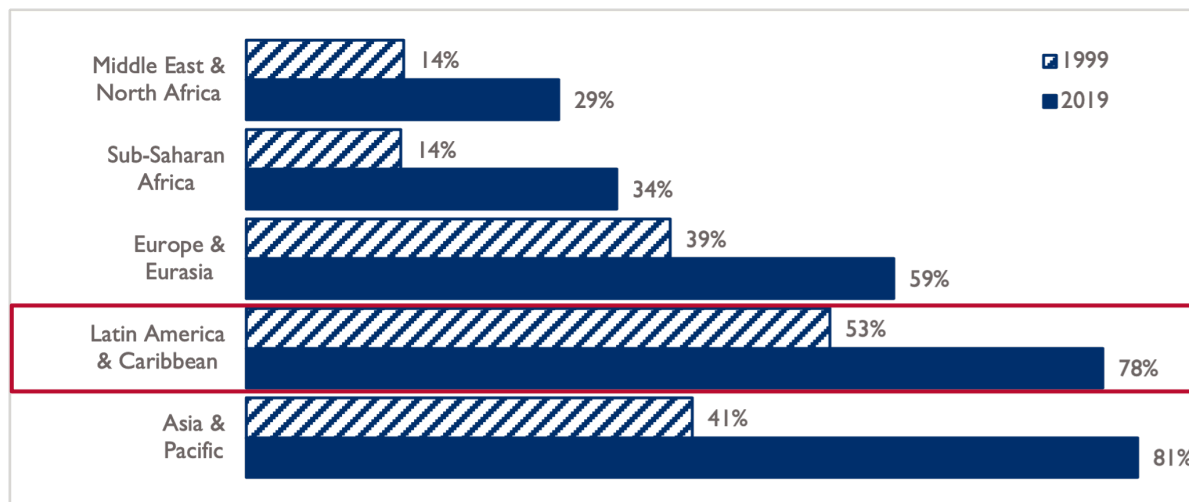
Source: Shukri, M., DeStefano, J., & Merseth K. (2018). Kindergarten in Jordan: Data for Decision Making. Presentation prepared for CIES 2018. Mexico City

LATIN AMERICA AND THE CARIBBEAN

ACCESS AND EQUITY

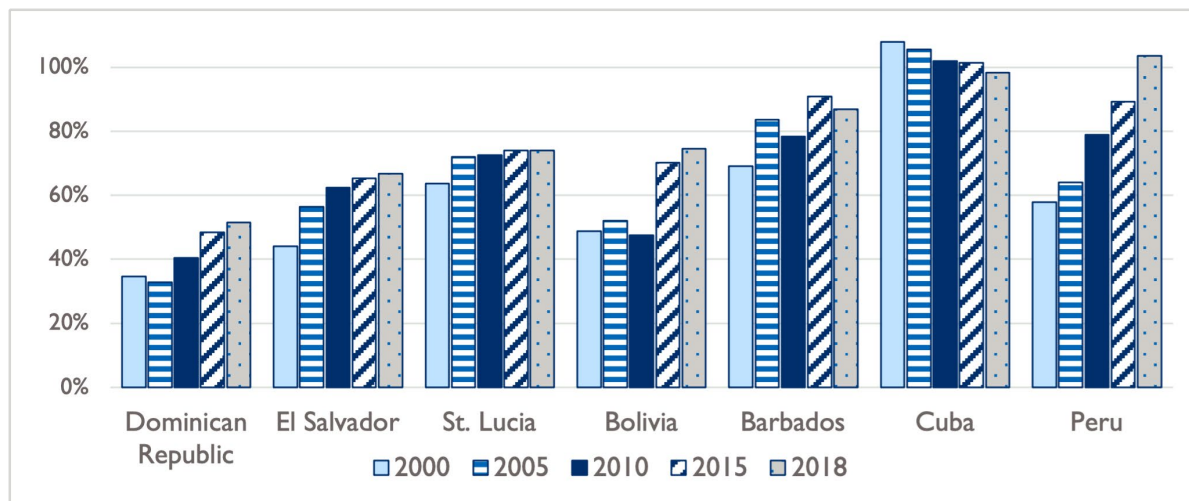
Largely, across LAC children are attending pre-primary school. The average GER in LMICs across the region is 78 percent (adjusted net enrollment rate, trailing Asia and the Pacific by only three points. While overall enrollment is high, LAC countries have made slower progress over the past 20 years than other countries in other regions (see Figures 29 and 30).

FIGURE 29: LATIN AMERICA AND THE CARIBBEAN ENROLLMENT COMPARED TO GLOBAL



Source: UIS Data

FIGURE 30: GROSS ENROLLMENT IN LAC, SAMPLE COUNTRIES²⁵

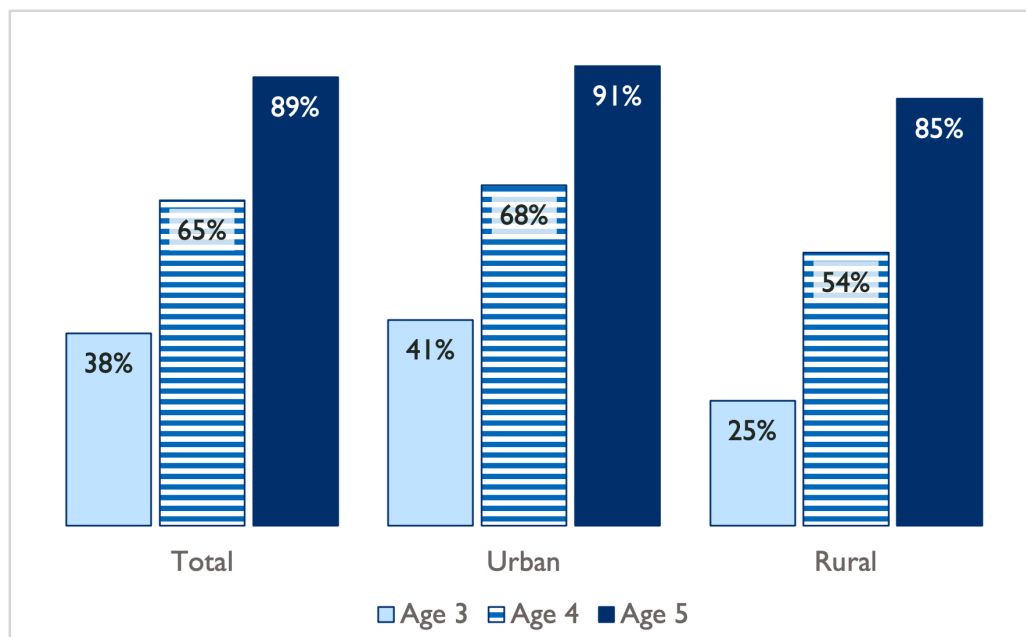


²⁵ Gross enrollment rate measures the total individuals enrolled in comparison to the total population of children in this age group. A rate over 100 percent indicates that children outside of the age range are enrolling. In pre-primary education, underage enrollment is common as parents can be motivated both by the need for childcare and a desire to push their children ahead.

Source: UIS data

LAC has made significant progress in expanding pre-primary beyond the first year to children ages 3–6 before entering primary school. Younger children are the least likely to attend a pre-primary program; however, even the lowest attending age group (age 3) attends pre-primary at a higher rate than all pre-primary aged children in either the Middle East or Africa. Figure 31 shows GER for each age group overall and for urban and rural populations, drawn from a sampling of countries with data available.

FIGURE 31: GROSS ENROLLMENT BY AGE GROUP, LATIN AMERICA (PERCENTAGE)



Source: from ECLAC, UNICEF 2018

Gender parity is relatively even, with 72 percent of girls and 70 percent of boys attending at least one year of pre-primary. Where there are disparities, girls are slightly more likely to be attending pre-primary than boys. Uruguay is the notable exception to this, with 98 percent of boys and 89 percent of girls attending pre-primary programs. See Figure 32, below, for example of gender parity in LAC.

Despite overall strong enrollment rates and gender parity, significant disparities exist throughout the LAC region. The two largest areas of access inequity are wealth and location.

Across the region, children from wealthy families are more likely to attend pre-primary programs, with children in quintile one accessing at a rate of 78 percent and children in quintile five at 70 percent. This disparity increases significantly in certain countries. For example, in the Dominican Republic, pre-primary aged children from quintile one access pre-primary education at a rate of 76 percent while children from quintile five access at a rate of 40 percent (Figure 33, below).

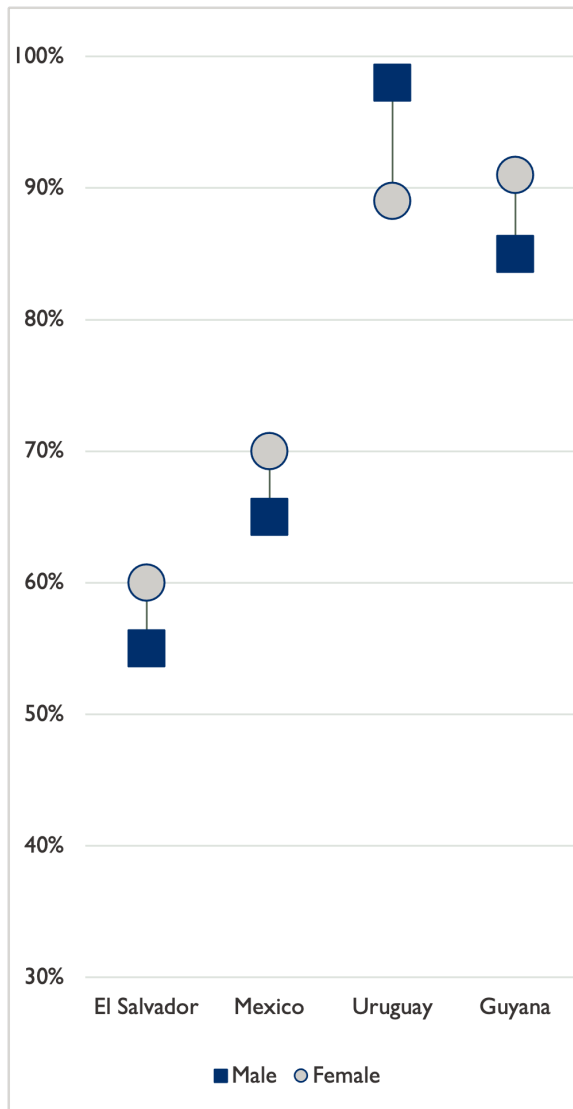
Regional disparities within countries show a similar story of inequity. Generally speaking, children from urban areas and cities situated close to the capital are more likely to have access to pre-primary than children in rural areas. For example, in Colombia, 80 percent of children in urban areas are attending at least one year of pre-primary, with 87 percent of children from Bogota attending. This is compared to

72 percent of children from rural areas and only 62 percent of children from the Orinoquia/Amazonia region.

As the data show, disparities in access are often compounding. In other words, children from wealthy families in urban areas near the capital are not marginally more likely, but rather are extremely more likely to access early childhood education than are children from poorer families in rural areas far from the center. This holds true in LAC, where children from wealthy families are 2.5 times more likely to be in school than their counterparts from the poorest families (UNICEF 2017).

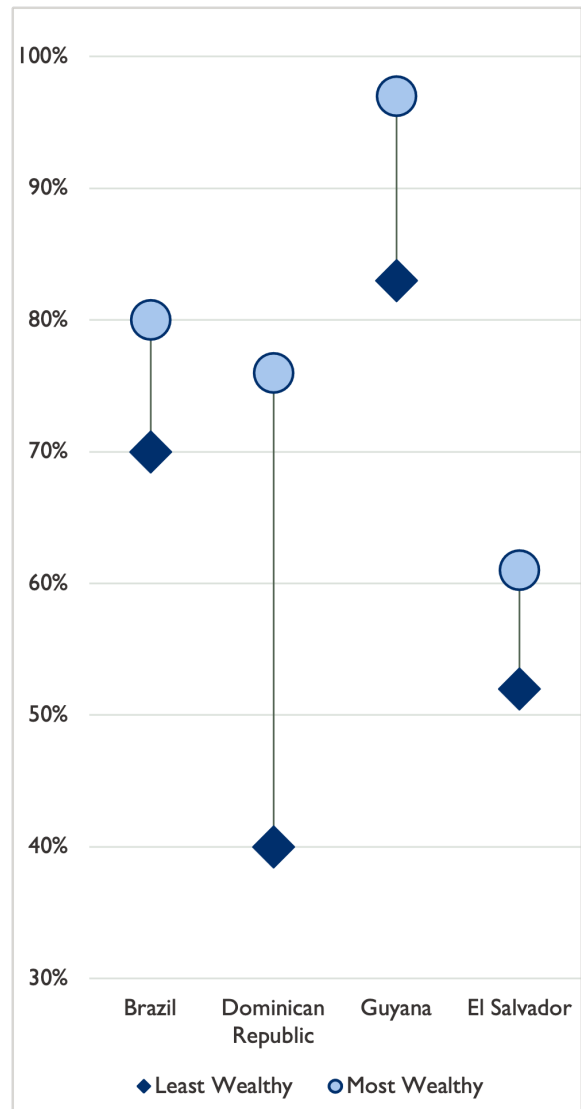
Lack of birth registration is an additional risk factor associated with pre-primary attendance. Ninety-two percent of children in LAC are registered at birth (UNICEF 2013), but those that are not registered are more than eight times less likely to attend an early childhood education program (UNICEF 2017).

FIGURE 32: GENDER PARITY IN LAC, WIDEST DISPARITIES



Source: MICS data, compiled by WIDE

FIGURE 33: GER IN LAC ACCORDING TO WEALTH



Source: MICS data, compiled by WIDE

ENABLING ENVIRONMENT

The LAC region offers several examples of strong enabling environmental factors in place. For example, 19 of the 27 USAID partner countries have a policy in place to support at least one year of free and compulsory pre-primary education. The Caribbean Community’s Early Childhood Care, Education, and Development Plan of Action was established in 1997. Since then, the region has developed a new curriculum and Caribbean nations have substantially increased their pre-primary spending (see Table 11).

TABLE 11: POLICIES AND SPENDING IN SELECT LAC COUNTRIES

COUNTRIES	CURRENT REGULATION ON COMPULSORY PRESCHOOL EDUCATION AND AGE GROUP	FREE ECE (YEARS)	GOVERNMENT EXPENDITURE ON PRE-PRIMARY, % OF TOTAL EDUCATION SPENDING (LATEST DATA)
Bolivia	(Ley de Educación, 2010) 4–5 years old	2	5% (2014)
Brazil	(Lei de Diretrizes e Bases da Educação, 1996) 4–5 years old	3	10% (2012)
Colombia	(Ley General de Educación, 1994) 5 years old	3	6% (2014)
Ecuador	(Ley Orgánica de Educación Intercultural, 2011) 3–5 years old	3	11% (2014)
El Salvador	(Ley General de Educación, 1996) 4–6 years old	3	8% (2011)
Guatemala	(Ley Nacional de Educación 1991) 4–6 years old	2	11% (2013)
Honduras	(Ley Fundamental de Educación, 2011) 5 years old	3	7% (2013)
Mexico	(Ley General de Educación, 1993) 3–5 years old	3	10% (2011)
Nicaragua	(Ley General de Educación, 2006) 5 years old	..	4% (2010)
Panama	(Ley Orgánica de Educación, 1995) 4–5 years old	2	3% (2011)
Paraguay	(Ley General de Educación, 1998) 5 years old	3	6% (2012)
Peru	(Ley General de Educación, 2003) 3–5 years old	3	16% (2014)
Uruguay	(Ley General de Educación, 2008) 4–5 years old	2	10% (2011)
Venezuela	(Ley Orgánica de Educación, 2009) 3–5 years old	3	12% (2009)

Sources: World Bank Data, Arrabel 2018

STRENGTHENING THE ENABLING ENVIRONMENT COUNTRY CASE: GUYANA

In 2007, Guyana's GER was 82 percent. In 2018, this rate rose to 95 percent. With nearly universal access to pre-primary education (called *Nursery School* in Guyana), the country is seeing significant improvement in school readiness indicators, with 88 percent of children meeting expected literacy and numeracy targets for school entry, compared with 37 percent in 2016. This exceptional growth and improvement are the result of widespread systemic investment in early childhood education.

Prioritizing Nursery School in Policy

In 2014, Guyana developed its ESP, with the support of GPE. This plan included three core strategic priorities for the nursery level:

- Increase access through infrastructure, particularly in remote regions.
- Improve quality through increased age-appropriate literacy and mathematics materials, specialized CPD opportunities for nursery teachers, and prepared guided lesson plans.
- Improve accountability through use of school readiness assessments.

Increasing the Budget

Since 2015, annual expenditure on nursery school has increased by \$5.6 million. This is an increase of about 1 percent in total education expenditure, putting Guyana's early childhood education budget at around 12 percent of total education spending.

Strengthening the Workforce

Guyanese nursery teachers are historically untrained and do not meet the basic qualifications of certification. This gap is especially problematic in the remote hinterland regions, where it is difficult to assign any teachers, not just qualified ones. To address this, the Ministry of Education has instituted a comprehensive in-service training and mentoring program for 520 teachers from remote regions. They are also providing teachers with housing to encourage acceptance of remote posts and improve motivation and working conditions.

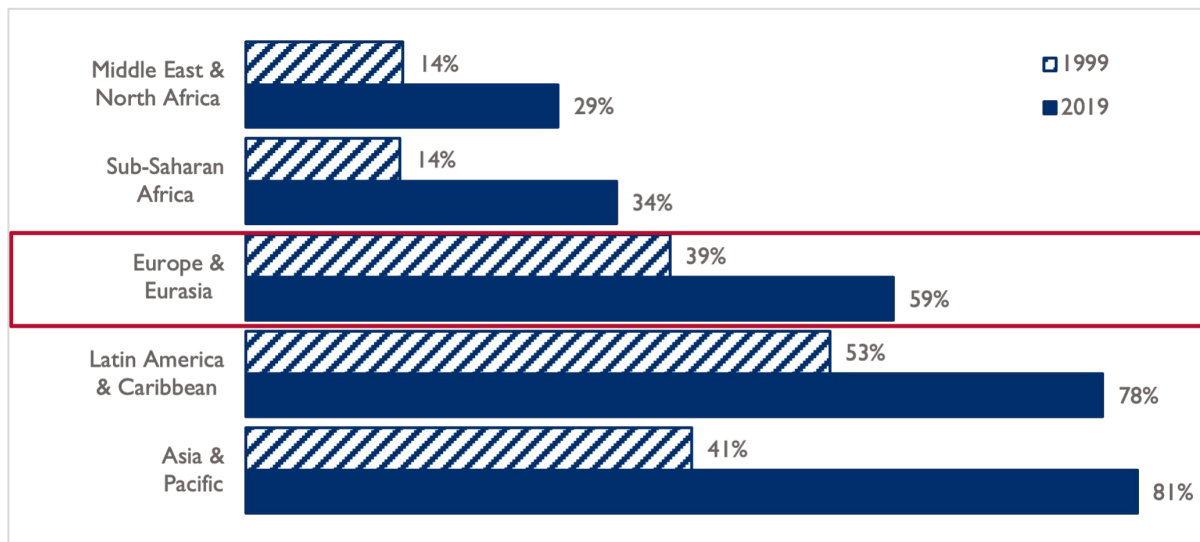
Sources: GPE, *Guyana Brief, 2019*; Guyana Ministry of Education, *Education Sector Plan 2014-2018*; World Bank Data; UNICEF, *Guyana Evaluation, 2018*.

EURASIA

ACCESS AND EQUITY

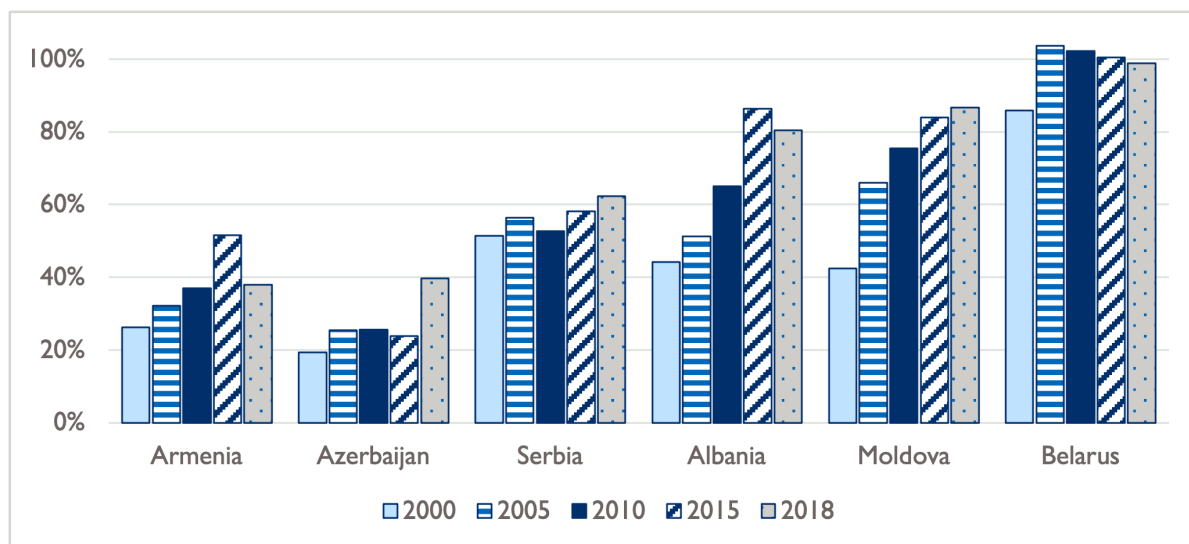
Enrollment in pre-primary education has increased significantly over the past 20 years across Europe and Eurasia, with higher levels of enrollment in European states (Figure 34). Across the region, investment in early childhood has seen a dramatic increase. For example, Armenia, Georgia, Moldova, Russia, and Ukraine all spend more than ten percent of their total education budgets on pre-primary education. As a result of this focus, many countries across Eurasia have seen impressive improvement in pre-primary enrollment rates in the last 20 years. This can be seen for sample countries in Figure 35.

FIGURE 34: EUROPE AND EURASIA ENROLLMENT COMPARED TO GLOBAL



Source: UIS Data

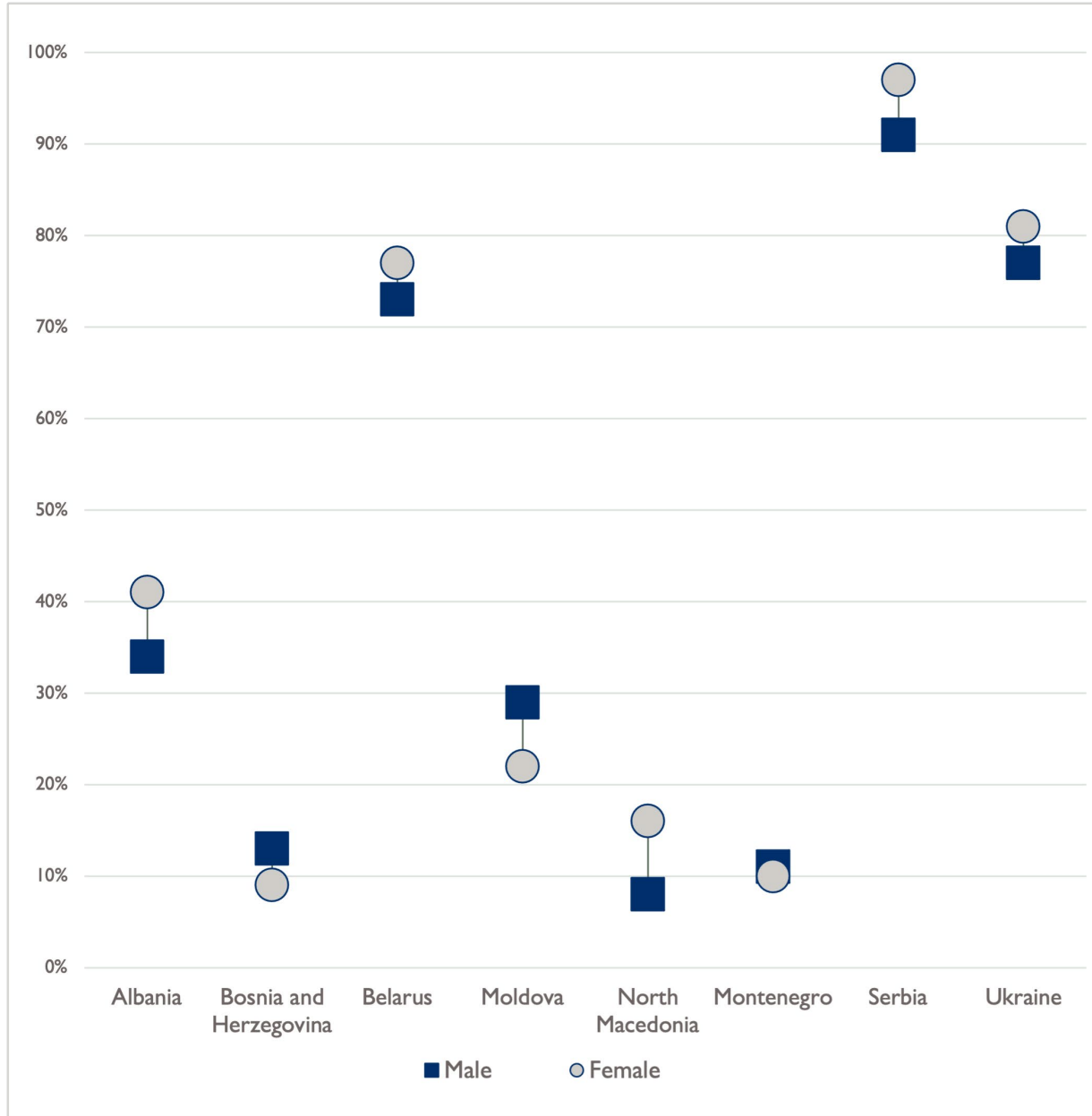
FIGURE 35: GROSS ENROLLMENT IN EUROPE AND EURASIA, SAMPLE COUNTRIES



Source: UIS Data

Gender parity in Europe and Eurasia is generally good, with females attending pre-primary slightly more on average than males. See Figure 36 for sample countries.

FIGURE 36: GENDER PARITY IN PRE-PRIMARY ENROLMENT, EUROPE AND EURASIA

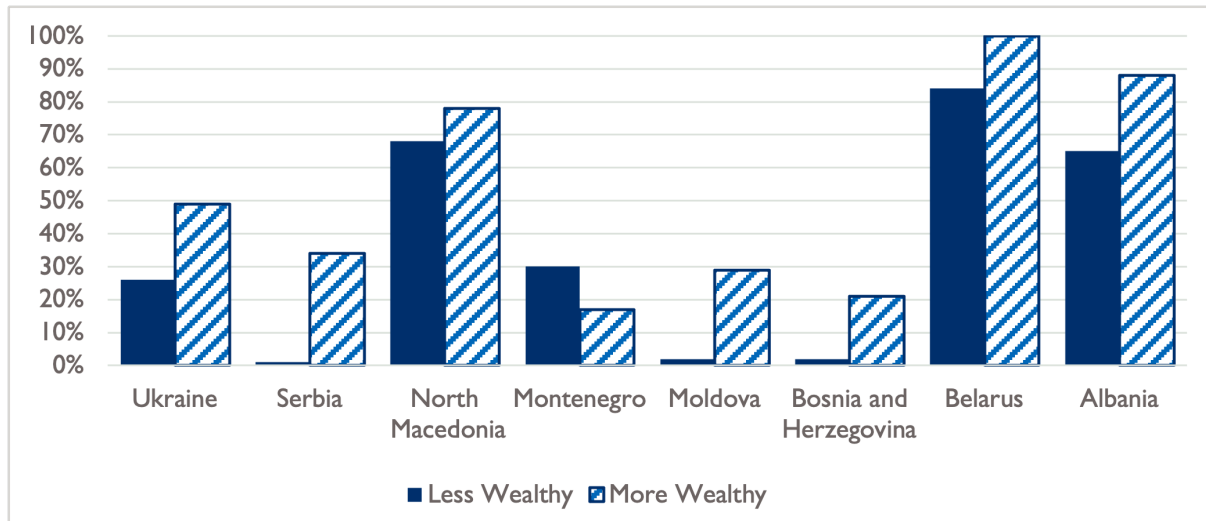


Source: MICS data, compiled by WIDE

Key inequities across Europe and Eurasia can be seen primarily in line with wealth distribution, location, and ethnicity. For example, in Ukraine, young children in the central regions access pre-primary education at a rate of 92 percent while only 55 percent of children in the south access at least one year of pre-primary education. In Bosnia and Herzegovina, 34 percent of children in the highest wealth quintile access pre-primary education while only one percent of children in the lowest quintile do. See Figures 37 and 38 (below) for additional examples of disparities.

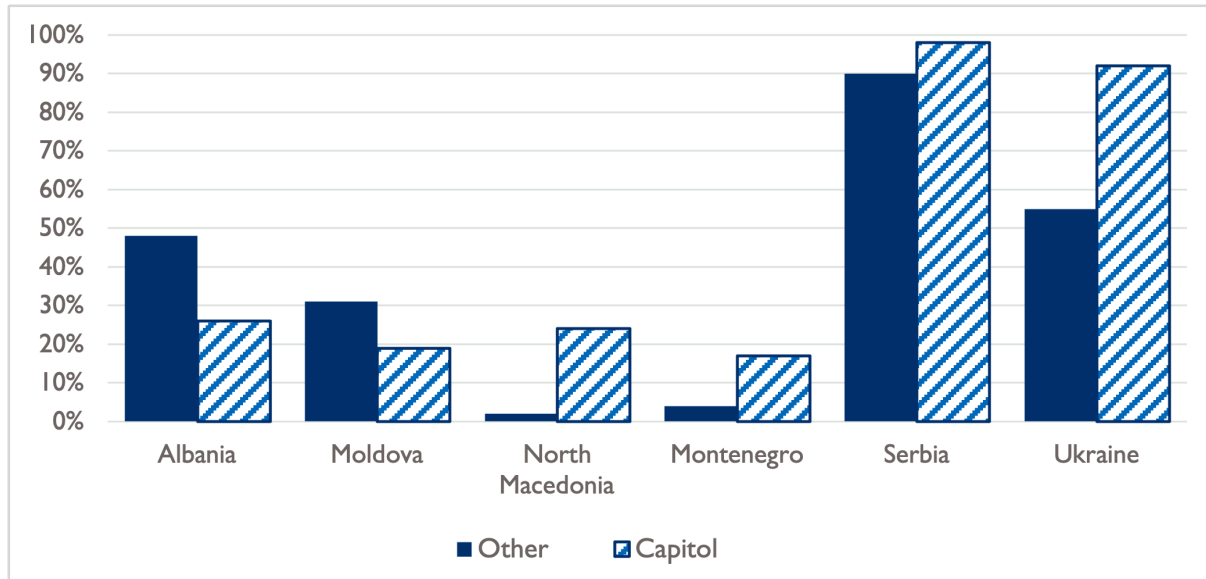
Additionally, discrimination and marginalization of Roma children, while reduced in the past decade, remains a critical issue in many European countries. This is partially due to the social exclusion that Roma families suffer in general, and partially to the poverty that often affects this population, which means they are unable to pay for early childhood education services such as preschool fees (UNICEF 2017). For example, in Ukraine, approximately 77 percent of non-Roma 3- to 6-year-old children are attending preschool, compared to only 32 percent of Roma children (World Bank 2014). As a result, at the start of primary school, the school readiness scores of Roma children were roughly 20 percent lower than their non-Roma peers (Save the Children and IDELA 2019).

FIGURE 37: DISPARITY IN ACCESS TO PRE-PRIMARY EDUCATION IN EUROPE AND EURASIA, BY WEALTH



Source: MICS data, consolidated by WIDE (for this table, poor and rich refer wealth quintiles)

FIGURE 38: DISPARITY IN ACCESS TO PRE-PRIMARY EDUCATION IN EUROPE AND EURASIA BY LOCATION



Source: MICS data, consolidated by WIDE

CONCLUSION AND RECOMMENDATIONS FOR FUTURE RESEARCH

The research base in support of pre-primary is strong, despite notable gaps in the literature. Additional work is necessary to fill these gaps and expand the global understanding of how early childhood education is affecting learning at scale and through the life course. The following are key recommendations for future research priorities, based on the gaps identified during this review.

LONG-TERM IMPACT

Building the evidence base for long-term impact in LMICs should be a key focus of future research. Moreover, several key questions should be considered in the research to inform this topic and support decisions about best practice in pre-primary. Particularly, future studies should more clearly address considerations related to the highly variable quality of programs, dosage, skills addressed, and methodologies employed in pre-primary programs in LMICs.

QUALITY

Additional research that clarifies the precise quality conditions required for long-term learning gains is essential to support effective programming in resource-constrained contexts. Particularly important is an understanding of how quality elements interact to support optimal learning. For example, it is understood that smaller class sizes give teachers more time to attend to students, and that access to play materials support an array of learning opportunities; however, these elements will not drive learning on their own. Likewise, teaching practices are understood to be the strongest driver of learning, but how do teaching practices interact with the low-resourced environments in which many children attend school? Based on the research available in HICs, it is possible to make educated assumptions about these interactions, however this review reveals that little evidence from LMICs really exists to offer clarity. As many countries will continue to face resource gaps for the foreseeable future, it is important to know which quality aspects should be prioritized and under what contexts.

PERSISTENCE AND FADE-OUT OF LEARNING OUTCOMES

While research from LMICs strongly supports the assertion that quality pre-primary programs support long-term learning gains, some studies, primarily from HICs, have observed that learning gains from pre-primary attendance fade over time in comparison to peers who did not attend pre-primary. While learning loss is not unique to pre-primary (Evans and Ngatia 2018), the question of why learning and skills fade over time is an important one that deserves further examination. Current theories highlight the multitude of variables surrounding skill persistence, including the quality of the pre-primary program attended, the quality of the subsequently attended primary schools, and the associated support children receive as they grow (Stipek 2017). For understanding long-term impact, it will be important to examine how quality, continuity, and other variables affect the persistence of early learning gains.

SKILLS

Studies have also shown how certain social-emotional skills, particularly self-regulation, and certain motor skills, particularly fine motor skills, relate to later reading and mathematics achievement (Birgisdottir 2016; Lenes 2019; Raver 2011). Findings by Watts et al (2014) suggest that early numeracy skills gained in pre-primary school may affect the more complex mathematics abilities at later stages of education, noting in the study that preschool mathematics skills were a very strong predictor of mathematics achievement at the age of 15.²⁶ In an article examining the persistence or fade-out of learning, Bailey et al (2016) posited that learning is most persistent when the right skills are prioritized at the right time.²⁷

These studies and others raise a question about whether the skills currently being measured as evidence of pre-primary support are the correct ones. Much of the research available on learning outcomes assumes a linear trajectory for emergent academic skills, but this may be an unfounded, or at least an incomplete assumption. Early learning skills do not exist in isolation, but interplay significantly as children grow and develop. For example, in researching the effect of early numeracy education, researchers often look to primary level mathematics skills, ideally hoping to see that at second or third grade, children with this early exposure are performing comparatively better than their peers.

However, early numeracy education is much wider-reaching than the formal mathematical operations generally addressed in middle-primary school. Through number play, block play, dramatic play (such as running a pretend store and using play money), and a wide range of hands-on engagement with mathematical concepts, children gain an underlying conceptual understanding of numbers, patterns, geometry, and problem solving (McClennan 2014). It is possible that skills gained in high-quality, play-based pre-primary programs are more relevant predictors of lasting academic impact, which support children beyond the point of comparison for most studies on academic impact and potential fade-out. This question deserves significantly more research, as findings about learning outcomes have the potential to greatly affect policy decisions.

EQUITY AND INCLUSION AMONG MARGINALIZED AND VULNERABLE POPULATIONS

Within the research base, there is a dearth of literature focused on children with disabilities. As an example, in a recent systematic review of inclusive education for children with disabilities in LMICs, researchers were unable to include information related to pre-primary as only three relevant studies were identified in their literature. They concluded “It was felt this was insufficient information to analyze, although it does highlight an important gap in the current research literature.” (Wapling 2016, pg 10).

Adding to the research base on this topic is a critical and immediate need. According to the World Health Organization (WHO), more than a billion people, or approximately 15 percent of the world’s population, are estimated to live with some kind of disability. In part due to health and healthcare disparities between HICs and LMICs, a greater proportion of people with disabilities are expected to

²⁶ Studied with students in the United States and United Kingdom.

²⁷ The article by Bailey et al (2016) laid out a framework for understanding which skills are likely to support persistent and high-impact learning, however they did not suggest that these skills are gained in pre-primary education.

reside in LMICs (Banks 2017). While the window of learning opportunity in early childhood is narrow for all children, this is especially true for children with disabilities, as early identification of needs is one of the strongest predictors of on-track development for children with disabilities (Singh 2016). Integration of universal design for learning within pre-primary education helps education practitioners and families better support learners' needs and thereby also contributes to children being developmentally on-track. It is critical therefore to close the knowledge gap on serving young children with disabilities to avoid widening inequities that are already known to exist (WHO, UNICEF 2012).

Likewise, conflict and crisis are an unfortunate reality of many of the countries where USAID works. This too is a critical gap that should be addressed to ensure programs are responsive to all children that USAID serves.

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