

# The Preschool Entitlement: A Locally Adaptable Policy Instrument to Expand and Improve Preschool Education

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## **Abstract**

Only three out of five children are enrolled in preschool globally, and only one out of five in low-income countries, yet the expansion of preschool education came to a near standstill in 2020. To restart it, we propose a policy instrument called the Preschool Entitlement. It entails the right of every child to 600 hours of quality government-funded preschool education per year (3 hours per day, 5 days per week, 40 weeks per year). Existing preschool institutions and other organizations with legal status (public, private, faith- or community-based) can offer the child development program after a process of rigorous accreditation to ensure quality, inclusion, and safety. In other respects, they will have the freedom to shape the program according to local circumstances and local preferences. This makes it possible to supplement the daily 3 hours with additional hours of childcare that can be financed by families, local government, employers, national associations, faith-based organizations, ministries of social affairs, or others. In this manner, the Preschool Entitlement reconciles local autonomy with governmental responsibility for quality, access, and equity. In low- and middle-income countries, government costs would range from about 0.15 to 0.4 percent of GDP, and the benefits are likely to be significant.

## Introduction

There is a broad and undisputed consensus that universal preschool education is imperative, not only because all children have the right to develop to their full potential, but also because it is in the interest of society as a whole (Devercelli & Beaton-Day, 2020). Engle et al. (2011), for example, estimated that increasing preschool enrollment to 25 percent or 50 percent in low-income countries (LICs) and middle-income countries yields a benefit-to-cost ratio ranging from 6.4 to 17.6, as a result of better health and reduced inequalities in income and educational opportunities. Many other studies have reached similar conclusions.

However, trend analysis has shown that the rate of expansion for preschool education was less than 1 percent per annum globally during the previous half century. Trendlines for preprimary gross enrollment have even been flattening since 2015, heading for levels of about 60 percent globally and about 20 percent in LICs (van Ravens & Yarosz, n.d.).

Although a lack of financial resources is often cited as one of the main reasons for the slow expansion of preschool education, three phenomena suggest otherwise. First, in some countries, many children of preschool age are enrolled in primary school, so a significant part of the money that would be needed to fund one year of preschool education is already being spent (Crouch & Merseeth, 2017). Second, a large and still-growing share of children attending preschool worldwide are enrolled in private institutions (Global Monitoring Report Team, 2019), not least in peri-urban settlements (Bidwell & Watine, 2014), which may in part result from the significant reduction of poverty in recent years (Schoch & Lakner, 2020). One out of five children in the global south are attending an unregistered preschool (van Ravens & Yarosz, n.d.), which suggests that families, too, are spending more on preschool education than official statistics suggest. Third, as a result of decentralization processes, preschool has become a local responsibility in many countries, where local communities now have the opportunity to retain and spend local taxes, aided by new financial instruments aimed at increasing equity (Ponguta et al., 2019).

## Abbreviations

AKF	Aga Khan Foundation
ANER	adjusted net enrollment ratio
COVID-19	Coronavirus Disease 2019
ECD	early childhood development
EU	European Union
GDP	gross domestic product
GER	gross enrollment ratio
HIC	high-income country
LAMP	locally adaptable monosectoral policy
LIC	low-income country
LMIC	lower-middle-income country
NGO	nongovernmental organization
SDGs	Sustainable Development Goals
U5M	under-five mortality
UMIC	upper-middle-income country
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Emergency Fund

These phenomena are not without problems. Underage enrollment in primary school often leads to repetition of grade one (Crouch & Merseeth, 2017), and these children are not learning in age-appropriate ways (Lakhsman, 2019). Unregistered preschools tend to be substandard, if not unsafe, and although the fees are often low, the poorest families remain unable to afford them (Barnett & Boocock, 1998). Moreover, the new policy tools at the local level are not always powerful enough to prevent inequalities. Taken together, however, the three phenomena do highlight the enormous investment potential in preschool education available to governments, families, and communities. So how can we unlock preschool's investment potential while minimizing potential downsides?

In a report on COVID-19, UNICEF (2021) advises enhancing the role of actors at the local level: "We are going to need a new type of programming that builds on local capacities, indigenous resources

and creates self-sufficiency. Programming will need to become more localized, adaptive, flexible and innovative.” We fully support this advice but emphasize that it should not be understood as simply switching focus from the national to the local level. Government should retain its essential roles in safeguarding standards and ensuring equitable access by sufficiently funding preschool (Yan, 2019). What kind of policy instrument can responsibly empower those at the local level while also pursuing national policy objectives? What would be the implications for governance? What would it cost and how might costs be shared?

## Overview

The first section below, “Terminologies and Trends,” notes the risk of terminological confusion and presents arguments to use the term “preschool education” throughout this publication. Trends in the enrollment in this form of education suggest there is a strong need for a powerful policy instrument to promote expansion, especially in LICs.

In the second section, we discuss the rich programmatic diversity of preschool education, partly resulting from preschool’s dual function: the child development function and the childcare function. We believe that programmatic diversity can hinder preschool expansion if governments make no clear choices regarding the kinds of programs they wish to provide.

Therefore, in the third section, we present arguments for an adaptable child development program that local actors can tailor to develop the preschool arrangements that best fit their specific educational contexts and fulfill the childcare function. Our use of the term “local” should not always be taken literally; as well as to truly local actors, it can refer to non-state actors who function at national levels, such as religious denominations, trade unions, associations, and nongovernmental organizations (NGOs).

Next, we set out a policy dilemma resulting from the dual function of preschool. Can and should government provide childcare for all, or should it begin by ensuring universal access to programs that focus on child development? We argue that the

locally adaptable child development program we propose is an essentially public good to be secured by government funding, whereas the further step of expanding childcare can be the shared responsibility of a range of (local) stakeholders, considering the higher costs and lesser externalities.

We then summarize quality aspects such as the number of hours per year required to fulfill the child development function; the number of years the program might be provided; and the ideal number of students per teacher. A program of 3 hours per day, 5 days per week, and 40 weeks per year, we argue, is a good starting point that can be expanded with additional hours of childcare for families who need it.

Next, in the section “Conditions,” we present some of the regulations that providers and beneficiaries must comply with to benefit from the Preschool Entitlement. The key condition to obtaining government funding is accreditation, and through accreditation standards, governments can ensure quality and timely enrollment. Involvement of local actors as well as a level playing field between public and private providers can be enhanced by properly designed conditions.

Taking into account differences between countries’ per capita income, we then provide a rough estimate of the salary costs of the Preschool Entitlement and a sensitivity analysis concerning the non-salary costs. Again distinguishing countries in different income groups, we then assess the policy instrument’s affordability. This section discusses possibilities to fund the Preschool Entitlement partly from social returns and efficiency gains in the education system and partly from domestic tax revenue. Tax revenue in LICs is generally insufficient to close the funding gap, and international donors would have to contribute.

We then draw attention to trends in governance such as decentralization and multisectoral policy development, showing how the Preschool Entitlement relates to these important change processes. Finally, we close this publication by suggesting five next steps and drawing conclusions.

Appendix A addresses several pedagogical aspects in support of the sections discussing public and private

goods and dosage, duration, and student–teacher ratio parameters, while Appendix B provides the basis for macro-level costing. Appendix C provides information used in the section on finance and revenue.

## Terminology and Trends

Our topic is “preschool education,” also shorthand as “preschool”: the phase of education that precedes primary school. Most of the world’s children live in countries where preschool education has an official duration of 3 years, starting at age 3 and ending at age 6.\* Thus, we assume 3 to 6 to be the typical age bracket for preschool. Some of our calculations would require adjustment for countries with different age brackets, but the analysis broadly applies to all countries.

The term “preschool education” is used as an umbrella term synonymous with “preprimary education” (the term preferred by the UNESCO Institute for Statistics and the World Bank) and “early childhood education” (used by UNICEF in its report “A world ready to learn” [UNICEF, 2019a]). Under this umbrella term, we find enormous programmatic diversity (Putcha & van der Gaag, 2015), ranging from school-readiness programs of one year or less to full-day programs of 3 years or more. Legal status can be public, private, faith-based, or community-based. This programmatic diversity is one of our key themes, and we will elaborate on it in the next section.

As mentioned in the introduction, a vast body of literature supports the provision of preschool education to every child. The consensus has become so broad that we have not cited the many arguments for universal preschool. Instead, we refer to the aforementioned UNICEF report (2019) for a state-of-

the-art summary of the literature on the benefits of preschool education.

In reality, however, only three out of five children worldwide had access to preschool in 2020, and in LICs, only one out of five children were enrolled (van Ravens & Yarosz, n.d.). Perhaps even more worrisome than current enrollment levels are the trends that preceded them. Figure 1 presents the long-term trends in the preprimary gross enrollment ratio (GER) for low-, lower-middle-, upper-middle-, and high-income countries (LICs, LMICs, UMICs, HICs) from 1970 to 2020. The source, World Bank Data, defines GER as the ratio of all enrolled children of any age in a given grade level divided by the number of children in the target age for that grade level. Because the numerator may well include under- and over-aged children, the GER tends to overestimate enrollment (World Bank Open Data, 2022).

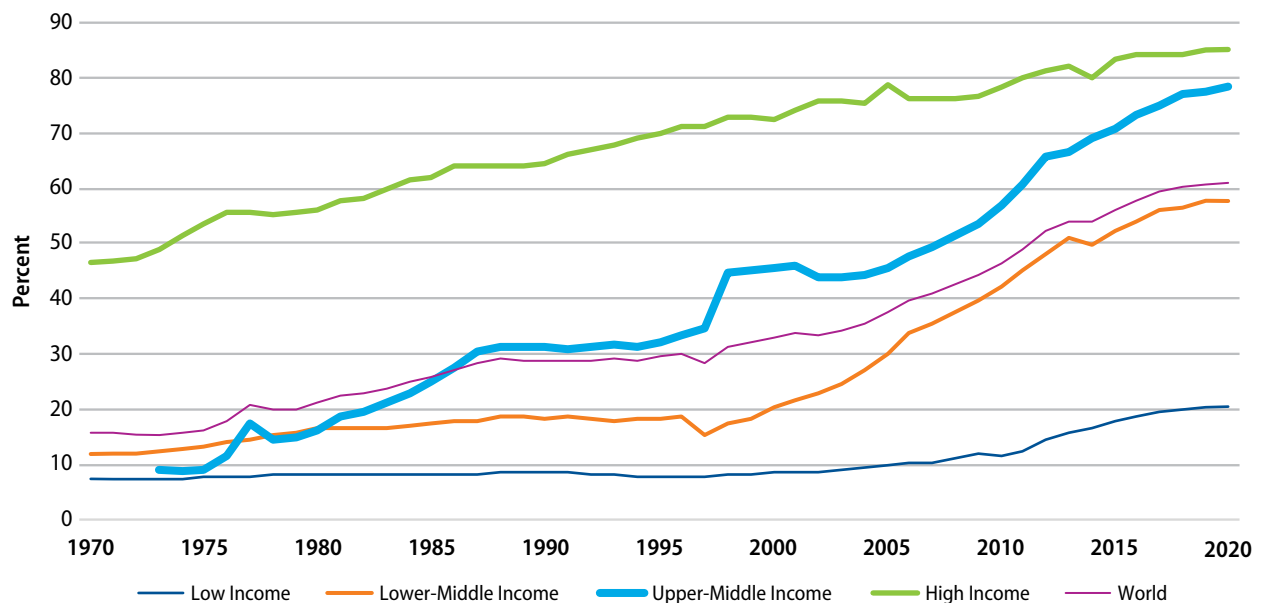
As seen in Figure 1:

- In LICs, enrollment remained almost stagnant between 1970 and 2000. After a modest increase between 2000 and 2015, the curve flattened at a level of around 20 percent. Over the past half century, the average increase in LICs was a mere 0.25 percent per year.
- From 1997 onwards, LMICs and UMICs—and, with them, the world average—showed a more-positive trend, followed by a deceleration that began around 2015. The world average sat slightly above 60 percent in 2020.
- HICs are nearly stagnant since 2015 at a level of around 85 percent.

The influence of COVID-19 on these data is unclear; in some of the heavily affected countries in the southern hemisphere, the 2020 school year started before the virus began to spread. Clearer is the influence of the Sustainable Development Goals (SDGs) that the United Nations launched in 2015. The figure shows that this year does not begin an acceleration of preschool education expansion as intended by the SDGs. Rather, it seems to foreshadow the slowdown. A possible explanation is that SDG 4.2, which calls for providing just one year of preparation for primary school, falls short of the more-ambitious goals and targets that countries had in place before

\* Based on the Annex Tables of the Global Education Monitoring Reports (UNESCO, 2021), one can make the following generalizations regarding the age brackets for preschool and primary school. First, the entry age of primary school—i.e., the exit age for preschool—is age 6 in about half of the world’s countries. In about a quarter of the world’s countries, primary school starts at age 5 or earlier, and in the remaining countries, it starts at age 7. However, the countries with age 6 as the transition age include the world’s most populous ones, so the vast majority of the world’s children live in countries where age 6 is the entry age for primary school, as well as the exit age for preschool. The official duration of preschool, then, is 3 years in most of the world’s countries, including the most-populous ones.



**Figure 1. Preprimary education gross enrollment ratio by income category (1970–2020)**

the SDGs. Because other SDGs—both within education and beyond—are very demanding, the unambitious SDG 4.2 may have led governments to stop investing in preschool, rather than stimulating them to increase their efforts (van Ravens, 2015). Figure 2 tends to support this hypothesis. Focusing on LICs, it distinguishes public and private preprimary enrollment and adds the GER for primary education and the Adjusted Net Enrollment Ratio (ANER) one year before primary official entry age. This ANER comprises children in the last year of preprimary education and underage children in primary education.

Figure 2 suggests several trade-offs. First, after decades of near stagnation, public preprimary enrollment in LICs began to expand in 2011, but private preprimary enrollment began to decrease one year later. In 2015, the expansion of public preprimary education came to an end, and so did the decrease in the private sector. It seems that public and private preschool are communicating vessels, in the sense that many of the families who would normally enroll their children in private preschool tend to opt for public preschool when the latter expands. The result is that investment in public preschool has a limited impact on overall enrollment. Second, the ANER (which includes mainly 5-year-olds) started a remarkable increase in 2018, while the preprimary

GERs (covering mainly 3-, 4-, and 5-year-olds) remained nearly flat. This suggests that enrollment among 5-year-olds increased at the cost of enrollment among the 3- and 4-year-olds. And third, although 2015 marks the transition from growth to stagnation in the case of preprimary education, it marks the opposite for primary education: after 7 years of near stagnation (2008–2015), gross enrollment in primary education (which is predominantly public) resumed its increase, now beyond 100 percent.

It must be noted that a primary GER at or above 100 percent usually conceals problems such as under- and overage enrollment, dropping out, grade repetition, suboptimal learning outcomes, or a combination of these. However, preprimary education is affected by such issues as well. And although in-depth research is needed—and strongly recommended—for a good understanding of the dynamics suggested by Figure 2, it seems clear that preprimary education is in dire straits, possibly as a result of unintended effects of the SDGs: LICs appear to prioritize primary education above preschool, while trying to meet SDG 4.2 without additional funding by disinvesting in the 3- and 4-year-olds.

How can we restart the expansion of preschool education? In an attempt to answer that question, we argue that there is a need for a policy instrument that somehow deals with preschool's high degree

of programmatic diversity (Balsera et al., 2018; Desalegn et al., 2015) and builds on local-level actors' autonomy and investment potential.

## Programmatic Diversity

A policy instrument that intends to accelerate the expansion of preschool education must somehow respond to the enormous diversity that we observe in preschool programs. Should the instrument favor some programs above others? Or should it somehow be applicable to all? This section provides a basis for addressing these questions by first describing current programmatic diversity.

Preschool education can fulfill two main functions (Barnett & Boocock, 1998; Jensen, 2009; Lightfoot-Rueda et al., 2016):

- In all cases, preschool education is meant to enhance child development. Along with other early childhood development (ECD) services, such as parental education, nutrition, and health care, preschool education is intended to support children in developing to their full potential (Campbell et al., 2001; Montie et al., 2006). As such, preschool education is an inalienable part of nurturing

care (Black et al., 2021). We refer to this as the developmental function of preschool education.

- In many cases, and more practically, preschool education also allows parents to go to work, study, or engage in other activities (Gibson et al., 2015). We refer to this as the childcare function of preschool education.

For the childcare function, a relatively large number of hours per day is needed, varying from half a day to a full day, with provision of up to three meals and napping facilities. For the developmental function, though, shorter sessions would be sufficient, provided that the programs meet well-defined quality standards for teacher competencies, holistic curriculum, content, and materials. Partly as a result of this dual functionality, preschool education is characterized by a higher degree of programmatic diversity than, for example, primary education. We distinguish diversity in terms of location, legal status, program structure, duration, and quality.

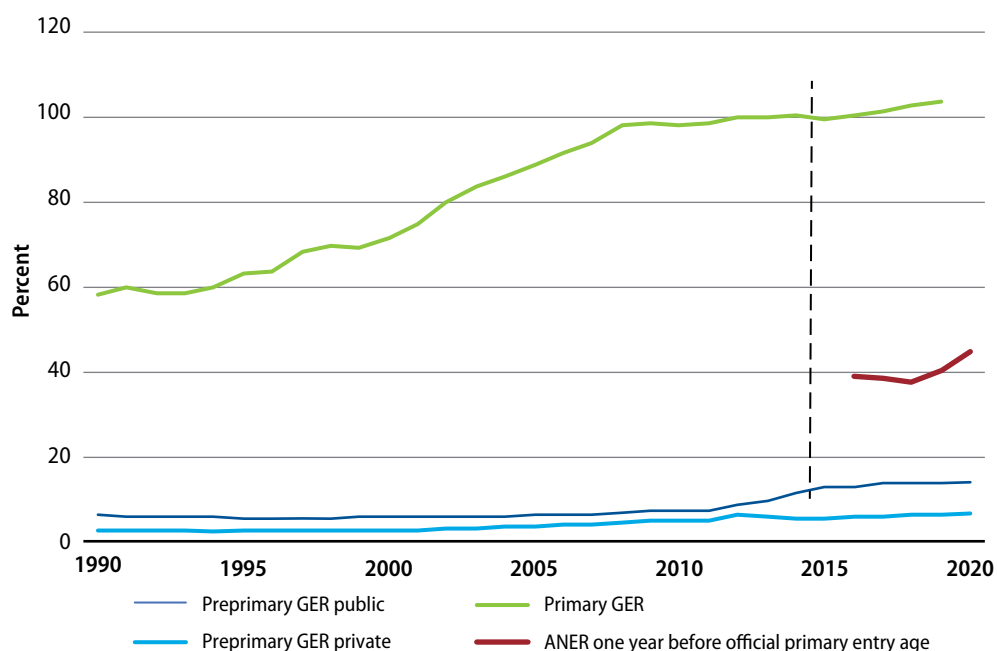
## Location

Preschool programs can be provided in specialized institutions, such as kindergartens and ECD centers, but also in schools, homes, mobile facilities, or

companies. Kenya, for example, has managed to boost preschool enrollment partly by starting preschool classes in primary schools that have unutilized space and human resources.

Home-based programs were traditionally considered an option, primarily for childcare, but some countries have policies in place to enhance teacher qualifications, health and safety, and holistic curricula. The longstanding *Madres Comunitarias* in

**Figure 2. Primary and preprimary gross enrollment in low-income countries, 1990–2020**



Notes: ANER = adjusted net enrollment ratio; GER = gross enrollment ratio.

Source: van Ravens and Yarosz (n.d.), using data from the UNESCO Institute for Statistics, World Bank Open Data (2022).

Colombia is one example of this (Feed Magazine, 2016). An interesting case is the satellite model in Kyrgyzstan (Aga Khan Foundation, 2020), where a central kindergarten supports home- and school-based classes in surrounding villages and hamlets, ensuring a degree of continuity and quality that these classes might not achieve on a standalone basis.

Fiji's Mobile Kindy (Child Benefit Fiji, 2018) and the Mobile ECD Center in North Macedonia (Mobile ECD Center, Lifestart, 2021) show how education providers can use facilities and inventory efficiently by bringing them to multiple places. In Kyrgyzstan, approximately one hundred Jailoo (pasture) kindergartens travel with semi-nomadic communities (Roza Otunbaeva Initiative, 2021).

Employer provision of preschool education was prominent in the former Eastern Bloc countries. A more-recent example can be found in Cambodia, where garment factories have partnered with NGOs to set up childcare centers at their factories. Though they need not be the dominant model, employer-based preschools can be a valuable addition to a varied palette of modalities. Providers may include tea plantations, handicraft cooperatives, forest management groups, and other employers.

These examples illustrate that preschool education may be provided in many different settings, as long as quality is monitored. A policy instrument that allows for this kind of flexibility while guaranteeing quality is necessary.

## Legal Status

Legal status is another dimension of program diversity. Globally, 37 percent of the children enrolled in preschool were in a private institution in 2019; this percentage is almost twice as high as it is in primary education, and the gap between the two is widening (Global Monitoring Report Team, 2019). The term "private" refers not only to for-profit institutions but also faith-based and community-based institutions, as well as those operated by NGOs. One could also argue that faith-based and community-based preschool institutions are neither private nor public but constitute categories in their own right. In this

view, "private" would then refer more narrowly to "for-profit."

Some preschools operate without legal status: many children, as can be seen in Box 2 in a later section, attend unregistered preschools. Quality is often questionable in this subsector of preschool education (Chin et al., 2021), which is why authorities in Uganda (and possibly more countries) are ordering the closure of these facilities (Behrman & van Ravens, 2013). But in light of the dire need to increase preschool enrollment, it seems a better option to make it possible and attractive for these institutions to enhance their quality and obtain legal status.

Such a strategy calls for an inclusive policy instrument that upgrades these institutions and includes them in the national system. Moreover, that policy instrument should level the playing field by not discriminating between public, private, faith-based, and community-based programs.

## Program Structure

Depending on their length, objectives, and age focus, preschool programs have a variety of names, sometimes with different meanings in different countries (Etsey et al., 2010; Manhas & Qadiri, 2010; Mbugua, 2004; Mtahabwa, 2009). This creates a risk of terminological confusion, which is why we tend to avoid names such as *kindergarten*, *nursery*, *school-readiness programs*, and the like. The focus remains on programs for children ages 3 to 6 that fulfill at least the developmental function, with or without additional hours for the childcare function.

## Duration

The previous section noted that most of the world's children live in countries where the official age bracket for preschool is from age 3 to age 6, just as most children go to primary school between ages 6 and 12. This is not to say that all governments have actually made preschool education free and compulsory, but every country has at least an intention to provide preschool to children within a certain age bracket (Faas & Wasmuth, 2019). Later, we present arguments as to why our calculations are based on a duration of just 2 years—an age bracket of 4–6—as a first step in universal preschool.

## Quality

Within both the public and the private subsystems, there is significant variation in quality. Particularly in the for-profit sector, preschools range from unregistered preschools of abysmal quality to luxuriously equipped facilities at the high end of the market.

The question is, how can a government universalize preschool and accommodate diversity in location, legal status, and program structure while ensuring sufficient duration and quality? How can a government be flexible in some respects and strict in others? What kind of policy instrument can reconcile these seemingly conflicting demands?

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## The Rationale for an Adaptable Child Development Program

Preschool's programmatic diversity complicates policy development when it is not well-addressed. If a government commits to provide preschool education to every child, then what is it exactly that it promises to its population? Is it one year of school-readiness preparation, 3 years of full-day childcare, or something in between? The difference between these two extremes in terms of human and financial resources is substantial. This section presents arguments for governments to focus on providing a child development program, which other actors—especially at local level—can adapt and supplement with additional hours of childcare.

Investment benchmarks can illustrate the strong variation in the costs of preschool programs. These are instruments to generate political pressure to increase government spending on public services. Influential examples are the UNESCO benchmark (Right to Education, n.d.) that encourages countries to invest 6 percent of gross domestic product (GDP) in education and a UNICEF recommendation to invest 10 percent of their education budgets in preschool education (UNICEF, 2019a). However, proposing benchmarks without specifying the type of program and while ignoring variation in the size of countries' education budgets is problematic for two reasons:

- Cost estimates based on empirical observations showed that full-day preschool programs with three daily meals and sleeping facilities are about four times more costly than short, cost-effective programs that focus on child development (van Ravens, 2010a, p. 48). Therefore, a benchmark based on the assumption of a short program of one year would be a factor of 12 lower than one that assumes 3 years of full-day care.
- Countries' education budgets, expressed in GDP, vary too widely to be a stable basis for a universal preschool investment benchmark. Many countries invest too little in education to meet UNICEF's benchmark.

The success story of Azerbaijan (Box 1) illustrates both these problems; it also indicates a direction for a solution.

Box 1 shows how the government of Azerbaijan achieved a breakthrough by becoming clear—first to itself and then to its citizens—about the kind of program it would use to universalize preschool education. Inspired by Azerbaijan, but without

### Box 1. Rapid Preschool Expansion in Azerbaijan

Azerbaijan meets the UNICEF recommendation of investing 10 percent of its education budget in preschool. Until about 5 years ago, though, the education budget stood at a mere 2.2 percent of GDP, far below the UNESCO benchmark of 6 percent. The preschool budget was only available for the dominant full-day program, which has very high unit costs. Therefore, although the country technically met the UNICEF recommendation in 2015, only 15 percent of 5-year-olds had access to preschool.

Based on this analysis, the government of Azerbaijan decided to increase access by means of a short school-readiness program, boosting enrollment among 5-year-olds quite spectacularly; enrollment jumped to 75 percent in 2018. Initially, there was concern that the pressure for low costs would affect quality. This was resolved through ongoing communication between the government, the program provider, national experts, and the national office of UNICEF. Meanwhile, a similarly cost-effective approach brought 3,000 children ages 3 and 4 to playgroups in community centers within 2 years. Introducing a reasonable fee for the expensive full-day program could free up enough resources to fully universalize preschool for ages 3 to 6 without a significant budget increase.

Source: van Ravens & Grover (2012) and UNICEF (2019b).

following exactly the same model, we argue that all children should be able to attend a core child development program, a daily program of a few hours per day that can be adapted to local circumstances.

This program should come with a large degree of flexibility that allows and encourages local actors to expand the program with additional hours of childcare. In this manner, local actors could use the child development program as an element in the particular service configuration they consider appropriate for their own context. The program may or may not be combined with the childcare function or other child development services, such as nutrition and growth monitoring. Public, private, religious, and community-based actors can all provide the program. Moreover, the program can be situated in the more-traditional institutions for young children as well as in center-based, school-based, home-based, mobile, and employer-based settings. Local actors would have a large degree of autonomy in shaping their service constellation as long as they ensure quality and meet standards. National non-state actors, such as religious groups, trade unions, and professional associations, also can take the initiative to provide the child development program, adapting it to their members' needs.

In the following section, we present arguments for the child development program as an essential public good to be secured by government

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## Public and Private Goods

A child development program of a few hours per day obviously will be insufficient for parents in need of full-day care. These parents will need additional hours of childcare with additional facilities and services, such as meals and beds. In Eastern Europe, the Caucasus, and Central Asia—with its unique history of generous daycare provision after World War II under the influence of theories and practices from the Soviet Union—this has led to a debate in which some claim that full-day kindergarten must remain (or return to being) accessible either for free or with modest fees covering meals only. However, the unintended outcome of this stance is that most countries in this region show heavy public investment

in an expensive program with fees that are too high for many families in the country, but too low to cover a substantial part of the cost price. In this manner, the full-day program absorbs most of the available public resources, with insufficient money left for short, cost-effective child development programs for the excluded children, as Ponguta et al. (2019) have described in Serbia. Appendix C shows that it is unthinkable in most of the world's countries that full-day care programs will soon be scaled up to being universal and free, unless profound tax reforms take place in record time.

Therefore, it can be argued that short—in hours per day—child development programs be considered as a public good, as a service that should be accessible to all (Lightfoot-Rueda et al., 2016; Robeyns, 2006), partly because all children have a right to develop to their full potential (Jensen, 2009), partly because of what the literature on public returns on investment tells us (Richter et al., 2017; Heckman, 2006). Appendix A shows that several sources confirm that the externalities of short programs—in terms of child development, economic returns, and school readiness—are not significantly less than those of full-day programs, and in some cases, short programs may even yield better outcomes, depending on quality. Appendix A also indicates, in general, that spending the entire day in kindergarten does not produce significant added value compared with attending a short and focused child development program in the morning, followed in the afternoon by play at home and informal interaction with the peer group. In fact, Melhuish et al. (2008) found that the quality of a combination of a short preschool program and a good home learning environment may even exceed a full day spent in kindergarten, again depending on quality.

There is another side to this coin, however. Some children's home environments are not conducive to development. If these children receive a good full-day program, they are better off spending the day in the preschool institution, as Yoshikawa et al. (2013) have found. However, the chances for these children to attend a program in which a high level of quality is maintained throughout the day are small, except in a handful of countries where citizens accept a high

tax burden (see Appendix C). An alternative strategy would be to positively influence these children's home learning environments, partly by means of social interventions such as child benefits and programs to combat domestic violence, and partly by responsive caregiving—also referred to as nurturing care (Black et al., 2021)—by means of parental education, which costs about 10 times less (per child and per year) than preschool (van Ravens, 2021).

Therefore, although child development programs can be seen as a public good that benefits society as a whole, this seems less the case for the additional services that typically fulfill the childcare function of preschool education, such as meals, beds, and

playgrounds. In the many countries where tax revenue is insufficient for publicly funded full-day care, these additional services would have to be financed primarily by working parents, but with the possible assistance of other public and private stakeholders such as employers, local authorities and actors, national associations, ministries of social affairs, and others. Box 2 underscores the need for such an arrangement, showing that even poor families manage to finance preschool in large numbers, notwithstanding concerns about quality.

The conclusion from Box 2 is that unregistered preschools constitute an important subsector of preschool education that deserves more analysis. Many families, even in peri-urban settlements, appear to be able to finance daycare for their children. However, the quality of these unregistered preschools is unknown, and the poorest families still remain excluded. If governments could somehow assist these preschools in meeting quality standards, and if something can be done to achieve full inclusion, this can be a powerful and cost-effective strategy to boost enrollment with quality by building on—and improving—existing programs. What are some of the quality standards that such a child development program must meet?

### Box 2. Unregistered Preschools

Consultancy missions to LICs and middle-income countries between 2008 and 2018 observed that many children in developing countries are attending unregistered private preschools. Remarkable examples include Uganda (Behrman & van Ravens, 2013) and Nigeria (van Ravens, 2011). Fees are usually low, but so is quality. This makes it hard for owners to obtain a license, which explains why they operate under the radar of local officials and the inspectors. Bureaucratic hurdles and application fees also discourage providers from registering.

To estimate the scale of this informal subsector, one can compare the preschool attendance rates from household surveys (which capture children who attend any kind of preschool, as reported by parents) with official enrollment statistics (which capture only children in registered and/or licensed preschools, as reported by schools) (DeStefano et al., 2018). Zaw et al. (2021) analyzed data from household surveys (2010–2016) and found that 72 percent of the children in a sample of 92 developing countries were attending preschool education nationwide. This is much higher than official enrollment in roughly the same period in LICs (16 percent) and LMICs (51 percent).

In urban areas, Zaw et al. (2021) found 80 percent attendance on average, which is interesting in light of a study by Innovation for Poverty Action (Bidwell & Watine, 2014) that found attendance rates of around 85 percent (arithmetic average) in four peri-urban settlements near African metropolises.

Two contraindications should also be mentioned. Merseth King et al. (2019) found, generally, more-moderate gaps between attendance and enrollment, and an in-depth study of the situation in Nigeria (van Ravens, 2011) revealed that some of the children who were counted as attending preschool were actually in primary school. This discrepancy may occur more widely than has been documented.

### Parameters: Dosage, Duration, and Student–Teacher Ratio

It is important that any preschool program meets the process and structural quality standards that have emerged in recent years from scientific research and practical experience. For the Preschool Entitlement, this might be even more critical, because failure to meet these standards would affect not only affect the early development of children who attend the program but also the credibility of this policy instrument. This section, therefore, addresses three aspects of structural quality:

- Dosage: the number of hours per day, days per week, and weeks per year
- Duration: the number of years the program covers
- Student–teacher ratio: the number of children supervised by one teacher

Other factors that influence quality—such as teacher competencies, learning materials, curriculum, school management, and relations with parents—are addressed in a later section that focuses on conditions, including accreditation.

The analysis that underpins this section can be found in Appendix A, which shows that the current state of research does not clearly answer questions about the ideal dosage, duration, and student–teacher ratios. However, the objective of this section is not to be prescriptive but to offer suggestions regarding key parameters as a basis for a costing exercise that we present later in the paper.

### Dosage

Provided that a preschool program is characterized by regularity and continuity, the number of hours per day may be as limited as 2 or 2.5 hours. On an annual basis, 450 hours appears to be sufficient. For our calculations, however, we propose 600 hours per year (3 hours per day, 5 days per week, 40 weeks per year) for the following reasons:

- Dosage is only one of multiple factors that influence quality, others including teacher competencies, curriculum and content, materials and inventory, and safety and hygiene. If dosage is set at the bare minimum, all the other factors must be optimal for sufficient quality. If even one other factor is suboptimal, quality will suffer.
- More practically, providing not 2 or 2.5 but 3 hours per day can be seen as a small but not insignificant compromise between the child development and childcare functions of preschool education. Even if only 2 hours per day might strictly be needed for child development, raising it to 3 hours can make an important practical difference in the daily lives of families. Parents have more time between dropping off the child at the center and picking the child up, time they can use to go to the market, work at a part-time job, work in the vegetable garden, or undertake other tasks. A 3-hour program can be a good baseline for buying extra hours of childcare if the family so desires.

Some HICs have experience with entitlements of around 600 hours. The state of New South Wales in

Australia introduced a 600-hour program for children in the last year before primary school in 2016 (New South Wales Government, 2021), whereas England, where primary school starts at age 5, introduced a 570-hour program for all children of ages 3 and 4 in 2010. In 2014, this was extended to age 2 for children with special needs and from low-income families, and the dosage was doubled for the entire group to 1,140 hours in 2017 (Melhuish & Gardiner, 2021). Scotland and Wales took similar steps (Scotland Government, 2022). Melhuish and Gardiner (2021) evaluated the English program thoroughly and included a comparison between the outcomes of the program in the more-traditional settings for preschool versus the outcomes of the program provided on a private, voluntary, and independent basis. They found that both settings yield positive outcomes. The more-traditional settings had a small advantage in terms of cognitive development, and the private, voluntary, and independent settings had a small advantage in terms of socio-emotional strengths. The evaluation suggests that preschool education can safely expand beyond its traditional boundaries, provided that quality standards are set and met.

A slightly longer program of 4 hours per day was introduced in 2012 in rural Uzbekistan with support of the World Bank. Parents received the program with great enthusiasm, causing the government to plan for universalization by 2021 (World Bank, 2018). The Ethiopian “O Class,” which offers 3.5 hours per day of school preparation (Woodhead et al., 2017; Both et al., 2018), and the Katchi classes in Punjab, Pakistan (Neuman & Powers, 2021), also saw rapid expansion. A comparable program in Sri Lanka is particularly relevant to the Preschool Entitlement. Here, the creation of new facilities went hand-in-hand with the improvement of existing facilities to meet national standards, and brokering discussions took place on how to make public funding available to private providers. This process was supported by training for teachers and assistants, revision of the curriculum, awareness-raising programs for parents, and sensitization of local communities (World Bank, 2020b).

## Duration

Between birth and age 3, children are best cared for at home, ideally with the support of parenting programs (World Health Organization, 2021). Because preschool ends at age 6 for most of the world's children, the choice is between providing 3 years of preschool with entry at age 3, 2 years with entry at age 4, or 1 year with entry at age 5.

Intuitively, one might expect that entry at age 3 is ideal because it exposes children to the maximum amount of preschool experience. However, an evidence-based choice between the three options is difficult to make because studies that investigate the impact of distinct years of preschool draw differing conclusions. In general, the literature review in Appendix A tends to suggest an ideal: attending 2 years of preschool is better than attending just one year, but beyond 2 years, preschool may have only limited impact and, eventually, perhaps a negative impact.

A duration of 2 years, starting at age 4, might also be optimal if we take some of the more practical and cultural aspects of preschool attendance into account, as illustrated by the case of Timor-Leste (Box 3).

The lessons from this country case might have wider relevance. Given the daunting challenge of enrolling all children ages 3 to 6 worldwide in preschool, and given the slow pace of expansion in the past, especially in LICs, governments may consider the option of starting at age 4 and initially providing 2 years of preschool education. In practice, obviously, the choice is entirely up to governments, but we select the option of providing 2 years of preschool education as a basis for the costing exercise we present later. As a consequence, parental education or nurturing care would be continued at least until age 4. This would result in an arrangement recommended by the Consultative Group on Early Childhood Care and Education in its policy statement “The Four Cornerstones” (Zimanyi et al., 2007).

## Student–Teacher Ratio

The ideal world and the real world are far apart when it comes to determining the optimal student–teacher ratio for a child development program. Although

### Box 3. Prioritizing the 4- and 5-Year-Old Children of Timor-Leste

A preschool GER of 6 percent was one of the reasons the government of Timor-Leste joined hands with UNICEF in 2014 to develop a plan to accelerate the expansion process. An interesting mechanism was already available: several NGOs were (and are) active throughout the country—especially in remote mountainous areas—in creating preschool institutions with the strong involvement of local communities. The lack of specialized teacher training capacity makes it unlikely that qualified teachers can be attracted to these community-based institutions, so the NGOs train local people. During a 4-year period of leniency, each of these new institutions is allowed to operate outside the government framework until the government “takes over” (as it is called) these institutions by means of official registration and regular funding. After each government takeover, the NGO redirects its capacity to create a new institution. This way, the NGOs have always a fair number of new preschool institutions in the pipeline.

However, mobilizing the human and financial resources to bring all children ages 3 to 6 on board remains a challenge for both the NGOs and the government. Moreover, group interviews with parents revealed a great reluctance to enroll their youngest. Most of the 3-year-olds are not toilet trained, which parents considered to be prohibitive for having non-family members care for them. And in the more mountainous parts of the country, as well as in jungle areas, parents considered their 3-year-old children too young to walk to preschool, and transportation was often problematic. Finally, 3-year-olds require a smaller group size when in single-age groups, whereas in multi-age groups, it is challenging for the teacher to give them sufficient attention.

These were reasons to advise the government of Timor-Leste to focus on enrolling only the 4- and 5-year-olds, and to leave the 3-year-olds for later (but without denying access in those areas and to those groups where it was already common for 3-year-olds to attend). This recommendation went hand-in-hand with advice to extend parental education to age 4, thus maintaining a continuum of care.

Source: van Ravens et al. (2015).

clear-cut and evidence-based statements about the maximum number of children per teacher cannot be found, the general recommendation in the literature (see Appendix A) is that one teacher or assistant should tend to no more than 10 children. In practice, this benchmark is not even met in HICs, where there is one teacher for every 14 enrolled children, not to mention UMICs (17), LMICs (20), and LICs (34). Indeed, “in most low- and middle-income countries



the childcare and early learning workforce is plagued by similar challenges: shortage of practitioners, lack of training, lack of support, poor pay, and high turnover” (Devercelli & Beaton-Day, 2020, p. 29). Increasing the number of trained teachers is difficult because in many countries, the influx into teacher training is throttled by both the limited capacity of the institutions that provide it and the insufficient number of youth with the qualifications to enter it. UNICEF (2019a, p. 81) suggests that “Education ministries can hire greater numbers of teachers with initially lower academic qualifications but who are carefully selected and supported to ensure they are nurturing individuals capable of providing a positive learning experience for children.”

A concrete example of such an interim workforce, as UNICEF calls it, can be found in Timor-Leste, where the government allows a 4-year period of leniency to new community-based preschools, under surveillance of an NGO (see Box 3). In parts of Pakistan and Colombia, young women ages 18 to 24 with a minimum of a 10th grade education are being trained to become preschool teachers. Once they are employed, they receive monthly supervision and regular professional development opportunities (LEAPS—Youth Leaders for Early Childhood Assuring Children are Prepared for School, 2022). Hong Kong chose a gradual approach to upskilling the workforce in the 1980s by setting the goal of certifying 45 percent of preschool teachers in 5 years’ time, increasing this to 90 percent in another 6 years (Bendini & Devercelli, 2022).

Foreseeing that such arrangements can facilitate the implementation of the Preschool Entitlement as well, and considering that a reduction of the student–teacher ratio is likely to lead to better outcomes (Ganimian et al., 2021), we assume for our costing exercise that the student–teacher ratio in LICs can be reduced from 34 to a more-acceptable 25. For the other countries, it is assumed that the current ratios are maintained.

#### Summary of the parameters:

- **Dosage:** 600 hours per year
- **Duration:** 2 years
- **Student–teacher ratio:** 14, 17, 20, and 25, in HICs, UMICs, LMICs, and LICs, respectively.

We emphasize that these parameters should not be seen as recommendations; governments are autonomous in setting standards for their preschool programs. The parameters are merely meant as a basis for an indicative estimate of the costs of the Preschool Entitlement, which, in turn, sets the stage for exploring funding options.

### Providing Additional Hours of Childcare

An essential feature of the Preschool Entitlement is that it enables families, local actors, and national associations to expand the three-hour program with additional hours of childcare. This can be done in several ways and with relatively low additional costs. The following examples are inspired by observations made during field missions in LICs and LMICs.

- Parents of children who attend the child development program may ask that the provider care for their child for a fourth hour in exchange for payment of a small fee. In a two-shift schedule, the classroom can be made available for an hour between the two shifts and for another hour after the second shift.
- Parents who make use of extended stay can agree to either hire a caregiver jointly or take turns watching over the children themselves on a pro bono basis.
- Because the 600-hour program applies to all, it would also apply to children in a full-day childcare program. For them, the program would be embedded in that full-day program. For every child, the provider would receive a per capita compensation for the 600-hour program. The extras would be funded from different sources, such as parents and/or their employers, making this a public–private arrangement.
- In Addis Ababa, the municipality created several public daycare facilities for the many single working mothers in that city. These women cannot afford high fees, so the costs to the municipality are relatively high, limiting the expansion of this initiative. But with the introduction of the Preschool Entitlement, the national government would finance three hours per day, which means that the City of Addis would spend less per institution and could open more of these

institutions on the same budget. The program would be a public–public partnership between national and local governments.

Box 4 illustrates the kind of process the Preschool Entitlement could spark locally. The story is inspired by concrete observations in Kenya, Tanzania, Uganda and Indonesia.

Again, this is just an example. Countless possibilities open up, and it is entirely up to actors at the local level—as well as non-state actors at regional or national levels—to develop the arrangements that would best fit their contingencies.

But rights come with obligations—entitlements come with conditions. It is through these conditions, discussed in the following section, that governments can pursue policy objectives regarding quality, prevent misuse, and control costs.

## Conditions

When we say that every child in a country has a right to receive 600 hours of preschool education for one or more years, we speak of an entitlement. The government—grantor of the entitlement—has the opportunity to attach conditions to the entitlement, meaning that it can demand that both the service provider and the beneficiary comply with several requirements. This makes the entitlement a potentially powerful instrument to realize certain policy outcomes. In this section, we present some examples.

## Quality and Accreditation

Box 2 introduced the issue of unregistered preschools. Driven by high levels of GDP growth since the start of the millennium, many developing countries have seen booming daycare sectors, even in peri-urban settlements, where many families have become disconnected from the traditional informal childcare networks in the villages from which they migrated. Much of this expansion is taking place in the private subsector, where centers at the lower end cater to the working poor who have little to spend, so quality and safety are not guaranteed.

### Box 4. Example of a Possible Local Initiative Sparked by the Preschool Entitlement

Childcare is a universal need. Parents across the globe and in all branches of working life require a facility where competent people care for children who are too young for school but too old to be taken along during work. At a tea plantation in Indonesia, a local NGO has made attempts to create a facility for children ages 3 to 6 but cannot finance it sustainably. With the Preschool Entitlement, this NGO would have the certainty that it could hire a teacher for at least 3 hours per day. Confident in the longevity of the project, the local government could join hands with the NGO and the plantation to build classrooms and latrines. Once a space is available, parents might decide to take turns tending the children in the afternoon. The plantation could hire the teacher for a few hours more, while the NGO could train some of the mothers to act as part-time classroom assistants.

This story illustrates that even though the entitlement does not cover all costs, it can function as that critical element of certainty that enhances trust and unlocks the investment potential of participants and local stakeholders.

In general, in low- and high-cost preschools alike, “there is an unfortunate trend of academic pushdown of early literacy and numeracy connected to some extent with the increased use of learning measurements and standardized tests, often promoted by international agencies” (Hartwig, 2020, p. 12). Parental pressure, too, can lead to programs that might emphasize cognitive development and be developmentally adverse (EducationWorld India, 2022).

The 600-hour entitlement would intervene in this dynamic market in the following way. Accreditation would be compulsory for providers to be eligible to receive financial compensation for each child in attendance, and this compensation would be calculated in such a way that providers could indeed deliver the program at the standards the government demands. In other words, the compensation would equal the normative cost price. Let us assume that in a given country, the entitlement amounts to the equivalent of \$10 US dollars per child per month. This means that for every child of the proper age who attends the program, the provider can claim \$10 dollars from the authority that administers the Preschool Entitlement, but only on condition of a previously acquired accreditation. This accreditation can cover any aspect of quality that policy makers

may value: teacher qualifications, continuing professional development, supervision, use of the national curriculum, content and materials, safety and hygiene, or other parameters. The authority will check regularly to determine whether the preschool continues to operate at its accreditation level and will revoke the accreditation upon a negative assessment. In fact, the accreditation can apply for a specific time frame so that the provider must renew it on a regular basis to continue operating.

This rather strict set of rules—with funding on the condition of accreditation and actual service delivery—does not exclude the possibility of supplementary measures to support service providers, for example by soft loans or local subsidies for upfront investment and by subsidizing teacher training. The case of Sri Lanka that we used previously can serve as an illustration. Mitigation of the rules may take place when attendance drops in times of crisis. Leniency can always be applied as long as the incentive to enhance and maintain quality persists.

## Oversight

Accreditation implies continuous monitoring of whether requirements are met. Multiple actors can be involved in the process of oversight: district education offices, district health offices, inspectorates, and others. Oversight should also include tracking children's regular attendance to ensure providers do not claim money for absent children. As in any per capita funding system, the risk of "ghost students" is real; strict surveillance is needed to prevent misuse of the Preschool Entitlement.

In many countries, however, the current state of the oversight function for preschool education is of great concern. UNICEF (2019a, p. 84) states that "quality assurance is widely neglected or under-resourced." Technically, the costs of upgrading the oversight function are relatively modest,<sup>†</sup> but political will and integrity are crucial to pursue effective oversight. Human resources constitute another challenge. Inspectors and education advisors are usually recruited from the teaching workforce and from teacher training institutions, but both are urgently

needed for the expansion of the preschool system as such. These problems must be resolved before introduction of the Preschool Entitlement even on an experimental basis. The LEAPS initiative in Pakistan and Colombia, mentioned in the previous section, is a good example of how on-the-job support of new preschool teachers can be an integral part of a preschool expansion strategy.

Because unregistered preschools operate without legal status, it is difficult to engage them in a national policy initiative. Governments could resolve this by publishing a media statement announcing a period of leniency (e.g., 4 years as in Timor-Leste; see Box 3) during which these institutions are allowed to operate without accreditation. This would give them time to apply for assistance and obtain the accreditation.

## Timely Enrollment

The grantor of the entitlement can also demand and enforce that children enroll in preschool at the proper age. Prohibiting underage enrollment in primary school would be the other side of the same coin, though in practice, we often see that such is already forbidden but happens anyway. This is a result of three pressures:

- In many cases, primary schools have abolished fees, but preschools have not. Therefore, for some parents—perhaps many—primary schools function as free daycare.
- This preference for primary school is encouraged by the longer school day. In Dar es Salaam, for example, a public preschool closes at noon, whereas the primary school on the same premises closes at 2 p.m. (van Ravens, 2010b). For many parents, this makes an important difference, causing them to opt for underage entry in primary school.
- If no preschool is available in the vicinity, the temptation for underage enrollment in primary school is even stronger.

The Preschool Entitlement eases each of these three pressures. It makes preschool more widely available, lowers costs to the parents, and increases average hours per day (assuming that parents and stakeholders buy extra hours, in addition to the 3 hours of the child development program). Following

<sup>†</sup> For example, ensuring a bimonthly visit of half a day to each preschool teacher will increase overall salary costs by about 1.25 percent.

the analysis of Crouch and Merseth (2017), a right-age enrollment policy will eventually free up a significant amount of misspent financial resources. This money can then be used to fund part of the Preschool Entitlement.

### **A Level Playing Field for Public and Private Providers**

The proposed scheme would not discriminate between public and private institutions. Both would need to obtain accreditation to claim the entitlement. The scheme would level the playing field. In fact, it redefines public and private: the emphasis would no longer be on public versus private providers but on a public service (the 600-hour program) versus predominantly private elements such as additional hours, meals, and sleeping facilities. Providers could be preexisting preschool institutions, whether public, for-profit, faith-based, or community-based; Bendini and Devercelli (2022) provide a complete overview of such non-state actors. But a provider could also be a person or organization new to the preschool sector in response to the new policy. A village market authority could start a facility for the mothers who work at the market in the morning. The chair of the national association of carpenters could encourage her members to join forces in the larger towns and start local facilities; she might support this actively with grants and training. The local hairdressers' association, the village elders, the club of local shop owners, the tea plantation, the management committee of the social center, or a religious organization: all could take the initiative as long as their preschool programs are of sufficient quality to obtain the accreditation.

This is not to say that “anything goes.” Clearly, a village market, for example, can only be a good setting for the delivery of a preschool program if a space can be found or created where children and teachers can interact without being disturbed by the activity from the market; these aspects must be included in the assessments for the accreditation.

Institutions may emerge to assist aspiring providers in qualifying for accreditation. Governments may want to subsidize these advisory services and teacher training for the underqualified.

### **Local Autonomy**

Local self-governments—jurisdictions (e.g., municipalities or districts) with a large degree of autonomy—also could step in (see the “Governance” section below for more details on the definition of local governments in the literature on decentralization). This would lead to public–public partnerships—as in the case of Addis Ababa—in which the local authority would, for instance, subsidize a fourth and/or fifth hour. But the mayor in the next village may have a different plan; she may prefer a sliding scale whereby the fourth hour is subsidized for 75 percent, the fifth at 50 percent, and so on. This endless array of local choices would reflect a genuine form of decentralization with meaningful local variation but with few of the negative side effects that usually come with decentralization, such as underfunding and socio-economic disparities, as the national government would underwrite provision of the 600-hour program for all children nationwide. To co-finance additional hours and services, disadvantaged local self-governments could use equalization grants and participatory budgets, as described in the later section on governance.

### **Phasing and Targeting**

Few countries are likely to have the financial resources to implement the Preschool Entitlement universally at once. Phased introduction can give governments time to build a budget line gradually and allows for monitoring, evaluation, and adjustment in the early stages of the implementation. We advise targeting certain geographical areas rather than to target certain groups nationally or to start with a smaller number of hours. This is because the entitlement is supposed to spark local initiatives involving multiple stakeholders. Whether this works can only be monitored if the entitlement is implemented to its full design.

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### **Indications of Macro-Level Costs**

Governments generally need a rough indication of the costs of a policy instrument before considering the instrument, and they will need a precise estimation of costs before they can decide to implement. This section does not provide that precise estimate—this can only be done at the country level, using country-

specific data. This is a prerequisite for decision-making and requires substantial time investment in research, analysis, and negotiation. However, this section does indicate the order of magnitude of the financial resources needed to provide the 600-hour program universally for 2 years. This can be the basis for an assessment of the financial feasibility of the Preschool Entitlement, which we will turn to in the next section.

This cost indication is developed in two phases. First, we estimate the salary costs based on three factors: teacher salary, size of the eligible population, and student–teacher ratio. Second, we add a sensitivity analysis to assess the influence of other factors that affect costs.

For the first step, we use a dataset that presents teacher salaries (expressed as a multiple of per capita GDP) for 76 countries (ranging from LICs to HICs). These salaries have been multiplied for each country income category with the numbers of eligible children (expressed as a percentage of the total population). We then divide the outcome of this multiplication by the student–teacher ratio, following this formula:

$$\frac{(\text{salary as multiple of per capita GDP}) \times (\text{eligible group as share of population})}{\text{student–teacher ratio}}$$

Because per capita GDP equals GDP divided by population, population appears as a factor in the denominator as well as the numerator. Therefore, it can be deleted so that the outcome is expressed directly as a share of GDP, independent of size of population. Appendix B provides a detailed account of the salary and population data and their sources. This appendix also presents inputs and outcomes for the 76 individual countries.

In regard to the student–teacher ratio, we assume that one teacher can deliver the 3-hour program in two shifts per day. On an 8-hour working day, a teacher would have 2 hours left for preparation, talks with parents, and other activities. Alternatively, a part-time teacher could tend to one group of children per half day for half the salary, combining this with a second part-time job or livelihood during the rest of the day; this makes no difference for the estimate. Even though that second job or livelihood may well be the care of the same group of children for the rest of the day, this would be funded from other streams of funding. Therefore, again, this makes no difference for the estimation of the entitlement’s cost. As mentioned previously, we assume group sizes of 25, 20, 17, and 14 for LICs, LMICs, UMICs, and HICs, respectively. Because of the two-shift model, these group sizes are multiplied by a factor of two to obtain the actual student–teacher ratios: 50, 40, 34, and 28. Table 1 presents the estimate’s three factors and the outcomes.

Table 1 shows that salaries as a multiple of per capita GDP are higher in countries with lower income levels. Expressed in concrete currency, though, the salaries of teachers in LICs are much lower than elsewhere. In LICs, per capita GDP is generally so low that a teacher must earn about four times that per capita GDP for an acceptable income level, whereas a teacher in an UMIC might have a higher standard of living with only twice the per capita GDP of his or her country. This discrepancy is an important issue, and we will return to it in the next section.

In part as a result of the higher salaries (expressed in per capita GDP) and in part as a result of higher fertility rates, the overall salary costs are higher in LICs than in the other income categories. This difference is mitigated by the higher student–teacher

**Table 1. Estimate of the Preschool Entitlement’s salary costs**

	Salary as % of GDP	Children as % of population	Student–teacher ratio	Costs as % of GDP
LICs	3.9	5.8	50	0.46
LMICs	3.3	4.0	40	0.32
UMICs	2.0	2.7	34	0.16
HICs	1.2	2.2	28	0.09

Notes: LICs = low-income countries; LMICs = lower-middle-income countries; UMICs = upper-middle-income countries; HICs = high-income countries.

Source: See Appendix B.

ratios in LICs. Had we assumed equal student–teacher ratios across the four income categories, the cost differences would have been even more pronounced.

We have discussed the UNESCO benchmark for investment of 6 percent of GDP in education and the UNICEF recommendation to invest 10 percent of the education budget specifically in preschool education. The combination of the two results in a preschool budget of 0.6 percent of GDP. Table 1 shows that only the value for LICs comes close to that combined figure. From this, it seems clear that the Preschool Entitlement is a financially feasible policy instrument. We will elaborate on this in the following section.

The second step in cost estimation is the sensitivity analysis. This begins with identifying the main factors that were initially overlooked in favor of the focus on teacher salaries. Below are three factors that tend to cause overestimation if ignored, followed by two that tend to cause underestimation.

### Overestimation

- (a) The estimate above is based on empirical data on teacher salaries. For the most part, these teachers have a fair number of years of service. But in the first phase of an expansion process, many preschool teachers in the system will be at the start of their careers, and their salaries are bound to be lower. The difference may initially be as much as 20 percent, though this may decrease over time.
- (b) In the first step of this estimation, we assumed that all children in the relevant age brackets are enrolled. But in reality, it is possible that upper-class families might “opt out” of the entitlement, partly because they prefer home-based childcare, partly because the government may exclude expensive private institutions from the arrangement. This effect can range from small to significant, but based on the large share of private providers among preschool providers in developing countries, we expect 20 percent will opt out.
- (c) In the first step, we assumed that 40 weeks of preschool education will be provided per year. However, we estimated teacher salaries on a full year’s basis. In reality, it is likely that governments continue teacher pay during some, but not all, of

the remaining 12 weeks. We expect this to make the costs 10 percent lower than initially estimated in the first step.

### Underestimation

- (d) The exercise is based on teacher salaries only and excludes other recurring costs, such as materials, utilities, depreciation of inventory, and the support system (oversight, mentoring, continuing professional development, and research and development, such as updating curricula and content). Including these costs might increase the total costs by about 25 percent.
- (e) The exercise also ignores capital investment such as classrooms and latrines. In practice, this error may be limited; the experience with community-based ECD centers, for example, is that local people are very creative in using existing spaces and in building and equipping classrooms using parental assistance, local materials, and traditional architecture. In the next section, we will further discuss this local investment potential under the heading of decentralization. As capital investment differs fundamentally from recurrent expenditures, it is difficult to factor it into the equation. Initially, ignoring capital investment may lead to an underestimation of total costs of 20 percent, but eventually, when all classes and facilities have been built or refurbished, this figure is bound to decrease.

There is a potential trade-off between overestimation (a) and underestimation (e): the average salary may increase with time as teachers accumulate years of service, whereas investment costs may decrease when most of the required classrooms have been built.

As can be seen in Table 2, the costs after adjustment are clearly lower than the costs before adjustment, especially in LICs and LMICs.

Note that the overall costs of the Preschool Entitlement may not be the only government spending on preschool education. In countries where the government is currently subsidizing full-day programs before the introduction of the Preschool Entitlement, the government must choose: does it continue to subsidize programs over and above the three daily hours of child development, or not? In a plan for Montenegro (Prisca et al., 2014), the political

**Table 2. Sensitivity analysis**

	Salary costs before adjustment	Overall costs after adjustment
LICs	0.46% of GDP	0.38% of GDP
LMICs	0.32% of GDP	0.27% of GDP
UMICs	0.16% of GDP	0.14% of GDP
HICs	0.09% of GDP	0.08% of GDP

Source: Calculations by the authors based on data from Table 1 (see Appendix B) and based on the over- and underestimations a, b, c, d, and e.

premise was that the new child development program would be financed by increasing fees for the full-day kindergarten program (which was feasible because the latter program already served about 50 percent of children), meaning that government would continue to finance most of the full-day enrollment, on top of the costs of the child development program. This additional government spending is not included in the outcomes in Table 2.

## Finance and Revenue

Here we discuss how governments might cover the costs of the Preschool Entitlement and what benefits they would receive in return.

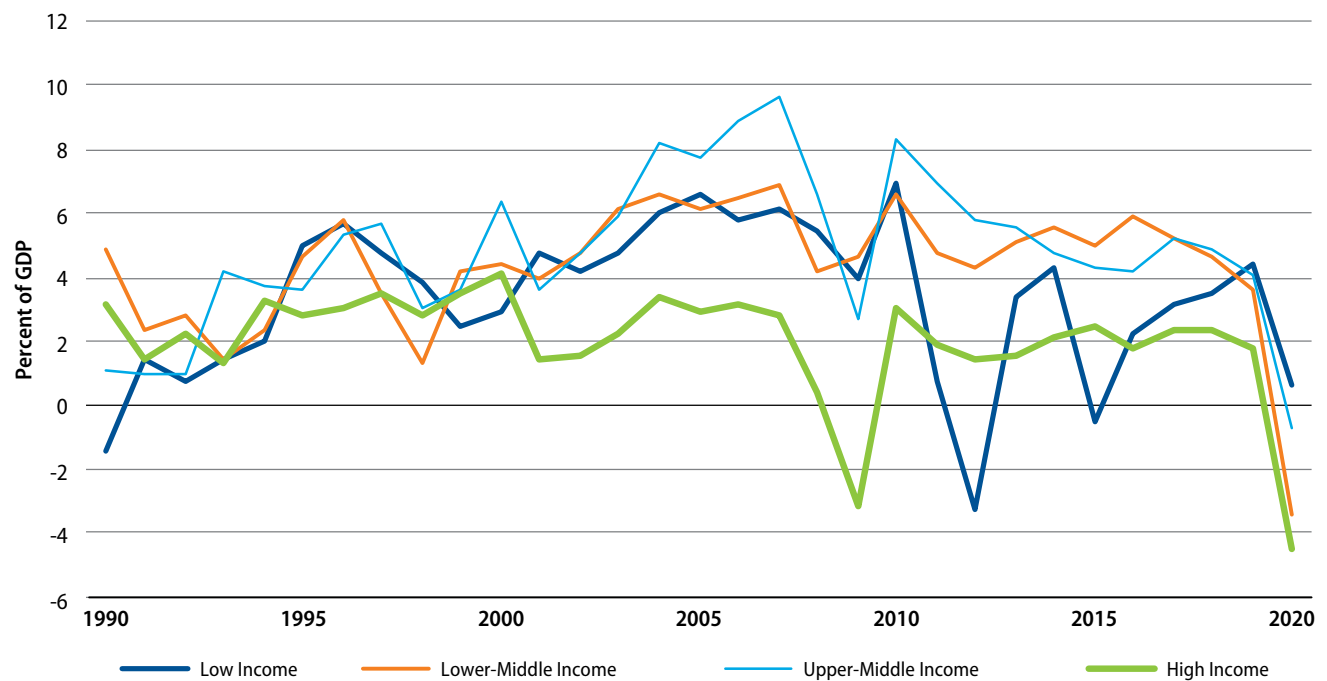
To finance the Preschool Entitlement, some governments could redirect some of their existing preschool budgets. The aforementioned example of Montenegro illustrated that if a substantial number of relatively privileged families already have access to full-day care, it is a matter of social justice to introduce or increase fees to free up the budget to finance much of the 600-hour universal Preschool Entitlement. A second potential financial source is the money governments save by reducing underage entry into primary school (Crouch & Merseth, 2017). This will become easier after introduction of the Preschool Entitlement because of the greater attractiveness of preschool education in terms of subsidy, the larger number of hours per day (assuming that parents pay for extra hours), and the increased density of the preschool network.

If these two sources are insufficient, additional funding may be possible if government budgets grow at the same pace as GDP does. Figure 3 shows long-term annual GDP growth by income category.

Figure 3 shows that LICs have caught up with the rest of the world since the beginning of the 1990s.

From the year 2000 onward, the lowest levels of GDP growth have been in HICs. A partial explanation for the apparent paradox that LICs generally have higher growth rates than HICs is that the former have greater scope for increasing productivity (e.g., by investments, innovations, more and better education, and improved management and organization). But eventually, the productivity gap will narrow as LICs close in on other countries. It also appears that the economic crisis of 2008 had a more-profound effect on HICs and UMICs than on LICs and LMICs. At first glance, the same seems to be the case for the impact of COVID-19, but the long-term development is uncertain. If countries in all four income categories eventually return to their pre-COVID-19 levels of GDP growth, and if fertility rates continue to decrease (SDG Knowledge Hub, 2021), then even LICs should be in a position to free up substantial resources for preschool: the education of a decreasing number of children (as a share of the population) will be financed by increasing numbers of working adults. This favorable situation will last for a few decades, but is bound to come to an end when a large share of the workforce retires (as we now see in HICs), claiming pensions rights and increasing health care expenditures. Indeed, although conditions are currently favorable for universalizing preschool, it is also urgent that this be done quickly. Tomorrow's relatively small workforce must be highly productive to support tomorrow's relatively large inactive share of the population. Universal preschool is crucial in strategies to achieve this.

However, GDP growth can only contribute sufficiently to the funding of preschool education in countries that collect an adequate amount in taxes. An indicator to assess this is the tax revenue to GDP ratio: the share of GDP that a government appropriates to finance public services and investments. In 2020, the global top 10 consisted

**Figure 3. GDP growth by income category (1970–2020)**

Source: Created by the authors using data from the World Bank (2020a)

of nine European Union (EU) countries plus Cuba, where the government collects about 40–45 percent of GDP for the common good (Wikipedia, 2020). These countries have no difficulty providing quality preschool education to all; the costs of the Preschool Entitlement would only be a fraction of these countries' tax revenue. But nearly two-thirds of the world's countries collected less than 25 percent of their GDP in taxes in 2020, and 20 of those countries collected less than 10 percent. Unfortunately, the tendency is that the poorer the country, the higher the costs of the Preschool Entitlement expressed in per capita GDP (as the previous section showed), but the lower the tax-to-GDP ratio. The implication is that an LIC that collects only 10 percent of GDP worth of taxes would have to invest no less than 4.6 percent of tax revenue to finance those 2 years of 600 hours of preschool attendance. Appendix C elaborates on the crucial role of taxation in the feasibility of financing of the Preschool Entitlement.

Much has been written about the significant returns that can be expected from investments in preschool education. Better health, greater success in education, higher productivity, and lower crime are some of the many returns when governments invest in

preschool (Engle et al., 2011; Richter et al., 2017). However, some take time to fully materialize. This makes politicians, who often think in the short term, hesitant to invest.

We can also look at government spending on the Preschool Entitlement as an “injection” of money in society. Such benefits tend to materialize more quickly. Although economists of different schools have different views on this, some or many of them agree that money the government spends on teacher salaries all over the country is not lost, but will reach broad layers of society (Bartik, 2013). As a result of the entitlement, more teachers will earn more money and spend it locally. With more money and less time, teachers may hire someone to clean the house or work in the vegetable garden, passing on a part of their income to other families. Parents, in their turn, will have better access to daycare and more time left for their jobs. One could say that the money spent on the entitlement is like a conditional cash transfer, whereby some people (teachers) provide services and others (parents) purchase these. Most of the money is likely to remain in domestic, and even local, circulation.



Bartik (2013) warns that if one accounts for the tax revenue that is needed for the investment in preschool, the benefits are more modest. However, although this is true for the national level, it does not necessarily hold for the local level. If a country decides to invest in preschool in deprived areas (where tax revenue is limited), this implies a transfer from richer to poorer areas, which can still be seen as an investment not just in preschool but in local development more broadly. Moreover, if an international donor invests in preschool in a recipient country, the taxpayer in the donor country pays the bill. This brings us back to LICs.

Above, we noted the tension between the relatively high costs of the Preschool Entitlement in LICs when expressed in per capita GDP and the low tax-to-GDP ratios in these countries. However, as mentioned in the previous section, if the costs of the Preschool Entitlement are expressed concretely in a currency, they will be much lower in LICs than elsewhere. Therefore, international donors could consider supporting the implementation of the Preschool Entitlement in LICs. The cost-benefit ratio might be among the highest of donor-supported interventions. But it poses a dilemma that is fundamental to development assistance in general: by externally funding a critical service such as preschool education, donors are at risk of legitimizing weak tax collection practices. A good argument in favor of taking that chance is that universal preschool may eventually lead to populations that are more conscious of their civil rights and more willing to pay taxes for the common good.

Other benefits of preschool that emerge quickly are fiscal: the reduction of grade repetition in primary school and of underage enrollment in Grade 1 will directly reduce education spending. Considering the broader range of benefits, Van der Gaag and Tan (1997) compared the cost-benefit ratio of an ECD program in Bolivia with those of projects in sectors such as forest development, irrigation, livestock, and agriculture. They found the ratio of the ECD program to be significantly higher.

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## Governance

The governance of early childhood programs is an important determinant of their feasibility (Organisation for Economic Co-operation and Development, 2019). This section assesses whether the Preschool Entitlement requires flanking policies, how it fits in a country's decentralization strategy, and how it relates to programs in other sectors.

### Flanking Policies

Families at the bottom of the social ladder cannot afford supplementary hours of care on top of the daily 3 hours; this problem remains unresolved. One possible response could be the application of flanking policies, which are policies—partly issued by other ministries, partly by local authorities—that could accompany the Preschool Entitlement and allow it to function well in different contexts. It is normal for a policy principle to be imperfect and require supplementary measures. Policies are meant to be functional in a complex world, so they must be based on transparent principles, even if this creates a need for additional measures. Local examples of these measures might include funds from a municipality for the provision of additional hours of care or a faith-based organization that targets families at risk. A national example could be a ministry of social affairs or a trade union families can turn to for support.

### Decentralization

In recent years, many countries have decentralized, devolved, or deconcentrated certain functions from the national level to local self-governments such as districts, counties, and municipalities. Preschool education is often—possibly always—among the functions that have become the purview of local self-governments (Devercelli et al., 2016; Ponguta et al., 2019). Devercelli et al. (2016) have analyzed the implications for preschool education for four counties in Kenya, and Ponguta et al. (2019) did the same for Azerbaijan, Kyrgyzstan, Moldova, and Serbia. These studies found that although preschool is increasingly localized, other levels of education usually remain a national concern. This is also the case for the health care system and social protection system. As a result, preschool education is “orphaned” at the local level,

being the only locally administered function in the sphere of human development, with few local civil servants to appreciate its importance. Greater capacity is usually available for hard functions such as road infrastructure, sewage, and housing. Thus, preschool is often at risk of losing the competition for scarce local resources.

Decentralization of functions is usually accompanied by decentralization of budgets, but not always in quantities sufficient to fulfill all essential local responsibilities. In addition to these disbursements, local self-governments are often granted the right to retain certain local taxes, which gives greater substance to their enhanced autonomy. Nevertheless, some local self-governments are in a better position to obtain local tax revenue than others because of differences in demography and social geography as well as differences in political will and political skill. For example, Ponguta et al. (2019) found striking differences between local self-governments in Moldova, where mayors with excellent social skills and good contacts achieved significantly more progress than other mayors. To overcome such disparities, governments tend to grant a higher per capita contribution to deprived communities than to richer ones; this is why these disbursements are sometimes called equalization grants.

In rare cases, these grants are earmarked for preschool, as in Moldova, where they are safeguarding a relatively high level of preschool enrollment. More often, local self-governments are free to spend the equalization grants as they see fit. In those cases, preschool education is once again at risk of losing budget battles against other local priorities, such as festivals, sports facilities, or parks.

We can speculate that introduction of the Preschool Entitlement would change dynamics at the local level. The entitlement ensures, at the very least, the provision of 3 hours per day of preschool for all children, notwithstanding the initially weak position of the local civil servants who oversee preschool education. This means that preschool education becomes part of the reality on the ground in local self-governments across the country. Preschool will be introduced in places where people have never heard of it. From there, it is a smaller step to

expanding the provision of preschool and mobilizing additional resources for daycare. Even without obliging local self-governments to use part of their equalization grants for preschool, as in Moldova, the national government could stimulate this use by means of publicity campaigns, technical assistance, and peer learning.

The participatory budget is a policy instrument that developed in the wake of decentralization. To give more substance to decentralization, some national governments are granting budgets to local governments that they are relatively free to spend on what they consider important for their own development and well-being. In some cases—possibly in many or most cases—recurring expenditures (such as teacher salaries) are exempt from these participatory budgets. But materials for the construction of preschool classrooms and the purchasing of inventory are normally eligible for funding through this channel. In many local governments, there is a longstanding shortage of qualified teachers, and this limits political will: why build a classroom if there is no one to attend to the children and if self-financing that person is forbidden? Again, the Preschool Entitlement can break the stalemate and help unlock the potential for investments from local governments.

### The Multisectoral Nature of ECD

Local autonomy can also answer the question of multisectorality. Many experts agree that children must develop holistically and that this requires the joint impact of multiple early childhood services, stemming from multiple sectors and administered by multiple state agencies. This implies that early childhood services must converge at the local level, which requires locally adaptable monosectoral policies (LAMP) that enable local governments to create the service constellations that best fit their specific context (van Ravens, 2022). In some cases, this optimal local constellation may imply the integration of one or more of the relevant services, but it is the local government that makes that judgment and enforces the decision (though always within the boundaries of national standards safeguarded by accreditation and inspection). The Preschool Entitlement is an example of such a LAMP.

At the national level, nothing more is required than a one-off decision by ministries about the ECD services they provide, based on a common vision of child development. This is far-less complex than the frequently promoted concept of Integrated ECD, integrated national policies that prescribe integrated service constellations, rigidly predesigned at the national level. Trend analysis suggests that this governance concept caused a slowdown in the reduction of under-5 mortality (van Ravens & Yarosz, n.d.).

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## Next Steps

If countries receive the idea of a Preschool Entitlement positively, the next steps will include the following:

- **Elaboration.** We have been inspired by ongoing practices in a range of countries. These practices offer an empirical basis that can be explored. The information gathered can be used for elaborating the model, setting out the parameters in greater detail, providing a draft for accreditation standards, and developing more-precise cost estimations.
- **Discussion.** The elaborated model of the Preschool Entitlement can be discussed by experts and practitioners to improve the policy instrument. This discussion should be ongoing, extending into the following steps.
- **Specification.** The improved policy instrument could be tailored to a small number of countries or subnational entities using their concrete demographic and financial data as inputs.
- **Testing in theory.** Simulation techniques can be used to explore how the instrument might work in practice and to predict how families, providers, and communities would respond to the instrument once it is introduced.
- **Testing in practice.** The Preschool Entitlement can then be tested in practice in a small number of relatively well-demarcated jurisdictions such as small island states or geographically confined districts, counties, or provinces.
- **Clearinghouse.** If one or more pilot projects yield a good curriculum or a widely applicable set of accreditation standards, these and other tools

could be made available to other countries and jurisdictions that are considering the introduction of the Preschool Entitlement.

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## Conclusion

An entitlement is a government program providing benefits to members of a specified group (Merriam-Webster, n.d.). It defines the eligibility requirements of that group and specifies that program by determining its parameters and quality criteria. An entitlement can be seen as a concretization of right.

The general right to education dates from the Universal Declaration of Human Rights of 1948, and the right to preschool education, in particular, has been provisioned in many countries. Yet the right to preschool has not prevented the global deceleration of the expansion of this form of education in recent years.

We believe a concrete entitlement can contribute to a restart of the expansion process, and we have been looking for one that is affordable to governments—and in some countries, to governments and donors—and still brings the benefits that may be expected from a quality preschool program.

We have also looked for an entitlement that is governable. Decentralization made preschool education a local responsibility in many countries, but often without sufficient funding and quality assurance. However, if governments can be convinced to invest in an adaptable preschool program of three hours per day while strengthening the oversight function, decentralization might become an opportunity rather than a threat. Local autonomy—though always within national boundaries—can create the space for brokering among stakeholders, leading to preschool arrangements in which families may obtain additional hours of childcare, on top of the daily 3 hours guaranteed by government.

Whether this entitlement “works” cannot be predicted. Yet, the policy instrument that we propose is inspired by good practice in countries of different sizes and income levels, from Sri Lanka to Ethiopia and from Montenegro to Australia. We are grateful to benefit from these initiatives.

## References

- Ackerman, D., & Barnett, W. S. (2006). *Increasing the effectiveness of preschool programs*. Preschool Policy Facts. Rutgers. [https://www.academia.edu/3117209/Increasing\\_the\\_Effectiveness\\_of\\_Preschool\\_Programs](https://www.academia.edu/3117209/Increasing_the_Effectiveness_of_Preschool_Programs)
- Aga Khan Foundation. (2009). *Learning achievement of students in grade 1 in Kyrgyzstan*. Bishkek, Aga Khan Foundation.
- Aga Khan Foundation. (2020). *Early childhood development in the Kyrgyz Republic*. <https://www.akdn.org/where-we-work/central-asia/kyrgyz-republic/early-childhood-development-kyrgyz-republic>
- Arteaga, I., Humpage, S., Reynolds, A. J., & Temple, J. A. (2014). One year of preschool or two: Is it important for adult outcomes? Results from the Chicago longitudinal study of the child–parent centers. *Economics of Education Review*, 40, 221–237. <https://doi.org/10.1016/j.econedurev.2013.07.009>
- Balsera, R. M., Klees, S. J., & Archer, D. (2018). Financing education: Why should tax justice be part of the solution? *Compare: A Journal of Comparative Education*, 48(1), 147–162. <https://doi.org/10.1080/03057925.2017.1394743>
- Barnett, W. S., & Boocock, S. S. (1998). *Early care and education for children in poverty: Promises, programs, and long-term results*. SUNY Press.
- Bartik, T. (2013). *Early childhood programs as an economic development tool: Investing early to prepare the future workforce*. W.E. Upjohn Institute for Employment Research. <https://research.upjohn.org/bookchapters/148/>
- Behrman, J. & van Ravens, J. (2013) *Ex-ante benefit-cost analysis of individual, economic and social returns from proposed investment scenarios for pre-primary schooling in Uganda*. United Nations Children’s Emergency Fund Country Office. Also available at [https://www.janvanravens.com/?jet\\_download=427](https://www.janvanravens.com/?jet_download=427)
- Bendini, M., & Devercelli, A. (Eds.). (2022). *Quality early learning: Nurturing children’s potential. Human development perspectives*. World Bank. <https://doi.org/10.1596/978-1-4648-1795-3>
- Berg, V. (2021). *Free childcare in Scotland for 2, 3 and 4-year olds—Daynurseries.co.uk advice*. Daynurseries.Co.Uk. <https://www.daynurseries.co.uk/advice/a-guide-to-free-childcare-in-scotland-for-2-3-and-4-year-olds>
- Berlinski, S., Galiani, S., & Manacorda, M. (2008). Giving children a better start: Preschool attendance and school-age profiles. *Journal of Public Economics*, 92(5–6), 1416–1440. <https://doi.org/10.1016/j.jpubeco.2007.10.007>
- Bidwell, K., & Watine, L. (2014). *Exploring early education programs in peri-urban settings in Africa—Final report version 30*. Innovations for Poverty Action.
- Black, M. M., Behrman, J. R., Daelmans, B., Prado, E. L., Richter, L., Tomlinson, M., Trude, A. C. B., Wertlieb, D., Wuerml, A. J., & Yoshikawa, H. (2021). The principles of Nurturing Care promote human capital and mitigate adversities from preconception through adolescence. *BMJ Global Health*, 6(4), e004436. <https://doi.org/10.1136/bmjgh-2020-004436>
- Blatchford, P., Bassett, P., & Brown, P. (2011). Examining the effect of class size on classroom engagement and teacher–pupil interaction: Differences in relation to pupil prior attainment and primary vs. secondary schools. *Learning and Instruction*, 21(6), 715–730. <https://doi.org/10.1016/j.learninstruc.2011.04.001>
- Both, R., Cortellesi, G., Gebre, K., Kernan, M., Mussie, A., Sehalu, A. (2018), *Happy young learners: Psychosocial well-being of young children in Ethiopia. Report of a research study*. ICDI.
- Campbell, F. A., Pungello, E. P., Miller-Johnson, S., Burchinal, M., & Ramey, C. T. (2001). The development of cognitive and academic abilities: Growth curves from an early childhood educational experiment. *Developmental Psychology*, 37(2), 231–242. <https://doi.org/10.1037/0012-1649.37.2.231>
- Center for Global Development. (2018). *Teacher pay around the world*. <https://www.cgdev.org/blog/chart-week-teacher-pay-around-world-beyond-disruption-and-deskilling>
- Cheng, Y. (2014, October 1). *The Piramide Method*. Prezi. <https://prezi.com/2zsecejzk8nc/the-piramide-method/>
- Child Benefit Fiji. (2018). *Mobile Kindy Fiji*. <http://childbenefitfiji.com/mobile-kindy-fiji/>
- Chin, T. H., Bing, C. Y., Dhamotharan, M., & Che Mustafa, M. (2021). Issues and challenges in early childhood care and education centre registration process: What the operators say? *South East Asia Early Childhood*, 10, 53–62.

- Comenius Foundation for Child Development. (2009). *A good start. How to introduce alternative early childhood education services in local communities*. Comenius Foundation for Child Development.
- Crouch, L., & Merseth, K. A. (2017). Stumbling at the first step: Efficiency implications of poor performance in the foundational first five years. *Prospects*, 47(3), 175–196. <https://doi.org/10.1007/s11125-017-9401-1>
- Dahlberg, G., & Moss, P. (2007). *Beyond quality in Early childhood education and care—Languages of evaluation [DICE report]*. [https://www.researchgate.net/publication/227383645\\_Beyond\\_Quality\\_in\\_Early\\_Childhood\\_Education\\_and\\_Care\\_-\\_Languages\\_of\\_Evaluation](https://www.researchgate.net/publication/227383645_Beyond_Quality_in_Early_Childhood_Education_and_Care_-_Languages_of_Evaluation)
- Desalegn, H., Solberg, E., & Kim, J. Y. (2015). The Global Financing Facility: Country investments for every woman, adolescent, and child. *Lancet*, 386(9989), 105–106. [https://doi.org/10.1016/S0140-6736\(15\)61224-7](https://doi.org/10.1016/S0140-6736(15)61224-7)
- DeStefano, J., Merseth, M., & Shukri, M. (2018). *Early grade reading and mathematics initiative. KG data for decision making: Phase II national survey of families*. RTI International. <https://ierc-publicfiles.s3.amazonaws.com/public/resources/Jordan%20KG%20Data%20For%20Decision%20Making%20-%20Phase%20II%20Final.pdf>
- Devercelli, A., & Beaton-Day, F. (2020). *Better jobs and brighter futures: Investing in childcare to build human capital*. World Bank. <https://doi.org/10.1596/35062>
- Devercelli, A., Sayre, R., Anderson, J., Van Ravens, J., Aggio, C., Onsomu, E., & Gurgel, A. (2016). *Scaling up preschool in Kenya: Costs, constraints and opportunities*. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/762961482316633811/scaling-up-preschool-in-kenya-costs-constraints-and-opportunities>
- Education World India (2022). *Are pre-primaries succumbing to parental pressure for early reading, writing and numeracy*. <https://www.educationworld.in/are-pre-primaries-succumbing-to-parental-pressure-for-early-reading-writing-numeracy/>
- Engle, P. L., Fernald, L. C. H., Alderman, H., Behrman, J., O’Gara, C., Yousafzai, A., de Mello, M. C., Hidrobo, M., Ulkuer, N., Ertem, I., Iltus, S., & the Global Child Development Steering Group. (2011). Strategies for reducing inequalities and improving developmental outcomes for young children in low-income and middle-income countries. *Lancet*, 378(9799), 1339–1353. [https://doi.org/10.1016/S0140-6736\(11\)60889-1](https://doi.org/10.1016/S0140-6736(11)60889-1)
- ERI Economic Research. (n.d.). *Preschool teacher salaries by country—SalaryExpert*. <https://www.salaryexpert.com/salary/browse/countries/preschool-teacher>
- Etsey, K., Datta, V., & Chawla-Duggan, R. (2010). *Early childhood care and education in Ghana and Maharashtra*. [https://www.edqual.org/publications/policy-briefs/edqualpb9.pdf/at\\_download/file.pdf](https://www.edqual.org/publications/policy-briefs/edqualpb9.pdf/at_download/file.pdf)
- European Commission (Eurostat) & European Education and Culture Executive Agency (Eurydice). (2015). *Key data on early childhood education and care in Europe: Eurydice and Eurostat report (2014 ed.)*. Publications Office. <https://data.europa.eu/doi/10.2797/75270>
- European Education and Culture Executive Agency (Eurydice). (2019). *Key data on early childhood education and care in Europe (2019 ed.)*. Publications Office of the European Union. <https://data.europa.eu/doi/10.2797/894279>.
- European Education and Culture Executive Agency (Eurydice), Delhaxhe, A., Borodankova, O., & Motiejunaite, A. (2017). *Early childhood education and care 2014*. <https://data.europa.eu/doi/10.2797/53047>
- Evans, J. (2008). *Mountain Societies Development Support Programme Kyrgyzstan. Evaluation of the early childhood development program*. Aga Khan Foundation.
- Faas, S., & Wasmuth, H. (2019). Globalization, transformation, and cultures: Theoretical notes and perspectives on reconceptualization and international comparison in early childhood education and care. In S. Faas, D. Kasüsche, E. Nitecki, M. Urban, & H. Wasmuth (Eds.), *Globalization, transformation, and cultures in early childhood education and care: Reconceptualization and comparison* (pp. 1–14). Springer International Publishing. [https://doi.org/10.1007/978-3-030-27119-0\\_1](https://doi.org/10.1007/978-3-030-27119-0_1)
- Feed Magazine. (2016, December 16). *Madres comunitarias*. Feed. <https://feed.jeronimomartins.com/pulse/madres-comunitarias/>

- Ganimian, A., Muralidharan, K., & Walters, C. (2021). *Augmenting state capacity for child development: Experimental evidence from India*. National Bureau of Economic Research.
- Gibson, M., McArdle, F., & Hatcher, C. (2015). Governing child care in neoliberal times: Discursive constructions of children as economic units and early childhood educators as investment brokers. *Global Studies of Childhood*, 5(3), 322–332. <https://doi.org/10.1177/2043610615597149>
- Global Monitoring Report Team. (2019). *Concept note for the 2021 Global education monitoring report on non-state actors*. UNESCO Digital Library ED/GEM/MRT/2019/CN/2021, ED-2020/WS/7 No. 0000372188; p. 8. <https://unesdoc.unesco.org/ark:/48223/pf0000372188?posInSet=1&queryId=43f74241-9342-435a-bc1b-ae4f6c666b65>
- Hartwig, E. (2020). *Guidance on the importance of quality in early childhood learning and education in Latin America and the Caribbean*. UNICEF.
- Heckman, J. J. (2006). Skill formation and the economics of investing in disadvantaged children. *Science*, 312(5782), 1900–1902. <https://doi.org/10.1126/science.1128898>
- Hungi, N., & Ngware, M. (2018). The effects of preschool participation on mathematics achievement of Grade 6 pupils in Uganda. *Educational Research for Policy and Practice*, 17(2), 105–126. <https://doi.org/10.1007/s10671-017-9218-y>
- Jensen, B. (2009). A Nordic approach to Early Childhood Education (ECE) and socially endangered children. *European Early Childhood Education Research Journal*, 17(1), 7–21. <https://doi.org/10.1080/13502930802688980>
- Lakhsman, S. (2019). Improving reading and arithmetic outcomes at scale: Teaching at the Right Level (TaRL), Pratham's approach to teaching and learning. *Revue Internationale d'Éducation de Sévres*. <https://journals.openedition.org/ries/7470>. <https://doi.org/10.4000/ries.7470>
- Leak, J., Greg, D., Weilin, L., Magnuson, K. A., Schindler, H. S., & Hirokazu, Y. (2010). *Is timing everything? How early childhood education program impacts vary by starting age, program duration and time since the end of the program*. Research Connections. University of California Irvine, School of Education. <https://www.researchconnections.org/childcare/resources/27586>
- LEAPS – Youth Leaders for Early Childhood Assuring Children Are Prepared for School. (2022). *LEAPS – Youth Leaders for Early Childhood Assuring Children Are Prepared for School*. <https://www.hsph.harvard.edu/leaps/pakistan/>
- Lightfoot-Rueda, T., Peach, R. L., & Leask, N. (2016). *Global perspectives on human capital in early childhood education: Reconceptualizing theory, policy, and practice*. Springer.
- Loeb, S., Bridges, M., Bassok, D., Fuller, B., & Rumberger, R. W. (2007). How much is too much? The influence of preschool centers on children's social and cognitive development. *Economics of Education Review*, 26(1), 52–66. <https://doi.org/10.1016/j.econedurev.2005.11.005>
- Manhas, S., & Qadiri, F. (2010). A comparative study of preschool education in early childhood education centres in India. *Contemporary Issues in Early Childhood*, 11(4), 443–447. <https://doi.org/10.2304/ciec.2010.11.4.443>
- Mbugua, T. J. (2004). Early childhood care and education in Kenya. *Childhood Education*, 80(4), 191–197. <https://doi.org/10.1080/00094056.2004.10522230>
- Melhuish, E., & Gardiner, J. (2021). *Study of early education and development (SEED): Impact study on early education use and child outcomes up to age four years. Research Report*. University of Oxford. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1034449/SEED-Age\\_4\\_RESEARCH\\_REPORT.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1034449/SEED-Age_4_RESEARCH_REPORT.pdf)
- Melhuish, E. C., Phan, M. B., Sylva, K., Sammons, P., Siraj-Blatchford, I., & Taggart, B. (2008). Effects of the home learning environment and preschool center experience upon literacy and numeracy development in early primary school. *The Journal of Social Issues*, 64(1), 95–114. <https://doi.org/10.1111/j.1540-4560.2008.00550.x>
- Merriam-Webster. (n.d.). *Entitlement*. Merriam-Webster.com. <https://www.merriam-webster.com/dictionary/entitlement>
- Merseth King, K., Crouch, L., Wils, A., & Baum, D. R. (2019). How well are we measuring access to early childhood education? In A. W. Wiseman (Ed.), *International perspectives on education and society* (pp. 171–189). <https://doi.org/10.1108/S1479-367920200000039016>

- Mobile ECD Center, Lifestart. (2021). *Mobile ECD Center-LIFESTART*. <https://www.facebook.com/Mobile-ECD-Center-LIFESTART-770358636311014/>
- Montie, J. E., Xiang, Z., & Schweinhart, L. J. (2006). Preschool experience in 10 countries: Cognitive and language performance at age 7. *Early Childhood Research Quarterly*, 21(3), 313–331. <https://doi.org/10.1016/j.ecresq.2006.07.007>
- Mtahabwa, L. (2009). Early child development and care in Tanzania: Challenges for the future. *Early Child Development and Care*, 179(1), 55–67. <https://doi.org/10.1080/03004430600923436>
- Neuman, M., & Powers, S. (2021). *Political prioritization of early childhood education in low- and middle-income countries*. World Bank Policy Research Working Paper 9549. <https://doi.org/10.1596/1813-9450-9549>
- New South Wales Government. (2021). *Start strong*. NSW Department of Education. <https://education.nsw.gov.au/early-childhood-education/operating-an-early-childhood-education-service/grants-and-funded-programs/start-strong.html>
- Organisation for Economic Co-operation and Development (OECD). (2019). Governance, funding and the quality of early childhood education and care. In *Providing quality early childhood education and care: Results from the Starting Strong Survey 2018*. OECD Publishing. <https://doi.org/10.1787/720f6bf9-en>
- Ponguta, L. A., Aggio, C., Moore, K., Hartwig, E., Jang, B., Markovic, J., Hasanova, L., Bosworth, J., & Grover, D. (2019). Exploratory analysis of decentralized governance and its implications for the equity of early childhood education services in four countries of Europe and Central Asia. *Early Years Journal of International Research and Development*, 39(3), 326–342. <https://doi.org/10.1080/09575146.2019.1634009>
- Ponguta, L. A., van Ravens, J., & Britto, P. (2011). *Joined hands, better childhood*. Yale University. <https://www.slideshare.net/unicfcecis/joined-hands-better-childhood>
- Prica, I., Colic, L., & Baronijan, H. (2014). *A study on investing in early childhood education in Montenegro*. United Nations Children's Emergency Fund Country Office.
- Putchá, V., & van der Gaag, J. (2015). *Investing in early childhood development: What is being spent and what does it cost?* Brookings Institution Press.
- Reynolds, A. J., & Temple, J. A. (2008). Cost-effective early childhood development programs from preschool to third grade. In *Annual Review of Clinical Psychology, University of California*, 4, 109–139. <https://doi.org/10.1146/annurev.clinpsy.3.022806.091411>
- Richter, L. M., Daelmans, B., Lombardi, J., Heymann, J., Boo, F. L., Behrman, J. R., Lu, C., Lucas, J. E., Perez-Escamilla, R., Dua, T., Bhutta, Z. A., Stenberg, K., Gertler, P., Darmstadt, G. L. (2017). Investing in the foundation of sustainable development: Pathways to scale up for early childhood development. *Lancet*, 389(10064), 103–118. [https://doi.org/10.1016/S0140-6736\(16\)31698-1](https://doi.org/10.1016/S0140-6736(16)31698-1)
- Right to Education. (n.d.) *Additional information: Delors, Jomtien and Incheon benchmarks on education spending*. <https://www.right-to-education.org/monitoring/content/additional-information-delors-jomtien-and-incheon-benchmarks-education-spending>
- Robeyns, I. (2006). Three models of education: Rights, capabilities and human capital. *Theory and Research in Education*, 4(1), 69–84. <https://doi.org/10.1177/1477878506060683>
- Roza Otunbaeva Initiative. (2021). *Roza Otunbaeva Initiative*. <https://roza.kg/en?en>
- Sammons, P., Silva, K., Melhuish, E., Siraj-Blatchford, I., Taggart, B., Barreau, S., & Grabbe, Y. (2007). *Influences on children's attainment and progress in key stage 2: Social/behavioural outcomes in year 6*. University of London.
- Sandefur, J. (2018). *Chart of the week: Teacher pay around the world: Beyond "disruption" and "de-skilling."* Center For Global Development. <https://www.cgdev.org/blog/chart-week-teacher-pay-around-world-beyond-disruption-and-deskilling>
- Schoch, M., & Lakner, C. (2020). *Global poverty reduction is slowing, regional trends help understanding why*. World Bank. <https://blogs.worldbank.org/opendata/global-poverty-reduction-slowing-regional-trends-help-understanding-why>
- Scotland Government. (2022). *Funded early learning and childcare*. <https://www.mygov.scot/childcare-costs-help/funded-early-learning-and-childcare>
- SDG Knowledge Hub. (2021, August 18). *2021 population data sheet highlights declining fertility rates*. International Institute for Sustainable Development. <https://sdg.iisd.org/news/2021-population-data-sheet-highlights-declining-fertility-rates/>

- Sylva, K., Melhuish, E., Sammons, P., Siraj-Blatchford, I., & Taggart, B. (2004). *The Effective Provision of Pre-school Education (EPPE) Project: Findings from pre-school to end of key stage 1*. Faculty of Social Sciences Papers (Archive). <https://ro.uow.edu.au/sspapers/2156>.
- United Nations Development Programme. (2022). *Population by single age, both sexes*. [https://population.un.org/wpp/Download/Files/1\\_Indicators%20\(Standard\)/EXCEL\\_FILES/2\\_Population/WPP2022\\_POP\\_F01\\_1\\_POPULATION\\_SINGLE\\_AGE\\_BOTH\\_SEXES.xlsx](https://population.un.org/wpp/Download/Files/1_Indicators%20(Standard)/EXCEL_FILES/2_Population/WPP2022_POP_F01_1_POPULATION_SINGLE_AGE_BOTH_SEXES.xlsx)
- United Nations Educational, Scientific and Cultural Organization (UNESCO). (2021). *Global education monitoring report 2021/2: Non-state actors in education: Who chooses? Who loses?* UNESCO.
- United Nations Children's Fund (UNICEF). (2019a). *A world ready to learn prioritizing quality early childhood education*. United Nations Children's Fund. <https://www.unicef.org/reports/a-world-ready-to-learn-2019>
- United Nations Children's Fund (UNICEF). (2019b, April 9). *Azerbaijan reports increased enrollment in pre-primary education, while global figures are low* [Press release]. <https://www.unicef.org/azerbaijan/press-releases/azerbaijan-reports-increased-enrollment-pre-primary-education-while-global-figures>
- United Nations Children's Fund (UNICEF). (2021). *Reimagining our future: Building back better from COVID-19*. United Nations Children's Fund. <https://www.unicef.org/documents/reimagining-our-future-building-back-better-covid-19>
- Van der Gaag, J., & Tan, J.-P. (1997). *The benefits of early child development programs: An economic analysis*. World Bank.
- Van Ravens, J. (2010a). *Fair play. A financially feasible plan for equal access to early childhood programs in the Republic of Macedonia*. Ministry of Labour and Social Policy.
- Van Ravens, J. (2010b) *Financing ECD in Tanzania: Cost and financing scenarios to support the implementation of the integrated early childhood development policy of Tanzania*. UNICEF. Available from <https://www.janvanravens.com>
- Van Ravens, J. (2011). *Meet the standards: Expanding and improving preschool education in Nigeria by welcoming local communities, faith groups and entrepreneurs to the national framework*. UNESCO Country Office. Available from <https://www.janvanravens.com>
- Van Ravens, J. (2015). *Why SDG 4.2 will be counterproductive*. Available from <https://www.janvanravens.com>
- Van Ravens, J. (2021). *Locally adaptable parenting programs*. Available from <https://www.janvanravens.com>
- Van Ravens, J. (2022). *The governance of ECD: Lighting the LAMP of locally adaptable mono-sectoral policies*. Available from <http://www.janvanravens.com>
- Van Ravens, J., Aggio, C. E., & Ponguta, A. (2015). *Draft of a five-year costed action plan for preschool education in Timor-Leste*. UNICEF Country Office.
- Van Ravens, J., & Grover, D. (2012). *Expanding preschool education in Azerbaijan: Recommendation for an investment plan*. UNICEF Country Office.
- Van Ravens, J., and Yarosz, D. (n.d.). *Trend analysis to assess the impact of the global ECD community*. Unpublished manuscript.
- Wallet, P. (2006). *Pre-primary teachers: A global analysis of several key education indicators—UNESCO Digital Library. Global Monitoring Report*. <https://unesdoc.unesco.org/ark:/48223/pf0000147498>
- Wasik, B. A., & Snell, E. K. (2019). Synthesis of preschool dosage: How quantity, quality, and content impact child outcomes. In A. J. Reynolds & J. A. Temple (Eds.), *Sustaining early childhood learning gains: Program, school, and family influences* (pp. 31–51). Cambridge University Press. <https://doi.org/10.1017/9781108349352.003>
- Wikipedia. (2020). *List of sovereign states by tax revenue to GDP ratio*. [https://en.wikipedia.org/wiki/List\\_of\\_sovereign\\_states\\_by\\_tax\\_revenue\\_to\\_GDP\\_ratio](https://en.wikipedia.org/wiki/List_of_sovereign_states_by_tax_revenue_to_GDP_ratio)
- Woodhead, M., Rossiter, J., Dawes, E., & Pankhurst, A. (2017). *Scaling-up early learning in Ethiopia: Exploring the potential of O-Class*. Oxford Department of International Development.
- World Bank. (2018, March 16). *Investing in children means investing in Uzbekistan's future*. <https://www.worldbank.org/en/news/feature/2018/03/16/investing-in-children-means-investing-in-uzbekistans-future>
- World Bank. (2020a). *GDP growth (annual %)*. Retrieved from <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG>



- World Bank. (2020b, October 11). *Enhancing equitable access to quality early childhood development in Sri Lanka*. World Bank, Results Briefs.
- World Bank. (2021). *Mortality rate, under-5 (per 1,000 live births)*. <https://data.worldbank.org/indicator/SH.DYN.MORT>
- World Bank & UNESCO Institute for Statistics. (2020a). *Gross intake ratio in first grade of primary education, male (% of relevant age group) | Data [Official]*. World Bank IBRD IDA. <https://data.worldbank.org/indicator/SE.PRM.GINT.MA.ZS?view=chart>
- World Bank & UNESCO Institute for Statistics. (2020b, February). *Pupil-teacher ratio, preprimary* [Data file]. <https://data.worldbank.org/indicator/SE.PRE.ENRL.TC.ZS>
- World Bank Open Data. (2022, June). *School enrollment, primary (% gross)* [Data file]. <https://data.worldbank.org/indicator/SE.PRM.ENRR>
- World Health Organization. (2021). *Health concerns among children deprived of liberty: Policy brief*. World Health Organization. Regional Office for Europe. <https://apps.who.int/iris/handle/10665/341885>
- Yan, Y. (2019). Making accountability work in basic education: Reforms, challenges and the role of the government. *Policy Design and Practice*, 2(1), 90–102. <https://doi.org/10.1080/25741292.2019.1580131>
- Yoshikawa, H., Weiland, C., Brooks-Gunn, J., Burchinal, M. R., Espinosa, L. M., Gormley, W. T., Ludwig, J., Magnuson, K. A., Phillips, D., & Zaslow, M. J. (2013, October). *Investing in our future: The evidence base on preschool education*. Society for Research in Child Development.
- Zaw, H. T., Mizunoya, S., & Yu, X. (2021). An equity analysis of pre-primary education in the developing world. June 2021. *International Journal of Educational Research*, 109(2), 101806. <https://doi.org/10.1016/j.ijer.2021.101806>
- Zimanyi, L., Curtis, L., & Prpich, L. (Eds.). (2007). *An international resource for early childhood: Moving the early childhood agenda forward—A global call to action for early childhood*. The Consultative Group on Early Childhood Care and Development. <https://jnne.org/doc/ECD-CoNo-lo-resFINAL.pdf>

## Appendix A. Establishing Quality in Child Development Programs

The section on “Private and Public Goods” argues that half-day programs (by which we mean programs of about 3 to 4 hours per day) can be equivalent to full-day programs in terms of child development outcomes. This appendix provides the underpinning for this statement. This comparative analysis of half-day and full-day programs assumes that both are of acceptable quality.

In support of the section on “Parameters: Dosage, Duration, and Student–Teacher Ratio,” this appendix then focuses on dosage, in search of a precise number of hours per day needed for satisfactory outcomes. We follow this with a consideration of the ideal number of years for preschool programs and their ideal student–teacher ratio.

### Half-Day Versus Full-Day

The question of whether half-day programs can be equivalent to full-day programs in terms of child development outcomes was explored during a 2009 consultancy commissioned by the offices of the World Bank, UNICEF, and the Aga Khan Foundation (AKF) in Kyrgyzstan. The text below is an adaptation of an excerpt from that consultancy’s report (the full report is available at <https://www.janvanravens.com>; minor edits have been made for inclusion in this appendix).

Sammons et al. (2007) have investigated the impact of several types of early childhood development (ECD) programs on later achievement in language and mathematics. Their focus of their study (known as the Effective Provision of Pre-school Education study) was the United Kingdom. This group of researchers found that programs of different intensity do not lead to significantly different impacts. What mattered most was whether or not children attended preschool, the number of years of attendance, and preschool quality. The magnitude of these effects depends also on several other variables, such as family background (see the “Private and Public Goods” section).

The same message comes from Evans (2008), who interviewed parents of schoolchildren: whether children attended an ECD program before entry in primary school makes a significant difference,

but whether this program is half-day or full-day makes no difference. The site visits undertaken for this report obtained similar results. Whenever the question was relevant (i.e., in community-based kindergartens where both half-day and full-day programs were provided), we asked whether anyone (heads, teachers, parents) saw a difference between the two programs in terms of child development. The answer was always negative. Although these findings cannot pass for “scientific results,” Aga Khan Foundation (2009) did rigorously investigate learning achievement in primary grade one. As usual, children who participated in an ECD program performed significantly better than others. Insofar as there was a difference between program types, children attending the so-called satellites—half-day, one-group programs delivered within a primary school building or in the teacher’s home—showed a slight advantage.

A broad evaluation conducted in Poland in 2006 aligns with the findings of the AKF study. A project called “Where there are no pre-schools” provided preschool activities for 9 hours per week (i.e., less than 2 hours per working day) for groups with a maximum of 15 children. These children developed just as well as children who attended longer programs (Comenius Foundation for Child Development, 2009).

Reynolds and Temple (2008) reviewed a large range of studies on the impact of different preschool programs in the United States and found that “relative to half-day kindergarten, the positive effects of full-day kindergarten have been found to be relatively small and generally do not last for more than a year.” They add that they expect that the additional economic return on investment of a full-day over a half-day program is close to zero. By contrast, the positive effects of a good program versus no program at all range from returns of a factor of four to returns of a factor of ten.

Finally, Evans (2008) offers a simple yet convincing argument for half-day programs. He presents the daily time schedule of a full-day program, showing that the only structured learning time (lessons) occurs between 10:00 a.m. and 12:30 p.m. After this

come lunch, nap time, recess/outdoor play, and the afternoon meal. Admittedly, children learn informally during these activities as well—even during sleep, as recent brain research indicates. But these activities can be undertaken just as easily—if not more easily—outside the kindergarten environment. Evans suggests that varying the learning environment could be more conducive to child development than staying in the same place all day. This is supported by multiple studies on school effectiveness—including Sammons et al. (2007)—highlighting the importance of learning from peers and in the home learning environment.

### Dosage

If we accept that half-day programs can be as conducive to child development as full-day programs, the question then becomes, what is the minimum number of hours needed for significant impact?

To fulfill the child development function, preschool programs must be characterized by regularity and continuity. One of the most authoritative publications on dosage is Wasik and Snell (2019). Although the authors do not provide an ideal timetable for preschool programs, they do describe an effective program (Perry Preschool in the US state of Michigan) that provides only 2.5 hours of teaching per day but is continuously provided for 5 days per week, 8 months per year. Possibly referring to the same program, Ackerman and Barnett (2006) found that a session in preschool must have a minimum duration of 2.5 hours over a 180-day school year to be cost-effective. Both sources point to a minimum of 400–450 hours per year. This is fairly close to the minimum of 500 hours per year identified by the Effective Provision of Preschool Education study (Sylva et al., 2004).

Another example of a relatively short program is Piramide, a locally adaptable program from the Netherlands (Cheng, 2014). In the city of Rotterdam, the program provides 8 hours of play-based learning per week (2 hours per day, 4 days per week) over 40 weeks per year (320 total hours per year), though parents can buy extra hours. Children with developmental delays (e.g., emotional, cognitive, or motor) attend the program for 16 hours per week (640 hours in total per year). Equally short are the

sessions in a North-Macedonian three-shift program for Romani children: in the morning, the program provides 2 classroom hours for the 3-year-olds and 3 hours for 4-year-olds, and in the afternoon, it provides 3 hours for the 5-year-olds.\*

An overview of Early Childhood Education and Care in European Union (EU) countries in 2019 shows entitlements of a minimum of 15 hours per week in Bulgaria, Sweden, England, and Scotland (European Education and Culture Executive Agency [Eurydice], 2019) (although Scotland recently upgraded its entitlement from 600 to 1,140 hours per year; Berg, 2021). Most of other EU countries are above that level. Finally, the minimum requirement for inclusion of a preschool program in the International Standard Classification of Education System is 2 hours per day and 100 days per year, but this is a formal requirement rather than one that stems from effectiveness research or program evaluation.

Although the minimum dosage seems to sit around 450 to 500 hours per year, we propose countries follow the example of Australia (New South Wales Government, 2021) and the aforementioned EU countries and assume 600 hours per year: 3 hours per day, 5 days per week, 40 weeks per year. The arguments for the 600 hours are provided in the “Parameters” section.

### Duration

In the subsection on duration in the “Parameters” section, we noted that it is difficult to make an evidence-based choice regarding the ideal duration of preschool education, as studies that investigate the impact of distinct years of preschool draw differing conclusions.

A study from Uruguay (Berlinski et al., 2008) investigated the differing impacts of providing one, two, or three years of preschool. They found that the introduction of one year of preschool (compared with no preschool at all) had a clear impact on school attendance and school completion, and that the impact of adding a second year was only slightly less. Adding a third year, however, had a significantly

\* This is an author observation from a mission to North Macedonia in 2011.

smaller impact. Similarly, a study from Uganda found that the positive impact of attending preschool on students' mathematics achievement in Grade 6 leveled out after 2 years, suggesting that 2 years may be an ideal duration for preschool participation (Hungu & Ngware, 2018).

A remarkable contrast exists between, on the one hand, a retroactive review of the data from the 1980s Chicago Longitudinal Study that demonstrates better long-term cognitive and social outcomes for children with increased years of preschool participation, essentially arguing that more is better (Arteaga et al., 2014), and, on the other hand, an analysis from the Early Childhood Longitudinal Study that indicates that children's negative behavioral effects are greater the earlier they start preschool (Loeb et al., 2007).

Jointly, these findings suggest that there is an optimal duration: attending 2 years of preschool is better than attending only one, but increasing the duration beyond 2 years may have a limited impact and, eventually, a possible negative impact. However, it is unknown whether any of these findings hold true for all programs, at all quality levels, and for all types of developmental outcomes. Indeed, a meta-analysis of 117 studies found that the effect sizes varied minimally across different program durations (Leak et al., 2010).

### Student–Teacher Ratio

Although the student–teacher ratio is a critical parameter in the design of any education program, the literature provides no clear-cut and evidence-based statements about the ideal number of children per teacher in preschool education. This subsection is a literature review and an analysis of empirical ratios.

Ackerman and Barnett (2006) found that programs that produce large gains have 10 or fewer children per teacher. This echoes a more-general consensus in Organisation for Economic Co-operation and Development (OECD) countries that low student–teacher ratios allow for more individual interactions between teachers and children, which is bound to lead to better outcomes (Blatchford et al., 2011; Dahlberg & Moss, 2007).

However, based on global statistical data on student–teacher ratios at national levels (World Bank &

UNESCO Institute for Statistics, 2020b), only 30 to 40 countries in the world have student–teacher ratios of about 10 or fewer. These data relate to a somewhat miscellaneous group of countries, but three subgroups can be identified: predominantly small tax havens and oil states, former Eastern Bloc countries, and Scandinavia and Cuba. In the latter subgroup, the government appropriates a large share of national income, and much of the state budget is spent on education in general and on preschool in particular. In the former Eastern Bloc, countries have generally maintained the high preschool standards from Soviet and Yugoslav times against the backdrop of shrinking preschool budgets, causing dramatic decreases in enrollment over time. In Kosovo, for example, less than 4 percent of the children were attending well-staffed full-day kindergartens in 2011, leaving most children excluded from any kind of preschool program (Ponguta et al., 2011).

EU countries show as much diversity as countries in the global data set (World Bank). Most EU countries meet the benchmark of 10 children per teacher for age 2, but few do so for age 4 (European Education and Culture Executive Agency [Eurydice] et al., 2017).

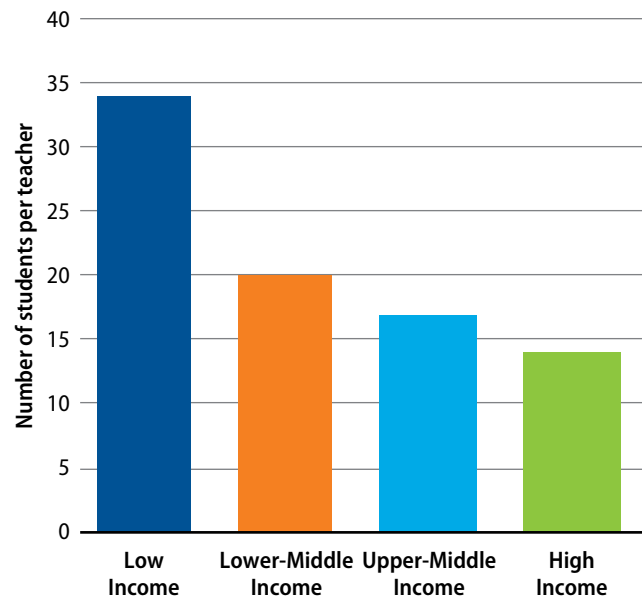
The combination of low student–teacher ratios and high enrollment can only be expected realistically in countries with high tax rates and a strong dedication to human development, as elaborated in the “Finance and Revenue” section. Such conditions cannot be replicated elsewhere overnight. Also, even where financial resources are abundant, human resources may be a bottleneck. Trained teachers be scarce in underserved areas, and the number of young people who have the qualifications to enter teacher training may be insufficient.

Indeed, we find very high student–teacher ratios in low-income countries. In Tanzania, for example, the official average student–teacher ratio stood at 114:1 in 2017 (World Bank & UNESCO Institute for Statistics, 2020b). A problem with such data is that some teachers may be unregistered: informally appointed teachers and class assistants might be excluded from the denominator, causing high ratios. But in unregistered preschools, teachers and students alike are missing from statistics, and if groups are large

in such preschool institutions, the national ratios might even be higher than suggested by the official statistics. Figure A.1 presents student–teacher ratios globally, reflecting a dire lack of trained early learning professionals, especially in low-income countries.

Because of the gaps observed in Figure A.1, especially between low-income countries and the three other categories, we decided to assume differentiated student–teacher ratios for the costing exercise in the section on “Indications of Macro-Level Costs.”

**Figure A.1. Student–teacher ratios by country income level, 2017**



Source: Compiled by the authors using data from UNICEF (2019a).

## Appendix B. Estimating Salary Costs for the Preschool Entitlement

The estimation of the salary costs in the section on macro-level costs is based on three factors:

- Student–teacher ratios. These have been discussed in the “Parameters” section and Appendix A.
- The number of 4- and 5-year-olds. We calculated these using data for the year 2020 (the most recent year available) that we retrieved in 2022 from the website of the United Nations Development Programme (2022). We added up the number of children ages 0 to 4 years and those ages 5 to 9 years. This combined group of children—ages 0 to 9 years—consists of 10 age cohorts, so we divided by 5 to determine the average number of children for two age cohorts. Because the 4- and 5-year-olds are in the middle of the 0 to 9 group, this is an acceptable estimate of the number of 4- and 5-year-olds. We then divided by the total population to determine the number of 4- and 5-year-olds as a share of population. We performed this exercise for the four World Bank income categories as well as for 76 individual countries found in a dataset on teacher salaries, published online by the Center for Global Development (2018).
- Teacher salaries. Determining this has been the most difficult part of this project. In this appendix, we go into greater detail.

Internationally comparable data on preschool teacher salaries are very scarce. The UNESCO Institute of Statistics publishes data on teacher salaries—including preschool teacher salaries—relative to salaries of other professionals with comparable qualifications. This format is difficult to use for our purpose, and data are missing for many countries. We found detailed data on preschool teacher salaries for 73 countries (ERI Economic Research, n.d.), but these were mainly high-income countries (HICs) and upper-middle-income countries (UMICs).

The Teacher Task Force at UNESCO shared an analysis of statistical data on preschool education (Wallet, 2006), which contains data from 2002 to 2003 on preschool teacher salaries from 11 middle-income countries. Although this sample is too small for our purposes, it does reveal an important point: in

all of these 11 countries, both the starting salary and the top salary of preschool teachers align exactly with those of primary school teachers. This may be biased by the possibility that these data cover mainly—or only—preschool teachers in public preschools, neglecting the many preschool teachers who work in private institutions. However, our goal is to estimate the costs of the Preschool Entitlement; this is a public service requiring a decent level of remuneration to motivate teachers to stay on the job and do their work with enthusiasm.

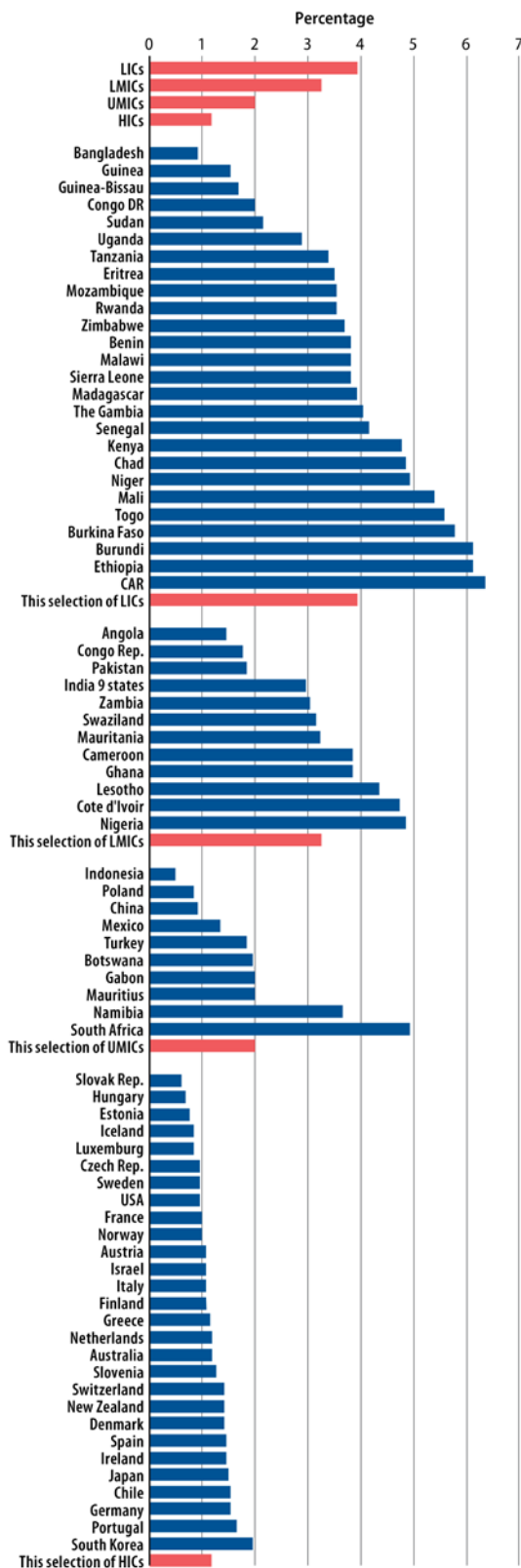
Given this information, we feel it is possible to assume parity between primary and preprimary teachers using the online dataset of salaries for primary school teachers in 76 countries (Center for Global Development, 2018). Because these countries are fairly well distributed over the four World Bank income categories, we could calculate average teacher salary for each of these categories.

Figure B.1 presents the final outcomes of the estimated salary costs for the Preschool Entitlement as a percentage of gross domestic product (GDP). We calculated these outcomes by multiplying—for each country and each income category—teacher salary as a percentage of per capita GDP with the number of 4- and 5-year-old children as a share of the total population and dividing this by the student–teacher ratios.

Countries are ranked, within their income group, by teacher salary as a multiple of per capita GDP; outliers such as Mauritius and Israel are caused by lower or higher fertility rates than other countries in their group. There are various caveats; we address these in the discussion of Figure B.1.

In Figure B.1, countries are ranked by teacher salary as a multiple of per capita GDP using the abovementioned dataset from the Center for Global Development (2018). These data were published in 2013, but original data are derived from various sources and generally less recent. Population data are projections for 2020 from the United Nations Development Programme website (UNDP, 2022). We use the 2013 income categories for countries,

**Figure B.1. Salary costs of the Preschool Entitlement as a percentage of GDP in (left to right) LICs, LMICs, UMICs, and HICs**



Notes: LICs = low-income countries; LMICs = lower-middle-income countries; UMICs = upper-middle-income countries; HICs = high-income countries.

though some countries have since graduated to higher income categories. Figure B.1 presents values for World Bank income categories twice (both in red); at the top of the figure, the values for the four income categories are grouped together. The salary data are averages of the individual countries per income category. Red bars are also found below each income group; these are titled “This selection of LICs” (or LMICs, UMICs, HICs). These bars are based on the population data for the countries in the sample only. Differences between the two methods of calculation are very small.

We used unweighted averages for teacher salaries. This is particularly important for the UMICs, where some very populous countries are in the lower bound of the group. Had we applied weighted averages, the outcome for that group would have been lower. However, what matters is that the group average is typical for all of the countries in the group. Finally, in the case of India, the salary data pertain to “9 states”; the source does not mention which states (Center for Global Development, 2018). India’s population data pertain to the entire country.

## Appendix C. Financing the Preschool Entitlement: The Role of Taxation

The “Finance and Revenue” section signals an unfortunate tendency: the poorer the country, the higher the costs of the Preschool Entitlement expressed in per capita gross domestic product (GDP) (as seen in the section on macro-level costs), but the lower the tax-to-GDP ratio.

On the one hand, there are high-income countries (HICs) in which the Preschool Entitlement costs less than 0.1 percent of GDP, only a fraction of these countries’ total tax revenue (40 percent or more of GDP). In practice, such countries can afford to offer three or more years of full-day care, on which they typically spend 0.7 percent of GDP,\* or about 1.5 percent of the government budget.

On the other hand, there are low-income countries (LICs) that would have to spend that same sum of 0.7 percent of GDP only to finance the Preschool Entitlement (see Appendix B, Figure B.1) against a tax-to-GDP ratio of only 10 percent. In these LICs, the Preschool Entitlement would consume no less than 7 percent of the government budget, while providing 2 years of full-day care would require 28 percent of what government has to spend. These are very substantial shares of the government budget, creating problems in financing other public services and investments, such as health posts and hospitals, schools and universities, pensions, roads and bridges, sewage and water systems, police and armed forces, and the civil service. In short, advocating for full daycare for free has only one positive outcome: it makes the advocate feel good. It is not helpful in developing feasible plans.

There is a strong case for countries with a low tax-to-GDP ratio to raise it, as Figure C.1 illustrates. It plots under-5 mortality (U5M)—a proxy for child well-being—against the ratio of tax revenue to GDP. An argument for using U5M as a proxy for child well-being can be found under the heading “What

can be learned from studying under-five mortality” at <https://www.exemplars.health/topics/under-five-mortality/what-is-under-five-mortality>.

In Figure C.1, the countries in the oval are exceptional for having low levels of U5M despite low tax-to-GDP ratios. Apart from Cabo Verde (known for receiving remittances from its large diaspora), these are all oil-exporting countries in which government spending on public services is probably high when expressed in dollars per capita, but where GDP is so large that the tax-to-GDP ratio is low.

The correlation between U5M and tax burden might be spurious to some extent. Social capital, for example, might be a driving force behind both variables.

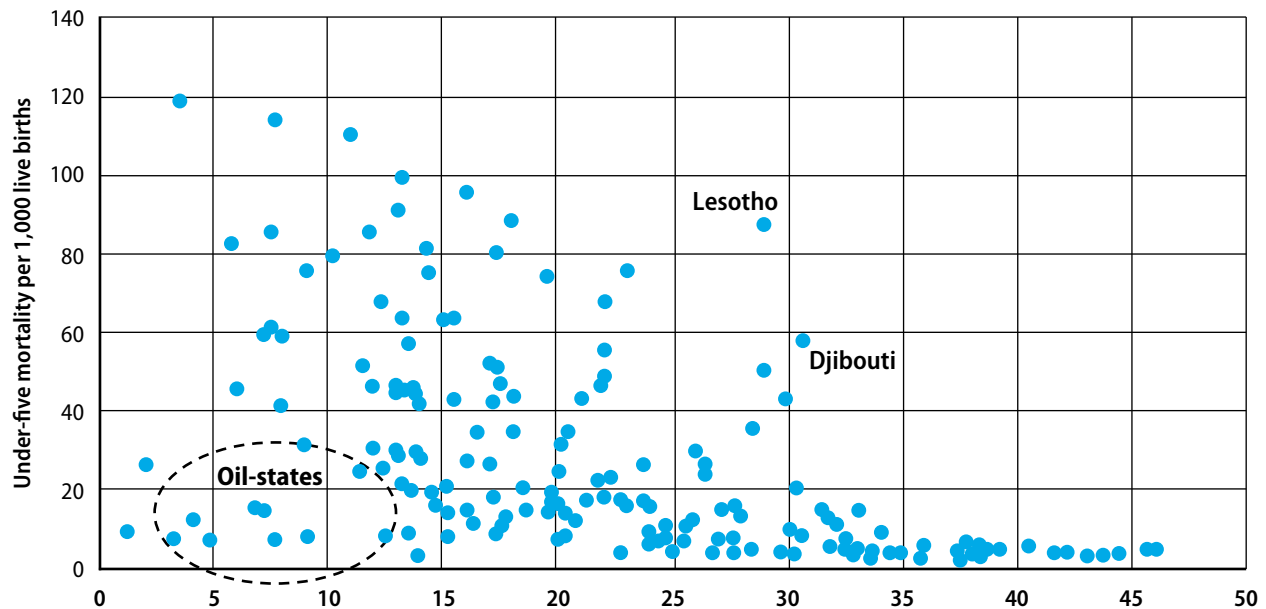
If we ignore the countries in the oval, Figure C.1 shows a clear correlation: high tax revenue leads to low child mortality. But there are various additional points to be made. Most countries with a tax revenue of 30 percent of GDP or more appear to have U5M rates below 10. Even countries beyond the threshold of 25 percent have relatively low levels of child mortality, generally. Below 25 percent, we see much higher levels of U5M on average; however, we also see also much more variance.

For example, countries with tax revenue levels of 10 to 20 percent of GDP are spread more-or-less evenly between the U5M levels of 10 and 100. This variance suggests that reducing child mortality is a matter not only of political will but also of political skill: it requires the courage to reform tax systems and enhance tax collection, but also the competence to spend the allocated resources efficiently and effectively. This points once again to the importance of accreditation and quality control as key elements of the proposed Preschool Entitlement.

In some developing countries, the causes of low tax burdens are partly structural and partly related to political will. The structural element has to do with the fact that many developing countries are home to large numbers of families with low, unregistered incomes. It would be not only socially unjust to

\* See page 71, Figure D3, of European Commission (Eurostat) & European Education and Culture Executive Agency (Eurydice) (2015). Spending on preprimary education varies among EU countries, but those that provide full daycare for more than three years (Sweden, Denmark, Belgium, France, Spain and some of the former East Bloc countries) tend to spend 0.7 percent or more of GDP.



**Figure C.1. Under-five mortality per 1,000 live births, 2019 (vertical) by tax revenue to GDP ratio, 2020 (horizontal)**

Source: We created this figure using data from the World Bank (2021) for U5M and data from Wikipedia (2020) for tax revenue to GDP ratio.

collect taxes from poor families but also impossible to do so when income is generated in the informal economy. In these countries, most tax revenue is collected from the relatively small middle classes, as upper classes often benefit from low tax rates and tax advantages (legally) or evade taxes (illegally).

Fairness in tax collection also appears to be related to the ways municipalities agree on their local budgets. Where the budgeting process is participatory and transparent, there is usually less tax evasion, as there is a stronger sense of local ownership of the collected taxes. The section on governance discusses so-called participatory budgets, which may be good financial instruments to bring local communities together around the common cause of child well-being.

Conclusions from this analysis:

- Financing full-day childcare programs from the national budget is only feasible in countries with high tax revenue.
- Financing short child development programs is feasible in a much-larger share of the world's countries.
- LICs may need financial assistance for providing even short programs.
- Advocacy for early childhood development should pay more attention to encouraging countries to reform their tax systems.
- The relationship between tax collection and child well-being is mediated by political will and political skill.

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