Investing in Young Children
An Early Childhood Development Guide for Policy Dialogue and Project Preparation

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Conference Edition
Investing in Young Children

CONFERENCE EDITION
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Investing in young children is the responsible thing to do. All children deserve a chance to grow into healthy, educated, and competent people, no matter where and when they were born. While parents bear most of the responsibility for raising their children, especially in the early years of life, governments also have an important role during this critical time of human capital accumulation. For example, governments can ensure that all expectant mothers and young children have access to quality health services and nutrition. They can support parents and other caregivers in providing a positive and stimulating environment for children from birth on by promoting parenting information programs, investing in direct services such as home-based visits, funding daycares and preschools, or providing financial incentives to access good quality programs for infants and children.

Investing in young children is also the smart thing to do. In the short term, early childhood development (ECD) investments translate into considerable cost savings and efficiency gains in the health and education sectors because the children who benefit from ECD services are more likely to be healthy, ready to learn upon entering primary school, stay in school longer, and perform well throughout their schooling. In the long term, ECD investments yield socially well-adjusted and productive
adults who contribute to a country’s economic growth and help break the intergenerational cycle of poverty, as demonstrated by higher wages, lower dependence on social assistance programs, greater asset accumulation, and healthier families. These benefits not only level the playing field for children from disadvantaged backgrounds but also make for better, more equitable, and more prosperous societies.

Clearly, ECD should be a prominent priority on a country’s development agenda. Unfortunately, the majority of poor children in low- and middle-income countries do not have access to high-quality ECD programs that offer early opportunities for stimulation and learning. And this inadequate access persists despite strong evidence that early learning gaps between disadvantaged children and those from better-off families widen quickly in the first few years of life and that making up for these gaps becomes difficult and costly later in a child’s life.

This ECD guide presents lessons and experiences that have been useful to inform the policy debate about ECD interventions and the design of such programs across the world. Whether the user of this guide is at the initial stage of deciding whether to expand an ECD portfolio or already in program design stage, the content offers a range of evidence-based options to inform policy and investment choices.

It is my sincere hope that Investing in Young Children will stimulate a vigorous discussion with governments, development partners, and civil society on the tremendous benefits of investing in young children and the options that exist to set up high-quality programs. I look forward to the continued collective work of policy makers, development partners, and other key stakeholders to give tomorrow’s adults a strong foundation to lead happy, healthy, and productive lives.

Tamar Manuelyan Atinc
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The World Bank
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Acknowledgments

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Abbreviations

ASQ  Ages and Stages Questionnaire
BMI  body mass index
CBCL  Achenbach Child Behavior Checklist
CCT  conditional cash transfer
CDD  community-driven development
CES-D  Center for Epidemiologic Studies
CIS  Caregiver Interaction Scale
DAP  Developmentally Appropriate Practices in Early Childhood Program
DTP3  combined diphtheria-tetanus toxoid and pertussis vaccine
DHS  Demographic and Health Surveys
DQ  development quotient
ECC  Early Childhood Commission (Jamaica)
ECCD  early childhood care and development
ECCE  early childhood care and education
ECD  early childhood development
ECE  early childhood education
ECERS-R  Early Childhood Environment Rating Scale
EPPE  Effective Provision of Pre-School Education Project
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tr>
<td>FCCERS-R</td>
<td>Family Child Care Environment Rating Scale-Revised</td>
</tr>
<tr>
<td>GDP</td>
<td>per capita annual growth rate (%)</td>
</tr>
<tr>
<td>GNP</td>
<td>gross national product</td>
</tr>
<tr>
<td>HOME</td>
<td>Home Observation for Measurement of the Environment</td>
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<tr>
<td>IEA</td>
<td>International Association for the Evaluation of Educational Achievement</td>
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<tr>
<td>IMR</td>
<td>infant mortality rate</td>
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<tr>
<td>IRB</td>
<td>Institutional Review Board</td>
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<tr>
<td>IRI</td>
<td>interactive radio instruction</td>
</tr>
<tr>
<td>ITERS-R</td>
<td>Infant-Toddler Environment Rating Scale</td>
</tr>
<tr>
<td>IUGR</td>
<td>intrauterine growth restriction</td>
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<tr>
<td>LBW</td>
<td>low birthweight</td>
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<tr>
<td>MICS</td>
<td>Multiple Indicator Cluster Survey</td>
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<td>MIS</td>
<td>management information system</td>
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<tr>
<td>NAEYC</td>
<td>National Association for the Education of Young Children</td>
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<tr>
<td>NICHD</td>
<td>National Institute for Child Health and Development</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
</tr>
<tr>
<td>PPVT</td>
<td>Peabody Picture Vocabulary Test</td>
</tr>
<tr>
<td>PRSP</td>
<td>Poverty Reduction Strategy Paper</td>
</tr>
<tr>
<td>TVIP</td>
<td><em>Test de Vocabulario en Imágenes Peabody</em></td>
</tr>
<tr>
<td>U5MR</td>
<td>under-5 mortality rate</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations, Educational, Scientific and Cultural Organization</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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Objective

The World Bank created this early childhood development (ECD) guide in response to growing demand from project managers for advice and support to facilitate the policy dialogue on the topic of ECD and to help clients make and implement relevant choices on how to best invest in ECD in the context of their country’s economy and national priorities. This guide fills a gap in the literature by (1) distilling existing information in a user-friendly format of short notes, (2) providing practical information on recently relevant ECD topics, such as measuring child development outcomes through the identification and adaptation of relevant instruments, conditional cash transfers for families with young children, and so on, and (3) assessing the quality of the latest evidence on each topic and identifying the knowledge gaps for which additional experimentation and evaluation are required.

Methodology for Selecting the Evidence

The notes in this guide contain references to the findings of research studies. These studies were selected in an extensive literature review using the following criteria, unless otherwise noted:
1. Studies that assess the impact of interventions or incentives that are consistent with the definition of ECD (see introduction).
2. Studies that focus on measuring outcomes in at least one domain of child development or measure variables expected to play a mediating role in these outcomes.
3. Studies that describe the results of:
   a. Rigorous impact evaluations that identify a valid counterfactual through experimental or quasi-experimental techniques,
   b. Large-scale cohort studies, or
   c. Process evaluations that focus on identifying critical elements of quality interventions across multiple sites (including meta-analyses).

Summary of Contents

This ECD guide is presented in a series of short notes grouped in thematic sections. The notes are not intended to be comprehensive, but rather to summarize the main debates in the field. Each note is designed to be read independently, so information is sometimes repeated across notes.

This guide contains the following sections:

Introduction. The introduction includes (1) a definition of ECD, (2) elements of ECD background and rationale, and (3) a conceptual framework, including a discussion of the various domains of child development and the critical windows of opportunity for specific interventions within the early childhood time frame.

Section 1: Initiating the policy dialogue on investing in ECD. The three notes in this section cover questions considered in the decision to invest in ECD: Should a given society invest public resources in ECD? Are ECD investments cost-effective and worthwhile compared to alternative allocations of public resources? Each note is designed to make an argument that would resonate with each of the main counterparts in the policy dialogue for ECD: ministers of finance, planning, and social affairs; ministers of health; and ministers of education, respectively.

Once the decision to invest in ECD has been made, several questions immediately follow and lay the groundwork for a project. Common questions include: What beneficiaries should be targeted? How can data be collected on the needs of this population and on their developmental
outcomes? What specific services should be offered? What are the cost implications and financing options? These “second-generation” questions are addressed in sections 2, 3, and 4.

Section 2: Assessing needs, measuring outcomes, and establishing policy frameworks. The two notes in this section include information on the indicators, tools, and instruments that can be used to conduct ECD situation analyses as well as monitoring and impact evaluations in low-income settings, including collecting information on (1) the specific needs of children from conception to age 6 and their families, (2) the supply (scope and quality) of ECD services, (3) the demand for ECD services, and (4) the legal environment and institutional framework for ECD.

Section 3: Strategic entry points for ECD investments. The four notes in this section discuss options for strategic entry points: (1) center-based ECD programs that focus on school readiness; (2) home-based ECD programs for behavior change in health, nutrition, and parenting; (3) communication/media campaigns for families with young children, and (4) “conditional cash transfers” (CCTs) for families with young children.

Although integrated ECD interventions that address the health, nutrition, and early stimulation/learning needs of young children until they transition to primary school are likely to yield the greatest positive results across domains of child development (Grantham-McGregor et al. 2007), such integrated interventions throughout early childhood are not always possible, especially in the initial stage of a client’s engagement in ECD.

Each strategic entry point for investment is discussed in a separate note and can be used as a stand-alone or in combination with others. The notes aim to strike a balance between providing evidence-based recommendations (when evidence is available) and conventional wisdom or “best practice.” They also identify the knowledge gaps for which additional experimentation and evaluation are required.

Section 4: Costing and financing ECD programs. Finally, both the decision to invest in ECD and the types of strategic entry points that are prioritized depend to a large extent on the financial opportunities and constraints in a given context. Accordingly, the two notes in this section include information on (1) types of costs to take into consideration when planning ECD interventions and (2) options for financial sources and financing mechanisms.
Appendix: Summary table of programs and evaluations. The appendix provides more details on the interventions and evaluation studies referenced throughout the notes.

Note
1. Counterfactual refers to a group of people who are as similar as possible in both observable and unobservable dimensions to those who participated in the intervention under discussion.

Reference
Introduction

Definition
The field of early childhood development (ECD)\(^1\) is framed by the United Nations Convention on the Rights of the Child, General Comment 7 (UN 2006) and refers to the physical, cognitive, linguistic, and socio-emotional development of young children until they transition to primary school (typically around age 6 or 7).\(^2\) The first phase of human development (starting during pregnancy), ECD is an integrated concept that cuts across multiple sectors, including health and nutrition, education, and social protection.

Background and Rationale
Children who reach the end of early childhood should be developing well in the physical, cognitive, linguistic, and socio-emotional areas in order to fully benefit from further opportunities in the education and health sectors and to become fully productive members of society. They should be (1) healthy and well-nourished, (2) securely attached to caregivers and able to interact positively with extended family members, peers, and teachers, (3) able to communicate in their native...
language with both peers and adults, and (4) ready to learn throughout primary school.

Poor and otherwise disadvantaged children are least likely to reach these important milestones because they are often exposed to the cumulative effects of multiple risk factors, including lack of access to basic water and sanitation infrastructures, lack of access to quality health services; inadequate nutritional inputs; parents with low education levels; and lack of access to quality daycare centers and preschools.

When compared to others, poor and otherwise disadvantaged children are less likely to enroll in school at the right age. They are also more likely to attain lower achievement levels or grades for their age and to have poorer cognitive ability (Vegas and Santibanez 2010). A recent study (Grantham-McGregor et al. 2007) estimates that 219 million children under the age of 5 are disadvantaged. While this number represents 39 percent of all children under 5 in the developing world, the prevalence is even higher in Sub-Saharan Africa and South Asia (61 and 52 percent of children, respectively).

Interventions in the early years have the potential to offset these negative trends and to provide young children with more opportunities and better outcomes in terms of access to education, quality of learning, physical growth and health, and, eventually, productivity. Better-off children also benefit from participation in quality ECD interventions. And because investing in ECD has ripple effects over the lifespan of beneficiaries, these interventions are among the most cost-effective investments a country can make in the human development and capital formation of its people (Heckman 2008).

**Conceptual Framework**

Development in early childhood is a multi-dimensional process in which progress in one domain often acts as a catalyst for progress in other domains. Conversely, delays in one area of development can trigger delays in other areas as well. For example, malnutrition in the early years not only leads to poor physical growth (including stunting) but is also highly predictive of delayed cognitive development and low academic achievement throughout the school years (Glewwe, Jacoby, and King 2001). In turn, lack of adult attention and stimulation in the early years not only leads to poor socio-emotional and cognitive development but is also linked to poor health and physical growth.
Domains of Child Development

The four interrelated domains of child development (see figure 1)—physical development, cognitive development, linguistic development, and socio-emotional development—are described as follows.6

Physical development is defined as an individual’s rate of growth, physical fitness, fine motor skills, gross motor skills, and self-care abilities; it can be affected by the presence of chronic conditions such as diabetes, disability, and malnutrition. The prevalence of stunting (chronic undernutrition, as measured by height-for-age Z-score less than or equal to –2) in children between birth and age 2 is particularly important because it reflects the prevalence of undernutrition in a given population of children—which, in turn, is predictive of low cognitive and overall development in early childhood and later life (Grantham-McGregor 2007).

Cognitive development encompasses progress in analytical skills, mental problem-solving, memory, and early mathematical abilities. For infants and toddlers, early cognitive development involves problem-solving, such as learning to stack or nest objects, and early understanding of arithmetic, demonstrated by such behaviors as sorting objects and knowing what “one” or “two” of something means. By age 3, children should be capable of solving simple puzzles and matching colors and shapes, as well as show awareness of concepts such as “more” and “less.” As children approach school age, cognitive development broadens in scope to early knowledge
of numbers, including adding and subtracting, and familiarity with alphabet letters and printing. Indicators of cognitive development as children near school entry include knowledge of letters and numbers, ability to retain information in short-term memory, and knowledge of key personal information like one’s name and address.

**Language development** manifests itself through babbling, pointing, and gesturing in infancy, the emergence of first words and sentences in toddlerhood, and an explosion of words between ages 2 and 3 years. It is important to note that the capacity to absorb language and to differentiate between sounds peaks at around 9 months of age (see Note 3.1.), well before the child can actually talk, thus indicating that it is critical for parents/caregivers to verbally interact with children from birth onward. As children move into the preschool years, indicators of language development include production and understanding of words, abilities to tell stories and identify letters, and comfort and familiarity with books.

**Social and emotional development**, in the first 2 years of life, centers on children’s relationships with caregivers and learning how much they can trust those around them to meet their needs. In the preschool years, social and emotional development builds upon previous acquisitions and expands to include social competence (getting along with others, including peers and teachers), behavior management (following directions and cooperating with requests), social perception (identifying thoughts and feelings in oneself and others), and self-regulatory abilities (emotional and behavioral control, especially in stressful situations).

Some of these skills involve both socio-emotional and cognitive processes and have been called “executive function processes” (Fernald et al. 2009). They include impulse control, the ability to initiate action, the ability to sustain attention, and persistence, all of which are likely to significantly influence an individual’s capacity to succeed in life. The more cognitive executive function processes have been called “cool” processes, such as remembering arbitrary rules and other non-emotional aspects of a given task, while “hot” executive function processes usually refer to the more emotional aspects of executive function, such as those involving inhibition or the capacity to delay gratification.

**Windows of Opportunity for Intervention in Early Childhood**

Development across the four ECD domains is cumulative throughout early childhood. Yet, some interventions are particularly critical during specific subperiods (or windows of opportunity) and should therefore be prioritized in decisions on appropriate interventions for different age
groups. Figure 2 summarizes the types of interventions that are most relevant during different subperiods within early childhood. For example, it is critical that young children receive adequate nutrition between conception and the age of 2 years through proper prenatal nutrition, exclusive breastfeeding in the first 6 months of life, and the addition of adequate complementary foods to continued breastfeeding from 6 months.

**Figure 2**Timing Matters: The Most Important ECD Interventions Vary with Child’s Age

<table>
<thead>
<tr>
<th>Timing of Intervention</th>
<th>Domains of Child Development</th>
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<tr>
<td></td>
<td>in-utero</td>
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<tr>
<td></td>
<td>birth to 6 months</td>
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<tr>
<td></td>
<td>7 month to 2 years</td>
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<tr>
<td></td>
<td>3 to 5 years</td>
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<tr>
<td>Mothers’ health and nutrition</td>
<td></td>
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<tr>
<td>Immunizations and regular health check-ups</td>
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<tr>
<td>Exclusive breastfeeding</td>
<td>Adequate nutrition to prevent stunting and promote healthy growth</td>
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<tr>
<td>Continued investments in adequate nutrition</td>
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<tr>
<td>Early stimulation by caregivers and/or ECD teachers (manipulation of different objects and textures, hide-and-seek, self and objects, etc.)</td>
<td></td>
</tr>
<tr>
<td>Early stimulation by caregivers and/or ECD teachers (exposure to simple concepts, shapes, numbers, colors, etc. through games and daily routines)</td>
<td></td>
</tr>
<tr>
<td>Early stimulation by caregivers and/or ECD teachers (exposure to language through talking, reading, singing, etc.)</td>
<td></td>
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<tr>
<td>Positive caring practices by caregivers to promote healthy emotional development</td>
<td></td>
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<tr>
<td>Interactions with peers (in structured group settings) to promote positive social development</td>
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</table>

Source: Authors.
to 2 years (World Bank 2006). Similarly, it is critical that children up to age 2 are in the nurturing environment they need to develop strong bonds (or attachment) with their caregivers, thus laying the foundation for further development in all areas (Naudeau 2009). Therefore, ECD programs that show parents how to positively interact with their infants and toddlers through both touch and verbal communication are particularly important in these early years. Failure to provide children with adequate nutrition and stimulation during this window of opportunity damages human potential (Grantham-McGregor et al. 2007).

As children age from 3 to 5 years old, interactions with peers (for example, in the context of center-based ECD programs) and more advanced forms of linguistic and cognitive stimulation by parents and ECD teachers become increasingly important, along with continued investment in health and nutrition.

Notes

1. ECD is also known as early childhood care and development (ECCD) and encompasses early childhood education (ECE), early childhood care and education (ECCE), and other designations.

2. While the definition of ECD includes children up to age 8—on the premise that a successful transition to primary school depends not only on the child’s school readiness but also on the readiness of schools to adapt to the specific needs of young learners in the early grades—this guide focuses on ECD services up to primary school entry.

3. Risk factors are defined as “personal characteristics or environmental circumstances that increase the probability of negative outcomes for children” (Cole and Cole 2000).

4. In this study, children are considered disadvantaged if they are stunted, living in poverty, or both.

5. For a review of articles on this topic, see Naudeau (2009).

6. Much of the information contained in this section is adapted from Fernald et al. (2009).

References


SECTION 1

Initiating the Policy Dialogue on Investing in ECD
NOTE 1.1

Why Invest in ECD? The Economic Argument
(for Policy Dialogue with Ministers of Finance, Planning, and Social Affairs)

This note makes the case for public investment in early childhood development (ECD) by providing evidence that delays in cognitive and overall development well before a child enters primary school often have long-lasting and costly consequences for both families and societies. This note also demonstrates that well-targeted ECD interventions are a cost-effective strategy to help prevent or remedy these delays, thus allowing children living in poverty to be healthier, perform better in school, engage in less risky activities, and become more productive adults.

Failure to Invest in ECD is Costly and Difficult to Compensate for Later in Life

The skills developed in early childhood form the basis for future learning and labor market success. ECD enhances a child’s ability to learn, work with others, be patient, and develop other skills that are the foundation for formal learning and social interaction in the school years and beyond. Failure to develop these foundational skills can lead to long-term, often irreversible effects on educational attainment, health, fertility, and productive earnings, which later result in significant costs for both
individuals and society (Heckman and Masterov 2007). Studies in Brazil, Indonesia, Jamaica, Peru, the Philippines, and South Africa, among others, have shown that inadequate nutrition between conception and age 2 leads to serious cognitive delays in school-age children (Grantham-McGregor et al. 2007). In addition, among preschool-aged children, linguistic and cognitive delays can accumulate rapidly if not addressed. For example, figure 1.1.1 shows that, while differences in age-adjusted vocabulary among 3-year-old Ecuadorian children are generally small, by age 6, children in less wealthy or less educated households have fallen far behind their counterparts in wealthier or more educated households. This pattern occurs in part because poor children tend to receive less speech directed toward them and because the speech they do hear tends to have reduced lexical richness and sentence complexity (Fernald et al. 2009).

Associations between poverty and multiple areas of child development (including cognitive, physical, and socio-emotional) were also recorded as early as 6 months of age in Egypt, 12 months in Brazil, 10 months in India, and 18 months in Bangladesh (Grantham-McGregor et al. 2007).

As they get older, children living in poverty are likely to experience poor school performance, including high rates of repetition and drop out,
as well as high fertility and morbidity rates, which contribute to costly inefficiencies in the education and health sectors. They are also more likely to have low productivity and income, to provide poor care for their children, and to contribute to the intergenerational transmission of poverty (Grantham-McGregor et al. 2007), and they are less likely to contribute to the growth of their country’s economy.

Developmental delays before age 6 are difficult to compensate for later in life because early childhood is a particularly sensitive period for brain formation. Indeed, neurological studies have shown that synapses (that is, connections or pathways between neurons in the nervous system) develop rapidly during this period, forming the basis of cognitive and emotional functioning for the rest of the child’s life (Young and Mustard 2007). Both proper nutrition, especially from conception to age 2, and stimulation in the first 5 years of life play a critical role in the process of brain formation and development, mainly by supporting the multiplication of synapses and the myelination process, both essential for the nervous system to function normally (World Bank 2006; Nelson, de Haan, and Thomas 2006). Conversely, lack of proper nutrition and stimulation in the early years can lead to dramatic abnormalities in brain development (Shonkoff and Phillips 2000).

There is Strong Evidence that ECD Interventions Yield Significant Benefits in the Short and Long Term

Research increasingly demonstrates that cognitive abilities are as strongly affected by the quality of the environment and the amount of early stimulation and learning opportunities children are exposed to as they are by genetics, with genetic influences accounting for about half of the variance in cognitive abilities (Fernald et al. 2009). Similarly, children’s socio-emotional development and physical development are greatly influenced by their early environment.2

Environmental risk factors such as malnutrition, poor health, unstimulating home environments, and child maltreatment have all been shown to have a negative impact on children’s development (Irwin, Siddiqi, and Hertzman 2007). These risk factors tend to be more concentrated among poor households with less educated parents, partly because of information failures (for example, parents’ lack of knowledge on how to support children’s growth and development) and partly because of supply-side constraints (for example, unequal distribution of resources and services for young children).
A number of ECD investments (detailed in Notes 3.1–3.4) have been shown to have significant and long-lasting benefits in three broad categories of interrelated outcomes.

- **Enhancing school readiness and related educational outcomes.** School readiness means a child possesses the cognitive and socio-emotional abilities necessary to learn and succeed in school (see Note 1.3.). Related educational outcomes include improved performance on standardized tests, reduced school dropout or failure, and increased grade retention (Lynch 2005). A number of different ECD interventions, including those that focus on early education and preliteracy, nutrition, and parenting skills and knowledge, have been shown to positively affect school readiness and academic achievement. For example, participants in a high-quality, active-learning preschool program, High/Scope Perry Preschool, had higher rates of high school completion than the control group (71 vs. 54 percent), which in turn resulted in higher monthly earnings (29 vs. 7 percent earned US$2000 or more per month) and rate of home ownership at age 27 (36 vs. 13 percent) (Schweinhart et al. 2005).

- **Improving physical and mental health and reducing reliance on the health care system.** While it is not surprising that programs that address nutrition, immunization, and hygiene have demonstrated significant health benefits, it is important to recognize that other types of ECD interventions, including those that promote opportunities for early stimulation and learning, also have a direct impact on children’s health (see Note 1.2). Programs that strengthen young children’s cognitive and socio-emotional abilities can lead to fewer health problems later in life, in part because they reduce the likelihood of developing mental health problems, and also because they lead children to make choices that have health benefits, such as increased use of seatbelts and reduced use of cigarettes, alcohol, and legal and illegal addictive drugs (Schulman 2005).

- **Reducing engagement in high risk behavior.** High-risk behaviors common to children and youth include smoking, risky sexual behavior, substance use and addiction, and criminal and violent activity (Lynch 2005). These behaviors reduce the chance of making a successful transition to adulthood and increase the likelihood of negative outcomes such as illness, unemployment, adolescent pregnancy, sexually
transmitted diseases, addictions, incarceration, and social exclusion (Cunningham et al. 2008). Programs that enhance cognitive and socio-emotional abilities improve children’s ability to self-regulate their behavior and emotions. For example, an evaluation of a mother-child education program in Turkey showed that children whose families participated in the program had lower rates of delinquency than those whose families did not participate (Kagitcibasi et al. 2009). The Abecedarian Project, a randomized prospective trial of full-time quality child care from infancy to age 5 in the United States, found that, as they aged, participants were less likely to smoke, use marijuana, or become teen parents than children who had not participated in the program (Campbell et al. 2002).

Remedial interventions are possible later in a child’s development—such as education equivalency degree programs for school drop-outs or therapeutic interventions for violent youth—but the longer a society waits to intervene in the life cycle of a disadvantaged child, the more costly it is to remediate the disadvantage (Heckman 2008a). Indeed, ECD interventions have not only a high cost-benefit ratio, but also a higher rate of return for each dollar invested than interventions directed at older children and adults (see figure 1.1.2) (Heckman 2008b; Heckman, Stixrud, and Urzua 2006). Evidence suggests a potential return rate of 7–16 percent annually from high-quality ECD programs targeting vulnerable groups

**Figure 1.1.2 Rate of Return to Human Development Investment Across All Ages**

![Graph showing rates of return to human development investments across all ages](source: Carneiro and Heckman 2003)
(Rolnick and Grunewald 2007; Heckman et al. 2009). Accordingly, many countries invest public resources in ECD as both a rights-based service (UN 2006) and a sound financial investment.

Another economic advantage of ECD intervention is that it enhances both efficiency and equity, in that it offers a cost-efficient way to produce a well-trained and capable workforce, and leads to better outcomes for those at greatest disadvantage (Heckman and Masterov 2007).

Depending on the political economy of a given country, public resources may be invested for the most vulnerable only or for larger segments of the population, with potential trade-offs between equity and universality of service provision, including implications for costing and financing (see Notes 4.1. and 4.2.).

**ECD Investments can also have a Positive Impact on Older Girls and Women**

In addition to the direct impact of ECD interventions on young children, positive externalities also can occur in the areas of girls’ education and women’s labor force participation. Indeed, evidence suggests that affordable child care for young children can increase the school enrollment rates of older female siblings to a greater extent than even an increase in maternal wages. For example, a Kenyan study showed that increasing maternal wages would likely lead to an 11 percent increase in the school enrollment of boys in the family but a decrease in school enrollment of girls by 10 percent, as adolescent girls took over more home responsibilities because their mothers worked outside the home. In contrast, the study showed that reducing the cost of child care increased school enrollment of girls in the family without having a measurable effect on boys’ school enrollment in either direction (Lokshin, Glinskaya, and Garcia 2000).

Further evidence suggests that interventions that come with affordable child care can increase mothers’ engagement in the workforce (Lokshin, Glinskaya, and Garcia 2000; Berlinski and Galiani 2007), particularly among more educated mothers (Schlosser 2005). For example, a study in Argentina looked at the effect of large-scale increases in the availability of free public preschools nationwide and estimated an effect on increased maternal employment of 7–14 percent (Berlinski and Galiani 2007). Another study of Argentine families estimated a 13 percent difference in workforce engagement in favor of mothers whose youngest child just made the age cutoff for preschool eligibility versus those whose youngest child just missed that age cutoff (Berlinski, Galiani, and McEwan 2008).
Notes

1. Myelination is the production of a coating of myelin (an electrically insulating material) around the axon of a neuron (nerve cell), which maximizes the intensity of neural transmissions within the brain.

2. Evidence distinguishing between genetic and environmental factors comes primarily from industrialized nations. For a review, see Plomin 1994.

3. It is important to note that these high rates of return were observed for small-scale interventions that targeted vulnerable groups of children. Large-scale interventions that target a broader range of beneficiaries may yield smaller returns.

4. However, ECD may require complementary inputs at the primary school level for its learning achievement efforts to be sustained. Therefore, equity efficiency trade-offs might be necessary for low-income children as they get older.

Key Readings


References


NOTE 1.2

Why Invest in ECD? The Survival and Health Arguments
(for Policy Dialogue with Ministers of Health)

This note makes the case for public investment in early childhood development (ECD) as a critical contributor to healthy child growth and development from the earliest ages. It presents the evidence that many young children in low- and middle-income households continue to experience high mortality/morbidity from preventable causes, such as undernutrition, that have negative and costly effects on both short- and long-term development. The note also demonstrates the important synergies among early childhood stimulation,1 nutrition, and health/hygiene, showing that all three are necessary for children to thrive and to achieve their full potential (see figure 1.2.1).

Despite Recent Progress, Many Poor Children Still Die of Preventable Causes

Child mortality is a sensitive indicator of a nation’s development, representing multiple inputs to child well-being including nutrition, health and child rearing knowledge of mothers and other caregivers; birth timing and spacing; access to health services, potable water, and sanitation; care-seeking during illness; and the general safety of the environment, among
others. Recent UNICEF estimates (January 2010) of under-5 mortality show progress and positive trends (You et al. 2010). For example, between 1990 and 2008, the global under-5 mortality rate has dropped by 28 percent from 90 to 65 deaths per 1000 live births; the total number of deaths has similarly declined, from 12.5 million to 8.8 million. Yet, despite progress in many countries, under-5 mortality rates have stalled in eastern and southern Africa and worsened in central Africa and West Africa.

Infections are the primary killers of children, including pneumonia (20 percent of neonatal and child deaths); diarrheal diseases (18 percent for both neonatal and child deaths); and measles, malaria, and AIDS (combined, these three diseases cause 15 percent of under-5 deaths) (UNICEF 2008). Depending on the country context and the reductions in deaths to children over one month of age, neonatal disorders are claiming an ever-higher percentage of the deaths of children under five, pointing to the urgent need to address the determinants of neonatal mortality. Finally, under-nutrition is the underlying cause for as many as one third of under-5 deaths, highlighting the critical importance of an integrated approach to health and nutrition (including through positive caring practices such as responsive feeding)\(^2\) for promoting the survival of vulnerable children.
Estimates indicate that approximately two-thirds of under-5 deaths could be prevented by interventions that are currently available and feasible worldwide (Black, Morris, and Bryce 2003). The single most promising intervention strategy for improving child survival is the promotion of exclusive breastfeeding. For example, increasing the rate of exclusive breastfeeding during the first six months of life to 90 percent would help prevent up to 13 percent of children’s deaths worldwide. Other effective preventive strategies to increase the likelihood of child survival include feeding children with nutritious complementary foods starting at age 6 months (including through responsive feeding strategies, as further discussed in Note 3.2.); provision of twice yearly vitamin A supplements; inoculation with vaccines; and the prevention and timely treatment of pneumonia, diarrhea, and malaria (Black, Morris, and Bryce 2003).

For Those Who Survive, Poor Health and Inadequate Nutrition and Stimulation in Early Childhood Often Lead to Long-Term Health and Development Issues That are Costly for Societies

Ensuring that children survive the first five years of life is a high priority, especially in countries where UN Millennium Development Goal 4 (Reduce child mortality by two-thirds between 1990 and 2015) will not be met. However, survival alone is not sufficient for children to grow into healthy, competent, and productive members of society. A 2007 study (Walker et al. 2007) estimates that at least 200 million children under the age of 5 worldwide will most likely survive early childhood but will fail to reach their full potential in life because of poor health, undernutrition, and lack of stimulation in early childhood. For these children and the societies in which they live, early deficits will translate into long-lasting and costly consequences.

Inadequate Nutrition, Particularly before Birth through Age 2, Leads to Stunting

Health and hygiene in early childhood are closely interrelated with nutrition. Poor diet (quantity and quality), inadequate caring practices, and childhood infections can contribute to stunting. For example, a pooled analysis of nine studies showed that that each episode of diarrhea increased the risk of stunting at age 24 months by approximately 2.5 percent (Humphrey 2009). Illness can suppress appetite as
well as increase a child’s nutritional requirements, while nutrient deficiencies can increase the risk of illness and the severity of disease (World Bank 2006).

A recent report also suggests a likely high contribution (previously not well-documented or discussed) of tropical enteropathy (a subclinical disorder of the small intestine caused by the ingestion of fecal bacteria by young children living in conditions of poor hygiene and sanitation) to child undernutrition, highlighting the important role that provision of toilets and adequate handwashing will have in reducing the prevalence of child undernutrition (Aboud, Shafique, and Akhter 2009).

Poor nutrition often begins in utero and leads to poor health outcomes later in life. Maternal undernutrition (including inadequate calories and deficiencies of iron and iodine) and untreated infections (for example, malaria and sexually transmitted infections) contribute to intrauterine growth restriction (IUGR), low birthweight (LBW, that is, weight at birth less than 2500 g), and stunting. Already facing disadvantage before birth, LBW children rarely fully recover the lost linear growth suffered in utero (Alderman and Behrman 2006).

Additional risks of LBW link small babies to later adult health problems. Evidence from observational studies supports the hypothesis of the fetal origins of adult disease. This theory proposes that LBW and stunted growth in early childhood, followed by compensatory weight gain at later ages (after age 2), are associated with hypertension, increased serum cholesterol, higher susceptibility to type 2 diabetes, and increased risk of coronary heart disease in adulthood (Barker et al. 2002).

In addition to the high likelihood of irreversible growth deficits, a recent analysis of children born during three years of famine in China (1959–61) points to an increased risk of mental health disorders (including schizophrenia) associated with nutritional deficits in the developing fetus (St. Clair et al. 2005). These findings align with earlier studies of the impact of the 1944 Dutch famine (Stein et al. 1975; Susser et al. 1996).

Undernutrition also leads to impaired brain development, cognitive delays, and reduced productivity. The associations between early childhood health and nutrition status and later outcomes for cognitive development and school progress are well-documented in cross-sectional studies (Granthon-McGregor et al. 2007). When compared to nonstunted children, those stunted before 24 months are less likely to be enrolled in
school or they enter school late; they demonstrate lower levels of school readiness and exhibit lower school achievement, including lower grades and lower cognitive achievement scores. Iodine deficiency in pregnant women can lead to irreversible mental retardation in their offspring (Walker et al. 2007). Undernourished children, including those with anemia during the first 2 years of life, also have poorer psychomotor skills, lower activity levels, more apathy, less interaction with caregivers, and lower rates of exploration of their environments.

The long-term effects of early undernutrition also include reduced adult productivity resulting from fewer overall years of education and less learning per year in school (Walker et al. 2007), with the clear economic costs of less education for the individual and the work force. In addition to the association between stunting and educational outcomes, evidence also links early stunting with short adult stature and reduced lean body mass, which negatively affect physical work capacity and productivity (Haas et al. 1995). For instance, one study estimated that adults who were stunted in early childhood earn between 22.2 and 30.1 percent less than adults who were not stunted (Grantham-McGregor et al. 2007). In Guatemala, the results of a recent study show that boys given a nutritional supplement1 between birth and 24 months (1969–77) earned on average 46 percent higher wages as adults than those in the control group (who were more likely to be stunted) (Hoddinott et al. 2008).

Finally, there is also a high risk of intergenerational transmission of poor nutrition, health, and development as stunted, underweight girls are at greater risk of giving birth to stunted and small babies than are their well-nourished peers.

The double burden of under- and overnutrition. While many low- and middle-income countries continue to deal with the problems of infectious disease and undernutrition, they are also experiencing a surge in obesity and overweight—risk factors for noncommunicable diseases. In more and more countries, communities, and households, the double burden of under- and overnutrition is evident.

The prevalence of overnutrition in the young has increased substantially, with the global estimate of numbers of overweight children under the age of 5 at over 42 million.4 Nearly 35 million of these children live in developing countries. Overweight and obese children are likely to stay obese into adulthood and more likely to develop noncommunicable diseases like diabetes and cardiovascular diseases at a younger age.
According to the World Health Organization, the rise of overweight and obesity in low- and middle-income countries, particularly in urban settings, likely results from a combination of increased intake of energy-dense foods high in fat and sugars and decreased physical activity (WHO 2006).

*Lack of Stimulation in Early Childhood Also Contributes to Poor Growth and Impairs Children’s Overall Development*5

Young children cannot reach their full potential through good health and nutrition alone. Indeed, children who have access to adequate nutrition sometimes fail to eat and grow properly because they lack stimulation and attention at an early age. These cases may lead to a spectrum of conditions called “failure to thrive.” (Lozoff 1989; Tanner 1990).

Stimulation also plays a critical role in the process of brain formation, and developmental delays before age 6 are difficult to compensate for later in life because early childhood is a particularly sensitive period for brain formation. Indeed, neurological studies have shown that synapses (connections or pathways between neurons) are developed rapidly during this period and form the basis of cognitive and emotional functioning for the rest of the child’s life (Young and Mustard 2007).

Therefore, both adequate nutrition, especially from conception to age 2, and early childhood stimulation in the first 5 years of life play critical roles in the process of brain formation and development, mainly by supporting the multiplication of synapses and the myelination6 process, which are essential for the nervous system to function normally (World Bank 2006; Nelson, deHaan, and Thomas 2006).

*There is Strong Evidence That ECD Interventions Focusing on Health, Nutrition, and Early Stimulation (Rather Than on Health and Nutrition Alone) Yield the Greatest Benefits in Terms of Children’s Health and Overall Development*

Evidence from a study in Jamaica demonstrates the cumulative effects of nutrition and child stimulation. Among 9- to 24-month-old children who were stunted, those receiving both nutritional supplements and stimulation scored higher on developmental tests than children receiving only one or neither of the interventions (see figure 1.2.2) (Grantham-McGregor 1997). After two years of intervention (1 kg of milk-based formula per week and 1-hour weekly home visits by community health workers to improve mother-child interactions through play),
the development quotient (DQ) gap between stunted and non-stunted children was nearly erased among the malnourished children receiving both nutrition and stimulation interventions.

Follow-up of a substantial portion of the original study cohort at ages 7–8, 11–12, and 17–18 found that children receiving stimulation maintained improved cognitive and educational performance over time. Among children who received the nutritional supplement but not the stimulation, the positive cognitive effects were evident at age 7, but not at ages 11 and 17 (Walker et al. 2005).

A study in Vietnam yields similar findings. Staged interventions (nutrition between ages 0 and 3 years and a stimulation intervention between ages 4 and 5 years) produced improved cognitive outcomes compared to children who received only the nutrition intervention (Watanabe et al. 2005). There was even greater impact on stunted children, demonstrating that stimulation activities can mitigate the negative consequences of linear growth failure for cognitive development.

Accordingly, planning paradigms that support the delivery of integrated ECD services, including health, nutrition (starting during pregnancy), and early child stimulation (starting at birth), will ensure maximum returns for human capital investments at later ages while also promoting significant efficiencies in the public health system.
Notes

1. Early childhood stimulation is defined as providing young children with constant opportunities to interact with caring people and to learn about their environment from the earliest age. In practice, stimulation is about parents and other family members and caregivers being responsive to the emotional and physical needs of children from birth onward, playing and talking with them (even before children can respond verbally), and exposing them to words, numbers, and simple concepts while engaging in daily routines.

2. Responsive (or active) feeding refers to “positive behaviors by caregivers during feeding (e.g., encouraging the child to eat, offering more servings, smiling and talking to the child) and to feeding practices that are attuned to the child’s psychomotor abilities (e.g., ability to pick up food with fingers, handle a spoon or a cup, and so on).” See Aboud, Shafique, and Akhter 2009.

3. The nutritional supplement (Atole) consisted of dry skimmed milk, vegetable protein (cornmeal), and sugar. It was given twice a day to participating children.


5. Much of the information contained in this section comes from Naudeau (2009).

6. Myelination is the production of a coating of myelin (an electrically insulating material) around the axon of a neuron, which maximizes the intensity of neural transmissions within the brain.

Key Readings


References


Why Invest in ECD? The School Readiness and School Achievement Arguments
(For Policy Dialogue with Ministers of Education)

This note makes the case for public investment in early childhood development (ECD) by presenting evidence that poor children who do not benefit from quality ECD interventions are often not prepared to learn once they enter primary school, which leads to inefficiencies in the public education system that are costly to both families and societies. This note also provides evidence that well-targeted ECD interventions are a cost-effective strategy to promote school readiness, school achievement, and school completion (including among older girls in the family), thus maximizing further investment in public education and allowing poor children to become productive adults.

Poor Children are Often Not Ready to Learn by the Time they Enter Primary School

School readiness is the degree to which a child is prepared to learn and succeed in school (Ackerman and Barnett 2005). Research has increasingly shown that children’s school readiness depends not only on their cognitive skills upon primary school entry, although these skills are crucial,
but also on their physical, mental, and emotional health, as well as ability
to relate to others (Hair et al. 2006) (see table 1.3.1).

Research also demonstrates that cognitive abilities are as strongly
affected by the quality of the environment and the amount of stimulation
and learning opportunities children are exposed to from birth onward as
they are by genetics (with genetic influences accounting for about half of
the variance in cognitive abilities) (Fernald et al. 2009). Similarly, chil-
dren’s socio-emotional development and physical capacity are strongly
influenced by their early environment.1

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Environmental risk factors such as malnutrition, poor health, unstimulating home environment, and child maltreatment have all been shown to have a negative impact on the development of a child’s capacities and ability to learn and succeed in school (Irwin, Siddiqi, and Hertzman 2007). These risk factors tend to be more concentrated among poor households with less-educated parents, partly because of information failures (for example, lack of parental knowledge about the critical importance of supporting children’s growth and development from conception on) and partly because of supply-side constraints (for example, unequal distribution of resources and services for young children).

A 2007 analysis of data from children in developing countries reveals that more than 200 million children under 5 years of age are exposed to multiple risks that detrimentally affect their development (Grantham-McGregor et al. 2007). The consequences can be dramatic. For example, while differences in age-adjusted vocabulary among 3-year-old Ecuadorian children are generally small, steep socioeconomic “gradients” appear in the following years. By age 6, children in less wealthy households and children born to mothers with low education levels have fallen far behind their counterparts in wealthier or more educated households (see figure 1.1.1 in Note 1.1) (Paxson and Schady 2007).

This pattern occurs in part because poor children tend to receive less speech directed toward them and because the speech that they do hear tends to have reduced lexical richness and sentence complexity (Fernald et al. 2009). Associations between poverty and multiple domains of child development (including cognitive, physical, and socio-emotional) were also recorded as early as 6 months of age in Egypt, 12 months in Brazil, 10 months in India, and 18 months in Bangladesh (Grantham-McGregor et al. 2007).

For all these poor or otherwise disadvantaged children, early gaps in physical, linguistic, cognitive, and socio-emotional development seriously jeopardize their capacity and motivation to learn upon primary school entry. As they age, these children are more likely to have poor academic performance, to repeat grades, and to drop out of school than those whose cognitive skills and overall school readiness were higher upon primary school entry (Feinstein 2003; Pianta and McCoy 1997; Currie and Thomas 1999).

**Lack of School Readiness Among Poor Children Leads to Costly Inefficiencies in the Public Education System**

When more than just a few students enter primary school with low levels of school readiness, even the best schools struggle to maintain an
environment conducive to learning (Wentzel and Wigfield 1998), and children are more likely to score poorly, to repeat grades, and to drop out of school before they complete the primary cycle (Reynolds et al. 2001; Heckman and Masterov 2007). These phenomena naturally undermine the social and economic benefits expected from the investment that parents and governments, in the case of publicly funded education, make in children. Moreover, these phenomena raise a fundamental question about the quality of human resources available in the employment market and their capacity to make an effective contribution in the face of the challenges of competitiveness and overall development of the country.2

Remedial interventions such as special education or equivalency degree programs for school dropouts are possible. However, these interventions are usually costly and they are often much less effective than preventive interventions in early childhood (Heckman 2008a).

There is Strong Evidence that ECD Interventions Yield Significant Benefits in Terms of School Readiness and Achievement, Particularly Among Poor Children

Many brain functions are particularly sensitive to change early in life and become less plastic (malleable) over time (Heckman 2008). In fact, much of a child’s brain architecture is “wired” in the first 5 years of life (Shonkoff and Phillips 2000), which leaves little room for adjustment later on. As shown in figure 1.3.1, even functions that continue to have a high degree of sensitivity in later childhood (for example, numerical ability and peer social skills) have their peak sensitivity levels in the first 4 to 5 years of life. Other functions such as emotional control and habitual response patterns not only peak in the first few years but typically reach a high stability level before age 5. This suggests that those patterns cannot easily be modified afterward, which is why early stimulation and learning opportunities before primary school entry are essential.

Several studies have shown that investing in quality ECD programs helps bridge the gap between poor and otherwise disadvantaged children and those from more privileged backgrounds, thus preparing them for a successful transition to primary school and for quality lifelong learning. More specifically, participation in quality ECD programs has been linked to higher school attainment and completion (Kagitcibasi, Sunar, and Berkman 2001); improved attention and better learning outcomes (Vegas and Petrow 2008; Berlinski, Galiani, and
As an example of ECD benefits, Bangladeshi children who received some form of organized preschool education outperformed their peers in the control group by 58 percent on a standardized test of school readiness (Aboud 2006). In Colombia, children who received a comprehensive community-based ECD intervention were 100 percent more likely to be enrolled in third grade, thus indicating lower dropout and repetition rates for program children than for those in the control group (Young 1995). In Argentina, one year of preschool was estimated to increase the average third-grade test grade in mathematics and Spanish by 8 percent (Berlinski, Galiani and Gertler 2009). In Turkey, children who attended a mother-child education program providing cognitive enrichment to children and training and support for mothers were more likely to be in school during their teenage years than those in the control group (86 vs. 67 percent) (Kagitcibasi, Sunar, and Bekman 2001). And in the United...
States, children who received high-quality, comprehensive ECD services were 50 percent more likely to finish secondary school than those not receiving those services (Schweinhart et al. 2006).

Thus, ECD interventions have a higher rate of return per dollar invested than interventions directed at older children and adults (Heckman 2008b; Heckman, Stixrud, and Urzua 2006). Evidence suggests a potential return rate of 7–16 percent annually from high-quality ECD programs targeting vulnerable groups—that is, those from low-income settings or otherwise disadvantaged (Rolnick and Grunewald 2007; Heckman et al. 2009).3 Accordingly, many countries invest public resources in ECD as both a rights-based service (UN 2006) and a sound financial investment.

ECD Investments Can Also Have a Positive Impact on the Education of Older Girls

In addition to the direct impact that ECD interventions have on young children, positive externalities (or benefits not directly connected to the cost of a service) can occur in girls’ education. Indeed, evidence suggests that affordable childcare for young children can increase the school enrollment rates of older female siblings to a greater extent than even an increase in maternal wages. For example, a Kenyan study shows that increasing maternal wages would likely lead to an 11 percent increase in the school enrollment of boys in the family but would decrease enrollment of girls in the family by 10 percent as adolescent girls took over more home responsibilities because their mothers engaged in more out-of-home work. In contrast, the study shows that reducing the cost of childcare increased school enrollment of girls without having a measurable impact on boys’ school enrollment in either direction (Lokshin, Glinskaya, and Garcia 2000).

Notes

1. Evidence distinguishing between genetic and environmental factors comes primarily from industrialized nations. For a review, see Plomin (1994).

2. See Marouani and Robalino (2008) for an example of these dynamics in Morocco.

3. Note that these high rates of return were observed for small-scale interventions that targeted vulnerable groups of children. Large-scale interventions that target a broader range of beneficiaries may yield smaller returns.
Key Readings


References


“Developmental Potential in the First 5 Years for Children in Developing Countries. The Lancet 369 (9555): 60–70.


SECTION 2

Assessing Needs, Measuring Outcomes, and Establishing Policy Frameworks
NOTE 2.1

Data Collection for Designing, Monitoring, and Evaluating ECD Interventions

This note provides an overview of data collection for designing, monitoring, and evaluating ECD interventions. First, to design ECD interventions to fit a country’s national economy and priorities, it is important to conduct a situation analysis or needs assessment that includes data on the socioeconomic, demographic, health, nutrition, and education status of the population, as well as data on the quality and availability of existing services. By identifying population needs and service gaps, the situation analysis is the first step in developing a national ECD policy (see Note 2.2). Second, data are collected to track and monitor the implementation of ECD services. Third, governments may wish to measure outcomes of a specific ECD intervention to determine the impact of a program and its need for improvement. Impact evaluations can also guide future investments by providing data for estimating the cost-effectiveness of interventions. Collecting these data should be a cyclical process (see figure 2.1.1). Ideally, governments and partners will assess and reassess their population’s needs over time and adjust the provision of ECD services accordingly. As needs are met, the interventions can be refocused to prioritize the next set of issues. In turn, approaches that work best can be scaled up.

The first section of this note provides a list of priority indicators for assessing the needs of young children, taking into consideration the typical
time, funding, and logistical constraints on accessing information from administrative data and household surveys. The second section focuses on the supply-side and demand-side indicators for monitoring the scope and quality of ECD services. The third section focuses on outcome data, specifically on children’s development (physical, cognitive, language, and social and emotional) and the issues related to selecting, adapting, and using data collected with standardized child assessment instruments.

**Assessing the Needs of Young Children for Situation Analyses and Monitoring**

A comprehensive assessment of young children’s needs is an important component of a situation analysis, complementing data on existing policies, resources, and services. The indicators most helpful in assessing these needs and the service gaps that need to be filled in a given country or region can be divided into three categories:

- **General socioeconomic and demographic indicators** provide an overview of the subgroups of young children who may be particularly at risk and who are most likely to benefit from ECD services. In many developing countries, there are steep socioeconomic “gradients” in cognitive development among preschool-age children, with children from poorer households showing significantly worse outcomes by age 5 or 6 (see Note 1.1).
• **Health/nutrition indicators** can be used to assess: (1) the general health and hygiene conditions in which young children are raised and (2) whether malnutrition is an important issue, both at the national level and for specific sub-groups of children.

• **Education indicators** can be used to assess the overall level of children’s “school readiness” (as defined in Note 1.3.) upon primary school entry and the efficiency of the education system.

Table 2.1.1 provides a short list of the indicators for conducting a complete ECD situation analysis that can inform project design and program implementation.

Depending on the country, data on all or part of these socioeconomic, demographic, health/nutrition, and education indicators may be available through Demographic and Health Surveys (DHS), typically supported by the United States Agency for International Development (USAID), through the country’s ministries of health and education (for example, MIS [management information systems] data), or through the Multiple Indicator Cluster Survey (MICS) supported by UNICEF (United Nations Children’s Fund). In addition, the UNESCO (United Nations, Educational, Scientific and Cultural Organization) Institute for Statistics annually reports standardized cross-national data on ISCED (International Standard Classification for Education) for level 0 (pre-primary education for children from age 3) and above. To the extent possible, all data should be disaggregated by age group (that is, 0–2, 3–4, 5–6 years) and by the following variables: ethnicity, languages, special needs, urban vs. rural, wealth quintiles, parental education/literacy rates, and household information such as gender and family status (for example, single parent household, female-headed household).

In addition, data on child development outcomes can be collected either by direct assessment of the child or by report from a knowledgeable adult. Issues involved in collecting and using these data are presented later in this note.

**Assessing the Scope and Quality of Existing ECD Services for Situation Analyses and Monitoring**

For both situational analysis and ongoing monitoring purposes, it is important to assess the ECD service gaps in a given country or region by collecting data on the scope and quality of existing ECD services. Given that services may vary widely for different groups of children, it is useful
Table 2.1.1  Indicators for Conducting an ECD Situation Analysis

<table>
<thead>
<tr>
<th>Indicator description</th>
<th>Indicator definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute size of early childhood population</td>
<td>Total children under age 6</td>
</tr>
<tr>
<td>Relative size of early childhood population</td>
<td>Percent of total population under age 6</td>
</tr>
<tr>
<td>Young child poverty rate</td>
<td>Percent under age 6 in households with less than 50% of median income</td>
</tr>
<tr>
<td>Parental education</td>
<td>Highest education level completed by each parent</td>
</tr>
<tr>
<td>Parental literacy</td>
<td>Percent of population age 15 years and older who can both read and write (understand short, simple, everyday-life sentences). Generally, “literacy” also encompasses “numeracy,” the ability to make simple arithmetic calculations.</td>
</tr>
<tr>
<td>Parent employment rates</td>
<td>Percent of adults who have children under age 6 and participate in the labor force</td>
</tr>
<tr>
<td>Prevalence of orphans</td>
<td>Percent of children under age 6 who have lost one or both parents</td>
</tr>
<tr>
<td>Prevalence of single parent households</td>
<td>Percent of households led by one parent</td>
</tr>
<tr>
<td>Prevalence of teen parent households</td>
<td>Percent of households led by a parent under age 20</td>
</tr>
<tr>
<td>Birth registration</td>
<td>Percent of children under age 6 with a birth certificate</td>
</tr>
</tbody>
</table>

**Health and nutrition indicators**

<table>
<thead>
<tr>
<th>Indicator description</th>
<th>Indicator definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother’s age at birth of first child</td>
<td>Median age of mother at birth of first child</td>
</tr>
<tr>
<td>Mother’s use of focused prenatal care</td>
<td>Percent of pregnant women who used prenatal care provided by skilled health personnel at least four times during pregnancy</td>
</tr>
<tr>
<td>Exclusive breastfeeding rate</td>
<td>Percent of infants birth through 5 months who were given only breast milk in the last 24 hours</td>
</tr>
<tr>
<td>Incidence of low birth weight (2500 g)</td>
<td>Percent of births of weight less than 2500 g out of the total number of live births in the same time period</td>
</tr>
<tr>
<td>Prevalence of stunting (too short) in children</td>
<td>Percent of children of a specific age (for example under age 2) with height- or length-for-age less than –2 Z-score</td>
</tr>
<tr>
<td>Prevalence of underweight (too small) in children</td>
<td>Percent of children of a specific age with weight-for-age less than –2 Z-score</td>
</tr>
<tr>
<td>Prevalence of wasting (too thin) in children</td>
<td>Percent of children of a specific age with weight-for-height less than –2 Z-score</td>
</tr>
<tr>
<td>Indicator</td>
<td>Definition</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td>Body mass index (BMI)—estimate of body fat</td>
<td>Calculated by using an individual's weight in kg/height in meters²</td>
</tr>
<tr>
<td>Prevalence of overweight/obese (too heavy)</td>
<td>Percent of children of a specific age with BMI-for-age at 85th percentile (overweight) or at or above 95th percentile (obese)</td>
</tr>
<tr>
<td>Infant mortality rate (IMR)</td>
<td>Probability of a child born in a specific year or period dying before reaching age 1 year, subject to age-specific mortality rates of that period, expressed per 1,000 live births</td>
</tr>
<tr>
<td>Under-five mortality rate (U5MR)</td>
<td>Probability of a child born in a specific year or period dying before reaching age 5 years, subject to age-specific mortality rates of that period, expressed per 1,000 live births</td>
</tr>
<tr>
<td>Prevalence of anemia in young children</td>
<td>Percent of children age 6–59 months with hemoglobin less than 11 g/dL</td>
</tr>
<tr>
<td>Consumption of iodized salt to prevent iodine deficiency disorders</td>
<td>Percent of children age 0–23 months living in a household with adequately iodized salt (15 ppm or more)</td>
</tr>
<tr>
<td>Immunization rate: Coverage of children with DTP3 (combined diphtheria-tetanus toxoid and pertussis vaccine)</td>
<td>Percent of children age 1 year who have received three doses of DTP3 in a given time period</td>
</tr>
<tr>
<td>Access to safe drinking water</td>
<td>Percent of population using an improved drinking water source</td>
</tr>
<tr>
<td>Access to hygienic latrines</td>
<td>Percent of population using an improved sanitation facility</td>
</tr>
</tbody>
</table>

**Education indicators**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of new entrants in grade 1 with Early Childhood Care and Education (ECCE) program experience</td>
<td>Number of new entrants to primary grade 1 who have attended some form of organized ECCE program for the equivalent of at least 200 hours, expressed as a percentage of total number of new entrants to primary grade 1.</td>
</tr>
<tr>
<td>Gross intake ratio at grade 1</td>
<td>Number of new entrants to primary grade 1, regardless of age, expressed as a percentage of the population at the official age for primary school entrance</td>
</tr>
<tr>
<td>Proportion entering grade 1 on time</td>
<td>Number of new entrants to primary grade 1 who are of official eligible school age, expressed as a percentage of the corresponding population</td>
</tr>
<tr>
<td>Gross enrollment ratio in grade 1</td>
<td>Total enrollment in grade 1, regardless of age, expressed as a percentage of official eligible school-age population corresponding to the same level of education in a given school year</td>
</tr>
<tr>
<td>Net enrollment rate in grade 1</td>
<td>Enrollment of the official age group for grade 1, expressed as a percentage of the corresponding population</td>
</tr>
</tbody>
</table>

(continued)
Table 2.1.1 Indicators for Conducting an ECD Situation Analysis (continued)

<table>
<thead>
<tr>
<th>Indicator description</th>
<th>Indicator definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repetition rates in grade 1 and 2</td>
<td>Percent of pupils from a cohort enrolled in a given grade at a given school year who study in the same grade in the following school year</td>
</tr>
<tr>
<td>Dropout rates in grade 1 and 2</td>
<td>Percent of pupils from a cohort enrolled in a given grade at a given school year who are no longer enrolled in the following school year</td>
</tr>
<tr>
<td>School wastage (absenteeism)</td>
<td>Average number of days children were absent from school in the last month</td>
</tr>
<tr>
<td>Primary completion rate</td>
<td>Ratio of the total number of students successfully completing (or graduating from) the last year of primary school in a given year to the total number of children of official graduation age in the population</td>
</tr>
</tbody>
</table>
to disaggregate the following data by age group (ages 0–2, 3–4, 4–5) and, where possible, by socioeconomic background and other risk factors.

**Provision of Existing ECD Services**
Before designing a new ECD intervention, existing resources and services must be mapped and the extent to which they serve the needs of the population must be assessed. Most countries have some services for young children—government-organized health services for mothers and young children, public daycare facilities or preschools, and privately run daycare facilities or preschools and private health services, or some combination of these.

The following questions can guide the mapping of existing services, focusing on supply-side and demand-side indicators:

**Supply-side indicators**

- What is the coverage rate for different types of services (center-based, home-based, and so on); for different segments of the population (rich vs. poor, urban vs. rural, children with disabilities); and for different regions within a country?
- Are relevant services available in the most vulnerable communities?
- Are existing services mostly public or private, or a combination of both?
- Which ministry/agency/department is responsible for policy implementation and quality monitoring?
- Which ministry/agency/department is responsible for financing?

**Demand-side indicators**

- What is the take-up rate (enrollment rate) for existing services?
- What are the financial constraints (direct and opportunity costs) that may prevent the poorest families from using existing services?
- Do the most disadvantaged groups have access to existing services and use them?
- Are there any other constraints that prevent at least some families from using existing services? Possible constraints could include: (1) long distances and lack of transport between home and service location; (2) lack of parental awareness of the need to take an active part in their children’s development; (3) cultural constraints, as in the case of minority families who feel that existing services are not sensitive to their child-rearing beliefs and practices or their language or religion.
Quality of Existing ECD Services
An assessment should also be made of the quality of existing ECD services in order to monitor implementation of the service and to determine which ECD services (1) appear particularly promising and could be scaled up, (2) need improvement in specific areas, and (3) are potentially detrimental to the children’s development and should be discontinued.

Quality of a service is a contextually determined concept that can be defined and measured in various ways (see Notes 3.1 and 3.2). Yet, there are common structural, organizational, and process elements of “quality” that predict child development outcomes, including their physical, cognitive, linguistic, and socio-emotional development (Myers 2004; 2006). These process elements are as follows:

- **Structural variables**: adult-child ratios, group size, physical environment, and availability of equipment and pedagogical materials.
- **Caregiver variables**: initial education, training, mentoring/supervision, and wages.
- **Program variables**: program intensity, parent involvement, language of instruction, curriculum, daily routine, and health/nutrition inputs.
- **Process variables**: caregiver-child and child-child interactions.

To measure the quality of an early childhood environment, several standardized observation tools have been developed, often as part of a national quality assurance and monitoring framework, as in Australia, Chile, Costa Rica, Ecuador, Indonesia, Mexico, Panama, Pakistan, Singapore, and Vietnam (National Research Council 2008). Some tools are self-assessment instruments that can be used by service providers to evaluate quality and identify areas for improvement. Others are designed for external evaluations, including, for example, the widely used Early Childhood Environment Rating Scale (ECERS-R, for 2-1/2- to 5-year-olds), Infant-Toddler Environment Rating Scale (ITERS-R, from birth to 30 months), and Family Child Care Environment Rating Scale (FCCERS-R, for in-home/family daycare, from birth to starting primary school). Evaluation items included in these instruments are physical environment, basic care, curriculum, interaction, schedule and program structure, and parent and staff education (Harms, Clifford, and Cryer 1998). These scales have been adapted for use in multiple countries, including Bangladesh (Aboud 2006), Brazil, and East Africa (Kenya, Zanzibar, and Uganda) (Malmberg, Mwaura, and Sylva, forthcoming), to name a few. They can also be used to undertake a needs assessment,
Although care must always be taken to assess how relevant the subscales and items are to the local context. These instruments for quality assessment can also serve as a useful complement to the analysis or interpretation of impact evaluations that aim to assess whether a given ECD intervention results in better health and nutrition status or higher levels of school readiness, or both, among beneficiary children (see next part of this note). For example, quality assessment tools may provide monitoring data that can shed light on whether the intervention was implemented as planned or whether there was any variation in the quality of service delivery across intervention sites that could help explain any impact evaluation results.

**Measuring Child Development Outcomes**

Within the context of World Bank support to clients, the three main reasons for collecting data on child development outcomes are—

• To establish a baseline and document the magnitude of the problem. Before implementing an intervention, it is important to collect data on child development outcomes as a baseline from which change can be measured. These data also document service delivery gaps. For example, the baseline of an evaluation of a community-based ECD program in rural Mozambique highlighted the extensive cognitive and language delays of disadvantaged children compared to their more advantaged peers, as well as the need for ECD interventions to help close the gap as much as possible before children begin school and disparities increase further.

• To evaluate the impact of existing ECD interventions. While it is important to know how many children are reached by a given ECD project, or how many ECD teachers or providers are trained, among other factors, that information by itself is not enough. Projects that do not show a measurable positive impact on child development outcomes that contribute to school readiness and to long-lasting health benefits cannot be considered successful and may, in fact, be a waste of resources. Similarly, measuring only the quality of interventions is not enough since “quality” interventions may be ineffective or inappropriate for certain settings.

• To assess the specific types of ECD interventions that are most effective and cost-effective in a given context or for specific populations.
and to inform the policy dialogue for future planning. The relative feasibility and cost-effectiveness of different ECD interventions may vary in different contexts, depending on the types of services and infrastructures already in place. The evidence base is still relatively limited in this area, but several World Bank-supported impact evaluation studies are currently under way to address this question. For example, an impact evaluation in Cambodia aims to assess the relative cost-effectiveness of three types of ECD interventions (formal preschools, community-based preschools, and home-based programs) to inform scaling up activities.

Selecting the Domains of Child Development to be Measured
The commonly used indicators differ within each of the four domains of child development described in the introduction to this guide. The domains and specific indicators within each are as follows:

- **Physical development indicators** cover growth and general health (see health and nutrition indicators in table 2.1.1), gross motor development (for example, walking, running, jumping), and fine motor development (for example, picking up objects and holding eating utensils in infants and toddlers, holding a pencil to draw and write in preschool-age children).

- **Cognitive development indicators** include problem-solving skills (for example, stacking and nesting objects), memory, and early math skills (for example, sorting objects and knowing what is meant by “one” or “two” of something). As children near school entry, indicators include knowledge of letters and numbers, ability to retain information in short-term memory, and knowledge of key personal information like one’s name and address.

- **Language development indicators** include babbling, pointing, and gesturing in infancy, the emergence of first words and sentences in toddlerhood, and an explosion of words between ages 2 and 3 years. For preschoolers, indicators include production and understanding of words, abilities to tell stories and to identify letters, and comfort and familiarity with books.

- **Social and emotional development indicators** include infants’ relationships with caregivers in terms of trust and confidence. For preschoolers, indicators include getting along with peers and teachers,
behavior management (following directions and cooperating with requests), social perception (identifying thoughts and feelings in themselves and others), and self-regulatory abilities (emotional and behavioral control, especially in stressful situations).

- **Executive function** is a mix of cognitive and socio-emotional skills that can also be measured.

The domains of child development to be measured depend on the original intent of the intervention and the research questions to be addressed. For example, in the case of a nutritional intervention, it would be relevant to measure both physical and cognitive development outcomes among children who benefit from this intervention, but may be less directly relevant to measure language and socio-emotional development.

During a child’s early years, however, new capacities emerge continuously and often in close succession. Development in one domain often acts as a catalyst for development in another. For example, after learning to walk, children are faced with new demands on self-control, as parents are more likely to restrict their behavior and expect that a “no” command will be obeyed. Similarly, children who are slow to develop in one domain (for example, understanding language) may have limited capacity to display the skills that they possess in other domains (for example, cognitive tasks that require language skills). Further, several recent studies have shown that noncognitive skills play a significant role in school achievement, productivity, and the likelihood of engaging in risky and criminal behaviors later in life (Heckman 2008). Therefore, development in young children should be assessed as comprehensively as possible whenever feasible.

When selecting domains to measure, it is also important to consider the relationship between the length of the intervention and the sustainability of the development gain. In other words, it is important to look at which outcomes can be expected to change as a result of an intervention at the time the evaluation data are collected. For example, height-for-age is not very malleable after age 2, so it is probably not a very good indicator of the impact of a project focused on 3–5-year-olds (Glewwe and King 2001).

**Selecting and Adapting Child Development Instruments for Use in Low- and Middle-Income Countries**

Most child development instruments have been developed, validated, and normed in the developed world. While it can be useful to use some of these “western” (that is, originated in OECD countries) tests in different
contexts—such as when there is no local test available to assess a specific child-development outcome or for cross-country comparisons—the extent to which these tests can be used and adapted for low- and middle-income countries varies widely. Indeed, some tests are simply too culturally biased. Others are intended mainly for screening purposes (for example, to identify children who could benefit from special services such as remedial education), and still others require extensive amounts of testing time or must be administered by a trained child psychologist. Furthermore, some tests are not equally effective at assessing children at all levels in the range of abilities or characteristics being evaluated. It may be necessary to adapt scales for some populations, such as by adding or dropping questions designed to assess one end or the other of the scores’ distribution, in order to capture the full range. Table 2.1.2 provides examples of child development tests used in recent impact evaluations supported by the World Bank.

The following are considerations to keep in mind in selecting and adapting tests for use in low- and middle-income countries (see Fernald et al. 2009 for a comprehensive review):

**Selecting tests.** It is preferable to use tests that—

- Allow for the interpretation of data at the population level rather than the level of the individual child. Indeed, the main objective of data collection in the context of World Bank support to clients usually is to assess developmental trends among groups of children (for example, to compare children in a treatment group vs. children in a control group) and not to conduct developmental screenings for individual children.
- Provide continuous scores rather than a cutoff point under which children may be considered at risk of development delays. Continuous measures are often more useful in the context of impact evaluations (that is, to measure score differences across treatment and control groups).

It is also important to consider some of the specific constraints under which the data collection will take place. In low- and middle-income countries, the most common constraints include:

- A limited budget to purchase and administer tests. The price of tests, as well as the cost to administer them, varies widely. The copyright requirements of some tests may require new kits to be purchased for each data collection team.
# Data Collection for Designing, Monitoring, and Evaluating ECD Interventions

Table 2.1.2 Examples of Child Development Tests Commonly used in ECD Impact Evaluations

<table>
<thead>
<tr>
<th>Test name</th>
<th>Age range</th>
<th>Domains of child development</th>
<th>Type of measurement</th>
<th>Country examples&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peabody Picture Vocabulary Test (PPVT) and TVIP (equivalent Spanish version)</td>
<td>2½ and above</td>
<td>Language development (receptive language)</td>
<td>Direct assessment of the child</td>
<td>Cambodia, Ecuador&lt;sup&gt;b&lt;/sup&gt;, Madagascar, Mozambique, Nicaragua&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Ages and Stages Questionnaire (ASQ)</td>
<td>0–6</td>
<td>Multiple domains of child development</td>
<td>Ratings and reports (by parent or caregiver) and direct assessment of the child</td>
<td>Cambodia, Chile&lt;sup&gt;d&lt;/sup&gt;, Ecuador&lt;sup&gt;e&lt;/sup&gt;, Mozambique</td>
</tr>
<tr>
<td>Woodcock - Johnson III Memory for Names test</td>
<td>2½ and above</td>
<td>Cognitive development (associative memory)</td>
<td>Direct assessment of the child</td>
<td>Cambodia, Ecuador&lt;sup&gt;f&lt;/sup&gt;</td>
</tr>
<tr>
<td>Stanford-Binet Intelligence Scales</td>
<td>2½ and above</td>
<td>Cognitive development</td>
<td>Direct assessment of the child</td>
<td>Madagascar</td>
</tr>
<tr>
<td>Achenbach Child Behavior Checklist (CBCL)</td>
<td>1½ to 6 (5 years 11 months)</td>
<td>Socio-emotional development</td>
<td>Ratings and reports (by parent or caregiver)</td>
<td>Brazil, China&lt;sup&gt;g&lt;/sup&gt;, Turkey</td>
</tr>
<tr>
<td>Stroop test (adapted as day/night test)</td>
<td>3 to 6</td>
<td>Executive function</td>
<td>Direct assessment of the child</td>
<td>Madagascar</td>
</tr>
<tr>
<td>Strengths and Difficulties Questionnaire</td>
<td>3 and above</td>
<td>Socio-emotional development</td>
<td>Ratings and reports</td>
<td>Madagascar</td>
</tr>
<tr>
<td>Early Development Instrument (EDI)</td>
<td>4–7</td>
<td>Multiple domains/school readiness</td>
<td>Ratings and reports (by preschool or grade 1 teachers)</td>
<td>Mozambique, Kosovo, Mexico, Indonesia</td>
</tr>
</tbody>
</table>


Notes: a. This list provides representative examples and is not intended to be exhaustive. Also, several of these studies are ongoing at the time of publication, so specific references cannot yet be provided. Please contact the first author of this guide for further information.
d. Urzúa and Veraamendi (forthcoming).
e. See complete references in Fernald et al. (2009).
g. See complete references in Fernald et al. (2009).
• The need to collect child development data within a short period of time, especially if household data are also collected from the caregiver or another adult during the same visit. Keeping it short (that is, no more than 30 minutes for direct child testing) will help prevent respondent fatigue, especially in younger children.

• The lack of available child development specialists or child psychologists to administer the tests. In such cases, it may be necessary to choose tests that do not require extensive professional training to administer.

• The presence of multiple official and vernacular languages. Translating tests into multiple local languages can be time-consuming, and ensuring the proper translation across languages can be difficult. Therefore, tests that do not rely too extensively on language are often more reliable and easier to use in such contexts.

Adapting tests. Once relevant child development tests have been identified, several steps must be taken to ensure that these tests are as valid and reliable as possible in the context of a given data collection exercise. Ideally, the whole adaptation process should be conducted jointly with local professionals—pediatricians, child development specialists/psychologists, social and community health workers, ECD specialists, and so on—to ensure that the final tests and administration protocols are appropriate and effective for the local context. The adaptation process typically includes the following steps:

• Produce an accurate translation, which requires the following: (1) producing an accurate translation in the local language, (2) having a different translator or group of translators do a back translation, and (3) assessing and addressing any discrepancies in meaning.

• Adapt the test content to fit the contexts where the tests will be used. Specific items may need to be dropped (for example, if they are not relevant or cannot be tested) or modified (for example, if the required props are not readily available).

• Adapt the test administration protocol to the cultural context where the tests will be used to ensure both optimal testing conditions in a given setting and consistency across households. For example, many young children are unfamiliar with “test” taking and will be wary of a stranger coming to their house for this purpose. Protocols can encourage data collectors to play simple games with children prior to collecting data, to help “break the ice.”
• Conduct a pilot test. Once the test is translated and adapted and the protocol written, both need to be extensively field-tested in real conditions to (1) ensure that the materials are relevant for the population, (2) serve as an additional training opportunity for the data collectors, and (3) obtain pilot data that can be used to conduct preliminary analysis and to verify the validity and reliability of the adapted tests.\(^8\)

• Further adapt the test and administration protocols as needed. Based on the result of the pilot, further adaptations are often needed to refine the instruments and protocols, and additional pilot testing may be necessary.

This iterative adaptation process can be both time-consuming and expensive, but it is a necessary investment to ensure that quality data will eventually be collected. Box 2.1.1 provides a concrete example of this process in Mozambique.

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Box 2.1.1

Adapting Child Development Instruments in Mozambique

The World Bank is currently conducting several impact evaluations of ECD interventions across various countries (including in Cambodia, Indonesia, Mozambique, Brazil, Chile, and Nicaragua, among others). In the Gaza province of Mozambique, for example, a randomized study aims to assess whether a low-cost, community-based ECD program implemented by Save the Children can significantly improve child development outcomes and school readiness among participants.

Before collecting baseline data in 2008, the team spent time selecting and adapting child development instruments to ensure their relevance to the local context and that the data collected would be useful for answering the main research questions. The instruments selected included the TVIP (direct assessment of the child’s receptive language) and the Ages and Stages Questionnaire (ASQ) (combination of direct assessment and mother’s report of the child’s competencies across domains, including fine-motor, gross-motor, problem-solving, communication, and personal-social) for children ages 3–5 years and the EDI (1st grade teacher’s report of the child’s competencies across domains) for 1st grade students. The team also collected anthropometric data (through

(continued)
Measuring Mediating or Moderating Variables

Variables like quality of the home environment, frequency of parental stimulation, maternal depression, breastfeeding, and complementary feeding patterns, can be impacted by ECD interventions, and may play an important mediating role (that is, act as transmission mechanism) towards better child development outcomes. ECD impact evaluation studies collect data on these variables as well in the context of a household survey and/or mother–child questionnaires. For example, the Home Observation for Measurement of the Environment (HOME) can be used cross-culturally to assess the quality of the home environment.

Box 2.1.1 (continued)

direct measurement), family-level socioeconomic data (through household surveys), and data on feeding and early stimulation patterns at the household level (through mother’s questionnaires).

The child development instruments were adapted as follows:

- They were translated first into Portuguese and then into Changana (the main local language in the Gaza province) by a team of local professionals, including a Mozambican child psychologist, and then back-translated.
- Some items were dropped. For example, a question about whether young children could climb stairs (as part of the gross-motor section of the ASQ) would have been difficult to answer since most children in the target communities live in single-level huts with no access to staircases. Therefore the question was not included.
- Other items were modified to be more relevant to the local context and to facilitate the data collection process. For example, a question about whether young children could place a book on top of a chair and then under a chair (to assess whether children understood the concepts of “on top of” and “under,” as part of the communication section of the ASQ) was inappropriate since there were neither books nor chairs in most target households. Simply replacing “book” and “chair” by familiar items (that is, plate and straw mat) solved the problem.
- The revised instruments were pilot tested several times, first by the core evaluation team and then by the data collectors (after they received training from the local child psychologist), and additional adaptations of the instruments and administration protocols were made before the actual data collection process.
and parent–child interactions, and the Center for Epidemiologic Studies (CES-D) scale can be used to assess the maternal depression level (Fernand et al. 2009).

Other variables (for example, mother’s education level and cognitive development, number of siblings in the household, number of adults in the household, among others) are not likely to be affected by the ECD intervention, but nonetheless can play an important moderating role in child development outcomes. For example, some ECD interventions may be particularly effective for mothers with low education levels and others for those with higher education levels. Information on these family background variables should also be collected in the study, either by including specific questions in the household survey or through specific tests for assessing mothers’ cognitive development, and used as controls in the analysis. Caution should be exercised to use measures that are appropriate to distributions of these factors in particular countries, and to variation across regions within a country.

Finally, before the data collection process can begin, it is important to keep in mind several important ethical considerations (see Box 2.1.2).

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**Box 2.1.2**

**Ethical Considerations for Collecting and Managing Human Development Data**

In some countries, proposed research must go through an Institutional Review Board (IRB) process before researchers can collect human development data, which ensures that (1) participants (the child or caregiver) are given a choice in participating in the study; (2) the data will be kept confidential, (3) the data collection process will not harm the participants in any way either physically or psychologically, and (4) participants are referred to specific services when further problems are detected (for example, children identified as anemic referred to iron-supplementation programs; mothers identified as depressed referred to counseling services).

Many countries do not have a well-established IRB system, and some of the above requirements may be difficult to fulfill in contexts where follow-up services are not available. However, the research team remains responsible for ensuring that data are collected in a way that is respectful of participants’ rights.
Considerations for Interpreting Data

Even after spending time and resources selecting and adapting a given test for use with a specific population, researchers must cautiously interpret the results. While results can be relevant if used to compare different groups of children within a given environment (for example, to say that a treatment group scored higher than a control group on a given test, or to identify the most vulnerable children within a community), it is much more difficult to draw comparisons across cultural and socioeconomic contexts. For example, the fact that 40 percent of a sample of low-income children in Cambodia score at the level of the 5th percentile of a test developed and norm-referenced in the United States does not necessarily mean that this group is developmentally delayed. Indeed, it could be that the adapted test is still not fully valid and reliable for this population, or that the way in which the data were collected in Cambodia did not allow for optimal performance among respondents.

In conclusion, collecting multisectoral data on the specific needs of young children and the scope and quality of existing ECD services provides important background information that can be used to design new ECD services or modify existing ones in the most relevant ways. A complete situation analysis will also document the policies (see Note 2.2) and the type of financing (see Note 4.2) in place. The categories of data included in the situation analysis also provide the framework for strengthening MIS capacity to monitor progress toward meeting these identified needs. Finally, a range of tools can be used to measure child development outcomes to establish a baseline for new interventions and to evaluate the impact and cost-effectiveness of existing ECD interventions. Several ongoing impact evaluations of diverse ECD programs will generate information to guide future national and international investments.

Notes

1. Results from the MICS, including national reports, standard sets of tabulations, and micro-level datasets, can be found at http://www.childinfo.org.
2. Customized data tables can be created using the following website: http://www.uis.unesco.org.
3. See notes in Section 3 for a description of service types.
4. For example, the Association for Childhood Education International has developed “global guidelines” and a companion assessment tool (available at http://www.acei.org). Other tools are listed in Myers (2006).
5. Fernald et al. (2009) provides a comprehensive description of each of these
tests (and others), including purpose and age range, norms, administration and
testing, training needed, time needed for administration, cost, and publisher
information.

6. Validity means the instrument in fact measures what it is intended to measure.

7. Reliability refers to both inter-rater reliability (that is, the extent to which two
data collectors would give the same score to a given child) and test-retest reli-
ability (that is, the extent to which the same data collector would give the
same score to a given child if the child was assessed several times within a
short period, such as a week or so).

8. Ideally, both the inter-rater and test-retest reliability would be around .8 or
above. In addition, tests that contain scales (that is, several items grouped
under one heading) should be checked for their Cohen Alpha Reliability,
that is, the extent to which individual items within this scale behave in a con-
sistent way.

Key Readings

Development in Low-Income Countries: A Toolkit for the Assessment of Children

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DC.: The National Academies Press.

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Aboud, F. E. 2006. “Evaluation of an Early Childhood Preschool Program in Rural

Development in Low-Income Countries: A Toolkit for the Assessment of Children

Status on Cognitive Development. Does the Timing of Malnutrition Matter?”


This note provides an overview of the rationale for and process of developing a national ECD policy framework. Given the multisectoral nature of ECD programs, which encompass areas of health, nutrition, education, and social protection, as well as the fact that government involvement often has limited precedent, constructing a policy framework can raise the visibility of a nation’s vision and goals for young children, clarify the respective responsibilities of different actors and agencies, and provide critical guidance for public and private investments. Closely linked to policy development is the country’s institutional arrangements for and governance of ECD. However, there is no one-size-fits-all approach.

This note describes the rationale for creating an ECD policy framework and its development phases. Three case studies in Ghana, Indonesia, and Jamaica show how effective cross-sectoral ECD policy development and program implementation can be achieved across diverse political, economic, and cultural contexts. The Jamaica case exemplifies a strategic approach to collaboration across ministries and political parties, taking a strong private sector into account. Indonesia’s example shows how ECD coordination mechanisms at national, provincial, and district levels can support decentralized, community-driven development (CDD) in the delivery of integrated ECD services in poor and underserved rural areas.
Ghana’s case illustrates the importance of consensus-building over time to adopt and implement a multi-sectoral policy. The note concludes with cross-national lessons for policy development and implementation.

**Rationale for Creating an ECD Policy Framework**

*A National Policy Framework for ECD Presents Vision and Goals for Young Children and Families*

The policy framework raises the visibility of ECD for young children and their families and identifies strategies to address their needs. In fact young children are often omitted or their needs inadequately addressed in sectoral policies and key documents like the Poverty Reduction Strategy Papers (PRSPs).

A policy framework typically includes both a policy statement and a description of institutional and administrative structures to implement the policy. The policy statement includes a vision of where the ECD is heading, a set of goals or objectives that the government would like to achieve, and strategies for achieving them (CARICOM Secretariat 2008). It is important for the ECD policy to be coherent with other related sectoral policies.

**The ECD Policy Framework Clarifies the Responsibilities of Different Actors and Agencies**

The policy framework identifies the lead agency and the entities that will implement, manage, monitor, and evaluate ECD programs (CARICOM Secretariat 2008). Government responsibility for the provision or supervision of ECD services is often scattered across ministries, often according to the age of the child. Typically, the ministry of health is responsible for infants and young children under the age of two and the ministry of education plays a role from preschool through basic education. An ECD policy framework can help harmonize the goals and strategies of these institutions horizontally. A policy can engage new ministries that have not traditionally been engaged in ECD, such as agriculture and finance. Furthermore, responsibility may also be distributed vertically among multiple levels of government, such as national/central, provincial, district, and community level (see box 2.2.1), as in Indonesia. A policy framework can help maximize scarce financial, human, and material resources by reducing duplication of effort (Neuman 2007).
Box 2.2.1

ECD in Indonesia: Special Considerations for Decentralization

Indonesia’s government is one of the most decentralized in the world. Most spending on education, health, and infrastructure is district-based, and the districts employ three-quarters of the civil service. In recent years, for example, 90 percent of the Ministry of National Education (MoNE) annual budget has been shifted from the central government to the districts in the form of block grants channeled directly to the education and training units, including schools. In the past, districts were carrying out the implementation, financing, and supervision of early childhood education and development (ECED) services, often without an ECED unit, a clear legal mandate, or implementation capacity. To address these concerns, the Indonesian government, with support from the World Bank, developed a community-based approach for the provision of ECD services, including center-based programs, home-based daycare programs, and home-visit or parent education and support programs. The design was informed by a pilot project in 12 districts, which revealed that centralized service delivery was not best suited to the needs of poor communities. In the new model, community-driven development (CDD) grants channel funds directly to the village level for about 738,000 children ages 0 to 6 and their parents/caretakers who live in approximately 6,000 poor communities in 3,000 villages within 50 poverty districts throughout Indonesia.

Indonesia has developed institutional structures within this highly decentralized context to ensure that ECED services are provided in a sustainable and integrated manner. First, before implementing ECED services, districts are asked to show evidence of (1) budget allocation for ECED programs, (2) a unit and staff with a clear and comprehensive mandate for managing ECED, (3) existence of an ECED forum that allows for coordination among a wide range of stakeholders, (4) an action plan to support the integration of early education, health, nutrition, and parenting education aspects of ECED; and (5) readiness to finance some of the activities after the project period to sustain ECED services overtime. Second, to ensure that local governments do not focus too much on education at the expense of other sectors, communities are given a menu of services to provide with the funds they receive, and district-level capacity building has expanded. Third, to support coherence, these decentralized structures are supported centrally by an Early Childhood Directorate within MoNE and a National ECED Forum of practitioners, academics, and bureaucrats.
**A Policy Framework Should Clarify the Degree to Which ECD is a Public or Private Responsibility**

In a purely private-sector approach, services might be fee-paying and limited to those who can afford them. The government’s role might be more regulatory, ensuring the quality of services provided. A purely public-sector approach might envision that all children, or at least some broad group such as the most vulnerable children, should have access to ECD services, with assistance available for those who cannot afford the fees. Most often, there will be a balance of both private- and public-sector approaches. To establish services in areas that are not financially attractive to the private sector, the government can initiate ECD services and gradually transfer some responsibilities to the private sector, while keeping some key roles, such as financing teachers. To address quality issues, the government may also subsidize private inputs into service delivery in exchange for improvements in quality indicators (see Note 4.2).

**Elements of an ECD Policy Framework**

A policy framework comprises a policy statement and a description of institutional structures. The policy statement should conform to national guidelines and format requirements that govern policy papers and should include the following elements:

1. **Vision**—a statement of the long term national goal for the ECD program and the children’s outcomes that should be achieved once the program becomes successful.
2. **Goals and objectives**—should grow out of the vision and describe measurable outcomes that can be evaluated over time.
3. **Leading strategies**—general description of the activities envisioned as a way of achieving the goals and objectives.

Usually the decision to implement an ECD framework is driven by a detailed situational analysis (see Note 2.1), or needs assessment, of the status, problems, and needs of children and their families. It is good practice to include a brief summary of the findings of the situational analysis as the introduction to the policy statement, to provide a context for the vision, goals, objectives, and strategies.

The description of the institutional structures should include:

- **Organizational structures**—a description of the administrative and coordinating structures operating at all levels of government and the private sector, including organizational structure and responsibilities.
- **Investment plans**—a description of how human, institutional, financial, and material resources will be allocated and mobilized, including the balance of public and private resources.

- **Communication strategies**—a description of how communication will flow among administrative structures and other stakeholders, including communication such as policy advocacy.

- **Partnerships**—particularly partnerships between funders/donors and implementers, including NGOs and community-based organizations, and responsibility for liaison between them.

- **Monitoring and evaluation processes**—a description of the accountability systems that will measure, monitor, and evaluate progress toward the policy goals.

### Process Phases in Developing a Policy Framework

The process of developing a policy framework comprises five phases (Vargas-Barón 2005) described as follows:

1. **Preparation**—though often overlooked, this phase can ensure that the following phases run smoothly. During this phase, leaders and key stakeholders are identified and engaged; a planning committee may be organized to take the lead on the ensuing phases; lines of communication and authority are established; a work plan, schedule, and budget are developed; and sources of financing are confirmed. Discussions begin during this phase about the lead agency for ECD.

2. **Situation analysis**—similar to a needs assessment (see Note 2.1.), this study provides the foundation for the policy statement. It should be comprehensive and thorough, and the task of developing it, while often overseen by the planning committee, may be assigned to an external entity with particular expertise.

3. **Community and stakeholder consultation**—engaging stakeholders at this stage generates awareness, enthusiasm, and a sense of ownership for the ECD initiative, making it much more likely that it will reflect the needs and priorities of the beneficiaries. Consulting with partners also builds trust, provides feedback about feasibility of the policy plan, identifies issues early enough to more easily resolve them, and creates a network of partners to provide support as the process moves forward.

4. **Policy drafting and consensus building**—from the feedback generated by the previous phase, a first draft of a policy document can be generated, discussed, and finalized.
5. **Policy approval and adoption**—involves presenting the proposed policy and plan of action to the decision-making authority, gaining approval, and building on momentum by beginning the implementation process quickly. To ensure sustainability over time, the policy will need to be interpreted into long-term programs, services, or actions, and steps taken to build it into the annual operation plan and budgets.

**Identifying an Institutional Anchor is Essential to Engaging Different Sectors and Overcoming Turf Issues**

There needs to be early agreement within a country on a lead agency or institutional anchor to coordinate policy development and implementation. One of the line ministries—social welfare or education—generally takes the lead. Since the late 1980s, more and more countries, including Brazil, Kenya, New Zealand, Norway, Sweden, Spain, and Vietnam, have designated the education ministry as the lead agency to provide continuity between the early childhood and primary years. Alternatively, engaging the ministry of planning, the ministry of finance, the office of the president or prime minister, or creating an independent commission (for example, as in Chile, Colombia, and Jamaica) as the institutional anchor can minimize competition among line ministries. Debates over the lead agency in Ghana (box 2.2.2) delayed the policy development process, but were eventually resolved in a way that supports intersectoral coordination. Intersectoral coordination mechanisms (for example, ECD commissions) work best when a strong agency leads and when the commission has the power to make funding decisions (UNESCO-OREALC 2004).

**Elements of Successful Policy and Institutional Frameworks**

The three case studies described here support lessons from cross-national reviews about the main elements of successful ECD policy and institutional frameworks that include the following:

- Seek high-level political endorsement to secure ECD on the national agenda.
- Define an institutional anchor, preferably early on in the policy development process.
- Involve stakeholders from a range of sectors (including those outside the traditional child-focused agencies) in developing the policy and clearly delineate responsibilities.
Box 2.2.2
ECD in Ghana: the Journey Is as Important as the Destination

Ghana is one of 19 countries in Sub-Saharan Africa with a national ECD policy in place to promote the survival, growth, development, and protection of children from birth to age 8, so that they can develop to their full potential. The main policy objectives are to address the problem of poverty among children, streamline the activities of all stakeholders in ECD, and attract support from all stakeholders who have resources for the sector. The policy covers institutional arrangements, roles and responsibilities, implementation strategies, and cost and financial implications (Government of Ghana 2004).

The policy development process was long and not without challenges. A draft policy was developed in 1995 by a task force and used in consultations with stakeholders. The process encountered serious delays at various steps including in the long preparation of the initial document by the task force, multiple revisions and rewrites, and time-consuming community consultations. A major delay was caused by the ongoing indecision over which ministry should coordinate the ECD program. Although initially the Ghana National Children’s Commission (GNCC) in the Office of the President was appointed as the lead coordinating body, by the time the draft was sent to the cabinet in 2000, the political administration had changed. The Ministry of Women and Children’s Affairs (MOWC) then absorbed the GNCC as a department and became the lead agency (UNESCO 2006b). The final document, adopted in 2004, has encouraged expansion and improvement efforts, some of which were already under way (UNESCO 2006b).

Two years of kindergarten are now part of basic education, with a set curriculum and early learning and development standards. Current coverage is about 40 percent of 5-year-olds and 35 percent of 4-year-olds. The government also created guidelines for establishing ECD centers and for addressing HIV-related issues, expanded training, and mobilized resources for implementation (Addison, Noyoru, and Kyei-Gyamfi 2007).

The Ghana program has also developed strong institutional coordination mechanisms. A National ECD Coordinating Committee and Secretariat advise the MOWC and coordinate implementation of the policy. The committee comprises five key government ministries, the Ghana National Association of Teachers, recognized associations of ECD practitioners, and any other co-opted individuals or organizations. This institutional structure is being replicated at regional and district levels. Regional education and social welfare officials have received an orientation on

(continued)
Box 2.2.2 (continued)

Initiated almost 11 years ago, this process of ECD policy development has enabled multiple reviews and revisions to improve quality, encouraged a participatory process with community level contributions, and improved stakeholder ownership, all of which increase the likelihood of successful implementation (Boakye et al. 2004). Ghana’s experience reinforces the importance of selecting a strong lead agency for ECD to coordinate policy development, adoption, and implementation.

- Ensure bipartisan representation on inter-agency coordination bodies.
- Engage local governments to ensure ownership and sustainability.
- Support a participatory approach to encourage buy-in and relevance of the policy framework.
- Ensure adequate funding to support effective implementation.

Box 2.2.3

ECD in Jamaica: Institutional Arrangements to Govern Across Sectors

In the late 1990s, Jamaican government agencies, including the ministries of health and education and the Planning Institute of Jamaica, recognized the need for a long-term plan for offering comprehensive, integrated services to Jamaican children that would benefit from synergies and complementarities between actors, reducing duplication and minimizing gaps in service delivery. In 2000, a strategic review of the ECD sector recommended the creation of a new Early Childhood Commission (ECC). An act of parliament established the ECC in 2003 to develop standards and licensing regulations for early childhood institutions, advise the minister of education on policy matters relating to early childhood, assist in the planning of and preparations for strategies and programs, and monitor the implementation of programs. Two years later, parliament passed the Early Childhood Act, which stipulated the regulations, standards, licensing, and policies governing
ECD in Jamaica. The ECC has the authority to develop the systems and policies, including the ability to impose fines of up to JM$50,000 (US$ 560) for licensing noncompliance.

The Jamaican approach is significant in the way that it addresses the multisectoral nature of ECD by reaching across sectors and political parties in the formation of the ECC. As written in the ECC Act, the Board of Commissioners of the ECC includes:

- Executive director of the ECC, as an *ex officio* member
- Chairman appointed by the governor-general, who represents the king or queen of Jamaica, on the recommendation of the prime minister, after consultation with the leader of the opposition
- Representative of the opposition political party
- The permanent secretary (or nominee) of each of the ministries of education, health, labor, and social security, local government and community development, and finance and the public service.
- The executive director (or nominee) of the Child Development Agency; and the Planning Institute of Jamaica, and
- At least seven persons who “appear to the governor-general to be qualified as having experience of, and shown capacity in, matters relating to early childhood development, including child care, child psychology, nutrition, pediatrics and the field of nursing.”

There are three ways this institutional structure has contributed to Jamaica’s success in governing ECD across sectors. First, the presence of all key ministries, as well as nonpublic actors, on the ECC Board provides a standing forum for discussions of challenges and planning of the ECD sector. This is of paramount importance in Jamaica and other countries with a dominant private sector. Second, the inclusion of both political parties on the board and in the selection process for the chairman ensures a degree of bipartisan support for the sector. This proved crucial during the consultations and design of the National Strategic Plan for ECD. Although the government changed hands halfway through the planning, there were few disruptions to the process. Third, the fact that the ECC has legislative authority to enforce quality standards of service delivery and impose sanctions has facilitated its work.
Notes

1. A policy framework is distinct from a regulatory framework, which includes formal standards, regulations, and procedures for operating, licensing, and monitoring ECD institutions (CARICOM Secretariat 2008).

2. A tool for benchmarking national ECD policies against several dimensions and assessing the extent to which they are sectoral or comprehensive is currently being developed by the World Bank (see Vegas et al., forthcoming).

3. For more information see World Bank (2006).

Key Readings


References


SECTION 3

Strategic Entry Points for ECD Investments
Center-based ECD programs can be provided in a range of locations, including classrooms, community centers, religious establishments (for example, churches, mosques, pagodas), private homes (that is, family-based daycare), or even under a tree. These centers can be owned, financed, and managed by a range of entities, for example, government, community, non-profit organizations, private businesses, religious institutions, or through partnerships among these entities. Depending on the context and age groups they serve, these programs may be called nursery schools, daycares, preschools, children’s centers, or kindergartens. This diversity of settings and labels can be confusing. This note focuses on programs that share the following characteristics: (1) they aim to promote the development of young children (for all or part of the 0- to 6-year-old age-range) and (2) they provide services in a group setting, where children can interact with peers. Ideally, center-based programs provide services that meet the various needs of young children (that is, health, nutrition, education, and stimulation) in an integrated manner.

While the type and nature of center-based ECD programs may vary, existing evidence from both developed and developing countries suggests that children who participate in these programs tend to exhibit higher cognitive skills and overall school readiness (that is, comprehensive...
development, as defined in the introduction and in Note 3.1.) upon primary school entry than those who have not participated (Engle et al. 2007). For example, longitudinal evaluations of U.S.-based ECD projects for disadvantaged children, such as the High/Scope Perry Preschool Program and the Abecedarian Program, recorded not only gains in cognitive skills among children in the program, but also continued advantages compared to the control group in school performance and social behaviors later in life (Campbell et al. 2002; Schweinhart et al. 2005). Evaluations conducted in developing countries, such as Bangladesh, Cape Verde, Colombia, Guinea, and Vietnam, also showed a substantial effect of center-based programs on children’s development (Engle et al. 2007). Further, center-based programs seem particularly effective at promoting the physical, cognitive, and socio-emotional development of at-risk children, that is, those from low-income families or otherwise disadvantaged.

This note presents evidence on the impact of center-based ECD programs under various conditions and for various groups of beneficiaries, and indicates where research gaps exist. Program implementation will be discussed, including factors to consider and program details, such as targeting, frequency and duration of the sessions, child-to-staff ratio, staff qualifications, program content, and overall program quality. Several promising center-based programs in low- and middle-income countries are highlighted in Box 3.1.4.

**Targeting Considerations**

The evidence in both developed and developing countries indicates that children with the poorest socioeconomic backgrounds are the most likely to benefit from center-based care, especially if they start between ages 2 and 3 years. The factors that need to be taken into account when implementing a program include: socioeconomic background, starting age, frequency and duration of sessions, and quality of the program as indicated by staff qualifications, program content, and adult-child ratio and interactions.

**Socioeconomic Background**

Children in many developing countries show steep “gradients” in cognitive development according to socioeconomic level; children from poorer households show significantly worse outcomes early on. In Ecuador, differences in age-adjusted vocabulary among 3-year-olds are generally
small. By age 6, however, children in less wealthy households and those born to mothers with low education levels have fallen far behind (that is, by 2.5 standard deviations) their counterparts in wealthier or more educated households (Paxson and Schady 2007). Since poorer children generally receive a lower quality school education, these differences are likely to be magnified even further as children enter school. Steep socioeconomic gradients in cognitive development at early ages have also been found in Bangladesh, Brazil, Egypt, India, Mexico, and the Philippines (Grantham-McGregor et al. 2007).

Evidence from longitudinal studies conducted in the developed world, as well as nonexperimental studies from developing countries, consistently show that children with low socioeconomic status or whose mothers have lower levels of education particularly benefit from early interventions and center-based care. For example, data from the Uruguayan Household Survey, in which information about preschool attendance was retrospectively collected, show larger gains in education attainment at age 15 among children with less educated mothers (Berlinski, Galiani, and Manacorda 2008). In the United States, longitudinal studies found that disadvantaged children benefitted the most from increased quantity (Loeb et al. 2007) and higher quality of services (Peisner-Feinberg et al. 2001). Therefore, while center-based ECD programs can also benefit children from middle-class families, ensuring access to the most disadvantaged children should be a priority for decisions on investing scarce public resources.

**Starting Age**

Most center-based ECD programs focus on children ages 4 and 5, that is, one or two years before primary school entry. Yet, data from the U.S.-based Early Childhood Longitudinal Study show that the strongest cognitive benefits are experienced by those children who entered a center-based program between the ages of 2 and 3 (Loeb et al. 2007). A program evaluation conducted in the Philippines also found that the impact of integrated ECD services on cognitive, social, motor, and language development were higher for children who were exposed to the program for more than 12 months and among children ages 2 and 3. Indeed, the mean impact on outcomes such as cognitive development and motor skills was 90 percent of a standard deviation for 2-year-olds and 49 percent for 3-year-olds, but only 26 to 29 percent for 4–6-year-olds. Further, children aged 2 and 3 started demonstrating positive outcomes quicker (that is, after 4 to 12 months) than older children (Armecin et al. 2006).
In Colombia, while as little as 9 months of integrated center-based care (nutrition, health, and early education) prior to primary school entry produced significant gains in children’s cognitive ability, significantly greater effects were observed among those who started younger, that is, at age of 3½ (McKay et al. 1978). These studies seem to affirm the value of providing center-based ECD services to children as young as 2, especially among the most vulnerable groups. However, in doing so, it is important to ensure that the curriculum and overall program are appropriate to the specific needs of young children.

The evidence on the effects of center-based services for children younger than 2 is mixed. An analysis of the Early Childhood Longitudinal Study in the United States found that center-based programs had no positive effect on children under 2. In fact, the study found that attendance in center-based ECD services had a negative impact on children’s behavior. These effects were even greater for children who started utilizing these services before turning 1 year old. (Loeb et al. 2007). On the other hand, when controlling for the total quantity of non-maternal care that children were receiving, the National Institute for Child Health and Development (NICHD) study did not find any negative behavioral impact of center-based care among children who were enrolled before age 2 (as measured at age 4½) (NICHD 2003).

**Frequency and Duration of Center-Based Sessions**
Center-based ECD services may be offered throughout the year (12 months) or only during the school year (9–10 months). The length of each session can vary from just 2–3 hours a day to 8–10 hours a day in centers that aim to provide full-time child care while parents work. Long hours in center-based ECD programs have been associated with negative effects on the behavior of children from high-income families in the United States (Loeb et al. 2007). However, analysis of data from the Early Childhood Longitudinal Study found that children from low-income households experienced more cognitive gains when attending center-based ECD programs for longer hours (30 hours or more per week), with no significant increase in behavioral problems. This study concluded that most children could experience cognitive gains when participating in center-based ECD programs for 15–30 hours a week (that is, 3–6 hours a day), during at least nine months of the year, and that children from lower-income families could benefit even further from more intensive programs (Loeb et al. 2007).
In contrast, the Effective Provision of Pre-School Education (EPPE) Project, a large-scale longitudinal study conducted in the United Kingdom, did not find any additional cognitive gains among children who attended preschool full-time compared to those who were in part-time programs, but the project did not analyze the possible difference in effect sizes among children from different family backgrounds and did not collect data on children’s behavior (Sylva et al. 2003).

Generally speaking, the research indicates that center-based ECD services should offer at least 15 hours of weekly activities in order to yield significant effects.

**Quality**

Most of the experimental or quasi-experimental studies available on the impact of ECD assess the effectiveness of a given program in a particular setting, but few studies evaluate the relative impact of differential treatments. Therefore, there is little evidence regarding how different types and quality levels of center-based ECD programs influence early childhood outcomes (Karoly, Kilburn, and Canon 2005). The information on this topic comes from several large-scale longitudinal studies with nonexperimental designs in the United States and the United Kingdom. These studies point to the positive influence of quality programming (as evaluated by global standardized quality ratings outlined in box 3.3.1), on children’s school readiness, performance in primary school, and language skills (see, for example, Flood et al. 2007). For instance, the NICHD early childhood study found that higher quality in center-based ECD services predicted better pre-academic and language skills among 4½-year-old children in the United States (NICHD 2002). The Cost, Quality and Outcomes Study in the United States found that the quality of center-based ECD services predicted higher language skills among children in kindergarten and higher math skills among children in second grade (Peisner-Feinberg et al. 2001). The EPPE Project mentioned earlier, a similar large-scale longitudinal study conducted in the United Kingdom, also linked quality of center-based ECD services (as measured by standardized rating scales) with positive outcomes among beneficiaries, including less behavioral problems upon school entry (Sylva et al. 2003). In Bangladesh, preschool quality (as measured by the ECERS-R) was significantly associated with children’s cognitive skills and school readiness (Aboud 2006). Similar results were found among children who attend the Madrasa Resource Center preschools in East Africa (Malmberg, Mwaura, and Sylva, forthcoming).
Several other studies have assessed how indicators of structural quality, such as class size, child-to-adult ratio, staff qualifications, and program content/curriculum may affect the overall level of quality observed in the classroom as measured by global standardized quality ratings.

**Staff qualifications and teacher-child interaction.** Most studies indicate a strong correlation between staff qualifications and early childhood outcomes, between staff qualifications and classroom quality, or both. For instance, a cross-country study of nonexperimental data in seven countries found that teachers’ education level was positively correlated with language scores among the children (Montie, Ziang, and Schweinhart...
Studies of nonexperimental data in the United States and Canada also found staff quality to be a good predictor of the quality of classroom interactions (Goelman, Forer, and Kershaw 2006; Burchinal, Howes, and Kontos 2002). The elements of ECD staff quality that have been studied include caregivers educational attainment (Montie, Ziang, and Schweinhart 2006), specialized training in early childhood education and care (Doherty et al. 2006); and commitment to child-care work (Ibid). The EPPE Project conducted an in-depth qualitative study of 12 ECD centers with high performance in terms of child outcomes and concluded that teachers’ knowledge of the curriculum as well as their knowledge and understanding of child development were particularly important qualities (Siraj-Blatchford et al. 2003).

The level of financial compensation that ECD teachers receive also appears to be strongly correlated with the quality of care they provide. For example, teacher’s wages were more strongly associated with classroom quality at daycare centers and preschools in the United States than any other structural indicators (such as adult-to-child ratio and teacher’s education level) (Phillips et al. 2000; Phillipsen et al. 1997).

Along the same lines, Early et al. (2007) analyzed seven major studies of early childhood education in the United States and recommended a comprehensive approach to human resource development of the ECD sector. In particular, the report recommends that programs be designed to recruit, train, and retain qualified and motivated staff by providing (1) reasonable wages, (2) pre-service and in-service opportunities for training and professional growth, and (3) opportunities for support systems among teachers and caregivers, including opportunities for exchanges of best practices through networks of ECD providers.

Finding, training, and paying qualified teachers can be particularly challenging in developing countries, especially in view of human resource constraints and the many competing priorities governments face. A few center-based programs that have used paraprofessionals in developing countries, such as Madrasa Resource Center Preschools in East Africa (Mwaura and Mohamed 2008) and Hogares Comunitarios de Bienestar Familiar in Colombia (Vegas and Santibáñez 2009), have produced promising results. In addition, in-class assistance using communications technology (that is, interactive radio instruction; see box 3.1.2) may be a low-cost option to improve the quality of teaching. Further studies are needed to better understand what elements of quality matter most in low-income settings and how countries with limited resources can provide quality center-based care and education.
Program content and curriculum. The best curriculum for early childhood programs appears to be one that focuses on the comprehensive development of children by nurturing not only their cognitive and linguistic skills but also their socio-emotional functioning, including motivation and capacity for self-regulation. Indeed, evidence suggests that children’s social competence enhances other areas of development such as cognitive functioning—and eventually school success. Downer and Pianta’s analysis of the NICHD data shows that better social skills among young children contribute to higher achievement in reading, mathematics skills, and phoneme knowledge among participants in first grade (Downer and Pianta 2006). Further, an evaluation of the High/Scope Perry Preschool Program in the United States showed that while the

Box 3.1.2
Interactive Radio Instruction

Interactive Radio Instruction (IRI) is

"a distance education system that combines radio broadcasts with active learning to improve educational quality and teaching practices. . . . IRI programs require teachers and students to react verbally and physically to questions and exercises posed by radio characters and to participate in group work, experiments, and other activities suggested by the radio program." (Anzalone and Bosch 2005)

IRI has emerged as an important option to improve the quality of instruction and learning in low-income settings and has shown promising results in several large-scale projects in Africa and Latin America. Although evidence of the effectiveness of IRI is available mostly for primary and secondary education programs, some programs targeting younger children show encouraging results. For example, the Radio Instruction to Strengthen Education (RISE) project in Zanzibar produced child-friendly preschool, first-grade, and second-grade radio programs to engage children in learning Kiswahili, math, English and life skills. Evaluation of the RISE program was conducted only for first-graders. It showed that children who were exposed to IRI in either formal or informal schools scored higher on standardized tests, on average, than their peers in the control group (Educational Development Center 2009). IRI for preschool children was also piloted in Bolivia, Honduras, El Salvador, and Indonesia (Ho and Thukral 2009).
positive impact of the program on participating children’s IQ scores gradually disappeared over the four years following the intervention, these children still performed better than children in the control group on achievement tests, attained higher levels of education, earned higher wages, and were less likely to be on welfare or in prison in early adulthood. Heckman suggests that these positive and long-lasting outcomes result from the positive impact the program had on participants’ noncognitive skills (Heckman 2008).

To provide a framework for best practices in early childhood care and education, the U.S.-based National Association for the Education of Young Children (NAEYC) adopted the Developmentally Appropriate Practices (DAP) in Early Childhood Programs (see box 3.1.3). This framework is designed to guide policy makers, administrators, and teachers/caregivers to identify goals for children’s development and to make

**Box 3.1.3**

**Developmentally Appropriate Practices (DAP)**

The National Association for the Education of Young Children defines DAP as “a framework of principles and guidelines for best practice in the care and education of young children.” (NAEYC n.d.). Its core principles include promoting the comprehensive development of children by recognizing the importance of early childhood, the sequential development of children’s skills and functions, individual differences, various ways that children learn (including through play); and the importance of developing secure child-to-caregiver and child-to-child relationships, in concurrence with theories and literature about child development (NAEYC 2009).

In practice, DAP involves (1) promoting positive relationships between all children and adults; (2) curriculum that is thoughtfully planned, challenging, engaging, developmentally appropriate, culturally and linguistically responsive, comprehensive, and likely to promote positive outcomes for all young children; (3) developmentally, culturally, and linguistically appropriate and effective teaching approaches that enhance each child’s learning and development; (4) systematic, formal, and informal assessment approaches to provide information on children’s learning and development; (5) the nutrition and health of children; and (6) a safe and healthful environment that provides appropriate and well-maintained indoor and outdoor physical environments, among others (NAEYC 2008).
intentional decisions on the curriculum that take into consideration the child’s age (that is, age-specific characteristics that direct how a child learns), individual differences in development, and his/her social and cultural contexts (NAEYC 2009). A joint statement of NAEYC and the National Association of Early Childhood Specialists in State Departments of Education lists the indicators of effective curriculum as follows: “(1) children being active and engaged; (2) curriculum goals are clear and shared by all stakeholders; (3) evidence-based; (4) valued content is learned through investigation, play, and focused, intentional teaching; (5) builds on prior learning and experience; and (6) comprehensive (that is, physical, social and emotional, and cognitive development),” among other criteria (NAEYC and NAECSSDE 2003). The DAP is not free of criticism, even in the United States. However, it serves as a useful framework, and several cross-cultural studies have found that its core principles are supported by many ECD professionals outside the United States (Hoot et al. 1996; McMullen et al. 2005).

The evidence that supports the efficacy of the DAP approach is drawn mostly from experience in the United States among disadvantaged children, where some studies suggest that more active, child-initiated early learning experience is associated with better achievement among children, compared with academically focused programs (Marcon 2002; Huffman and Speer 2000). International experience also finds that curricula that are child-centered are most likely to promote positive outcomes among participating children. The IEA Preprimary project (International Association for the Evaluation of Educational Achievement), a longitudinal cross-country study of children’s cognitive and language performance and their early childhood experience at age 7, collected data in Finland, Greece, Hong Kong, Indonesia, Ireland, Poland, Spain, Thailand and the United States. The study found that programs in which children spend most of their time in teacher-led whole group activities where all children engage in the same teacher-selected activity (such as reading stories to children, guiding all children to sing, or dance together) tend to be less effective than those in which children can choose from a few structured activity options (Montie, Xiang, Schweinhart 2006). The EPPE project’s in-depth qualitative case study of high performing centers, mentioned earlier, also found that the most effective learning environments are those where both adult-initiated group work and freely chosen play options are provided (Siraj-Blatchford et al. 2003).

Finally, the variety and quantity of learning materials available in the ECD center were also found to be positively correlated with children’s
cognitive development (Montie, Xiang, and Schweinhart 2006). In low-income settings where learning materials and educational toys may not be readily available, ECD teachers can be trained to make creative use of the natural resources and recycled materials available in their environment.

Class size and adult-to-child ratio. Class size seems to matter most for the youngest children (Montie, Xiang, and Schweinhart 2006). For example, a study in the United States found that compliance with state regulations on group size and adult-to-child ratio correlated more strongly with the overall quality of care for infant classes than for toddler and preschool classes (Phillips et al. 2000). Similarly, another study of infant and toddler classrooms in the United States found that a higher adult-to-child ratio was correlated with better overall quality of the program and that in such situations, caregivers spent more time interacting with the children (NICHD 2002). In family-based care—ECD services provided to a group of young children age 0–6 by a trained caregiver in his or her home—some studies indicate that programs with lower proportions of infants and toddlers (in relation to the overall group size) tend to provide better quality of care (Phillipsen et al. 1997). The IEA Pre-primary Project did not find associations between class size and children’s cognitive development, and it concluded that the relationship between variables such as class size or adult-to-child ratio and child outcomes is specific to each country (Montie, Xiang, and Schweinhart 2006).

Ultimately, the ideal class size and adult-to-child ratio in a given setting depends on several factors, including (1) the age of the children, (2) whether ECD services are provided in mixed-ages groups, and (3) the cultural context and behavioral expectations for children in a given age group. For example, the first phase of the IEA Preprimary Project studied various preprimary education settings in 15 countries and found that the average group size for preschool classes for 4-year-olds ranged from 11 to 30 and tended to be larger in Asia and Africa. Bolivia’s PIDI (Proyecto Integral de Desarrollo Infantil) project provided in-home day care, for up to 15 children per center, with an adult-to-child ratio of 1 to 5, and the project had a provision of additional staff in the centers with a higher proportion of infants. The Madrasa preschools in East Africa (Kenya, Uganda, and Zanzibar) enrolled 40 to 60 children per school on average, with a teacher-to-child ratio ranging from 12 to 17 teachers per child, depending on the country (Issa and Evans 2008).

Most developed countries have age-specific standards for class sizes and adult-to-child ratios. All of them specify smaller group sizes or higher
adult-to-child ratios for younger children (OECD 2006). However, these regulations may be difficult to implement in low-income settings where the availability of trained teachers is often limited.

**Overall quality assurance.** Ensuring the quality of ECD services provided by both the public and private sectors can be a challenge, especially when limited resources are also spent to increase the supply (quantity) of such services. Generally speaking, quality assurance systems for ECD need to be designed within the context of prevailing legal frameworks and institutional and financing arrangements (see Notes 2.1 and 4.2.), and there is no one-size fits all approach. Nevertheless, existing systems tend to rely on one of two approaches: (1) voluntary accreditation (for example, the NAEYC accreditation system in the US) or (2) a combination of public regulations, licensing, certification, and monitoring linked to public funding (for example, in New Zealand and Australia).

**Value-Added of Including a Parenting Information Component**

Many children who participate in center-based ECD services enroll at age 3 or older. Yet, as discussed in the introduction to this guide, the first two years of a child’s life are particularly critical in terms of physical and overall development (that is, lack of proper nutrition and early stimulation during this period leads to stunting and reduced brain development).

Parents play the primary role in providing a strong foundation for their child’s future development. Indeed, even after controlling for the quality and quantity of care children receive outside the home, family background variables, especially maternal education, continue to be among the strongest predictors of children’s cognitive and socio-emotional development and of their academic performance in primary school (Montie, Xiang, Schweinhart 2006; Downer and Pianta 2006). Almost all of the center-based ECD interventions that have been rigorously evaluated (that is, using random assignment or quasi-experimental design) and found effective in the United States included some parent education or home-visit component, along with the center-based care they provided (Karoly, Kilburn, and Canon 2005). And, in practice, several ECD programs in low- and middle-income countries have added a parenting component to their center-based interventions.

Results of the NICHD study, which included observation of interactions between mothers and children, indicate that children who received more sensitive, stimulating, and supportive maternal care and engaged in
Box 3.1.4

Examples of Promising Center-based Programs in Developing Countries

Argentina’s public school system provides three-year preprimary education to 3- to 5-year-olds. The goals of the preprimary program are to (1) enhance educational achievements accomplished at home and develop new age-appropriate competencies, and (2) to provide early access to knowledge and skills that improve performance in the first years of primary education. The curriculum is focused on developing a range of skills including communications, personal autonomy and behavioral, social, logical and mathematical, and emotional. Children typically attend preprimary classes for three-and-a-half hours a day, five days a week, during the nine-month school year. The average class size is 25.

Following introduction of a new law in 1993 to expand compulsory education to include the last year of preprimary education, the government invested in construction of more than 3,500 new preprimary classes. As a result, the enrollment rate for preprimary education increased from 49 percent in 1991 to 64 percent in 2001. Analysis of nationally administered standardized test scores and teacher surveys estimated that one year of preprimary education increased the standardized third grade test scores in Spanish and mathematics by 8 percent of the mean or 23 percent of the standard deviation. It also found positive effects of preprimary education in areas of attention, effort, discipline, and class participation among third-graders (Berlinski, Galiani, and Gertler 2009).

Bolivia’s PIDI (Proyecto Integral de Desarrollo Infantil) provides home-based, integrated services (full-time, family-based daycare, nutrition, and educational activities) to children aged 6 months to 6 years from poor families in urban areas. The goals of PIDI are to improve health and early cognitive/social development by providing children with better nutrition, adequate supervision, and stimulating environments. The children in the program are cared for in groups of 15 by two or three caregivers in the home of a local woman selected by the community. Under the program, the children receive two meals a day and a snack, about 70 percent of their caloric requirements, and participate in stimulating, structured, age-appropriate play and games. They also receive basic health services including routine immunizations and growth monitoring. The project provides daycare providers with training in child development, as well as loans or grants to upgrade their homes. The results of the impact evaluation using quasi-experimental data show the program’s positive effects on bulk and

(continued)
semi-structured play at home showed better academic, cognitive, and social outcomes. The effect size of parenting quality in this study and others (Pianta and Harbers 1996) is large because it includes both shared genes and environmental influence, and because the cumulative effect of good parenting (as opposed to a few years of experience in preschool or daycare) outweighs the impact of the care outside the home (NICHD 2002).

Indeed, parenting information sessions could be a powerful addition to center-based programs. For example, the Turkish Early Enrichment Project provided a two-year parenting information program to the mothers of three types of children: children who attended an educational preschool, those who attended a daycare where only custodial...
Center-Based ECD Programs: Summary and Moving Forward

Key Implementation Considerations

- Start early, ideally with 2- or 3-year-olds, and ensure that the curriculum is age-appropriate.
- Target at-risk children, that is, children from low-income or otherwise disadvantaged backgrounds.
- Provide 15 hours or more of center-based ECD services per week, for at least 9 months a year.
- Recruit teachers who are committed to ECD and provide them with frequent training (both pre-service and in-service), acceptable financial rewards, and opportunities for professional growth and networking.
- Maintain group size and adult-to-child ratios appropriate to the children’s ages and overall cultural context.
- Design a curriculum that focuses not only on developing cognitive and language skills, but also socio-emotional skills.
- Incorporate child-centered activities in which children freely choose from several structured play/learning corners and teachers adapt to the flow of children’s choices.
- Train teachers to use a variety of learning materials.
- Complement center-based ECD activities with an outreach program that aims to provide parents with relevant information on how to nurture and promote their children’s development, including through proper nutrition and early stimulation activities.

Areas for Further Research

- Relative effectiveness and cost-effectiveness of formal vs. community-based vs. family-based models in the developing world.
- Effects of various center-based models on children below the age of 2 years.
- Effects of center-based models on children’s socio-emotional development in the developing world.
- Optimal intensity and duration of center-based programs for low-income children in developing countries.
- Relationship between program quality (including group size and adult-to-child ratio, staff qualifications, and curriculum) and children’s outcomes in developing countries.
- Added value of parenting component in interventions that combine center-based services for children and parenting information.
care was provided, and those who stayed at home. Although the children in educational preschools had a higher baseline IQ and significantly higher short-term gains in various cognitive and social-emotional measures than those in custodial daycare or home care, their earlier advantage in academic performance had dissipated by the fifth year of primary school. On the other hand, irrespective of attendance in center-based care, the effects of the parenting information program on children’s school achievement and socio-emotional development and social adjustments were sustained throughout childhood (Kagitçibasi, Sunarım, and Bekman 2001).

Therefore, it is strongly recommended that center-based ECD programs are complemented by quality parenting and home environments through either integrated or parallel initiatives (see Note 3.2 for more information on programs that focus on behavior change among parents and other caregivers).

Notes

1. The countries are Belgium (French-speaking areas); China; Finland; Greece; Hong Kong, China; Indonesia; Ireland; Italy; Nigeria; Poland; Romania; Slovenia; Spain; Thailand; and the United States.


3. Information on accreditation of programs for young children is provided by NAEYC at: http://www.naeyc.org/academy/.


6. For an example of how this has been done in Chile, see: Rolla et al. 2009.

7. Assignment to treatment was not random: control group children were selected among those with background similar to the program children using propensity score matching.

Key Readings


References


A child’s ability to think, form relationships, and live up to his or her full potential is directly related to the synergistic effect of good health, good nutrition, and appropriate stimulation and interaction with others during early childhood. Good health and nutrition are prerequisites for children to survive the first few years of life and to reach their full developmental potential. Maternal and child malnutrition not only increase the mortality and morbidity risks among young children but also jeopardize their long-term development prospects. Indeed, malnutrition can harm children’s cognitive development by causing direct structural damage to the brain in utero and during the first five years of life and by impairing motor development and exploratory behavior among infants (Victora et al. 2008). Conversely, evidence shows that appropriate early childhood stimulation (that is, providing the young child with constant opportunities to interact with caring people and to learn about his or her environment from the earliest age) not only promotes socio-emotional and cognitive development, but also enhances the child’s health and nutrition (Naudeau 2009).

ECD programs that address the health, nutrition, and early stimulation of young children are typically delivered directly to mothers (as prenatal care, safe delivery, and early postpartum care) and children (as postnatal...
care, preventive services, and treatment interventions), or indirectly through improving care practices and parenting skills via information and education programs. While these information and education services are sometimes provided outside the home (for example, in a community or health center), they are considered home-based ECD interventions because they focus on promoting behavior change within the home environment where the youngest children typically spend the most time. These interventions are vital to ensuring child survival and enhancing ECD outcomes, because many of the most effective strategies to promote the health, growth, and overall development of the youngest children are home-based, and the evidence points to a large contribution of parenting quality in children’s overall development and school readiness.

This note reviews various aspects of household behaviors to ensure the health, growth, and overall development of children; different types of education programs for family behavior change; and potential bottlenecks in program implementation.

**Care and Parenting Practices Support the Health, Growth, and Overall Development of Children**

Early childhood is both the most vulnerable period of human life and the most opportune period for families to invest in their children through good care and parenting practices. While the terms “care” and “parenting” are used interchangeably in some cases, “care” is often used to describe parental behaviors to meet children’s physical and emotional needs, while “parenting” typically refers to parental behaviors that shape children’s cognitive and socio-emotional skills and behavior. Engle and Lhotska (1999) define care as “the behaviors and practices of caregivers (mothers, siblings, fathers and child-care providers) to provide the food, health care, stimulation and emotional support necessary for children’s healthy growth and development.” Parenting involves the home environment that parents provide their children, what they do with their children and in their presence, as well as the ways they communicate and interact with their children.

The life-cycle approach is a useful framework to evaluate the needs of the target population and to make decisions on priority actions. This framework helps understand the age-specific vulnerabilities and opportunities during one’s life course, and helps identify necessary inputs in target population across the different sectors and areas of intervention (see table 3.2.1).
<table>
<thead>
<tr>
<th>Age group</th>
<th>Vulnerabilities</th>
<th>Desirable parental/family behavior and home environment</th>
<th>Examples of relevant services for health, nutrition, and parent education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conception</td>
<td>• Exposure to maternal infections, nutritional deficiency resulting in mortality, premature birth, birth defects, and low birth weight</td>
<td>• Balanced diet during pregnancy • Avoidance of alcohol, tobacco, and other teratogens (drugs, pollution, etc.) during pregnancy • Sanitation and hygiene, safe food handling</td>
<td>• Prenatal checkups • Micronutrient supplementation • Immunization • Attended delivery</td>
</tr>
<tr>
<td>0–2 years</td>
<td>• Death or permanent disability due to illnesses and accidents • Inadequate nutrition and repeated episodes of illnesses leading to malnutrition and stunting • Stress caused by abuse and neglect could influence the child’s later behavior, social-emotional development, and health • Inadequate sensory stimulation (vision, hearing, smell, and touch) could limit developing brain’s capability to control language, intellectual, emotional, psychological, and physical responses • Lack of language exposure could result in language delays</td>
<td>• Good infant and child feeding practices (exclusive breastfeeding for 6 months, continued breastfeeding with timely introduction of adequate complementary food after 6 months) • Management of childhood illnesses including continued feeding during illness and increased feeding for catch-up growth after illness • Early stimulation and responsive and warm caregiving • Talking and playing with children • Sanitation and hygiene, safe food handling</td>
<td>• Postnatal care • Neonatal care • Well-baby visits • Growth monitoring and promotion • Micronutrient supplementation • Immunization • Deworming children older than 12 months • Screening for developmental delays and referral • Parenting education and support</td>
</tr>
<tr>
<td>3–6 years</td>
<td>• Inadequate early literacy and math skills could limit cognitive development and academic performance • Lack of social interactions with peers could influence children’s social-emotional skills and school readiness</td>
<td>• Talking and playing with children • Reading to children and teaching basic concepts such as numbers, shapes, and colors • Taking children to play groups and creating opportunities for peer interaction • Sanitation and hygiene, safe food handling</td>
<td>• Parenting education and support • Immunization and micronutrient supplementation, following national schedule • Screening for developmental delays and referral • Deworming</td>
</tr>
</tbody>
</table>

**Source:** Authors.
Adequate Nutrition and Early Stimulation are Essential Elements of Care Practices That Support Child Development in the Critical First Two Years After Birth

The first two years are the most critical period for child survival, health, growth, and brain development, and this period is when children are the most vulnerable to lack of adequate care. In particular, a large proportion of infant mortality occurs during the neonatal period, the first 28 days (Black, Morris, and Bryce 2003). Stunting typically occurs in the first 2 years of life and is difficult to reverse after 36 months. There is also growing epidemiological evidence that children who are undernourished for the first two years of life and quickly gain weight during later childhood may experience negative long-term consequences such as gaining fat mass instead of lean body mass, which is associated with a range of long-term health issues (Bhutta et al. 2008).

These first two years are also a crucial period for brain development: severe lack of stimulation and human interaction can have devastating effects on the biology and psychology of the young brain (Nelson 2007).

Infant feeding practices. Infant nutrition and feeding practices are some of the most important care practices for children in this age group. Promotion of exclusive breastfeeding has been identified as the single most promising intervention strategy for improving child survival in the first six months of life.

Exclusive breastfeeding for the first 6 months, followed by continued breastfeeding and the introduction of complementary food at around 6 months and up to 2 years, not only reduces the risk of infection and undernutrition, but also contributes to child’s long-term health and brain development through both rich nutritional inputs and positive socio-emotional interaction between mother and child (Nelson 2007).

Children are particularly at risk of stunting after the recommended period of exclusive breastfeeding (that is, after 6 months of age) as they often do not receive adequate nutrients in suboptimal complementary feeding (Black et al. 2008). There is evidence of the effectiveness of behavioral interventions in preventing stunting and improving developmental outcomes by encouraging mothers to introduce proper complementary foods for children ages 6 months and older. For example, analysis of the Ecuador Demographic and Maternal and Child Health Survey (ENDEMAIN) data suggests that counseling on the appropriate length of exclusive breastfeeding and the optimal timing for introducing complementary food led to less stunting (by about 10 percent) among beneficiaries (World Bank 2007).
A review of evaluations of complementary feeding interventions showed that education programs that highlighted feeding nutrient-rich, animal-source foods seem promising, along with other messages about timing, amounts, hygienic food preparation methods, and so on (Dewey and Abu-Afarwuah 2008). The two interventions with significant gains in both weight and height of children included key messages to regularly feed children locally available and affordable animal-source food; for example, in Peru, chicken liver, egg, or fish, and in China, egg. The review also recommends “a carefully selected, small number of specific key messages about practices that can be feasibly adopted by the target population” and integrating the messages about breastfeeding and hygiene. In Ecuador, a study indicated that families with similar levels of income and food expenditure could have either stunted or normal-size children, depending on the share of animal protein children consumed (which was relatively low for households at such high altitudes) (World Bank 2007).

Responsive (or active) feeding—coupling feeding with stimulation and emotional support—is crucial to meet the nutritional needs of young children. Responsive feeding refers to positive behaviors by caregivers during feeding (for example, encouraging child to eat, offering more servings, smiling and talking to children) and to feeding practices that are attuned to the child’s psychomotor abilities (for example, ability to pick up food with fingers or to handle a spoon or a cup). Responsive feeding has been associated with increased food acceptance in Vietnam (Dearden et al. 2009) and greater self-feeding in Bangladesh (Aboud, Shafique, and Akhter 2009). While the effects of responsive feeding on growth and socio-emotional and cognitive development have not been extensively evaluated, this is a potential entry point for introducing early stimulation in existing interventions that focus primarily on nutrition.

**Early stimulation.** A stimulating and nurturing environment where a child can foster a strong relationship with at least one caregiver is another crucial element for ECD. For instance, a number of studies on orphaned and institutionalized children in Eastern Europe and Russia note that profound deprivation of sensory, cognitive, linguistic, and emotional stimulation in infancy results in a range of developmental problems, including serious medical problems, physical and brain growth deficiencies, cognitive problems, speech and language delays, and social and emotional problems (Nelson 2007). Studies of children from low- and middle-income families in developed countries also consistently show the large effect size of mother-child relationship and family environment on child’s cognitive outcomes and social adjustment (NICHD 2002). An intervention that
focuses on early stimulation can be designed for very young children. For example, an evaluation of a weekly home visitation program for the first 8 weeks of life in Jamaica showed that infants in the program exhibited better problem-solving skills at 7 months than those in the control group (see box 3.2.1). During the home visits, the parents were shown how to communicate with their children, respond to their cues, and show affection (Meeks-Gardner et al. 2003).

Home Environment and Early Learning Enhance School Readiness of Children Over Age 2
After age 2, good nutrition continues to play an important role in a child’s growth and development. Children from age 2 to school entry also make

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Box 3.2.1
Early Stimulation Intervention Trials in Jamaica

Children with low birthweight often face multiple risk factors. Studies have identified low birthweight as a risk factor for children’s cognitive development (Matte et al. 2001; Richards et al. 2001), particularly when combined with poverty and mothers’ lower educational attainment.

A randomized controlled trial in Kingston, Jamaica, of a home-visit program focusing on early stimulation was designed for infants with low birthweight (Meeks-Gardner et al. 2003). One hundred forty infants with low birthweight were randomly assigned to control or treatment groups. The study also followed 94 matched infants with normal birthweight. The intervention aimed at increasing the amount of interaction between mothers and infants through weekly one-hour home visits by community health workers for the first eight weeks of the children’s lives. The home visitors also used homemade toys and left them in the homes.

At age 7 months, infants were assessed on their problem-solving skills using the “support” and “cover” tests, and their behavior during the test was rated. Test results showed that infants in the treatment group had significantly higher scores than those in the control group and were more cooperative during the session. Compared to the infants in the matched normal-weight group, infants in the low-birthweight treatment group had significantly lower scores only in the support test and had comparable scores in the cover test, as well as on various behavior ratings, whereas infants in the control group (also low birthweight) had poorer scores on both tests, vocalized less, and were less cooperative, happy, and active than the normal-weight infants.
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great strides in cognitive development (understanding concepts), language acquisition (understanding and using larger vocabulary, longer, and more complex sentences), and social-emotional development (enjoying playing with peers), as well as pre-academic skills (holding a pencil, recognizing letters and numbers). Parents can encourage this process through providing a stimulating environment.

**Home environment should be conducive to learning.** Parenting practices that support children’s learning are particularly important for children in this 2–6 age group. For example, a large-scale longitudinal study in the United Kingdom found that home activities that clearly provide learning opportunities for children (for example, being read to, playing with numbers, painting and drawing, being taught letters and numbers) had significant positive effects on the level of literacy and numeracy at age 5 (Sylva et al. 2008). Similarly, studies in the United States showed a significant relationship between learning opportunities at home (for example, frequencies of being read stories, visiting a library or museum, the number of books at home) and various measures of child development throughout early childhood, including early motor and social development, vocabulary, achievement scores at preschool, and less behavior problems (Bradley et al. 2001; National Institute of Child Health and Human Development Early Child Care Research Network 2005).

How parents communicate with children as well as what activities they participate in with their children have positive effects across socioeconomic status. For example, poverty during early childhood is consistently associated with less favorable child development outcomes in the United States, but this association seems to be partially mediated by good parenting practices, such as acting warm and responsive to children and providing literacy stimulation (Mistry et al. forthcoming; NICHD 2005). Home-based early learning may also be a viable program option in some countries. For example, the Turkish Early Enrichment Project trained mothers of children ages 3 to 5, to work with their children with educational materials for two years. Participating children not only exhibited significantly better cognitive skills and social adjustment at the end of the program than the control group, but seven years later, they were also more likely to stay in school and have better academic performance and family and social adjustments as teenagers (Kagitçibasi, Sunar, and Bekman 2001).
Opportunities to interact with peers. Studies of children in a preschool setting in developed countries suggest that the strongest cognitive benefits are enjoyed by those children who entered a center-based program between ages 2 and 3 (Loeb et al. 2007). This may indicate that children in this age group learn not only from family members, but also from peers. Although access to preschool may not be widely available in low-income settings, parents may create opportunities for children to play together or participate in group learning activities.

Sensitive and Positive Parenting Behaviors and Two Engaged Parents Increase the Chances of a Child’s Academic Success and Support Development of Cognitive and Socio-Emotional Skills

A nurturing home environment is a key factor for development throughout childhood. Family norms and parenting practices vary greatly across cultures; even within the same country, children’s experience at home varies widely, depending on their ethnic background, age, and poverty status (Bradley et al. 2001). Thus, it is difficult to determine a set of parental behaviors, or a particular parenting style, that best supports child development. However, studies in developed countries found associations between positive child cognitive and/or socio-emotional outcomes and some aspects of parenting, including warmth and responsiveness, providing age-appropriate learning opportunities (that is, play and experiences), and encouragement of autonomy, exploration, and learning. (Bradley 2002).

Adult-child relationship. Some aspects of the child-parent relationship, in particular, the mother’s sensitivity and responsiveness, have been associated with children’s cognitive and social-emotional development. For example, a more intimate and affectionate child-mother relationship during play was associated with superior social skills and executive functions (work habits and tolerance to frustration), smoother transition to formal schooling, and lack of behavioral problems reported by kindergarten teachers (Pianta, Nimetz, and Bennett 1997). Moreover, another study found that mothers who are warm and sensitive to children’s feelings and who provide encouragement, support, and appropriate instructions when necessary, tend to have children with better academic and achievement in grades 2–4 (Pianta and Harbers 1996).

Involvement of fathers. Some studies of parent-child relationships have suggested the importance of father-child relationships in the development
of language and early academic skills (Pancsofar, Vernon-Feagans, and the Family Life Project investigators, forthcoming; Martin, Ryan, and Brooks-Gunn 2007). A study in the United States identified the influence of fathers’ involvement in children’s life on their satisfaction and psychological distress in early adulthood (Amato 1994). Another study in the United Kingdom found that fathers’ and mothers’ involvement in their children’s lives at age 7, independently of each other, predicted children’s school attainment at age 20 (Flouri and Buchanan 2004).

Evidence also shows that parent education programs can improve fathers’ parenting skills. For example, an evaluation of the U.S. Early Head Start program shows that participating fathers were significantly less likely to report spanking their children than control group fathers. Early Head Start fathers were also observed to be less intrusive and more attentive during play, while participating children were better able to engage their fathers in various activities (Love et al. 2002). Accordingly, several programs are attempting to engage fathers in parenting programs in ways that meet the fathers’ specific needs and expectations. In Jordan, for example, the Better Parenting Program started reaching out to fathers by training imams to teach them about positive child-rearing techniques in the mosque, right after the Friday prayers (UNICEF 2009).

**Strategies for Family Behavior Change**

*Counseling and Curriculum-Based Learning are the Most Common Strategies Used in Parent Education Programs that Aim to Change Family Behavior, and Many Programs Combine Both*

Information on child care and parenting can be disseminated using multiple channels at various locations. Program delivery modes can range from regular community meetings in which all eligible parents meet and discuss their needs as a group; family contacts in the context of health-related activities, such as hospitals at birth (baby-friendly hospitals), immunization days, or growth monitoring follow-up; to home visits where professionals or paraprofessionals visit each individual household. The most common and promising approaches are reviewed below.

*Counseling.* Counseling is one of the most frequently used strategies for parent education. It appears to be effective in promoting breastfeeding and improving complementary feeding (Bhutta et al. 2008; Penny et al. 2005). For example, a meta-analysis of breastfeeding interventions found that both individual and group counseling increased the odds of exclusive
breastfeeding in the neonatal period and at 6 months of age (Bhutta et al. 2008). The Cochrane review of 34 breastfeeding studies also identified the effectiveness of face-to-face counseling (as opposed to via telephone) (Britton et al. 2007). The review also found breastfeeding counseling courses offered by the World Health Organization and United Nations Children’s Fund (WHO/UNICEF) to be an effective tool for training professionals.

On the other hand, results are mixed for the counseling-based programs that focus on early stimulation/learning. While a number of rigorous studies of the programs that include counseling or case management components have shown positive outcomes for children and parents (Gomby, Culross, and Behman 1999), some evaluations found no significant program effects on child outcomes (Goodson et al. 2000); other studies found that these programs yielded positive outcomes in only two situations: when combined with center-based activities for children (Wasik et al. 1990; Love et al. 2005) or among particular subsets of beneficiaries or geographical locations.

The quality of program staff, that is, the counselors, home visitors, and parent educators, is one of the most important elements of any parent education program. It appears that both professional personnel and trained peer counselors are effective in promoting breastfeeding (Britton et al. 2007). However, when examining counseling-based programs with a focus on early stimulation/learning, there is only limited and mixed evidence as to the staff qualities required for programs to be effective. The results of a meta-analysis of home-visit programs across the United States indicate that professional home visits generated larger effect sizes on children’s cognitive development, but that paraprofessionals were more effective in reducing child abuse (Sweet and Appelbaum 2004). In turn, the results of a randomized control trial of the Nurse-Family Partnership Program, delivered by different types of home visit personnel (nurses and paraprofessionals) and targeting low-income families in the United States, indicated that the nurse visiting model had stronger effects on a wider range of maternal behaviors, and the significant effects were sustained only among children who received professional home visits (Olds et al. 2002; 2004).

**Curriculum-based learning.** Curriculum-based learning has been frequently used in parenting programs to enhance children’s cognitive and socio-emotional development and to address behavioral problems. These programs can be delivered in the context of home visits, classrooms, or
workshops, or a combination of these. For example, the Turkish Early Enrichment Project mentioned earlier used biweekly home visits and biweekly group meetings on alternate weeks. Using a curriculum based on the HIPPY (Home Instruction Program for Preschool Youngsters) program, the mothers were supplied with learning materials weekly and instruction on how to use the materials with their children. The group meetings consisted of guided discussions on various topics such as nutrition, child health, play activities, discipline, and child-parent communication. Other promising curriculum-based models have been piloted in multiple locations, including Incredible Years (with evidence on child outcomes mostly from studies on high-risk children and children with behavior problems), DARE to be You, and Parents As Teachers; some of these programs have also been implemented in developing countries (see table 3.2.2) (Karoly, Kilburn, and Cannon 2005).

Curriculum-based learning opportunities have also been frequently offered to pregnant women in developed countries, particularly among high-risk populations, such as teenagers and low-socioeconomic-status women, with varying degrees of success, where the focus of the intervention is usually to improve pregnancy outcomes and care practices of infants, including initiation of breastfeeding (Clewell, Brooks-Gunn, and Benasich 1989).

**Adapting parent education models in a low income setting.** Adapting these models in a low-income setting poses particular challenges, but these can be mediated by carefully assessing mothers’ needs, beliefs, and practices on parenting as well as their preferred method of learning. (See Note 3.3). For example, in Thailand, anecdotal evidence notes that video clips are useful in working with illiterate parents in raising awareness of the child as an individual with early perceptual ability, the importance of mother-child interaction and play, and supplementary feeding (Kotchabhakdi 1988).

**Combining counseling and curriculum-based learning.** Most parent education programs with a focus on child cognitive, social-emotional, and behavioral outcomes involve both counseling, where parent educators/home visitors address the individual needs of each family and child, and curriculum-based learning, through which parents receive key messages about child care and parenting. In such programs the focus on ECD is associated with family behavior change. For example, in the Early Head Start Study in the United States, the more child-focused home visits (that
<table>
<thead>
<tr>
<th>Model</th>
<th>Goals</th>
<th>Entry and exit years of age</th>
<th>Main contents, intensity, and duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>DARE to Be You</td>
<td>Improve parenting skills and child development in ways that contribute to children’s resiliency to substance use later in life</td>
<td>Entry and exit: 2–5 years</td>
<td>Parent-child workshops with focus on parenting skills and developmentally appropriate children’s activities. Duration: 15–18 hours of parent training workshops and simultaneous children’s programs, preferably in a 10–12-week period</td>
</tr>
<tr>
<td>HIPPY (Home Instruction</td>
<td>Help parents with limited education prepare their children for school entry</td>
<td>Entry: 3 to 4 years exit: 5 years</td>
<td>Parenting classes and books given to parents with activities to do with children. Home visits by paraprofessionals biweekly for 45–60 minutes; parents HIPPY materials with children at least 15 minutes daily; parents have group meetings biweekly. Duration: 30 weeks per year for two years</td>
</tr>
<tr>
<td>Program for Preschool</td>
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<td>Youngsters)</td>
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<tr>
<td>Incredible Years</td>
<td>Promote child social and emotional competence and address children’s behavioral and emotional problems</td>
<td>Entry and exit: 2–8 years</td>
<td>Parenting classes and children’s programs. Duration: parents 12–14 weeks, 2 hours per week; children 18–20 weeks, 2 hours per week</td>
</tr>
<tr>
<td>Parents As Teachers</td>
<td>Empower parents to give their children a good start in life, prepare children for school entry, and prevent and reduce child abuse</td>
<td>Entry: prenatal or child less than 8 months old Exit: 3–6 years</td>
<td>Home visits by parent educators; group meetings with parents; developmental health, vision, and hearing screening; and building networks to meet family needs. Duration: weekly to monthly home visits/group meetings, 60 to 90 minutes</td>
</tr>
</tbody>
</table>

is, visits focused on child development as opposed to addressing family
issues) have a greater impact on children’s cognitive and language develop-
ment (Raikes et al. 2006). An in-depth qualitative study of the Parents
As Teachers project in the United States identified several challenges to
implementing quality programs, including emphasis on parent-educators’
role as providers of information and education in addition to social sup-
port and delivering explicit messages and demonstration about desired
behaviors (Hebbeler and Gerlach-Downie 2002).

Community-Based Learning May Also be Effective in Some Contexts
Community-based learning through women’s groups may be a viable and
sustainable option in countries with traditions of grassroots action. For
instance, a trial of community-based approach in Nepal facilitated discus-
sions among women in the project villages on various issues around child-
birth and child care, then these groups formulated and implemented
strategies to address the communal issues (such as community-generated
funds for maternal or infant care, home visits by a group member to
newly pregnant women). In the process, the program participants sought
and received information regarding maternal and child health and care.
The impact evaluation of the program found lower neonatal death rate,
better uptake of prenatal and delivery services, and improved home care
practices in the program communities than in the control communities
(Manandhar et al. 2004). Similar results were found in the original trial
of this approach in the Warmi Project in Bolivia (O’Rourke, Howard-

Implementation Challenges to Parent Education Programs
One of the most common problems in implementing parent education
programs is a low level of parental participation. In some cases, informa-
tion alone may not be sufficient to change family behaviors because
parents are unable to turn their knowledge into action. In particular,
parent education programs are unlikely to have meaningful impacts on
child outcomes either when participation is suboptimal or when informa-
tion alone is not enough.

When Participation is Suboptimal
In designing a parent education program, it may be found that intended
program frequency and duration does not reflect actual amount of serv-
ces provided to the family, as the level of parental engagement is often
suboptimal. A review of various parent education program models in the United States found that one of the most common implementation problems is the high level of attrition and low level of parental engagement in the program. According to this study, up to 40 percent of families that were invited to enroll in a home-visit program declined to participate, and only 50 percent of those who enrolled actually completed the program (Gomby 2005).

It is also important to consider the quality of parental participation. A close examination by Raikes et al. (2006) of the Early Head Start Research and Evaluation Project Data in the United States showed that the level of parental engagement in the program (as measured by global ratings of engagement by staff and ratings of engagement during each home visit) correlated with better child cognitive and language development, more parental support for children’s language acquisition and learning, and a better overall home environment. This program’s low intake and high attrition rates, as well as low quality of participation, may be a result of the disconnection that sometimes occurs between program content and the expectations and needs of parents, or to more practical reasons such as inconvenient hours or location.

**When Information Alone is not Enough**

Under some circumstances, parents may not be able to change their parenting practices. In particular, information on nutrition may not be sufficient to prevent or reverse stunting among young children, and the types of most promising interventions may vary depending on the target population. A meta-analysis of 10 programs aimed at improving complementary feeding practices through parenting education found that only three of the programs conducted among food-secure populations (as measured by an average income of more than US$1 per person per day) produced positive effects on children’s height-for-age (Bhutta et al. 2008). Further, a pooled analysis of seven evaluations of programs targeting food-insecure populations (as defined above) found that height-for-age increased only among those who were given food supplementation (in addition to or instead of parenting education) (Bhutta et al. 2008). Therefore, a combination of nutrition and health education with food supplementation or income generating programs, including Conditional Cash Transfers (see Note 3.4.), may be most relevant for certain populations.

Similarly, information on early stimulation may not be sufficient to promote behavior change among parents if time is a constraint (that is, if they are so involved in income-generating activities that they cannot
ECD Programs for Behavior Change in Health, Nutrition, and Parenting: Summary and Moving Forward

**Key Implementation Considerations**

- Promote integrated approaches that include health, nutrition, and stimulation for early learning.
- Identify the key interventions by mapping out vulnerabilities and opportunities for the target population.
- Target children most vulnerable to specific risks (for example, children under 2 for malnutrition, girls and the poor).
- Hire professional staff when available and provide appropriate training to enhance staff performance and overall quality of service.
- Convey messages in a hands-on and direct fashion during the sessions; demonstrate and explicitly encourage desirable behaviors.
- Make sure that parents (including fathers) participate in as many sessions as possible and are fully engaged during each session.

**Areas for Further Research**

- Practical ways in which stimulation and early learning messages can be added to health and nutrition services for young children and their families.
- Optimal mix of nutrition, health, and hygiene information with stimulation and early learning information and advice.
- Effectiveness of parent education programs alone (that is, not combined with center-based programs) on child cognitive, academic, and socio-emotional outcomes for various age groups.
- Long-term effects of parenting programs on children’s developmental outcomes.
- The extent to which mother’s education and other variables at the household and community levels play a mediating role on the impact of health and nutrition or parent education programs, particularly behavioral interventions.
- Optimal ways to scale up small successful programs.
- Interactions between the center-based component and parent education on parenting skills and care practice component of programs using a mixed approach that includes both center-based and parenting services.
engage in stimulating activities with their children). Additional strategies, such as training additional family members to play and interact with young children, may be useful in such contexts.

**Note**

1. During the support test, observers tested whether infants could retrieve a toy placed on a cloth by pulling the cloth. In the cover test, infants were required to find a toy covered with a cloth by removing the cloth. The sessions were videotaped for analysis.

**Key Readings**


**References**


NOTE 3.3

Communication and Media Campaigns Aimed at Families with Young Children

Many case studies and formative evaluations\(^1\) suggest that communication campaigns on child health, nutrition, and overall development are effective. However, only one study was found that used an experimental design to assess the impact of communication campaigns on relevant outcomes at the child and family levels (Alderman 2007). Conducting rigorous impact evaluations of communication campaigns is challenging for two reasons. First, communication campaigns are usually accompanied by other interventions, such as the introduction of new goods or services (for example, distribution of insecticide-treated bed nets), or the strengthening of existing services, thus making it difficult to disentangle the impact of the campaign in and of itself. Second, it is difficult to construct counterfactuals\(^2\) in the evaluation of communication campaigns that use mass media (TV, radio, newspapers) because the entire population is likely to be exposed or because exposure is linked to ownership of or access to the communication channels being used (that is, media ownership.), which is not random.

Given the limited evidence on the impact of communication campaigns targeting families with young children, this note focuses on (1) discussing general concepts in communication campaigns and how they
apply to ECD, (2) providing examples or case studies of how communication campaigns have been designed for families with young children and implemented in various countries, and (3) summarizing the lessons learned from these experiences.

**General Principles of Planning Communication Campaigns**

*Multiple Types of Communication Campaigns Can Be Implemented to Promote ECD*

Communication campaigns use the media and messaging means available, and an organized set of communication activities, to generate specific outcomes among a large number of individuals and in a specified period of time. They are an attempt to change people’s behaviors to achieve desirable social outcomes (Coffman 2002). There are two main types of communication campaigns. A *downstream campaign* targets the specific populations whose behaviors and practices are considered suboptimal or even harmful. Communication campaigns for families with young children can include messages about children’s health and overall development. They typically aim to improve the attitude, knowledge, and child-care practices of caregivers and other relevant community members in order to enhance the overall development of young children. In practice, these campaigns can be aimed at increasing the length of breastfeeding, improving the family’s hygiene (safe cooking practices, hand washing, and so on), alerting parents to the importance and availability of specific services within their community (immunization, vitamin A supplementation, iodine-fortified salt), reducing the incidence of corporal punishment and child abuse and neglect, informing parents about the key developmental milestones that their children should be going through (for example, children should start walking between 8 and 18 months), and providing parents with quick tips for ensuring the safety and stimulating the overall development of their children (for example, “never leave an infant alone on an elevated surface,” “talk/sing to your children”).

The second type is an *upstream campaign*, usually targeting a larger audience and seeking to generate public and political support for policies and funding and to construct common interests and a community in favor of a specific cause (Coffman 2002). In practice, upstream communication campaigns include activities intended to influence the government and elected officials directly through advocacy or indirectly by changing public will to persuade them to take policy action.
Communication Campaigns for ECD Usually Target Multi-Level Audiences and Rely on Multiple Channels for Delivering Messages
Most communication campaigns are created for multi-level audiences and have comprehensive strategies to cover both upstream and downstream communications. They may use a range of communication media, depending on the technology available and specific living conditions/characteristics of the target populations. Media options include television (public service ads, soap operas, documentaries); radio (thematic programming and talk shows); printed publications (newspapers, magazines, brochures/flyers, immunization cards); billboards, wall drawings, and posters; special events (fairs, plays, concerts, video shows); and information communication technology (web-based, short message services [SMS] or cell-phone-based text messages).

Communication programs for ECD usually target parents, grandparents, and other caregivers, but some target children directly. For instance, educational programs like Sesame Street (Fisch and Truglio 2000), and messages directed at young children have been broadcast through TV programs, TV spots, cartoon strips, radio jingles and programs, and picture books in many developed countries and increasingly in developing countries as well. In some cases, communication strategies rely directly on children as agents of change in their community. In the child-to-child model, for instance, children convey messages to other children in the context of school-based activities or cultural events organized at the community level (for example, plays/songs promoting sanitation, health education). These communication strategies seem promising, and evidence is beginning to emerge among projects targeting adolescents (for example, see Sikkema et al. 2005); however, they have not been systematically evaluated for projects targeting young children.

The Private Sector Can Be a Powerful Partner in Promoting Behavioral Change; However, There is a Potential for Conflict of Interest
Communication campaigns by the private sector to sell specific products to families with young children are sometimes referred to as “social marketing.” They use marketing concepts and techniques, including advertising and the distribution and selling of goods and services. In some cases, the respective interests of the corporate and social sectors in trying to change specific behaviors among the target population are aligned. For example, hand-washing with soap is one of the most critical ways to reduce diarrheal diseases, and there are obvious benefits to
both the public and private sectors in promoting this practice. Indeed, increased hand-washing would allow the industry to expand their market and sell more soap, and the government can benefit from the private sector’s expertise in designing effective communications campaigns to improve public health. Several countries have experimented with public-private partnerships in communication campaigns for families with young children (World Bank 2002). Although the effectiveness and efficiency of such partnerships compared to traditional government-run communication campaigns have not been documented, they appear promising.

In other cases, conflicts of interest can exist between the government and a specific industry when it comes to promoting the use of specific products for families with young children. A classic example is the controversy surrounding the marketing of infant formula in developing countries where access to clean water is limited and women’s education level is low, which may expose children to the dangers of using unsafe water or watered-down formula. In 1981, the International Code of Marketing of Breast-milk Substitutes was adopted by the World Health Assembly, and 65 countries have since enacted legislation implementing all or many of its provisions. The code stipulates that there should be absolutely no promotion of breast-milk substitutes or bottles to the general public; that neither health facilities nor health professionals should have a role in promoting breast-milk substitutes; and that free samples should not be provided to pregnant women, new mothers, or families. This example demonstrates that both individual governments and the international community need to be particularly vigilant when specific industries engage in communication campaigns that go against the best interests of young children and to be proactive in taking action against such marketing.

**Selected Case Studies**

As previously discussed, the impact of communication campaigns is difficult to measure and is rarely evaluated. However, there have been several promising initiatives in communicating messages for promoting ECD. The following three examples illustrate how messages to improve family child-care practices can be developed and communicated through diffusion mechanisms typically available in developing countries.
Uganda Nutrition and Early Child Development Project

Strategic communication was an important part of this 1995–2005 World Bank-financed Uganda Nutrition and Early Child Development Project (Cabanero-Verzosa 2005) whose main components were the following:

- An integrated child-care package, which mobilized groups of parents and caregivers at the community level. Child fairs facilitated by “animateurs” (local workers) were held every six months and served as an important service delivery and communication channel through which communities could access integrated health and nutrition services for their children;
- Community support grants and innovation funds provided financial assistance for child development projects with matching community contributions in cash or in kind; and
- A national support program for child development focused on supporting national level activities, such as participatory monitoring and evaluation; a micronutrients program; ECD curriculum development; information, education and communication (IEC) and advocacy for children’s rights.

These components were implemented using public communication as an integral strategy. Communication activities focused on (1) infant feeding, defined as breastfeeding up to 18 months and introduction of complementary feeding at 6 months and not earlier; (2) deworming of children; and (3) early childhood development for children under 6 with a focus on positive parental interactions and involvement of fathers in the care of children. The program design used a combination of media, and specific messages were crafted for different audiences. For example, new mothers, pregnant women, and grandmothers received messages, targeted specifically to each group, on the ideal timing for starting complementary feeding through counseling, radio, theater, print materials and posters. Different messages and sometimes different media were used for different audiences such as mothers of children aged 6 months and above. Similarly, messages on the causes and consequences of worms and prevention strategies were communicated to children’s parents and guardians through home visits, meetings, rural video showings, a child’s day, and the radio. Communication activities were conducted in two phases: the first phase (sensitization) raised awareness of the long-term negative effects of stunting and malnutrition, while the second phase
(motivation/adoption) promoted and encouraged the adoption of positive behaviors among families and communities.

Formative research preceding project implementation included (1) a rapid assessment to document local child-rearing practices and to explore the specific reasons for certain behaviors; (2) three qualitative studies on complementary feeding, treatment of worms, and communication research on early childhood development, intended to guide audience segmentation, behavior change objectives, message development, and monitoring and implementation at the project design stage; and (3) an assessment of the existing communication environment and its capacity.

The communication strategy targeted different audiences, and the team produced different communication materials accordingly. These included (1) building a network of parliamentarians supporting the cause, organizing study tours and field visits, and producing audio tapes to advocate and promote awareness among upstream stakeholders (for example, parliamentarians); and conducting a six-week distance learning course on strategic communication to sensitize the media; (2) brochures, inserts in newspapers, local workshops, radio spots, and education-entertainment road-shows to increase grassroots sensitization; and (3) posters, newspaper ads, brochures, radio spots, community events (that is, child’s day and education-entertainment road-shows), and interpersonal services such as nutrition counseling and home visits, to promote behavioral change among parents of young children.

A series of impact evaluations found that this project resulted in higher weight-for-age among participating children under the age of 12 months, compared to children in the randomly selected control communities (Alderman 2007), and in improved breastfeeding and complementary feeding practices (ibid.). In addition, mothers in the project area reported more positive attitudes and behavior to support children’s development, as well as a higher level of self-reported fathers’ involvement (assessed through four questions to fathers about their activities with the child on the previous day, and two questions on child-rearing attitude), compared to the control group (Britto, Engle, and Alderman 2007).

**Cambodia Mother and Child Health Campaign**

The Cambodia Mother and Child Health (MCH) Campaign, implemented starting in 2003 by BBC World Service Trust, used multiple media channels to deliver a wide range of messages for families with young children, including information on child and maternal health, HIV/AIDS, and sexual and reproductive health. It consisted of the following
interventions: 100 episodes of Cambodia’s first television soap opera taking place in a hospital setting (“Taste of Life”); a photo strip magazine on the TV program; three types of radio phone-in programs targeting youth, men, and young couples and parents with small children; and 23 television spots and 22 radio spots. This multimedia campaign was aimed at improving sexual health, increasing condom use, and changing attitudes towards people living with HIV and AIDS. It also addressed the health of young children by encouraging breastfeeding, raising awareness of acute respiratory infections, and promoting hand-washing to prevent diarrhea. The programs had wide coverage, with 83 percent of television viewers having watched “Taste of Life” at least once (BBC World Service Trust [c]), 27 percent of radio listeners having tuned in to the radio program for men, 32 percent to the program for youth (BBC World Service Trust [a]), and 19 percent to the program on maternal and child health (BBC World Service Trust [b]).

An evaluation reviewed the difference in knowledge and attitude between viewers/listeners of any TV or radio shows or advertisement spots and non-viewers/listeners, and found that viewers/listeners were better informed about childhood illnesses such as acute respiratory infection and treatment of diarrhea using oral rehydration salt (Power 2005).

**First Steps Program in the Maldives**

This year-long First Steps Program, initiated by UNICEF in 1999, involved capacity-building to foster print, radio, and television media for and about ECD. Through a baseline survey on knowledge, attitude, and practices and a series of workshops and field visits, the following 12 core messages were formulated:

1. Babies communicate from the day they are born. They are born with the basic capacity to learn, see, touch, smell, and taste;
2. The most important thing a baby needs is love and attention from key people in her or his family;
3. It is important for both fathers and mothers to nurture their babies and to take part in care-giving practices. There are many simple ways a father who works away from home can show his child how much he loves her or him;
4. Everyday routines can be learning experiences for a child;
5. The habit of looking at and reading books can be beneficial even to the youngest child;
6. Self-esteem usually refers to a child or adult’s sense of value and worth as a human being. The best way to help build the self-esteem of children is to make them feel loved, challenged and competent;
7. Both girls and boys are born with the same potential to develop skills in language, music, arts, sports,
science, etc. Girls and boys deserve equal importance, encouragement, and opportunity; (8) Children learn best through play. Forcing children to learn reading or writing before they enter first grade can impede their natural love of learning; (9) Disabled infants and children can learn and be a joy to a family. Children and adults who are disabled have a right to be included in every aspect of family and community life; (10) Older sisters and brothers can help their siblings in many positive ways; (11) Most injuries to babies and young children are preventable; and (12) Children learn best through modeling (UNICEF 2006; the Communication Initiative Network n.d.).

A multimedia campaign included weekly radio and television spots on issues related to early childhood care and development. The program helped train media staff and local educators, including preschool teachers, to communicate these messages to parents (UNICEF 2006; Communication Initiative Network n.d.). No published evaluation is available, but anecdotal evidence points to improvements in child-care practices, in particular increased reading to young children and improved attitude towards father’s involvement in child-rearing.

**Lessons Learned**

As mentioned, evidence-based knowledge is lacking for communication campaigns targeting families with young children. However, keeping in mind the goal of communication strategies, which is behavioral change, several lessons can be drawn from past and ongoing projects.

**Develop Messages and Communication Strategy through a Participatory Process to Ensure Local Relevance**

Formative research was an integral part of the preparation phase for all the projects described here. Such studies, often conducted through a participatory process, inform the project team about the local cultural, social, and religious contexts, and about parents’ beliefs, knowledge, and child-rearing practices. They also help identify the level of linguistic and visual literacy of the target populations, as well as the information channels they are most likely to use—including mass media and social networks. All of this information is key for developing relevant and realistic messages and deciding how the information campaign should be conducted. In addition, draft communication materials should be field-tested among a sample of the targeted population. Feedback from participants can help the project team assess the extent to which draft materials are well-received and make adjustments in accordance with their comments.
Reinforce Messages through Interpersonal Communications

Both the Uganda Nutrition and Early Child Development Project and the First Steps Program in the Maldives used a combination of mass media and personal contacts as communication channels. Although the value-added of personal contacts and built-in feedback mechanisms has not been evaluated in either of these two projects, interpersonal communications through child fairs seemed to be more cost-effective than the production and distribution of printed materials and handbooks in Uganda (Cabanero-Verzosa 2005).

Establish Strong Links to Project Outcomes, Operational Activities and Communication Activities

To demonstrate the project’s effectiveness, the project outcomes should be explicit and linked to the messages conveyed by the campaign. The project should be sequenced so that both communication and operational activities address audience-specific needs in a timely manner. For example, in promoting iodized salt, families not only need information about the benefits of consuming iodine but also access to the iodized salt itself. Therefore, operational activities aimed at establishing distribution networks need to precede, or be simultaneous with, the rollout of communication activities.

Engage All Relevant Stakeholders

The three projects discussed earlier successfully used upstream communication to gain support from multiple sectors of the government (such as ministries of health, education, information) as well as from members of the legislative branch (parliamentarians) and the media (journalists and radio broadcasters). This upstream communication took the form of advocacy at the central and local levels from the earliest stages of project design and implementation.

Choose Communication Channels Most Relevant (That is, Accessible and Popular) to Targeted Populations

Choosing the right communication media and assessing the capacity of existing local channels to produce and distribute communication materials for families with young children are critical to ensuring proper project design, budget, and schedule. In some cases, the media may have experience in communication campaigns, but they may not know much about child development. In other circumstances, local expertise in the production of the communication materials themselves may be very limited. For example, none of the local teams hired to produce the TV soap opera “Taste of
### Communication/Media Campaigns for Family with Young Children: Summary and Moving Forward

**Key Implementation Considerations**
- Study and know the audience, including their beliefs and child-rearing practices, as well as their preferred communication media.
- Craft messages that are locally relevant as well as scientifically sound and use materials that are tested by the targeted audience.
- Use communication media that are accessible and popular.
- Consider reinforcing mass media messages through interpersonal communication.
- Involve a wide range of stakeholders; include upstream communication as part of the overall strategy.
- Assess the capacity of the medium itself and provide support as relevant.
- Consider the possibility and advantages and disadvantages of involving the private sector in communication campaigns.

**Areas for Further Research**
- Impact of communication campaigns on parental/child-rearing behavior
- Relative impact of communication campaigns that use different channels
- Cost-benefit analysis of communication campaigns
- Value-added of communication campaigns when implemented in addition to other (more direct) ECD services
- Typology of messages/expected behavioral changes/audiences
- Impact of network-based diffusion models, such as parent-to-parent, child-to-child and child-to-family communication strategies

Life” in the Cambodia MCH Campaign had significant television experience before the project started, so the BBC trained the entire team of writers, producers, crew, and cast (BBC World Service Trust n.d.). In the Uganda Nutrition and Early Child Development Project, the government subsidized the media/sponsor of a radio talk show on health issues so that understaffed and underpaid media could spend time researching the issues.
Notes

1. Formative (or process) evaluations aim to strengthen or improve the program being evaluated, as opposed to summative evaluations, which evaluate the effects of programs.

2. That is, a group of people who are as similar as possible in both observable and unobservable dimensions to those who participated in the intervention.

3. This selection of case studies is by no means exhaustive. Communication-based projects included here were selected because they focus on several aspects of early childhood development in low-income settings and use multiple channels of communication.

4. Radio spots were broadcast in the control communities as well.

Key Readings


References


Conditional Cash Transfers (CCTs) for Families with Young Children

Conditional Cash Transfer (CCTs) programs provide money to target households, generally poor families, on the condition that they undertake specific actions, such as sending children to school or making use of preventive health care services. The objective is to foster the human capital accumulation of children as a means to break the intergenerational cycle of poverty. Since Brazil and Mexico started their first CCT programs in the second half of 1990s (Bolsa Escuela in 1995 and PROGRESA in 1997, respectively), CCT programs have rapidly been introduced in virtually all countries in Latin America, Africa (South Africa and Malawi), East Asia (Indonesia), South Asia (Bangladesh), the Middle East and North Africa (Yemen and Morocco), and Europe and Central Asia (Turkey and Macedonia).

While most CCTs targeting families with young children ages 0–6 have focused on improving health outcomes, this note explains that CCTs can be relevant for promoting a broader range of outcomes in this population. The note reviews the thin but promising evidence base available and cautiously indicates that CCTs for families with young children have the potential not only to promote developmental outcomes in young children (including cognitive development) but also to maximize the effect of CCTs targeting older children. Planning for the future, the
How CCTs Are Relevant for Promoting ECD

In many developing countries, there are steep socioeconomic “gradients” in cognitive and overall development, that is, children from poorer households show significantly worse outcomes early on. In Ecuador, for example, differences in age-adjusted vocabulary among 3-year-old children are generally small. By age 6, however, children in less wealthy households and children born to mothers with low education levels have fallen far behind their counterparts in wealthier or more educated households (see Notes 1.1. and 1.3.) (Paxson and Schady 2007). Similar trends are emerging from several World-Bank-supported studies that have measured the same child development outcomes in countries such as Cambodia, and Mozambique, and Nicaragua.1

These negative developmental trends among poor children early in life are likely to occur for several reasons. First, research increasingly demonstrates that children’s development and abilities are as strongly affected by the overall quality of their environment and the amount of nutrition and early stimulation2 they receive as they are affected by genetics, with genetic influences accounting for only about half of the variance in cognitive abilities, for example (Fernald et al. 2009).3

Second, environmental risk factors,4 such as malnutrition, poor health, unstimulating home environments, and child maltreatment, tend to be more concentrated among poor households with less educated parents (Irwin, Siddiqi, and Hertzman 2007), partly because of demand-side constraints (for example, lack of financial resources to purchase nutritious food for young children; information failures such as lack of parental knowledge about the critical importance of supporting children’s growth and development from conception onwards, and so on) and partly because of supply side constraints (for example, unequal distribution and quality of resources and services for young children).

Given the constraints of this environment, despite the fact that CCT programs are not ECD interventions per se, CCTs typically do two things that can improve ECD outcomes for poor children:

1. They transfer cash to poor families, in some cases a great deal of cash. If the cash helps alleviate some of the risks identified above (for example, parents use the cash to purchase nutritious foods and learning
materials and toys for young children, or parents spend increased amounts of quality time interacting with their children), then cash transfers can be expected to yield positive developmental outcomes in the children.

2. **The cash transfer is usually conditional upon participation in specific services.** So far, most CCTs targeting families with young children have focused on health conditionalities (for example, attending regular health check-ups and growth monitoring sessions), but in theory cash transfers could also be conditional upon participation in a wider range of services (to the extent that such services are available), including center-based ECD programs (see Note 3.1.) and programs that promote behavior change in health, nutrition, and parenting (see Note 3.2.). As documented in these two notes, participation in such services often leads to improved developmental outcomes among participating children when the quality, intensity, and targeting strategies are adequate.

Some CCT programs have attempted to expose parents to new child-rearing concepts and practices, particularly in the areas of health and nutrition, by conditioning transfers on participation in information sessions, referred to as “pláticas” in some Latin American countries. In Mexico, for example, evidence suggests that these information sessions have contributed to improved health outcomes through better diets among the children or participating parents (see Hoddinott and Skoufias 2004) and through increased knowledge on a range of health issues (Duarte Gomez 2004). However, much remains to be learned on what is the optimal content, including how to discuss not only health and nutrition but also early stimulation, and delivery mechanisms for these information sessions.

**Evidence on CCT Effects on ECD Outcomes is Thin But Promising**

Generally speaking, CCT programs focused on older children (that is, primary school age and above) have typically had an impact on the utilization of services in both education and health. However, the evidence on the effects of these programs on final learning and health outcomes is more disappointing, which might indicate that the quality of these services may be suboptimal and/or that early developmental delays
among children are difficult to reverse later on. Fiszbein and Schady (2009) provide a comprehensive review of CCT program outcomes, which is summarized here.

To some extent, the evidence documenting the effects of CCTs on health among younger children, from birth to age 6, follows a similar pattern. Several evaluations found that CCT programs led to increased use of health services among families with young children. For instance, young children participated more frequently in growth monitoring visits in Colombia and Nicaragua, and attended health check-ups more often in Honduras, Jamaica, and Mexico. However, health and nutritional status typically did not improve among these children. If they did, short-term gains were no longer apparent in the medium-run.

The available evidence on the impact of CCT programs on immunization coverage among infants and toddlers is also mixed. Significant impacts were found in several countries (for example, full immunization in Turkey, increased DPT coverage among children less than 24 months of age in Colombia and among children less than 3 years in Honduras). In turn, CCT programs did not lead to the expected impact in other settings (for example, DPT coverage for 24-48-month-olds did not increase significantly in Colombia; tetanus and measles coverage for children below age 3 did not increase significantly in Honduras, TB vaccination for children below the age of 12 months, and measles vaccinations for 12-23-month-old children did not increase significantly in Mexico).

At the same time, a new body of evidence has come to light—mainly from studies in Ecuador, Mexico, Nicaragua—that indicates that CCTs can have a positive impact on ECD outcomes (other than health) among young children, including effects on their cognitive, linguistic, fine-motor, and socio-emotional development. For example, children ages 0-7 whose families were randomly assigned to participate in Nicaragua’s Atención a Crisis program for a period of 9 months showed better socio-emotional and language development than children in the control group. There were no program effects on motor development or on the incidence of behavior problems (Macours, Schady, and Vakis 2008). The study also measured intermediate outcomes, including changes in parental behavior and attitude, which can be viewed as positive inputs toward healthy child development, and found that participating children received more nutrient-rich food, more early stimulation at home, and more preventative health care. These results are particularly interesting, given that this CCT program was implemented without the condition that health care be obtained for children in this age group (due to administrative challenges). The authors (Ibid.) explain that these changes in intermediate outcomes
are larger than what can be accounted for by the increase in income among households receiving the CCTs. They also speculate that the information and “social marketing” campaign launched by the program (on the importance of investing in ECD) may have been important. (See Note 3.3 for more information on the role that communication/media campaigns can play in promoting ECD outcomes.)

An evaluation of the BDH (Bono de Desarrollo Humano) program (Paxson and Schady 2007) in Ecuador, which was also implemented without the health care condition for young children, did not find any treatment effects for the whole sample, but did find modest effects on fine motor skills and long-term memory among participants in the poorest quartile of the sample (that is, children age 3–7 years who had participated in the program for an average of 17 months). The authors also report positive program effects on health care use (for example, on the likelihood of having received deworming medication), child and maternal hemoglobin status, and the quality of the parenting environment at home. Table 3.4.1 summarizes the findings of the Nicaragua and Ecuador studies.

Finally, a nonexperimental evaluation of Mexico’s Oportunidades program compared a range of child developmental outcome indicators among various groups of beneficiaries who had received different amounts of cash transfers. The authors found that doubling the size of the transfer resulted in better gross motor skills, long- and short-term memory, visual integration, and language development among children ages 36–68 months (Fernald, Gertler, and Neufeld 2006).

Taken together, these three studies provide promising evidence that CCT programs can help improve ECD outcomes. Further, the results suggest that CCT programs targeting families with young children are also likely to maximize the effects of CCT programs targeting these same children as they get older (that is, when they enter primary and secondary school). Indeed, as mentioned earlier, CCTs that have focused on school-age children have usually resulted in increased school attendance but have not led to improved learning outcomes (for example, in Mexico [Behrman, Parker, and Todd 2005] and Cambodia [Filmer and Schady 2009]). These disappointing results are most likely the result of a combination of factors, including the suboptimal quality of education services these children often receive and the fact that early developmental delays are difficult to reverse later in life (see Note 1.3.). Therefore, to the extent that CCTs can prevent or reverse early developmental delays, as documented in the three studies discussed here, they are also likely to foster improved learning and behavioral outcomes among the same children as they get older.
Finally, recent evidence shows that CCTs targeting families with young children can also have a positive effect on school participation among older siblings, particularly for girls. For example, a randomized study looking at the impact of the Mexican CCT program *Oportunidades* on the time that mothers and older sisters spend taking care of children under age 3 found that adolescent girls in treatment households devoted more time to schooling and less time taking care of their younger siblings (Dubois and Rubio-Codina 2010). The study also found that total household time allocated to child care increased, thus indicating that young children in treatment households received more and potentially better (mother provided rather than sibling provided) child care.

### Table 3.4.1  Effect of CCTs on ECD: Data from Ecuador (2004–05) and Nicaragua (2005–06)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Ecuador (poorest 40%)</th>
<th>Ecuador (poorest 10%)</th>
<th>Nicaragua</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language (TVIP)</td>
<td>0.005</td>
<td>0.137</td>
<td>0.228***</td>
</tr>
<tr>
<td></td>
<td>(0.098)</td>
<td>(0.129)</td>
<td>(0.084)</td>
</tr>
<tr>
<td>Language (Denver)</td>
<td>n.a.</td>
<td>n.a.</td>
<td>0.189***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.065)</td>
</tr>
<tr>
<td>Short-term memory</td>
<td>–0.019</td>
<td>0.079</td>
<td>0.070</td>
</tr>
<tr>
<td></td>
<td>(0.100)</td>
<td>(0.143)</td>
<td>(0.058)</td>
</tr>
<tr>
<td>Long-term memory</td>
<td>0.141</td>
<td>0.173*</td>
<td>n.a.</td>
</tr>
<tr>
<td></td>
<td>(0.092)</td>
<td>(0.097)</td>
<td></td>
</tr>
<tr>
<td>Visual integration-executive function</td>
<td>0.054</td>
<td>0.256</td>
<td>n.a.</td>
</tr>
<tr>
<td></td>
<td>(0.095)</td>
<td>(0.160)</td>
<td></td>
</tr>
<tr>
<td>Behavioral Problems Index</td>
<td>0.066</td>
<td>0.240</td>
<td>0.037</td>
</tr>
<tr>
<td></td>
<td>(0.091)</td>
<td>(0.147)</td>
<td>(0.064)</td>
</tr>
<tr>
<td>Personal-behavioral skills</td>
<td>n.a.</td>
<td>n.a.</td>
<td>0.135**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.066)</td>
</tr>
<tr>
<td>Average effect on cognitive outcomes</td>
<td>0.049</td>
<td>0.177*</td>
<td>0.132***</td>
</tr>
<tr>
<td></td>
<td>(0.066)</td>
<td>(0.094)</td>
<td>(0.040)</td>
</tr>
</tbody>
</table>


*Notes:* n.a. = not available; TVIP = test de vocabulario en imágenes peabody.

Coefficients on the CCT treatment variable and standard errors are in parentheses. Separate regressions were conducted for each of the dependent variables presented in the left column (that is, TVIP, Denver, etc.). All regressions adjust for clustering at the village level. Average effects are calculated by seemingly unrelated regressions. All measures have been standardized so they have mean 0 and a standard deviation of 1. The coefficients therefore can be interpreted as changes in standard deviation units. All regressions include single month-of-age dummy variables and a dummy variable for gender. In both countries, the sample is limited to children aged 36–83 months, for comparability.

* Significant at the 10 percent level.
** Significant at the 5 percent level.
*** Significant at the 1 percent level.
Knowledge Gaps and Policy Options for Moving Forward

Although emerging evidence suggests that CCTs have the potential to promote developmental outcomes among young children, knowledge gaps remain in relation to the following questions:

1. **What aspect(s) of the CCT package (that is, the cash, the parenting information received, or a combination of the two) are most critical in explaining positive outcomes?** The Nicaragua study discussed above (Macours, Schady, and Vakis 2008) makes some progress in this area, but further insights would be useful.

2. **Which target groups are likely to benefit most?** Generally speaking, interventions aimed at preventing or reversing stunting are likely to be most effective between conception and the age of 2 years (see Notes 1.2. and 3.2.), while interventions aimed at improving the cognitive and socio-emotional development of children can benefit children in the upper range of early childhood as well (see Notes 1.3. and 3.1.). Current ECD studies, as documented throughout this guide, also indicate that the largest effects can be expected among the subgroups with the lowest baseline levels, such as the poorest children and girls. However, more research is needed to ascertain whether the effects of CCTs follow similar patterns.

3. **What transfer size is most appropriate for promoting significant ECD outcomes?** Most CCT programs give transfers to women rather than men, in part because women have been found to invest a larger share of the income they control in the welfare of their children (Lundberg, Pollak, and Wales 1997; Thomas 1990). But how much is enough? In theory, the transfer level should reflect both the direct cost of inputs (for example, nutrient-rich food, children’s books, other learning materials, transportation to health clinics and other ECD services) and the opportunity costs associated with a given behavior change (for example, the time necessary for parents to take their children to service providers or to engage children in stimulating activities at home). In practice, however, the amount of the transfer that families receive via CCTs varies widely, and little is known about the optimal transfer size for promoting ECD outcomes in a given context.

4. **Does conditionality matter and, if so, to what extent?** In both the Ecuador and Nicaragua studies, the conditionality of health service
attendance was communicated but not enforced. Yet, both programs resulted in positive child development outcomes as well as in positive changes in parental behavior. These results may indicate that the availability of extra cash, along with information on how to promote better child development may be more important than the enforcement of the conditionality itself. Other studies focusing on the effects of cash transfers among older children also found that outcomes did not vary based on the enforcement of conditionalities (Baird, McIntosh, and Ozler 2010). Given how expensive it can be to track compliance with conditionalities, it would be worthwhile to know whether such investments are indeed warranted.

These questions could be addressed through additional program experimentation and research across a variety of contexts, which would help broaden the scope of the thin evidence base currently available.

In addition, important policy options for moving forward include experimenting with various supply-side interventions, including the following:

1. **Interventions to broaden the scope of ECD services available to CCT beneficiaries.** While CCTs targeting families with young children have so far focused on health conditionalities, participation in other types of ECD services (for example, center-based programs (see Note 3.1.) or programs that promote behavior change among parents/caregivers (see Note 3.2.) could be encouraged when such programs are available locally.

2. **Interventions to improve the quality of ECD services available to CCT beneficiaries.** As documented in both the CCT and ECD literatures, quality matters when it comes to whether or not a given service is likely to yield positive effects. Several CCT programs targeting older (school-age) children have attempted to address supply-side quality issues in the education and health sectors through a range of tactics, including by providing grants for better performing schools, giving cash transfers to teachers or to PTAs, and establishing health education sessions in response to low health center attendance (Fiszbein and Schady 2009). Similar strategies could be used (and evaluated) in an effort to promote increased participation in a range of quality ECD services among young children and their families.
Conditional Cash Transfers for Families with Young Children: Summary and Moving Forward

**Key Implementation Considerations**

- Focus on relevant age groups, depending on the program's goals and expected outcomes (for example, programs that aim to improve nutrition outcomes should focus on children younger than 2 years old, while programs that aim to improve broader child development outcomes, including cognitive and social development, can focus on the whole age range of 0–6 years).
- Target the poorest households and ensure that girls participate in and benefit from the program.
- Provide cash transfers to women in the household.
- Clearly communicate information on how transfers are expected to be used.
- Address supply-side constraints by encouraging the provision of quality ECD services (including growth monitoring services, parenting programs, and daycare/preschools) and improving the quality of existing ones.

**Areas for Further Research**

- Impact of CCTs on the developmental outcomes of young children (including physical, cognitive, and socio-emotional), especially outside the Latin America and Caribbean region
- Potential value-added of providing parents with child-rearing information (for example, on hygiene, proper nutrition, and early stimulation), in addition to giving them cash
- Optimal targeting strategies
- Optimal transfer size to achieve expected outcomes
- Relationship (or lack thereof) between conditionality and program outcomes
- Creative strategies for alleviating supply-side constraints through CCTs (both in terms of quantity and quality of ECD services)

**Notes**

1. These data are unpublished as of yet but are expected to become available in December 2010.
2. Early childhood stimulation is defined as providing young children with constant opportunities to interact with caring figures and to learn about their environment from the earliest age. In practice, stimulation is about parents and other caregivers being responsive to the emotional and physical needs of their children from birth onward, playing and talking with them (even before children can respond verbally), and exposing them to words, numbers, and simple concepts while engaging in daily routines.

3. Evidence distinguishing between genetic and environmental factors comes primarily from industrialized nations. For a review, see Plomin (1994).

4. Risk factors are defined as “Personal characteristics or environmental circumstances that increase the probability of negative outcomes for children” (Cole and Cole 2000).

5. The sizes of these impacts were 0.17–0.22 standard deviations in language, and 0.13 standard deviations in socio-emotional skills.

**Key Readings**


**References**


SECTION 4

Costing and Financing
This note identifies the challenges in analyzing and comparing cost structures across ECD programs. It also provides information on the financial and economic costs that should be considered in planning and costing an ECD program. An introduction to the objectives of cost-effectiveness and cost-benefit analysis is presented, along with examples of research studies and practical tools that have been developed to cost programs and simulate alternative scenarios of service delivery. Finally, the note provides examples of unit costs for preschool programs in several countries.

NOTE 4.1

Costing of ECD Projects

The Challenge of Comparing Unit Costs

_ECD Programs are Multi-Faceted and Have a Broader Definition Than Primary Education Programs_

In primary education there is a set of core program elements and standards for intensity of services, a defined group of beneficiaries, and international protocols for data collection and reporting. However, in ECD programs—which range from health promotion services for infants and toddlers, parenting and caregiver programs to promote early development and stimulation, daycares, and preschools—interventions range widely in content and intensity. Program beneficiaries can include infants, children,
or parents/caregivers; and there are few data protocols established to allow program comparability across countries. Table 4.1.1 shows the range of multi-level, multi-faceted ECD programs compared to those in primary education, which are fairly straightforward and thus easier to compare.

Direct comparisons of ECD programs, both to each other and to primary education programs, must be calibrated to compensate for differences in program objectives, design, quality, and intensity (Levin and Schwartz 2006). Given the intricacies of ECD programs, it is not uncommon to find cross-country information focused on preschool programs, leaving out equally essential interventions that target infants and children under 2 years of age.

**Determinants of Program Costs are Financial Costs and Economic Costs**

Financial costs and economic costs are the two broad cost categories to consider when estimating the cost of an ECD project. Financial costs include the monetary outlays associated with a program, while economic costs include the value of inputs that are provided in-kind, including volunteers’ time, donated space, or beneficiary-purchased materials (see table 4.1.2) (Myers 2008b). Both types must be factored in to determine the full cost of ECD programs and to avoid estimation biases that could result in budget shortfalls or incomplete delivery of intervention packages.

**Financial Costs for ECD Programs Can Be Subdivided Into Two Cost Categories: Investment and Operational Costs**

Financial costs include investment costs, usually one-time capital investment (for example, new construction or rehabilitation of physical plant), and operational costs, which are usually recurrent (that is, weekly, monthly, or annually) for as long as the project is operational. Table 4.1.2 provides examples of the program elements and types of activities typically included in these subcategories.

*Staff salaries and benefits are usually the bulk of operational costs.* Staffing tends to be the largest cost driver in ECD programs. Staff qualification levels necessary to conduct the program can account for 60 to 90 percent of operational cost, hence the need to factor in the advantages and disadvantages of the skill levels for different types of tasks and
Table 4.1.1 Comparing Domains Between Primary Education and ECD Programs

<table>
<thead>
<tr>
<th>Domain</th>
<th>Early childhood development programs</th>
<th>Primary education</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target</strong></td>
<td>Programs are usually still in expansion mode, many with a focus on vulnerable and disadvantaged children. Different interpretations of ‘expansion’: more children enrolled, more time spent on programs per year, more years, etc.</td>
<td>All primary school age population attending school</td>
</tr>
<tr>
<td><strong>Delivery</strong></td>
<td>A range of modalities from sparsely supported home-based to formal preschool programs</td>
<td>Predominantly formal</td>
</tr>
<tr>
<td><strong>Staff required</strong></td>
<td>Professionals, paraprofessionals, parents, siblings, nannies, babysitters. However, untrained caregivers may gradually reach higher levels of professionalism.</td>
<td>Professionals</td>
</tr>
<tr>
<td><strong>Focus of the intervention</strong></td>
<td>Children and/or parents (for example, mothers attending literacy programs that address child upbringing)</td>
<td>Children</td>
</tr>
<tr>
<td><strong>Entry age</strong></td>
<td>At the earliest, ECD programs can start from before birth (through prenatal programs); at the latest they start one year before primary school entry.</td>
<td>Officially at age 6 in most countries. In practice, children may enter one or more years later, and occasionally earlier</td>
</tr>
<tr>
<td><strong>Frequency and duration</strong></td>
<td>Very diverse: from once a week to 5 days a week, from just a few hours to a full day. The duration also varies widely.</td>
<td>Usually at least 5 days a week, during regular months each year, and usually lasting for 6 years</td>
</tr>
<tr>
<td><strong>Number of children served</strong></td>
<td>Different definitions depending on the type of program; most programs do not report using full-time enrollment equivalency, making it difficult to estimate coverage.</td>
<td>Fairly well agreed upon program definition; programs are full-time, with a range of number of instruction hours.</td>
</tr>
<tr>
<td><strong>Unit costs</strong></td>
<td>Estimates are scarce.</td>
<td>Rough estimates are available from a broad body of research.</td>
</tr>
</tbody>
</table>

*Source: Adapted from Van Ravens and Aggio (2008).*
their financial implications. Staff types that need to be taken into account when designing and budgeting a program include: (1) service staff who interact directly with children, (2) administrative staff who steer the program locally or at district or national level, (3) supervisory staff who provide oversight and technical training, and (4) support staff located at the site where service is being delivered. The qualifications of each staff type vary significantly depending on the fiscal position of a country

Table 4.1.2  Financial and Economic Costs of ECD Programs

<table>
<thead>
<tr>
<th>Financial costs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Investment (startup)</strong></td>
</tr>
<tr>
<td>• Project development: creating/testing the approach, infrastructure, and materials</td>
</tr>
<tr>
<td>• Facilities: constructing or upgrading</td>
</tr>
<tr>
<td>• Equipment: transportation, office, instructional (tables and chairs), storage, and food preparation</td>
</tr>
<tr>
<td>• Materials: reusable guides, books, and toys</td>
</tr>
<tr>
<td>• Training: initial training at all levels (trainers, locale, per diems, transport, and supplies)</td>
</tr>
<tr>
<td>• Consultants: fees, honorariums, and expenses</td>
</tr>
<tr>
<td>• Micro-enterprise: loans for project-financing schemes</td>
</tr>
<tr>
<td><strong>Operational (recurrent)</strong></td>
</tr>
<tr>
<td>• Staffing salaries and benefits: ECD administrators, supervisors, directors, ECD workers, health personnel, cooks, support personnel (drivers, and maintenance)</td>
</tr>
<tr>
<td>• Food: purchase cost</td>
</tr>
<tr>
<td>• Health care: supplies (salaries included above) and facilities (prorated)</td>
</tr>
<tr>
<td>• Administration: general administration (overhead) costs</td>
</tr>
<tr>
<td>• Training: in-service training</td>
</tr>
<tr>
<td>• Communication: telephone, fax, printing, and media</td>
</tr>
<tr>
<td>• Supplies: non-reusable</td>
</tr>
<tr>
<td>• Transportation: gasoline and maintenance of vehicles</td>
</tr>
<tr>
<td>• Per diems: costs associated with supervision, training, and field visits</td>
</tr>
<tr>
<td>• Maintenance: facility costs, electricity, telephone, and insurance</td>
</tr>
<tr>
<td>• Evaluation: periodic monitoring and evaluation activities</td>
</tr>
<tr>
<td>• Contingency: fund for unexpected costs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Economic costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>• In-kind contributions</td>
</tr>
<tr>
<td>• Donated physical space</td>
</tr>
<tr>
<td>• Volunteer contributions from parents, caregivers or community members</td>
</tr>
</tbody>
</table>

Source: Evans, Myers, and Ilfeld (2000).
or even among local jurisdictions (for example, teacher qualifications); the policy framework on ECD (that is, the priority preschool programs are given by the government); and the type of beneficiaries targeted (rural, urban, or peri-urban), among others. For example, ECD programs in countries that require a university equivalent degree for preschool teachers have different cost structure compared to those in countries where preschool services rely on contractual staff (facilitators) or community volunteers. Within a country there can also be great variations between ECD programs in urban areas compared to those in deep rural communities or isolated places.

**Economic costs often reflect the monetized value of in-kind contributions.** It is not uncommon for ECD programs to include a variety of in-kind contributions as part of the delivery of services. However, when in-kind contributions are central to the delivery of services, it is important to assign a monetized value to them to ensure that they are also incorporated in the cost structure of the program. Knowing the full cost of a program is important for effective implementation, in particular, in situations where the program is to be scaled up or replicated elsewhere at a similar level and standard of services but in a venue in which in-kind services such as donated space or volunteer time may not be available.

**Estimating Program Costs**

Two common approaches to estimating program costs are (1) inferring costs from official program budgets and expenditure records and (2) constructing cost-simulation models in which all the possible project ingredients (financial and economic costs) are accounted for in a computerized model. Each approach has advantages and disadvantages, and, in practice, it is not uncommon to use both approaches to assign a unit cost to a program and weigh in the financial implication of scaling up programs under different service delivery parameters. It is important to note that an estimation of unit costs with only official budgets and expenditure information can lead to an underestimation because all too often donated time, supplies, physical space, or other in-kind support are not officially recorded. Simulation models tend to be of greatest use for the design of new programs; their drawback is that they tend to provide aggregate unit cost information that fails to account for the price differences in urban, rural, peri-urban, or other geographic areas within a country, especially for hard-to-reach areas that have higher than average unit costs.
Recent examples of comprehensive simulation models developed to estimate the cost of expanding ECD services include Van Ravens and Aggio (2008) and Mingat (2006). Their models estimate the unit costs of ECD programs in terms of per capita GDP in an attempt to estimate the potential cost of expanding services using different parameters of service delivery. Van Ravens and Aggio’s findings indicate the expansion of preschool would cost about 20.8 percent of GDP per capita in Sub-Saharan Africa and 12.5 percent in Arab countries. The cost of expansion of home-based programs in Arab countries was estimated at 4.5 percent of GDP per capita. Mingat’s simulation analyses in Sub-Saharan Africa point to an estimated cost of 17 percent of GDP per capita for full-time, formal preschool programs and 4.2 percent for community-based programs. These estimates, while aggregate, provide a magnitude of costs of expansion under certain parameters, which are then used in estimating the total level of public and private funds that would be needed to reach a certain level of service delivery.

Other costing simulation models include (1) the ECD Calculator developed by the Amsterdam Institute for International Development (AIID) (Van der Gaag and Tan 1998); (2) the CARICOM model developed by Charles and Williams (2008) to estimate the costs of setting up quality ECD programs; (3) the Tool for Estimating the Costs of Universal Preschool in the United States developed by the Institute of Women’s Policy Studies (Golin, Mitchell, and Gault 2004); (4) the Karoly and Bigelow (2005) paper on how to estimate the costs and benefits of universal preschool in the State of California; and (5) the Brandon (2004) model developed to estimate the cost of financing access to early education for children age 4 years and younger in the United States. These models have wide application as they provide insight into the number and types of cost categories, as well as the parameters to reach different levels of quality and service delivery (Van der Gaag and Tan 1998).

A Comprehensive Cost Analysis Framework May Be Useful to Guide Planning and Data Requirements

Any costing study should be clear from the start about the types of information it needs to gather. The following areas are common in most cost analyses: (1) sources of funds to determine who is bearing the cost of the program and where the funds are being generated (see Note 4.2 for more details); (2) a list of investment and operational costs; (3) a breakdown of operating costs to identify the proportion of direct and overhead costs, as well as fixed and variable costs; (4) program setting (rural/urban); (5) costs
related to lines of action (materials, supplies, food, training); (6) project stage (pilot, semi-established or established program); and (7) intensity of services (length of time a service is offered, whether it is full-time or part-time). Once the information is in place, a costing table is then built from which the unit cost of the program can be derived, depending on the total number of beneficiaries expected to be reached.

**Unit costs for preschool programs range widely.** The annual expenditure on educational institutions offering preschool services (public or private) range widely from a high of US$8,867 in the United States to US$1,315 in Brazil (figure 4.1.1). The average for the Organisation for Economic Co-operation and Development (OECD) is US$5,260. These unit costs should be interpreted with caution; they reflect expenditures for pre-primary institutions (mostly formal, center-based) based on full-time enrollment equivalencies. An analysis of non-full-time programs in informal or non-center-based settings would probably yield a lower cost structure, since those programs tend to rely on staffing with different qualification levels and different types of service delivery intensity, particularly for children under 2 years of age.

The Van Ravens and Aggio (2008) simulation model estimates the unit cost of preschool programs to range from $58 in Mauritania, $70 in Yemen, $145 in Egypt, $318 in Tunisia—to US$2,739 in the United Arab Emirates. Other non-formal preschool programs, such as the Madrasa

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**Figure 4.1.1 Annual Expenditure on Preprimary Education per Student (3 years and older) (2006)**

![Graph showing annual expenditure on preprimary education per student (3 years and older) (2006)](source: OECD © 2009 Education at a Glance 2009: OECD Indicators)
ECD program in East Africa (Kenya, Uganda, and Zanzibar), estimated the unit cost to be between $14 and $24 per child per month. Again, these numbers should be interpreted with caution given that the program elements are project-specific (Issa and Evans 2008; Myers 2008a). Similarly, unit cost estimates for programs targeted to the 3–6-year-old age group produced by the Comisión Económica para América Latina y el Caribe (CEPAL) and the Organización de Estados Iberoamericanos para la Educación, Ciencia y la Cultura (OEI) (CEPAL and OEI 2009) for all countries in the Latin America and Caribbean region, indicate a range from $74 for Nicaragua, $145 in Bolivia, and $161 in Colombia—to $1,078 in Uruguay, $1,170 in Mexico, and $1,966 in Chile.²

Information on the unit costs of parenting education programs, including home-visit programs, is even more limited. The Caribbean Child Development Center estimated the cost of a home visiting program at $312 per child per year in Jamaica (Myers 2008a), while unit cost estimates from the Van Ravens and Aggio (2008) simulation model for home-based programs yielded a range of annual unit costs: $13 in Mauritania, $23 in Djibouti, $90 in Morocco, $203 in Tunisia, $413 in Lebanon and $1,252 in United Arab Emirates.³ Again, these cost estimates should be interpreted with caution given that their technical content and service intensity may vary substantially.

In the absence of information on unit costs for programs targeted to the 0–3-year-old age group, CEPAL and OEI (2009) chose to rely on the unit cost information for programs targeted to the 3–6 age group as guiding estimates for the 0–3 age group.⁴

Cost-Effectiveness and Cost-Benefit Analyses

Although there is ample empirical evidence on the importance of ECD programs as an essential step in human capital formation (see Notes 1.1–1.3), public funds tend to have a number of competing demands, which often requires policy makers or program managers to make requests based on cost-effectiveness or cost-benefit analyses.

Cost-Effectiveness Analysis Compares Two Or more Programs According to Their Effectiveness and Costs in Accomplishing a Particular Objective

Cost-effectiveness (CE) analysis refers to the evaluation of alternatives according to both their costs and their effects with regard to producing some outcome or set of outcomes. Under CE analysis, both the costs and
effects of different alternatives are taken into account in evaluating programs with similar goals. It is assumed that (1) only programs with similar or identical goals can be compared and (2) a common measure of effectiveness can be used to assess them. For example, CE can be used to compare alternative service delivery models to improve school readiness using student test scores as the objective.

The combination of information on effectiveness and costs provides decision makers with information on a given level of effectiveness at a given cost, or the highest level of effectiveness at a given cost. Although CE analysis is useful in selecting between two or more alternatives in terms of effectiveness, it does not provide information on which alternative is worthwhile in an absolute sense. CE analysis is less useful when there are too many objectives under review and there is limited guidance on the decision rule to select among effectiveness alternatives (Levin and McEwan 2002). The Lancet 2007 series (Engle et al. 2007) summarized the impact of a range of pilot ECD studies on children’s outcomes in cognitive development; however, costing data were not available to compare the effects (outcome) per dollar invested among alternatives.

**In Cost-Benefit Analysis the Outcomes of an Alternative are Expressed Directly in Monetary Terms**

Cost-benefit (CB) analysis provides a framework in which to weigh trade-offs among alternative investments that yield improvements in specific outcomes relative to other investments. CB analysis is based on the “maximum social gain” principle, which assumes that decision makers seek to maximize their own social welfare or well-being, thus the maximum social gain principle would dictate that prospective benefits must exceed anticipated costs, and more importantly, that the excess of benefits over costs must be maximized. Commonly used methods to appraise the value of an investment include the calculation of a ratio that represents the present value of the total benefits of the investment or program to the present value of the total cost of undertaking the investment, that is, (1) Benefits\(_0\) > Costs\(_0\) or Benefits\(_0\) – Costs\(_0\) > 0; (2) the *Internal Rate of Return* (IRR) which is the rate of discount that makes Benefits\(_0\) – Costs\(_0\) = 0; (3) and the *benefit-cost ratio* in which projects are selected where the ratio of the present value of benefits to the present value of costs exceeds unity, where projects Benefits\(_0\) / Costs\(_0\) > 1. All values specified in the benefit-to-cost ratio must be economic benefits and costs measured in monetary terms (Cohn and Geske 1990).

For example, according to findings from Karoly and Bigelow (2005) on the cost of expansion of a preschool program for all children in the State
of California, ECD investments have positive CB, generating $2.62 for every dollar invested in the specific programs under their review. A one-year, high-quality universal preschool program in California is estimated to generate about $7,000 in net present value benefits per child for California society (public and private sectors), using a 3 percent discount rate. This equals a return of $2.62 for every dollar invested, or an annual rate of return of about 10 percent over a 60-year horizon. The study also estimated that, using a 70 percent assumption in participation rate in the universal preschool program, each annual cohort of California children served generates $2.7 billion in net present value benefits to California society (using a 3 percent discount rate) (Ibid.).

A weakness of CB analysis, however, is that it requires benefits to be measurable and monetized, which is difficult to do in the case of social programs, including ECD interventions. One reason for this is the existence of a number of externalities that are difficult to measure in precise ways, let alone monetize. Estimating the full benefits of ECD programs is a complex undertaking that requires the development of a multi-domain framework for analysis for which time series data are required. Benefits of participating in ECD programs accrue in the short-, medium-, and long-term on domains including school performance, education attainment, employability, earnings from employment, social and emotional competence, health outcomes, social welfare, and quality of life.

When CB analysis is feasible, it can determine whether benefits outweigh costs, which allows for decision making on financial terms alone in an absolute sense. Another advantage of CB analysis is that it provides information about program design and delivery, including which services or combinations of services should begin at what age, how extensive coverage should be, and how programs should be staffed, located, and financially supported. Although CB analysis may provide absolute information on program alternatives, the method is usually data-intensive, requires a longer time for observation, and requires for benefits to be monetized, which can be difficult in the social sectors (Wolfe and Zuvekas 1997; Haveman and Wolfe 1984).

In the United States several ECD programs have been analyzed using longitudinal data on the impacts of interventions at different points in time (early school years, adolescence, and adulthood) (Campbell et al. 2002; Schweinhart et al. 2005; Reynolds et al. 2001) (see Box 4.1.1). Results from these studies indicate a positive benefit-to-cost ratio, ranging from 3.78 in the case of the Carolina Abecedarian program to 16.24 in the High/Scope Perry Preschool. The studies show that ECD interventions
Box 4.1.1

ECD Interventions with Long-term Studies in the United States

In the United States, several longitudinal studies have contributed to our understanding of the long-term impact of high-quality early childhood development programs, where all have recorded remarkable rate of return (as shown in the Table below) to investment in services for low-income children during early years (Committee for Economic Development 2006; Nores et al. 2005; Belfield et al. 2006; Masse and Barnett 2002; Karoly and Bigelow 2005; Aos et al. 2004; Reynolds et al. 2002).

Carolina Abecedarian Early Childhood Intervention: Between 1972 and 1977, 111 infants who were determined to be at high risk for school failure based on a number of parental and family circumstance factors were enrolled in the Carolina Abecedarian program. The infants, who were primarily African American, either received early care and education services from the age of 6 weeks through 5 years or were assigned to the control group. In both the childcare and preschool components, special curricula were developed focusing on language development, and the classrooms had very low child-to-teacher ratios and the teachers had bachelor's degrees. The program participants were followed through adolescence and, most recently, at age 21. The Carolina Abecedarian program enrolled children earlier in the life cycle than other preschool programs, and the longevity of its follow-up provides valuable information on the long-term effects of sustained early education interventions.

Chicago Child-Parent Centers: The Chicago Child-Parent Centers (CPC) are publicly funded preschool centers in high-poverty neighborhoods serving low-income 3–5-year-olds that began operating in 1967 and continues today. The children attend preschool three hours per day during the school year, receiving reading and math instruction by well-qualified public school teachers in small classes. The quasi-experimental Chicago Longitudinal Study follows a cohort of 1,539 students (primarily African American) who attended kindergarten in 1985–1986. Of the children in the cohort, 989 attended a CPC center for one or two years prior to kindergarten, while the other 550 did not attend a CPC program (and less than one-quarter of this group attended any preschool). The most recent student follow-up was conducted when the children were age 20 or 21.

High/Scope Perry Preschool Project: The Perry Preschool Project provided high-quality preschooling for a small number of disadvantaged 3–4-year-old (continued)
Box 4.1.1 (continued)

African American children in Ypsilanti, Michigan, between 1962 and 1967. The 123 children in the study were born into poverty and at high risk for failing in school. The treatment group received a high-quality preschool education for 2.5 hours each day during the school year, in addition to a 1.5-hour home visit each week, while the control group was not provided any program services. All Perry Preschool teachers had bachelor’s degrees and earned 10 percent more than kindergarten teachers in the same school. The program participants were followed throughout their youth and adult years, with the most recent follow-up at age 41.

<table>
<thead>
<tr>
<th>Program</th>
<th>US$ per child (discounted at 3%)</th>
<th>Internal Rate of Return (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carolina Abecedarian (2002 dollars)</td>
<td>135,546</td>
<td>7</td>
</tr>
<tr>
<td>Chicago CPC (1998 dollars)</td>
<td>47,759</td>
<td>10</td>
</tr>
<tr>
<td>Perry Preschool age 40 follow-up (2000 dollars)</td>
<td>244,811</td>
<td>18</td>
</tr>
</tbody>
</table>

Sources: Committee for Economic Development (2006); Nores et al. (2005); Belfield et al. (2006); Masse and Barrett (2002); Karoly and Bigelow (2005); Aos et al. (2004); Reynolds et al. (2002).

a. Ratio differs widely because of differences in the types and measurement of benefits and length of follow-up.

generate lifelong benefits for both direct beneficiaries and society. In the case of the High/Scope Perry Preschool project, the total benefit for each $1 invested (including benefits to individual participants and the public) was estimated at $8.74 (by age 27) (Temple and Reynolds 2007).

A meta-analysis of evaluations of ECD programs in the United States indicates that the favorable effects of early childhood programs can translate into dollar benefits for the government as well as for participants and other members of society. Of the programs reviewed, the study by Karoly, Kilburn, and Cannon (2005) finds seven with information on CB analysis, out of which five were found to generate a range of benefits per child from $1,400 to almost $240,000, or, presented differently, the returns to society for each dollar invested extended from $1.26 to $17.07. Interestingly, the economic returns were found to be positive
for programs that focused on home visiting or parenting education, as well as those that combined those services with early childhood education. Impacts were largest for programs that had a longer term follow-up compared to programs that had a shorter follow-up duration (that is, primary school entry).

A cost-benefit tool developed specifically for early childhood development is the Early Child Development (ECD) Calculator by Van der Gaag and Tan (1998), which calculates the economic benefits of ECD programs by monetizing such things as improvement in the child’s ability to take advantage of the schooling system (that is, they are more likely to enroll in school on time and progress to secondary school, and less likely to repeat classes or drop out). The application measures the increase in productivity (that is, net present value of increase in lifetime productivity) that can be expected in an ECD cohort of 1,000 newborns. It has been used in World-Bank-financed projects in Egypt, Indonesia, and Jamaica.5

Notes
2. Unit costs may vary given differences in intensity and delivery modality of programs.
3. For specific program parameters see Van Ravens and Aggio (2008).
4. Unit costs may vary given differences in service intensity and delivery modality of programs.
5. See World Bank Project Appraisal Documents for each country listed.

Key Readings
References


NOTE 4.2

Financing ECD Programs

This note discusses financing mechanisms to fund ECD programs. It identifies the challenges in making cross-country comparisons in ECD investment and offers guidance on dimensions that can be used as variables in a comparative analysis. The note presents a simple framework to organize information on different sources of funding and mechanisms to allocate those funds. A literature search was conducted to compare investments in ECD across countries; country examples are provided to illustrate the variety, intricacies, and complexity of ECD financing schemes across countries. Most countries have a long way to go in raising sufficient revenues to offer quality ECD services. Governments not only need to make a budgetary commitment to ECD services but also need to work with the range of ECD providers and key stakeholders to find innovative, stable, and sustainable sources of revenue.

Investment in Early Childhood Development

Cross-country Information on ECD Programs and Investments is Scarce

ECD programs are diverse and heterogeneous in scope, content, and intensity. This sheer diversity of programs, coupled with a lack of universal
standards and parameters to guide data collection at the international level, presents a challenge to researchers seeking to analyze ECD programmatic approaches, investments, and outcomes. Comparative information on ECD programs for infants and children under age 3 is particularly difficult to find because of the high degree of fragmentation across sectors, programs, and providers targeting this age group. For children aged 3-6, information is usually more readily available because preschool\(^1\) is an officially recognized education level and a service available in many countries, albeit with various degrees of coverage and a wide variation in program content and intensity.

**Accurate Comparisons of ECD Programs and Investments Require a Level of Standardization**

Given the heterogeneity of ECD programs, comparative analyses across countries must compensate for differences in program scope, content, and intensity by applying a common set of standards against which individual country programs can be benchmarked. Commonly used features to standardize program information are as follows:\(^2\)

1. **outcomes targeted**: pregnancy, cognitive, socio-emotional, behavioral, health, parenting skills
2. **target person**: child, parent, child-parent, family unit
3. **targeting criteria**: universal, income-based, disability-based, parental risk problems; age of focal child (prenatal to age 6)
4. **location of services**: home, non-home
5. **type of services offered**: educational (preschool, parenting education), family support, health or nutrition-related, job-related, therapeutic
6. **intensity of intervention**: starting age to ending age, hours per week, weeks per year
7. **delivery mode**: individuals, small or large group
8. **program reach**: national, statewide, citywide, single setting
9. **funding sources**: public, private, public-private partnership, international assistance
10. **financing allocation mechanism**: budget line, grants (block or earmarked), vouchers, tax credits, matching funds.

Unless the specificities of different types of programs are standardized using a similar scale for analysis, there is a risk of generating inaccurate or even misleading information, particularly in terms of investment, cost effectiveness, and outcomes.
International Organizations have Taken on the Challenge of Gathering Comparable ECD Information

Over the last few years several international agencies have taken on the challenge of compiling standardized, cross-country data on ECD services to determine the level of service penetration, take-up rates, and investment efforts. Most notable among these efforts are the recent ECD studies from OECD, UNESCO (United Nations Educational, Scientific and Cultural Organization), and the World Bank which provide comprehensive global and regional information on a range of program dimensions for children age 0–6. Most of these cross-country studies were carried out as a one-time exercise, limiting prospects for conducting longitudinal analyses.

Available Information Indicates a Public Investment of 1 Percent of GDP is Required to Offer Quality ECD Services

According to the OECD (2006) report, Doing Better for Children II, which provides comprehensive information on ECD investments aimed at children under age 6, countries place a high priority on their youngest cohort. The latest statistics indicate that governments spend an average of 2.36 percent of GDP on a broad range of services for families and young children, including expenditures on preschool programs. The average expenditure on preschool for children aged 3–6 is 0.49 percent of GDP, which includes expenditures from public and private sources. Evidence from OECD research studies Starting Strong II suggests a public investment of 1.0 percent of GDP is the minimum required to ensure provision of quality ECD services. Studies from the European Commission Network on Child Care and Other Measures to Reconcile the Employment Responsibilities of Men and Women (1996), and the Consultative Group on Early Childhood Care and Development 2008 suggest similar levels of public investment as a guiding benchmark.

Outside of the OECD, Countries in the Central and Eastern Europe Region have the Highest Levels of Investment in Preschool

UNESCO’s Education For All (EFA) Global Monitoring Report 2007 (UNESCO 2006), which provides a comprehensive set of statistics on ECD services, ranks countries in Central and Eastern Europe as having the highest level of public expenditure on preschool—on average, 0.5 percent of GNP. Expenditures range from a high of 1.0 percent of GNP in Belarus to 0.3 percent in Estonia and Romania. Latin America and the Caribbean is the second ranked region, with an average
expenditure of 0.2 percent of GNP. Expenditures range from a high of 0.6 percent of GNP in Guyana to a low of 0.02 percent in Nicaragua. Countries in Sub-Saharan Africa have the lowest levels of public expenditure on preschool.

As a Proportion of the Education Budget, Preschool Education Remains a Low-priority Investment

The EFA Global Monitoring Report also shows that public investment in preschool education comprises less than 10 percent of total public spending on education in many countries, and in some, even less than 5 percent. Developing countries with at least 10 percent of public education expenditure devoted to preschool include Belarus, Bulgaria, Costa Rica, Croatia, Czech Republic, Guyana, Hungary, Mexico, Mongolia, Republic of Moldova, Slovakia, and Slovenia. Countries in Sub-Saharan Africa had expenditure levels of less than 1 percent of the total public education budget. Gross enrollment rates in preschool follow regional public expenditure patterns; they are highest in the developed world, on average 80 percent, and lowest in the developing world, on average 36 percent. By subregion, gross enrollment rates are highest in the Caribbean (82 percent) and lowest in Sub-Saharan Africa (15 percent) and the Arab states (19 percent).

Financing ECD: Sources of Funds and Allocation Mechanisms

This section presents a financing framework to illustrate the variety of funding and allocation mechanisms shown in table 4.2.1. Although the sources of funds, schemes to generate public revenue, and specific ways to allocate resources are not an exhaustive list, the framework outlines the different financing options for consideration that may resonate with established public financing practices at the country level.

ECD Program Funding Relies on a Combination of Public and Private Funds

Public funds can originate at different levels of government (federal, state, provincial, municipal, or district), and are usually mobilized from taxes (income, sales, payroll, property), lotteries, or fees (toll roads, licensing, admission levies). Private funds may be generated from industry enterprises, foundations, community groups and other NGOs, and households
### Table 4.2.1 Sources and Modalities for Allocating Funds for ECD Programs

<table>
<thead>
<tr>
<th>Sources of funds</th>
<th>Modalities for allocating funds</th>
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<tbody>
<tr>
<td><strong>Public funds</strong></td>
<td><strong>Funding may originate from different government levels:</strong></td>
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<td></td>
<td>• Federal / central</td>
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<td></td>
<td>• States / provinces</td>
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<td>• Municipalities</td>
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<td></td>
<td>• Districts / localities</td>
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<td></td>
<td>• Cities</td>
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<td></td>
<td><strong>Funds may be raised through:</strong></td>
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<tr>
<td></td>
<td>• General revenues from taxes (e.g., sales, income, payroll, property)</td>
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<td></td>
<td>• Lotteries</td>
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<td></td>
<td>• Excise taxes on tobacco and alcohol</td>
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<td></td>
<td>• Fees (e.g. toll roads, licensing, admission levies)</td>
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<td></td>
<td><strong>Direct allocation through:</strong></td>
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<tr>
<td></td>
<td>• Budget line allocations: recipients can be public or private providers.</td>
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<td></td>
<td>• Block grants: recipients can be public or private.</td>
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<td></td>
<td>• Matching or partial matching funds: government “matches” a predetermined level of investment while service providers or households finance the remainder.</td>
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<td></td>
<td>• Vouchers: recipients can be public or private providers, or program participants.</td>
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<tr>
<td></td>
<td>• Direct subsidy for specific program elements (e.g., staffing salaries, physical plant development, curriculum, quality assurance systems, etc.): recipients can be public or private providers.</td>
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<td></td>
<td>• Conditional cash transfers: recipients are usually program participants</td>
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<td><strong>Indirect allocation through:</strong></td>
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<tr>
<td></td>
<td>• Need-based sliding scale subsidies</td>
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<td></td>
<td>• Parental and maternity leave policies</td>
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<td></td>
<td>• Tax credits and rebates</td>
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<td></td>
<td>• Workplace-based care</td>
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<td>• Payments to providers</td>
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<tr>
<td></td>
<td>• Matching funds</td>
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<td></td>
<td>• Vouchers</td>
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<tr>
<td></td>
<td>• Cash or in-kind donations to faith-based and nonprofit organizations</td>
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<tr>
<td><strong>Private funds</strong></td>
<td><strong>Funding may be generated from:</strong></td>
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<tr>
<td></td>
<td>• Private enterprises</td>
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<tr>
<td></td>
<td>• Foundations</td>
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<td></td>
<td>• Community groups/NGOs</td>
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<tr>
<td></td>
<td>• Households (user fees, levies, tuition, copayments)</td>
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<tr>
<td></td>
<td><strong>Direct allocation through:</strong></td>
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<td></td>
<td><strong>Indirect allocation through:</strong></td>
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(continued)
(through user fees, levies, and tuition)—all of which may be particularly relevant where ECD services are provided to a broad range of ECD beneficiaries, including children from better-off families.

*Public-private-partnerships* are usually established to raise “matching” funds, especially for large-scale capital improvement initiatives. In countries where revenue generation from public and private sources is constrained, international agencies may finance the design or scaling up of ECD programs, providing loans or grants as a way to extend ECD services.

**Modalities for Allocating Public or Private Funds are Wide Ranging**

Funds may be allocated “directly” to ECD service providers by budget allocations, block grants, earmarked grants, matching funds, or to program participants by vouchers, subsidy payments or conditional cash transfers. Funds can also be allocated “indirectly” to providers through tax credits and rebates, or to program participants through the application of generous parental leave policies, need-based sliding-fee scales, or specific tax credits and rebates.

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<table>
<thead>
<tr>
<th>Sources of funds</th>
<th>Modalities for allocating funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public-private partnerships</td>
<td>• Matching funds for capital investment initiatives to expand ECD services</td>
</tr>
<tr>
<td>International agencies</td>
<td>• Funds for government approved programs: recipients can be public or private providers, or program participants.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Funding may be generated from:</th>
<th>Sources: Adapted from Belfield (2006).</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Government</td>
<td></td>
</tr>
<tr>
<td>• Private enterprises</td>
<td></td>
</tr>
<tr>
<td>• Foundations</td>
<td></td>
</tr>
<tr>
<td>• Community groups/NGOs</td>
<td></td>
</tr>
<tr>
<td>• International financing agencies (loans and grants)</td>
<td></td>
</tr>
<tr>
<td>• Bilateral agencies (grants)</td>
<td></td>
</tr>
<tr>
<td>• International NGOs (grants)</td>
<td></td>
</tr>
</tbody>
</table>
The selection of funding sources or specific modalities to allocate funds depends on a number of factors specific to the country and social context. For example, ECD policies in some countries include a legal entitlement to free services, a public financing mandate, and may even have an earmarked source of revenue. Others countries make decisions on sources and allocation mechanisms on the basis of established state practices on financing social policy programs (strong or limited); desired targeting (universal coverage, income-based, vulnerability-based); and the absorption capacity and sophistication of the “market” for ECD services (this is a particular consideration when making decisions on demand-side financing instruments such as vouchers and conditional cash transfers).

**Selecting a Financing Mechanism Requires Balancing Simplicity, Reliability, and Equity**

While there is no exact blueprint or optimal balance between public and private financing, the relative weight in the type of funding is likely to have a different effect and may elicit a different response on dimensions such as equity, accountability measures, parental choice, learning standards, and quality assurance. For example, findings from the OECD (Tayler and Bennett 2006) *Starting Strong II* report indicate that direct public funding offers the advantages of a more effective public steering of ECD services, advantages of scale, better national quality, more effective training for educators, and a higher degree of equity in access compared to parent-subsidy models. At the same time, the report highlights the possibility of accommodate private providers effectively when there is a clear institutional quality assurance and financing framework with active monitoring and proper enforcement mechanisms.

**Determine the National Principles that will Guide Options for ECD Financing**

Principles to keep in mind in deciding on funding source and allocation mechanisms include (1) simplicity in terms of administration and access, (2) reliability and sustainability of funding streams, (3) likely burden of specific types of taxes on different population segments, (4) enforceability of regulation and standards to ensure program’s quality, and (5) availability of parental choice and opportunities for direct financing across ECD providers, including home provision (particularly important in rural, isolated communities).
Country Examples of Funding Sources and Allocation Mechanisms

Most Countries Rely on a Combination of Public Funds and Household Contributions to Finance ECD Programs

In most countries, public funds are the predominant source of funding for ECD, with households also making a weighty contribution (Vargas-Baron 2008) (see annex table 4.2A-4). The level of household contribution depends on the availability of physical facilities that are publicly provided or sponsored, the eligibility criteria to access these facilities, and the degree to which countries rely on unsubsidized provision in private centers (for child/daycare or preschool). Countries with high levels of provision of publicly provided or sponsored facilities, particularly for children ages 3–6, include Australia, Cuba, Czech Republic, Denmark, Finland, Hungary, and Thailand. Countries with developed markets for child/daycare and preschool provision include the United States and United Kingdom (child/daycare).

In the United States, parents tend to cover the full cost of daycare and preschool programs, with the exception of federally sponsored programs like Head Start and the Child Care Development Fund, which are available to vulnerable and at-risk children. Preschool programs are usually attached to primary education systems where the proportion of household’s contributions is less than full cost; however, access to such programs vary by state (Tayler and Bennett 2006; Belfield 2006).

Countries such as Brazil, Colombia, and Mexico rely on a mix of public and private funding sources, make the preschool year before the first grade nearly universal, and target various early care and preschool programs to vulnerable groups. Countries that rely almost exclusively on households include Indonesia, Kenya, and Senegal (UNESCO 2006).

Most Countries Rely on Several Mechanisms to Allocate Public Funds

Most countries have several allocation mechanisms in place at any one time to cover specific program objectives and target groups (Belfield 2006; Tayler and Bennett 2006; PEW Center on States 2009; van Ravens and Aggio 2008; Vegas and Santib-Öez 2010). Countries that provide access through publicly provided facilities usually channel resources through direct budget allocations to the institutional authority (central, state, or local) that is responsible for the provision of services (Brazil,
Colombia, Czech Republic, Mexico, and Thailand), or a combination of line budget and block grants (Hungary, United States, and United Kingdom). Countries such as Australia, Hungary, United States, and United Kingdom provide subsidies to providers (public or private) or parents to access services, all with varying degrees of targeting and required levels and types of certification from providers.

In most cases, however, households supplement contributions from government sources, whether to cover operational expenses in public centers or as matriculation fees in private centers. Finally, some countries allocate funds “indirectly” to parents through the establishment of generous paid parental and maternal leave policies to care for their young children (for example, Czech Republic, Denmark, Finland, and Hungary) or conditional cash transfers (Ecuador, Mexico, Nicaragua, Panama, and Turkey).

An illustration of the impacts that funding sources and allocation mechanisms have on the access, equity, content and quality of ECD programs is provided by Grun (2008) who compares ECD financing schemes in France, Sweden, United States, England and New Zealand. She found that financing decisions are often driven by factors that, while exogenous to the policy-making process, affect the selection of specific funding sources and allocation mechanisms. These factors, or “drivers,” are the locus of capacity, tolerance for variation in services, level of parental voice, participation and knowledge about childcare quality, level of desired budget containment, and degree of heterogeneity in the population. For example, the “French preschool model,” which has a central locus of capacity (government finances public provision), a high desire for concrete national standards (low tolerance for variation), and an ability to rely on parental voice (rather than choice), tends to be an effective model in countries where the population is fairly homogeneous and where there is a limited concern over budget containment. From another perspective, the French model would appear to be inappropriate in countries with a strong tradition of decentralization (England or United States) and private provision (New Zealand or United States), a strong preference on parental choice (New Zealand, Sweden, United States), or a high concern over budget containment (England, New Zealand).

How to Increase Funding for ECD Programs

Harmonize Policies and Service Delivery Mechanisms

Because services for children aged 0–6 are delivered by multiple government ministries at different administration levels (national, state, municipality), and are often delivered in a fragmented manner
(health, nutrition, education), there is scope to identify possible overlaps or duplication of efforts to leverage investments across ministries. In an ideal setup, a central-level entity at minimum would be responsible for administering or coordinating services to guide providers, assure quality of services, provide incentives to increase coverage and quality, and promote research and dissemination. It should be noted, however, that countries have demonstrated success when relying both on the government to be “sole provider” of services and on their own role as active promoter of service provision, irrespective of the type of provider (public, private, or not-for-profit).

**Foster the Development of Markets in Child Care Linked with Public–Private Partnerships**

Some countries have nurtured the development of new markets, that is, encouraging new providers to enter the market to offer ECD services and programs, by allowing private and not-for-profit providers to access public funds for ECD. More specifically, funds may be allocated when providers meet quality standards (licensing of staff, accreditation of centers, and so on) and institute plans to reach national objectives, targets, or child development outcomes. In such cases, funds can be allocated directly to providers, through earmarked grants, or to parents/caregivers, through vouchers and subsidies (Behrman, Cheng, and Todd 2004).

**Explore New and Innovative Funding Sources**

Although the bulk of ECD programs are funded by national general budgets, some countries have specialized revenues for financing ECD and other social services. Examples of non-traditional sources of funds include those from France and Colombia, which have a payroll tax dedicated to funding social projects, particularly for children (UNESCO 2006); Brazil, Jamaica, Sweden, United Kingdom, and United States, which rely on dedicated income taxes paid by individuals or businesses (Vargas-Baron 2008); South Africa and several U.S. states (Myers 2000), which rely on national or state lotteries; and Mexico, where some revenues from government-run pawn shops are earmarked for early childhood education programs (Vargas-Baron 2008). Although new sources would have to be evaluated on their own merits, as well as on their fiscal neutrality, equity impacts and long-term sustainability, it is important to generate nontraditional options for consideration, especially in a context of multiple and competing demands on traditional sources of public funds.
Annex

Table 4.2A-1  Public Investment in Services for Families and Young Children (ages 0–6 years), 2005  

percent of GDP

<table>
<thead>
<tr>
<th>Country</th>
<th>Total cash benefits</th>
<th>Total family services</th>
<th>Public expenditure on ISCED 0(^*) (preschool)</th>
<th>Total public spending (% of GDP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>2.4</td>
<td>0.5</td>
<td>0.07</td>
<td>2.97</td>
</tr>
<tr>
<td>Austria</td>
<td>2.4</td>
<td>0.6</td>
<td>0.42</td>
<td>3.42</td>
</tr>
<tr>
<td>Belgium</td>
<td>1.9</td>
<td>0.4</td>
<td>0.58</td>
<td>2.88</td>
</tr>
<tr>
<td>Canada</td>
<td>0.9</td>
<td>0</td>
<td>0.2</td>
<td>1.1</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>1.5</td>
<td>0.1</td>
<td>0.43</td>
<td>2.03</td>
</tr>
<tr>
<td>Germany</td>
<td>1.1</td>
<td>0.8</td>
<td>0.40</td>
<td>2.55</td>
</tr>
<tr>
<td>Denmark</td>
<td>1.5</td>
<td>2.3</td>
<td>0.65</td>
<td>4.14</td>
</tr>
<tr>
<td>Finland</td>
<td>1.7</td>
<td>1.4</td>
<td>0.34</td>
<td>3.75</td>
</tr>
<tr>
<td>France</td>
<td>1.5</td>
<td>1.3</td>
<td>0.65</td>
<td>3.2</td>
</tr>
<tr>
<td>Hungary</td>
<td>1.9</td>
<td>0.6</td>
<td>0.73</td>
<td>3.23</td>
</tr>
<tr>
<td>Ireland</td>
<td>1.4</td>
<td>0.2</td>
<td>0.39</td>
<td>1.85</td>
</tr>
<tr>
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<td>0.39</td>
<td>1.29</td>
</tr>
<tr>
<td>Korea, Rep. of</td>
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<td>0.05</td>
<td>0.15</td>
</tr>
<tr>
<td>Mexico</td>
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<td>0.2</td>
<td>0.52</td>
<td>0.82</td>
</tr>
<tr>
<td>Netherlands</td>
<td>0.7</td>
<td>0.4</td>
<td>0.37</td>
<td>1.47</td>
</tr>
<tr>
<td>Norway</td>
<td>1.9</td>
<td>1.3</td>
<td>0.84</td>
<td>4.04</td>
</tr>
<tr>
<td>Portugal</td>
<td>0.7</td>
<td>0.5</td>
<td>0.30</td>
<td>1.55</td>
</tr>
<tr>
<td>Sweden</td>
<td>1.8</td>
<td>1.1</td>
<td>0.52</td>
<td>3.42</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1.9</td>
<td>0.3</td>
<td>0.45</td>
<td>2.65</td>
</tr>
<tr>
<td>United States</td>
<td>0.1</td>
<td>0.3</td>
<td>0.38</td>
<td>0.78</td>
</tr>
</tbody>
</table>

**Average**      | **1.3**             | **0.63**              | **0.434**                                     | **2.36**                       |


*Note: *ISCED 0*—UNESCO defines preschool as level 0 in the ISCED (International Standard Classification of Education). Preschool programs vary in content and duration, thus data may not be entirely comparable.*
Table 4.2A-2: Public and Private Expenditure on Pre-primary Education (ages 3–6 years), 2005

<table>
<thead>
<tr>
<th>Country</th>
<th>Public expenditure</th>
<th>Private expenditure</th>
<th>Total expenditure (public and private)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>0.07</td>
<td>0.03</td>
<td>0.1</td>
</tr>
<tr>
<td>Austria</td>
<td>0.42</td>
<td>0.13</td>
<td>0.55</td>
</tr>
<tr>
<td>Belgium</td>
<td>0.58</td>
<td>0.01</td>
<td>0.59</td>
</tr>
<tr>
<td>Canada</td>
<td>0.2</td>
<td>n.a.</td>
<td>0.2</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>0.43</td>
<td>0.03</td>
<td>0.46</td>
</tr>
<tr>
<td>Denmark</td>
<td>0.65</td>
<td>0.15</td>
<td>0.81</td>
</tr>
<tr>
<td>Finland</td>
<td>0.34</td>
<td>0.03</td>
<td>0.38</td>
</tr>
<tr>
<td>France</td>
<td>0.65</td>
<td>0.03</td>
<td>0.67</td>
</tr>
<tr>
<td>Germany</td>
<td>0.4</td>
<td>0.14</td>
<td>0.53</td>
</tr>
<tr>
<td>Hungary</td>
<td>0.73</td>
<td>0.07</td>
<td>0.79</td>
</tr>
<tr>
<td>Ireland</td>
<td>0.39</td>
<td>n.a.</td>
<td>0.39</td>
</tr>
<tr>
<td>Italy</td>
<td>0.39</td>
<td>0.05</td>
<td>0.44</td>
</tr>
<tr>
<td>Korea, Rep. of</td>
<td>0.05</td>
<td>0.11</td>
<td>0.16</td>
</tr>
<tr>
<td>Mexico</td>
<td>0.52</td>
<td>0.08</td>
<td>0.61</td>
</tr>
<tr>
<td>Netherlands</td>
<td>0.37</td>
<td>0.01</td>
<td>0.38</td>
</tr>
<tr>
<td>Norway</td>
<td>0.84</td>
<td>0.18</td>
<td>1.02</td>
</tr>
<tr>
<td>Portugal</td>
<td>0.3</td>
<td>n.a.</td>
<td>0.35</td>
</tr>
<tr>
<td>Sweden</td>
<td>0.52</td>
<td>0</td>
<td>0.52</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>0.45</td>
<td>0.02</td>
<td>0.47</td>
</tr>
<tr>
<td>United States</td>
<td>0.38</td>
<td>0.11</td>
<td>0.49</td>
</tr>
<tr>
<td>Average</td>
<td>0.434</td>
<td>0.07</td>
<td>0.495</td>
</tr>
</tbody>
</table>


Note: n.a. = not applicable.
### Table 4.2A-3 Total Public Expenditure on Education and Preschool Education, 2004

<table>
<thead>
<tr>
<th>Country</th>
<th>Total public education expenditure</th>
<th>Public expenditure on preschool education</th>
<th>Preschool % of total public education expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spending 10% and more</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Republic of Moldova</td>
<td>4.2</td>
<td>0.80</td>
<td>19.0</td>
</tr>
<tr>
<td>Mongolia</td>
<td>5.7</td>
<td>1.00</td>
<td>17.5</td>
</tr>
<tr>
<td>Belarus</td>
<td>5.8</td>
<td>1.00</td>
<td>17.2</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>4.4</td>
<td>0.60</td>
<td>13.6</td>
</tr>
<tr>
<td>Hungary</td>
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<td>0.80</td>
<td>12.7</td>
</tr>
<tr>
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<td>4.1</td>
<td>0.50</td>
<td>12.2</td>
</tr>
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<td>Guyana</td>
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<td>10.3</td>
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<tr>
<td>France</td>
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<td>0.60</td>
<td>10.0</td>
</tr>
<tr>
<td>Slovenia</td>
<td>6.1</td>
<td>0.60</td>
<td>9.8</td>
</tr>
<tr>
<td>Chile</td>
<td>4.1</td>
<td>0.40</td>
<td>9.8</td>
</tr>
<tr>
<td>Israel</td>
<td>7.5</td>
<td>0.70</td>
<td>9.3</td>
</tr>
<tr>
<td>Kuwait</td>
<td>7.6</td>
<td>0.70</td>
<td>9.2</td>
</tr>
<tr>
<td>Seychelles</td>
<td>5.7</td>
<td>0.50</td>
<td>8.8</td>
</tr>
<tr>
<td>Croatia</td>
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<td>0.40</td>
<td>8.7</td>
</tr>
<tr>
<td>Spain</td>
<td>4.6</td>
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<td>8.7</td>
</tr>
<tr>
<td>Mexico</td>
<td>5.9</td>
<td>0.50</td>
<td>8.5</td>
</tr>
<tr>
<td>Czech Republic</td>
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<td>0.40</td>
<td>8.3</td>
</tr>
<tr>
<td>Germany</td>
<td>4.8</td>
<td>0.40</td>
<td>8.3</td>
</tr>
<tr>
<td>Argentina</td>
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<td>0.30</td>
<td>8.3</td>
</tr>
<tr>
<td>Italy</td>
<td>4.9</td>
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</tr>
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<td>Romania</td>
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<td>8.1</td>
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<tr>
<td>Azerbaijan</td>
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<td>8.1</td>
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<td>7.8</td>
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<td>0.50</td>
<td>7.6</td>
</tr>
<tr>
<td>Paraguay</td>
<td>4.3</td>
<td>0.30</td>
<td>7.0</td>
</tr>
<tr>
<td>El Salvador</td>
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<td>0.20</td>
<td>6.9</td>
</tr>
<tr>
<td>Barbados</td>
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<td>6.6</td>
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<td>Kyrgyz Republic</td>
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<td>6.5</td>
</tr>
<tr>
<td>Iceland</td>
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<td>0.50</td>
<td>6.1</td>
</tr>
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<td>6.0</td>
</tr>
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<td>Jamaica</td>
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<td>0.30</td>
<td>5.7</td>
</tr>
<tr>
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<td>0.30</td>
<td>5.5</td>
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<td>5.0</td>
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<td>Portugal</td>
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<td>5.0</td>
</tr>
<tr>
<td><strong>Spending 5–10%</strong></td>
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<td></td>
</tr>
<tr>
<td>Greece</td>
<td>4.3</td>
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<td>4.7</td>
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<tr>
<td>Finland</td>
<td>6.6</td>
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<td>4.5</td>
</tr>
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</table>

(continued)
Table 4.2A-3  Total Public Expenditure on Education and Preschool Education, 2004
(continued)

<table>
<thead>
<tr>
<th>Country</th>
<th>Total public education expenditure</th>
<th>Public expenditure on preschool education</th>
<th>Preschool % of total public education expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norway</td>
<td>7.6</td>
<td>0.30</td>
<td>3.9</td>
</tr>
<tr>
<td>Switzerland</td>
<td>5.1</td>
<td>0.20</td>
<td>3.9</td>
</tr>
<tr>
<td>Canada</td>
<td>5.4</td>
<td>0.20</td>
<td>3.7</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>2.9</td>
<td>0.10</td>
<td>3.4</td>
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<tr>
<td>Bolivia</td>
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<td>0.20</td>
<td>3.0</td>
</tr>
<tr>
<td>Nepal</td>
<td>3.4</td>
<td>0.10</td>
<td>2.9</td>
</tr>
<tr>
<td>New Zealand</td>
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<td>0.20</td>
<td>2.7</td>
</tr>
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</tr>
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<td>Kenya</td>
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<td>Benin</td>
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<td>0.03</td>
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</tr>
<tr>
<td>Nicaragua</td>
<td>3.2</td>
<td>0.02</td>
<td>0.6</td>
</tr>
<tr>
<td>South Africa</td>
<td>5.5</td>
<td>0.02</td>
<td>0.4</td>
</tr>
<tr>
<td>Senegal</td>
<td>4.1</td>
<td>0.01</td>
<td>0.2</td>
</tr>
<tr>
<td>Jordan</td>
<td>5.0</td>
<td>0.01</td>
<td>0.2</td>
</tr>
</tbody>
</table>

*Spending less than 1%*

Source: Adapted from EFA GMR EFA Early Childhood Development (UNESCO 2006).
Table 4.2A-4  Funding Sources and Financing Mechanisms: Country Examples

<table>
<thead>
<tr>
<th>Country</th>
<th>Source of funds</th>
<th>Allocation mechanism</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Expenditure</td>
<td>0–6 years</td>
<td>Family daycare and long-day childcare</td>
</tr>
<tr>
<td></td>
<td>0–3 years</td>
<td>- Child Care Benefit (CCB) to parents</td>
<td>0–1 years: 7%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Tax rebate for out-of-pocket expenses incurred by families using approved child care</td>
<td>1–2 years: 26%</td>
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<tr>
<td></td>
<td></td>
<td>- Preschools or kindergartens</td>
<td>2–3 years: 40%</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>3–6 years: 61%</td>
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<td></td>
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<td></td>
<td>4–5 years: 81%</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>5–6 years: 28%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.45 % of GDP (67% public)</td>
<td>0.1% of GDP (0.7% public and 0.3% private)</td>
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<tr>
<td></td>
<td></td>
<td>0.1% of GDP (0.7% public and 0.3% private)</td>
<td>0.45 % of GDP (67% public)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preschool education is the responsibility of state and territory governments. The Department of Education, Science and Training provides supplementary per capita funding to education providers on an as-needed basis to accelerate educational outcomes for Indigenous Australians.</td>
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<tr>
<td></td>
<td></td>
<td>Parents cover 22% of the cost.</td>
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</tr>
</tbody>
</table>

<p>| Brazil | Expenditure | 0–6 years | Daycare |
|        | 3–6 years | - State and municipal revenue from taxes is allocated to public providers. | 0–3 years: 11.7% |
|        |          |          | Preschools |
|        |          |          | 5–6 years: 57% |
|        |          |          | |
|        |          |          | (continued) |</p>
<table>
<thead>
<tr>
<th>Country</th>
<th>Source of funds</th>
<th>Allocation mechanism</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colombia</td>
<td>Funding sources • Payroll tax of 3% on all public and private individuals and enterprises • The central government (Ministry of Education) and municipalities recently launched a joint fund (Fondo de Fomento a la Atención Integral de la Primera Infancia) to extend coverage to children under 5 in vulnerable conditions.</td>
<td>0–6 years • taxes are deposited in a central bank account managed by a semi-autonomous institute (Instituto Colombiano de Bienestar Familiar). • Budget line provided directly to public providers of preschool services (age 5–6).</td>
<td>Integrated Services 0–6– Instituto Colombiano de Bienestar Familiar • 21% of age group (Daycare programs and preschool • 0–5-year-olds: 44% • 5–6-year-olds: 86%</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Expenditure 3–6 years • 0.46% of GDP (0.43% public and 0.03% private) Funding sources • Multiple sources including the regional school authority (teacher salaries, books, and equipment); municipalities (operational costs and capital investments); parental fees (capped at 50% of costs for the first 2 years and free for the final year). Funds to improve material conditions or purchase equipment and toys are often generated through sponsoring contracts with private enterprises. Some private and church kindergartens are now in operation, though on a small scale.</td>
<td>0–2 years • Parental leave policies, including 28 weeks of paid maternity leave (69% of earnings) followed by a flat-rate parental leave benefit paid until children reach their 4th birthday. 3–6 years—preschools • Budget line allocations to providers</td>
<td>Family care/informal arrangements • 0–3 years: 99.5% Center-based creches • 0–3 years: 0.5% Mateska skola/kindergartens • 3–6 years: 76–95%</td>
</tr>
</tbody>
</table>
Denmark

Expenditure
3–6 years
• 2.1% of GDP
• Parents cover 30–33% of the cost, with a sliding fee schedule based on need.
Funding sources
• Local authorities are responsible for funding.

0–6 years - kindergarten
• Parental leave policies: 28 weeks paid at full employment and an optional additional 26 weeks paid at 60% of unemployment rate.
• Local authorities finance providers.
• Parents may also be provided with a grant to use the services of a free-choice child minder recognized by the municipality.

Family daycare (kommunal dagpleje) and center-based daycare (vuggestuer)
• 0–1 years: 12%
• 1–2 years: 83%

Kindergarten (barnehaver, aldersintegrerede institutioner, and bornehaveklasse)
• 3–5 years: 94%

Finland

Expenditure
0–7 years
• 1.7% of GDP (1.1% family daycare and center-based care, 0.2% preschool class for ages 6–7 years, and 0.4% home care allowance)
Funding sources
• State and local authority taxes
• Parents cover 15% of the costs of daycare, capped at €200 per child per month, while preschool education (6-year-olds) is free.

0–7 years
• Maternity leave policies: 18 weeks paid at full employment, plus 26 weeks paid at 66% of earned income.
• Municipalities allocate funds to public or private providers for daycare services, although parents can also access private child-care allowances. The Ministry of Education receives a budget line for preschool education.

Daycare centers (paivakoti) and family daycare homes/places
• 1–2 years: 27.5%
• 2–3 years: 43.9%
• 3–4 years: 62.3%
• 4–5 years: 68.9%
• 5–6 years: 73%

Preschool (half-day for the academic year and are wrapped around by daycare)
• 6–7 years: nearly universal

(continued)
### Funding Sources and Financing Mechanisms: Country Examples (continued)

<table>
<thead>
<tr>
<th>Country</th>
<th>Source of funds</th>
<th>Allocation mechanism</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hungary</strong></td>
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<tr>
<td></td>
<td>Expenditure</td>
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<td></td>
<td>3–6 years</td>
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<tr>
<td></td>
<td>• 0.79% of GDP</td>
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<tr>
<td></td>
<td>(0.73% public and 0.07% private).</td>
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<tr>
<td>Funding sources</td>
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<tr>
<td></td>
<td>• 90% of total expenditure is for public provision, while 10% is channeled toward a small nonprofit sector.</td>
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<td></td>
<td>• Central government provides 25–30% of costs; municipal local government provides about 60%; and parents provide the remaining 10–15%.</td>
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<td></td>
<td>0–7 years</td>
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<tr>
<td></td>
<td>• Paid maternity leave of 24 weeks for insured (employed) women, covered at 70% of her average salary, and then at a flat rate into the third year.</td>
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<td></td>
<td>• Universal parental leave child-care allowance for a maximum of 1.35 weeks (or 53 weeks if the mother has not previously taken maternity leave) at a flat sum equal to the minimum old-age pension.</td>
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<td></td>
<td>• Block grants from central to local authorities.</td>
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<td></td>
<td>Child-care center / crèche (bőcsde)</td>
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<tr>
<td></td>
<td>Kindergarten/preschool/ nursery (óvoda)</td>
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<tr>
<td></td>
<td>0–3 years: 8.5%</td>
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<td></td>
<td>3–4 years: 85%</td>
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<td></td>
<td>4–5 years: 91%</td>
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<td></td>
<td>5–6 years: 97%</td>
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<tr>
<td><strong>Indonesia</strong></td>
<td>Funding sources</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>The government sponsors an ECD Forum and Consortium to develop policies and protocols.</td>
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<tr>
<td></td>
<td>Households pay as much as 91% of the cost of child/daycare and preschool services.</td>
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<tr>
<td></td>
<td>5–6 years: 19% (mostly private)</td>
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<tr>
<td><strong>Kenya</strong></td>
<td>Funding sources</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Households bear 95% of the cost of child care and preschool.</td>
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<tr>
<td></td>
<td>Most services are private, with households contributing the bulk of expenditures, including caregiver salaries.</td>
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<td></td>
<td>5–6 years: 26%</td>
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<tr>
<td></td>
<td>Government finances caregiver training, curriculum support, and information services. Districts finance program officers to train teachers and develop curriculum.</td>
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<td></td>
<td>Local districts and communities provide physical space and managerial duties.</td>
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<tr>
<td>Mexico</td>
<td>Expenditure</td>
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<td>--------</td>
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<td></td>
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<tr>
<td>3–6 years</td>
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<td></td>
</tr>
<tr>
<td>• 0.61% of GDP (0.52% public and 0.08% private)</td>
<td></td>
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</tbody>
</table>

**Funding sources**

• The federal government covers 80% of the cost of public provision, while parents cover the remaining 20%. Some states and municipalities also raise revenues to supplement funding.

<table>
<thead>
<tr>
<th>Senegal</th>
<th>Funding sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most services are private (formal preschool and religious schooling) with households contributing the bulk of expenditures. The church subsidizes religious preschools.</td>
<td></td>
</tr>
<tr>
<td>Government funds are mainly for staffing central services to regulate, train, build capacity, and inspect preschool centers.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thailand</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–6 years</td>
<td></td>
</tr>
<tr>
<td>• 12 weeks paid maternity leave only for women working in the formal sector and enrolled in social security.</td>
<td></td>
</tr>
<tr>
<td>• National government allocates funds to states and municipalities.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Educación Inicial</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–3 years: 3%</td>
</tr>
<tr>
<td>Preschool (general, indigenous, and community-based)</td>
</tr>
<tr>
<td>• 3-year-olds: 20%</td>
</tr>
<tr>
<td>• 4-year-olds: 63%</td>
</tr>
<tr>
<td>• 5-year-olds: 81%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>0–6 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Most preschool services are financed by households or NGOs. The Ministry of Education allocates some funds for central level staff to regulate, train, build capacity, and inspect preschool centers.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Public nursery schools and private preschool</th>
</tr>
</thead>
<tbody>
<tr>
<td>5–6-year-olds: 3%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>0–6 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The government is the major funding source, although funds are also raised from private sectors, NGOs, communities, parents, and external sources</td>
</tr>
<tr>
<td><strong>Kindergarten, preschool, and child development centers</strong></td>
</tr>
<tr>
<td>4–6 years: 85%</td>
</tr>
</tbody>
</table>

(continued)
### Table 4.2A-4 Funding Sources and Financing Mechanisms: Country Examples (continued)

<table>
<thead>
<tr>
<th>Country</th>
<th>Source of funds</th>
<th>Allocation mechanism</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>Expenditure</td>
<td>0–6 years</td>
<td>Child minders / day nurseries/ playgroups / children centers</td>
</tr>
<tr>
<td>(England)</td>
<td>3–6 years</td>
<td>• 26 weeks paid maternity leave paid at 90% of earnings for 6 weeks, followed by a fixed rate for the remaining period. 26 additional weeks unpaid leave are available plus a further 26 weeks unpaid leave if a mother has worked for an employer for more than 26 weeks.</td>
<td>0–3 years: 20%</td>
</tr>
<tr>
<td></td>
<td>• 0.47% of GDP (0.45% public and 0.02% private)</td>
<td>• Public subsidy at provider and user levels. Providers receive start-up costs while families (based on need) receive tax credits through the Working Tax Credit Child Care Element.</td>
<td>Nursery education</td>
</tr>
<tr>
<td></td>
<td>Funding sources</td>
<td>• Public subsidies through grants/fees are paid to profitmaking or nonprofit providers, the latter being predominant in provision for children up to compulsory schooling.</td>
<td>3–4 years: 96%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Tax and national insurance contribution exemptions for employer-supported child care have been introduced; however, few employers provide assistance, financial or otherwise, to child care.</td>
<td>4–5 years: full enrollment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A large part of the public sector subsidy (the Sure Start Grant) is channeled to Children’s Trusts in Local Authorities, which commission and plan local services.</td>
<td></td>
</tr>
</tbody>
</table>
United States

Expenditure

3–6 years
- 0.4% of GDP

Funding sources
- Eligible population is limited to economically disadvantaged children and families.
- For child care, on average the contribution is as follows: federal government 25%, state and local government 15% and parents the remaining 60%. Low-income parents pay on average 18% of family income per child enrolled in child care.
- For preschool (3–6 years), approximately 34% comes from public sources and 66% from private sources, half of this being from household expenditure.
- Federal funding is largely targeted to children with disabilities and children from low-income families.

0–6 years
- For the Head Start program, the federal government provides block grants to local agencies ("Head Start Grantees") to offer services.
- The federal government provides Child Care Development Fund grants to states to subsidize child-care costs for eligible families or improve the quality/availability of child-care services. Some funds require matching contributions. In turn, states provide subsidies (certificates or in cash) to parents to purchase services.
- Disadvantaged/special needs children can also benefit from federal funds under Title I of the Elementary and Secondary Education Act of 1965.

Daycare/child care

0–3 years: 38%
Pre-kindergarten and kindergarten
3–5 years: 56.4%
4 year old: 80%
5–6 years: 90%

(continued)
## Table 4.2A-4  Funding Sources and Financing Mechanisms: Country Examples (continued)

<table>
<thead>
<tr>
<th>Country</th>
<th>Source of funds</th>
<th>Allocation mechanism</th>
<th>Coverage</th>
</tr>
</thead>
</table>
| United States    | • States raise revenues using different schemes, including state lotteries (Georgia, North Carolina, and Tennessee); "sin" taxes on tobacco (Kentucky, California); community partnerships (Massachusetts); special car license plates, marriage licenses, and donations (Missouri). Only 10 states have no state-funded pre-kindergarten program (Hawaii, Idaho, Indiana, Mississippi, Montana, New Hampshire, North Dakota, South Dakota, Utah, and Wyoming).
 |                  | • Some local districts raise revenue through property taxes and include them as part of their school finance formula (Texas Early Childhood and Pre-Kindergarten Initiative) |                      |          |

Sources: OECD (2006); UNESCO (2006); Vegas and Santibáñez (2010); Belfield (2006); PEW Center on States (2009); U.S. Department of Health and Human Services, Administration for Children and Families; Stone (2008).
Notes

1. UNESCO defines preschool as level 0 in the ISCED (International Standard Classification of Education). Preschool programs vary in content and duration, thus data may not be entirely comparable.


Key Readings


References


