CHAPTER 1

Introduction

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Early childhood[1] is the most important stage for human development. The success—or failure—of countries in promoting early childhood development (ECD) will shape not only the life course of young children, but also the trajectories of countries' development. School success and labor market outcomes are grounded in children's early development. The early years of a child's life are particularly formative because during this time the developing brain is extremely responsive to the physical, social, and emotional environment. The formation of synapses—the building blocks of the brain and nervous system—begins in utero and peaks within the first few years of life (Shonkoff and Phillips 2000). Early experiences can have a lasting impact on children's brain development and health. Development in early childhood is therefore a vital foundation for success during the school years and in adult life. When children suffer ill health or malnutrition, or experience inadequate early stimulation, they are at risk for diminished development. At least 200 million children under the age of five worldwide will survive childhood but still fail to develop to their full potential because of deficits during the early years (Walker et al. 2007). Repeated and prolonged adverse experiences, ranging from poverty to exposure to violence, that generate "toxic" levels of stress in early childhood are particularly likely to damage cognition, learning, behavior, and physical health (Shonkoff and Garner 2012).

Early childhood is also a time when there are some of the most effective interventions to promote human development. The most recent literature on ECD shows that while there are a wide array of biological and psychosocial factors that put children at risk for poor development—such as inadequate cognitive stimulation, stunting, iodine deficiency, or maternal depression (Walker et al. 2011)—there are also a wide variety of protective factors and effective strategies that can improve ECD (Engle et al. 2011; Walker et al. 2011). Early childhood interventions can have immediate health and behavioral effects, leading to improved physical and cognitive development in the near term, and long-term improvements in educational attainment and human development. For instance, children who do not receive enough of the nutrient iodine will have poorer brain

development, resulting in substantially lower intelligence (Qian et al. 2005). However, iodine supplementation, often provided by iodizing salt, can prevent this loss of human potential. Early childhood education can also be an important early childhood intervention. One study found that 15-year-old students who had attended pre-primary education performed better on a reading assessment than those who did not. Even after accounting for socioeconomic differences among students, those who attended pre-primary had higher performance, a difference equivalent to almost one year of formal schooling (OECD 2011). In India, children who participated in ECD programs were more likely to be enrolled in school even up through age 18 (Hazarika and Viren 2013).

Early childhood care and education (ECCE) is not only beneficial for children's development but also for children's families, since ECCE can free up the time of siblings or parents to invest in other productive activities, such as schooling or work (Lokshin, Glinskaya, and Garcia 2000; Schlosser 2005). Promoting ECD can also be effective as a public works program, providing employment opportunities, particularly for young women. For example, a public works program in South Africa trained almost 20,000 unemployed youth (mostly females) to work in ECD sites in poor areas (Antonopoulos and Kim 2011).

Deficits early in life tend to be irreversible and to perpetuate cycles of poverty and inequality. Inequality begins in early childhood, and inequality in early childhood contributes to intergenerational cycles of poverty and social exclusion. Children from poorer households accumulate less human capital and therefore are more likely to be impoverished as adults. Differences in motor development related to household socioeconomic status have been detected as early as six months in the Arab Republic of Egypt (Kirksey et al. 1994). Associations between poverty and multiple areas of child development (including cognitive, physical, and socioemotional) were also recorded as early as 12 months in Brazil, 10 months in India, and 18 months in Bangladesh (Grantham-McGregor et al. 2007). In addition, among preschool-aged children, linguistic and cognitive delays can accumulate rapidly if not addressed. For example, in Ecuador, while differences in vocabulary among three-year-old children tended to be small, by age six, children in less wealthy or less educated households fell far behind children in wealthier or more educated households (Paxson and Schady 2007). ECD programs can help reduce these gaps; for instance, an ECD program in Indonesia reduced the achievement gap between rich and poor children (Jung and Hasan 2014). Expanding public pre-primary has been identified as the education policy with the largest impact on reducing earnings inequality (Checchi and van de Werfhorst 2014). ECD therefore plays an important role in social inclusion.

Investments in ECD have large economic benefits (Nores and Barnett 2010). Countries that invest in human capital have stronger economic growth (Sala-i-Martin, Doppelhofer, and Miller 2004). Investments in early childhood have the highest rates of return to human capital. Heckman (2006) has shown that the benefits of investing in preschool programs far outweigh investments in schooling and job training. Furthermore, program benefits for ECD more than exceed costs. A recent simulation showed the potential long-term economic effects of increasing

preschool enrollment to 25 percent or 50 percent in developing countries have a benefit-cost ratio between 6.4 and 17.6 (Engle et al. 2011). The importance of early childhood to countries' development is demonstrated by the prominence of early childhood in the Millennium Development Goals (see box 1.1). Not only are the economic benefits high for investing in ECD, but insufficient investments at this critical stage incur high economic costs later in life in terms of reduced human capital. For example, investing in children's health early can prevent stunting, which damages human capital. Stunting leads to a loss in human resources that causes[2] a 20 percent decrease in adult income (Grantham-McGregor et al. 2007). Although most stunted children will remain stunted through adulthood (Grantham-McGregor et al. 2007), interventions that identify and target children whose growth is faltering can prevent stunting and the loss in human capital it

Box 1.1 Early Childhood Development and the Millennium Development Goals

Focusing on early child development is one of the most effective approaches for achieving the Millennium Development Goals (MDGs). The MDGs are eight goals that address the world's main development challenges and include specific targets to be achieved by 2015. The actions and targets required to attain the MDGs were set forth in the Millennium Declaration of 2000. Of the eight MDGs, five of the goals address improving the health, nutrition, and education of children.

The five child-related goals are:

- To halve the proportion of people (disproportionately children) who suffer from hunger,
- To ensure that all boys and girls complete a full course of primary schooling,
- To eliminate gender disparities in primary and secondary education,
- To reduce the under-five mortality rate by two-thirds, and
- To reduce by three-fourths the maternal mortality rate.

Reducing the maternal mortality rate and under-five mortality requires a sustained focus on the health and welfare of mothers and the development of children before, during, and after birth. Prenatal care, skilled delivery care, and postnatal care are important components of reducing maternal and neonatal (first month) mortality. Health, nutrition, and child-rearing practices all contribute to children's early survival, and all can be improved with a sustained focus on ECD. In order to halve the proportion of people who suffer from hunger, ECD programs that identify and support children suffering from malnutrition will have to be expanded. Early childhood interventions are also an important part of achieving the second goal, a full course of primary schooling for all children. Programs and policies that support ECD can help ensure that children are ready for school and can succeed in school. Early interventions can also help ensure that boys and girls enter school on equal footing, helping to reduce gender disparities.

The MDGs cannot be achieved, and the world's main development challenges cannot be addressed, without a wide-ranging and sustained effort to support and enhance children's early development.

Sources: Save the Children 2012; World Bank 2011.

causes (Naudeau et al. 2011). This loss of human resources is mediated through not just decreased physical and cognitive potential, but also other domains of development. Children who are stunted lack psychosocial competencies such as self-efficacy and self-esteem, which are linked to success in the labor market (Dercon and Sanchez 2011). ECD interventions also enhance equity, since they tend to have the largest impact on disadvantaged children (Heckman and Masterov 2007). Early childhood is therefore a time when economic efficiency and equity do not have to be traded off, but instead can be enhanced together.

The Middle East and North Africa (MENA)[3] stands out as a region that until now has not invested sufficiently in ECD. For instance, early childhood education in MENA is seriously lagging behind other regions. Gross enrollment in pre-primary education stands at 27 percent as of 2011. The only region with a lower level of enrollment is sub-Saharan Africa at 18 percent (World Bank 2014). The MENA region, as well as having low enrollment in pre-primary education, also has the lowest public provision of pre-primary, with only 29 percent of pre-primary enrollment in public programs and 71 percent of pre-primary enrollment in private preschools and nurseries (UNESCO 2014). MENA countries and territories also have the world's highest rates of violent child discipline (UNICEF 2013) and the region has the lowest coverage of iodine, an important nutrient for brain development (UNICEF 2012). These deficits in ECD in MENA are limiting the potential of a generation of children, and making the region less productive and competitive in the long run. Another important reason to study ECD in MENA is the serious shortage of data and research on ECD in the region. A recent meta-analysis of the high-quality evidence on ECD (Nores and Barnett 2010) included 56 different studies from 23 countries from all regions of the world except MENA; there were no studies from the MENA region. Without quality research on the state of ECD, and contextualized information on the impact, costs, and benefits of ECD investments, it is difficult for policy makers to prioritize ECD investments.

In light of the above, the objective of the analysis provided in this book is to offer evidence on the state of ECD in MENA in order to allow policy makers to implement better policies and programs, as well as to target programs to those with the greatest need. The information will also allow countries to benchmark their progress and to learn from the experiences of other countries and regions.

Measuring Early Childhood Development

Healthy ECD occurs across a variety of different dimensions. As well as developing in terms of physical health and nutrition, it is important that children experience healthy cognitive development, healthy emotional development, and the development of healthy social relationships (see box 1.2).

Health and Nutrition

Early death represents the ultimate loss of all a child's development potential, and the compounded effects of malnutrition and diseases. This book examines

Box 1.2 ECD Indicators Examined in MENA

Prenatal care
Trained attendant at delivery
Neonatal mortality (dying in the first month)
Infant mortality (dying in the first year)
Fully immunized
Stunting/Height-for-age
Iodized salt
Parental development activities
Early childhood care and education
Violent discipline
Child labor

both *neonatal mortality* (dying in the first month of life) and *infant mortality* (dying in the first year of life). Most early deaths are preventable. Globally, neonatal deaths are primarily due to preterm births, birth asphyxia, and infections (sepsis, pneumonia, tetanus, and diarrhea) (Lawn, Cousens, and Zupan 2005). Low birth weight can contribute indirectly to early deaths (Black et al. 2008). Increasing coverage of care during childbirth and the early postnatal period is vital to reducing neonatal mortality (Lawn, Cousens, and Zupan 2005). Addressing both early mortality and ECD begins during pregnancy. Children's development begins even before they are born; therefore *prenatal care* is an opportunity to prevent or detect and treat health issues, especially deficiencies in maternal nutrition and fetal growth that are connected to immediate outcomes such as birth weight, and to child mortality, childhood illness, and ultimately to lost development and productivity over a child's entire lifetime (Bhutta et al. 2008; Walker et al. 2011). *Delivery with a skilled attendant*[4] is also vital to reducing newborn mortality and morbidity. As well as aiding in a safe delivery, skilled attendants play an important role in identifying health issues and providing postnatal care (World Health Organization 2004). Prenatal care and delivery care are important components of achieving the Millennium Development Goals (MDGs) (see box 1.2). The *full immunization* of children plays an important role in reducing child mortality—diseases such as measles are a major cause of child mortality. Immunizations also prevent the illnesses that can hamper healthy physical growth (Molina 2012) and are extremely cost-effective (Fiedler and Chuko 2008).

Adequate nutrition throughout childhood plays a vital role in healthy physical and cognitive development. Nutrition has two important components. A child needs to receive enough "macro" nutrients—calories and protein—and enough "micro" nutrients—such as iron, Vitamin A, and iodine. Height measures accumulated calories and protein over a child's life, from his or her daily nutritional intake. This book compares children in MENA to a global "reference

population" of healthy children, and calculates how far from the average of a healthy child of the same age and gender a child is. This is called a *height-for-age* "z-score," which is measured in standard deviations (SD) from the healthy reference population median. *Stunting*, that is, being more than two SD below the median height of a healthy reference child of the same age and gender, has been connected to decreased cognition, poorer school performance, decreased productivity later in life, and decreased income (Glewwe and Miguel 2008; Grantham-McGregor et al. 2007; Walker et al. 2011). Two other common measures are weight-for-age and weight-for-height, which are relative to the weight of a healthy child of the same sex and age (or height). Children whose weight-for-age falls more than 2 SD below the population reference median are considered to be clinically underweight. Children whose weight-for-height falls more than 2 SD below the population reference median are considered to be wasted. While height-for-age is the best indicator of accumulated (mal)nutrition, weight-for-age and weight-for-height can be helpful in identifying shorter-term episodes of malnutrition.

Children's physical and cognitive growth also depends on the quality of nutrients. Micronutrients are "tiny" nutrients that have big effects on ECD. Iron, vitamin A, and iodine are examples of micronutrients that can be naturally found in some foods but are often not found at the levels necessary for healthy development. These micronutrients can also be given as supplements or added to food. For instance, iodine is often added to salt to make iodized salt. Micronutrients in early childhood play an important role in increasing weight, motor development, cognitive development, and psychosocial development, with lasting effects (Walker et al. 2011). Micronutrient supplementation is also incredibly cost-effective, and has been identified as a top priority among all global development challenges (Lomborg 2009). To assess children's access to micronutrients, this book focuses on *salt iodization*, specifically whether or not the household a child lives in has adequately iodized salt. Iodine deficiency is the most common cause of mental retardation in the world (Molina 2012). Iodine-deficient individuals average 10-point-lower IQs than nondeficient individuals (Molina 2012).

Cognitive, Social, and Emotional Development

Children develop cognitively, socially, and emotionally by engaging in *development activities* with their families. Reading, playing, looking at picture books, singing songs, and other activities all help children grow and learn. Parenting quality, in terms of parents' responsiveness to their children and reading to their children, is related to cognitive test scores in young children (Paxson and Schady 2007). These activities also promote learning and school readiness (Tinajero and Loizillon 2012). Parents can learn about the connections between interaction and play and child development, and how to promote interaction and development in everyday activities. When parents acquire these new parenting skills, it improves their children's mental and physical development; larger impacts are observed on children who start with low mental and physical development

(Eickmann et al. 2003). Adult engagement in multiple activities that promote learning is an important support of cognitive development, and an important indicator of parenting practices and the social-emotional engagement of parents with their children. Attending *ECCE* improves cognition and socioemotional development, with benefits that can last a lifetime. In the near term, ECCE improves test scores, decreases grade repetition, and decreases school dropout. Over the long term, ECCE increases educational attainment and raises wages later in life (Krafft 2011; UNESCO 2006). ECCE is also one of the most cost-effective educational interventions; earlier interventions have a greater impact, at lower cost, than those later in life.

Disciplining children is an important part of child rearing. Although child discipline is important and necessary, violent discipline is not a necessary form of child discipline. *Violent child discipline* hampers children's development, learning, and school performance in the short term, ultimately reducing human capital and damaging children's socioemotional development (UNICEF 2010). Violent child discipline also violates the rights of children to protection from all forms of violence (UNICEF 2010).

There are competing perspectives on children working, and on what, exactly, constitutes child labor. Child labor is usually identified as that subset of child work that presents a threat to the health and development of children, usually due to the type of work, working conditions, or the time spent engaged in work (Edmonds 2008; Tafere, Abebe, and Assazinew 2009). Children who engage in work are less likely to attend school and are at risk for cycles of chronic poverty (Edmonds 2008; UNESCO 2006). One perspective on child work is therefore that it is generally harmful to children's education, health, and their physical, cognitive, and socioemotional development. However, another perspective is that child work that does not hamper children's health or development, and that does not prevent schooling, may in fact be an important and positive part of children's education and development into productive adults (Bourdillon et al. 2010; Tafere, Abebe, and Assazinew 2009). This book specifically examines child work at age five, including both work outside the home and business or chores in the home. At age five, doing work in a business or family enterprise, or engaging in household chores such as collecting firewood, cleaning, fetching water, or caring for other children, puts the health and development of young children at risk, and may hamper their ability to successfully transition into school. This book therefore terms all of these activities "child labor" and maintains the perspective that, while there may be exceptions, in general *child labor* at age five is a negative indicator that will harm ECD.

ECD is a cumulative process, with healthy or faltering growth in one dimension of outcomes interacting with other dimensions of growth. All the different elements of healthy development are interrelated. Due to data availability, the development indicators this book examines are a mix of "inputs" such as immunizations, and "outcomes" such as early death. Different indicators contribute to different important development outcomes. For instance, nutrition contributes to mortality, physical health and development, and children's early

cognitive development. ECCE and development activities contribute to children's early social and emotional development, their cognitive development, and early learning. ECCE and development activities can interact and complement each other in promoting children's development. Development outcomes can also interact; children who suffer from poor physical health will be at a disadvantage in terms of their capacity for early learning and cognitive development. The different indicators and outcomes in early childhood interact and accumulate throughout the early lifecourse and the developmental experiences and outcomes children have in early childhood shape their subsequent learning, schooling, health, employment, social engagement, and in general, their life opportunities.

Risk and Protective Factors

A variety of background characteristics may put children at risk for poor ECD outcomes. Poor ECD outcomes may be related to gender, wealth, mother's and father's education, rural or urban residence, and region of residence. To understand the factors that put children at risk, this book examines how each of these individual characteristics is "associated" with the ECD indicators. This helps answer questions such as, how likely is a rural child to attend ECCE compared to an urban child? However, it may be the case that the rural/urban differences in ECCE attendance are actually because rural areas tend to be poorer, and if we looked at children from the same wealth level and compared rural and urban areas, children of the same wealth level would have the same attendance in rural and urban areas. Therefore, using multivariate regression (a statistical technique, see appendix A for details) can and does answer the question of the relationship between background characteristics and ECD after accounting for other characteristics. This method can show the difference in attending ECCE between urban and rural areas, after accounting for rural/urban differences in mother's and father's education, wealth, gender, and region of residence.

Unequal Opportunities

Children face unequal opportunities when differences in their ECD are driven by differences in their circumstances—over which they have no control. For instance, there are natural variations in the height of children. Walking down the street and seeing two different three-year-old boys who have different heights does not necessarily mean that those children faced unequal opportunities for healthy growth. However, when those children have different chances of being stunted due to factors beyond their control, such as because they were born in a rural area, or to an uneducated father, this is a case of unequal opportunities. Childhood also represents a time when unequal opportunities are clearly due to circumstances. While differences in outcomes for adults, such as wages, can be partly due to how hard adults worked, or how hard they studied in school, children cannot impact their own early development. What children experience while still in utero and in the early years is entirely outside

their control. This book quantifies the unequal opportunities children face in several ways. First, the extent of inequality in each country and territory and for each indicator is measured using a dissimilarity index (see appendix A for details). Then the contributions of different circumstances to inequality—such as household wealth or gender—are calculated using a Shapley decomposition (see appendix A for details). Lastly, to measure disparities in children's chances for healthy development, we construct a profile for a "least advantaged" and "most advantaged" child for each country and territory and calculate how different children's outcomes are based on differences in just a few circumstances (see appendix A for details).

How this Book Examines Early Childhood Development

In order to assess the state of ECD in MENA, this book proceeds in three steps. First, we compute the average level of an ECD indicator for each of the countries and territories. Second, we observe the relationship of ECD indicators with a number of background characteristics of children such as gender, wealth, parent's education, and urban versus rural residence to identify factors associated with a risk of poor ECD outcomes and to test the significance of the relationship when the background factors are taken collectively into account (using multivariate regression models, see appendix A for details). Finally, we investigate the inequality of opportunity in ECD for each of the ECD indicators and the extent of inequality among children with different background characteristics.

The Data

The analyses presented in this book use a number of different nationally representative surveys. Statistics presented are based on World Bank calculations unless otherwise noted. The analyses are based on the latest available data covering ECD. See appendix A for details on the surveys used in each country and territory. While under normal circumstances, ECD indicators change relatively slowly, on the ground today, in light of a number of ongoing conflicts, political changes, and economic crises in the region, there may have been more rapid and substantial changes, providing both new challenges and new opportunities to improve ECD in MENA.

How the Book Is Organized

The first part of the book offers an introduction (chapter 1), an overview with a global and regional perspective of ECD (chapter 2) and some program and policy options to promote ECD in MENA (chapter 3). The second part examines ECD in each of twelve MENA countries and territories: Algeria, Djibouti, Egypt, Iraq, Jordan, Lebanon, Libya, Morocco, the Syrian Arab Republic, Tunisia, West Bank and Gaza, and the Republic of Yemen.

Notes

1. There are different definitions of early childhood. This book focuses on early childhood development from before children are born (in utero) through age five. Around age six is when children in most MENA countries and territories enter school, which substantially changes their needs and development, as well as opportunities for interventions.
2. The diminished human resources are due to decreased cognitive ability and productivity from stunting.
3. In this book, we specifically examine Algeria, Djibouti, the Arab Republic of Egypt, Iraq, Jordan, Lebanon, Libya, Morocco, the Syrian Arab Republic, Tunisia, West Bank and Gaza, and the Republic of Yemen.
4. A doctor, nurse, or midwife.

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