

2015

Is Free Basic Education in Egypt a Reality or a Myth?

Ragui Assaad

Caroline Krafft, *St. Catherine University*

IS FREE BASIC EDUCATION IN EGYPT A REALITY OR A MYTH?

By Ragui Assaad^a and Caroline Krafft^b

^aHumphrey School of Public Affairs, University of Minnesota, 301 19th Ave. S, Minneapolis, MN 55455, USA, assaad@umn.edu

^bDepartment of Applied Economics, University of Minnesota, 1994 Buford Ave, Saint Paul, MN, 55108, USA, krafft004@umn.edu (corresponding author)

Abstract

Egypt has made enormous progress in increasing access to education. While school is theoretically free, families must often spend substantial sums in order for their children to succeed in school. The question that this paper investigates is whether students can succeed in Egypt's basic education system, regardless of their family circumstances, and without additional spending. The paper begins by examining inequality in completing basic education and then investigates the use of supplements, such as private tutoring. Outcomes are examined by socio-economic status, to illustrate how the need to supplement publicly provided basic education contributes to unequal opportunities for young Egyptians.

Keywords: basic education, public education, education quality, inequality, private tutoring, education policy

1. Introduction

Free education—promised in the Egyptian constitution—is considered a fundamental right of every Egyptian. Over the past three decades, Egypt has made substantial progress in increasing access to education and raising educational attainment. Net enrollment rates in primary education have increased from 64 percent in 1978 to 96 percent in 2009 (UNESCO, 2015). Over a similar period the average years of schooling attained went from 2.7 to 7.1, putting Egypt among the top 20 countries globally in terms of increases in school attainment over that period (Campante & Chor, 2012). The focus in Egypt, as in many other countries and in the international discourse on access to education, has essentially been on increasing enrollments and attainment, often to the neglect of other important dimensions of education. There has been, until recently, insufficient concern about the demonstrably low school quality and low levels of learning students are achieving (Assaad, 2014; Salehi-Isfahani, Hassine, & Assaad, 2014; World Bank, 2008). There has also been limited societal debate about the substantial inefficiencies and inequities associated with public expenditure on education (El-Baradei, 2013). These issues mean that while education is theoretically free, substantial additional spending is often required by families to ensure that children learn and succeed within the education system. The need for additional spending contributes to young people's unequal opportunities to attain education or achieve learning (Assaad, Salehi-Isfahani, & Hendy, 2014; Assaad, 2013; El-Baradei, 2013; Salehi-Isfahani, Hassine, & Assaad, 2014; World Bank, 2012).

The problems of low quality, inefficiencies and unequal opportunities start within the basic education system, which in Egypt goes up to ninth grade and constitutes the mandatory stage of education. Although education quality is a difficult concept to define and measure, Egypt consistently shows quality deficits. Within the international education literature, quality tends to

be measured either in terms of inputs, for instance the pupil/teacher ratio, textbooks, or teacher training, or in terms of outcomes, such as literacy, test scores, life skills, and job skills (UNESCO, 2012, 2014). In terms of inputs, the public funding of basic education is inadequate (El-Baradei, 2013), contributing to low school quality. Employers also perceive little value in the skills conferred by the education system; Egypt was one of the lowest ranked countries in the 2014-2015 World Competitiveness Report (141st out of 144 countries) in terms of the quality of primary education (Schwab, 2014).¹ In terms of international tests such as the Trends in International Mathematics and Science Study (TIMSS) Egyptian students (and those from other countries in the Middle East and North Africa Region) perform poorly, with 53 percent of eighth graders falling below the low benchmark, compared to an international median of 25 percent (Assaad, 2014).

In part because the quality of education is low, investments in education may generate low returns in the labor market. Annualized wage returns to basic education are estimated to be just 1 percent per year of education (Said, 2015). The returns to basic education in Egypt are less than one-twenty-fifth the international average of 26.6 percent per year of primary education (Psacharopoulos & Patrinos, 2004). If only returns in the private sector are taken into account, returns are even worse, less than 1 percent per year (0.1 percent per year for males and 0.4 percent per year for females). While returns to all levels of education are relatively low in Egypt compared to other countries, basic education in Egypt has lower returns than secondary or higher education (Said, 2015). The low returns to education are likely important contributors to the youth frustrations that drove the Arab Spring uprisings. Education in Egypt had traditionally meant access to formal (mostly public) jobs that paved the way to a middle class existence, but it

¹ Based on the World Economic Forum Executive Opinion Survey.

has failed to live up to these expectations for recent cohorts of youth. The devaluation of education in recent decades has not only led to a great deal of anger and frustration on the part of educated youth, but also to persistent demands for social justice and more equal opportunities (Assaad & Krafft, 2014; Binzel & Carvalho, 2013; Binzel, 2011; Campante & Chor, 2012; Kuhn, 2012).

When the quality of education in public schools is poor, families who can afford it must often use other means to help their children succeed in school. In Egypt, the poor quality of public basic education has generated substantial demand for educational supplements or substitutes, such as private schooling, parental help, help groups, and especially private tutoring. Spending on basic education, and particularly on private tutoring is a substantial and rising share of the budgets of Egyptian households with school-age children (El-Baradei, 2013). Given the low quality of free public education, this supplemental private spending may be a critical element for succeeding in school, for those who can afford it.

This paper examines whether free basic education is a reality or a myth in Egypt. The discussion begins with an examination of equity in access to, success in, and completion of basic education. The paper then investigates the use of education supplements and substitutes, such as private schooling and private tutoring or help groups, as well as the provision of study help by family members. Two key outcomes of basic education are also explored: the performance of students on tests during basic education, and their ability to pursue the general secondary track (higher education bound), as opposed to the poorly regarded and usually terminal vocational track after basic education. The differences in education experiences and outcomes by gender and socio-economic status are explored to illustrate how the need to supplement publicly provided basic education contributes to unequal opportunities for young Egyptians.

The overarching question that guides the paper is whether free basic education is a reality for most Egyptians or if substantial private spending on education is necessary for success. Are privately-funded educational supplements necessary? How does success in basic education vary based on children's social origins and the resources their families are able to invest in their education? This will be investigated through two linked questions:

- 1) Is there equality in accessing basic education? What inequalities of opportunity in completing and succeeding in basic education occur in terms of gender and socio-economic background?
- 2) What role do education supplements, especially private tutoring, play in basic education and inequality of opportunity? What differences in education supplements and education outcomes occur by gender and socio-economic background?

To answer these questions, this paper proceeds as follows. The second section presents the background, including frameworks for investments in education and unequal opportunities. Section 3 presents the data used and describes our methods. The fourth section describes the structure of the education system in Egypt. Section 5 presents the results in terms of accessing basic education, use of education supplements, and education outcomes. The last section concludes and provides policy recommendations.

2. Frameworks

The Egyptian constitution identifies a free education as the right of every citizen. This right is framed in terms of the socialization of young people into the nation's character, identity, and culture, as well as in the instrumental terms of promoting innovation and meeting labor market needs (Egypt State Information Service, 2014). This articulation of the role of education in society reflects global debates about the role of education. Free education is often framed as a

human right, for instance as in the Convention on the Rights of the Child (United Nations Office of the High Commissioner for Human Rights, 1990), to which Egypt is a signatory. The importance of equal opportunities is emphasized for this particular right of children, but such basic rights approaches tend to neglect issues of education quality. Education is also often framed as playing a key social and political role, both in terms of the state providing civic education (Cogan & Morris, 2001) and education being a key prerequisite to democratic political forms (Glaeser, Ponzetto, & Shleifer, 2007).

The instrumental, economic argument for public investments in education rests on substantial market failures that cause private demand for education to be lower than would be socially optimal. Substantial externalities (public benefits and spillovers) such as improvements in child health, reduced fertility, more effective political participation, or decreased crime are examples of justifications for public expenditure on education (Lindelow, 2008; T. P. Schultz, 2002; Temple & Reynolds, 2007). That parents, deciding on education for their children, will not capture the full benefits can also lead to under-investment in education (Edmonds, 2008). Information issues, where parents or youth are unaware of the true returns to education (Jensen, 2010), or credit constraints to investing in education (T. W. Schultz, 1961), all might act as justifications for public investment. Public investment should particularly target the levels of education and individuals who would not otherwise receive (enough) expenditure in the private market, as it is at these points that there is a justification for public investment in education. Currently, Egypt publicly funds primary through higher education, a policy that will, at least in the abstract, overcome some of the market failures, but at the expense of substantial spending on those who would otherwise attend and can afford to spend on education even if education were not free.

The human capabilities approach to education links together the intrinsic value of education, as a right, with more instrumental goals for education. This approach recognizes that the well-being of individuals is not just predicated on standard economic measures such as income, but on what individuals are free and able to do—their capabilities. Education is thus doubly important, as a route for expanding individuals' capabilities, in addition to its value in the labor market or for other instrumental goals (Sen, 1999). Education quality is also particularly relevant for expanding capabilities and letting individuals achieve the goals they value (Tikly & Barrett, 2011). The extent to which individuals of all backgrounds are able to equitably access quality education in Egypt, i.e., whether free basic education is truly a reality, is thus of great importance.

In investigating whether free basic education in Egypt is a myth or a reality, we empirically connect three interlinked issues. The first is the unequal and inefficient nature of public investments in education, making it difficult for many young Egyptians to learn and succeed in school. The second issue is the high and unequal investments in private supplements to education that many parents consider necessary for their children to succeed in the education system. Lastly, the result of the combined inadequacy of the public education system and unequal investments in private supplements is unequal opportunities for Egyptian children to succeed in basic education and beyond. This section provides some background, both theoretical and empirical, on these issues both globally and in Egypt.

2.1 Unequal and Inefficient Public Investments in Education

High rates of grade repetition and dropout (Elbadawy, 2015; Krafft, 2012) are symptomatic of inefficiencies within the education system in Egypt. When young people repeat a grade, it

doubles the amount of spending required to learn the same material and is a signal that the initial year of schooling was of insufficient quality to provide mastery of the material. Likewise, when young people drop out of school, it is often a symptom that the school system is failing to educate them. In examining the reasons stated for dropping out of school in a recent survey, after “I did not want to finish” (40 percent) and “the cost of uniforms and school fees” (19 percent), the next most common reason for dropout stated was “not doing well in school” (15 percent) (Population Council, 2011). This reason disproportionately affected children from less wealthy families and from rural areas. Research has demonstrated that children in Egypt are much more likely to drop out when experiencing a low-quality school environment (Hanushek, Lavy, & Hitomi, 2008; Lloyd, El Tawila, Clark, & Mensch, 2003). When children cannot succeed in school, particularly when it is due to the inadequate quality of schooling, it is clear that Egyptian society is not meeting its promise of a free education for all.

In addition to issues of efficiency justifying public investment in education, issues of equity may motivate the provision or financing of education through public channels. The equity argument for public spending on education rests on equalizing access to education across people of different social circumstances. To do so, public investment needs to target disadvantaged children to compensate for otherwise poor early environments, high opportunity costs, or excessive discount rates and an absence of financing. Currently in Egypt, public education funding is essentially regressive. Per pupil public education funding increases with the level of education, so that those in higher education receive the most funding (El-Baradei, 2013). These are, however, the wealthiest individuals in society, creating substantial inequality and providing the most funding to those who need the state’s support the least (Assaad, 2013). Thus, public funding prioritizes higher levels of education for some at the cost of universal high quality basic

education for all. A policy of free public education at all levels, intended to provide opportunity for all, ends up instead in reproducing an unequal and regressive system.

2.2 High and Unequal Investments in Education Supplements

The inadequacy and inefficiency of public spending on basic education in Egypt results in the need for substantial private investments (by those who can afford it) in the form of educational supplements that reinforce quality and inequality issues. For instance, private tutoring is so widespread and extensive in Egypt that many students will skip attending school, especially in key exam years, and rely on private tutors for their instruction (Population Council, 2011). While private tutoring can have positive impacts, such as improved learning, it also can misalign teachers' incentives, create distortions in the curricula, and worsen inequalities (Bray, Zhan, Lykins, Wang, & Kwo, 2014; Bray, 2003; Dang, 2007; Tansel & Bircan, 2006). In an environment with both school day teaching and supplemental private tutoring by the very same school teachers, private tutoring creates an incentive for teachers to teach less during the school day (Popa & Acedo, 2006).

In Egypt, teachers play a key role in whether public basic education alone is adequate for student success. A number of forces affect teachers' efforts in school. Teacher pay has been largely stagnant in the face of rising inflation, yet teachers' employment, as civil servants, is secure and their pay is unrelated to their performance in the classroom (Ille, 2015). Teachers therefore do not have strong incentives to perform well in their regular teaching. Additionally, they are motivated to generate income through other routes, such as private tutoring. This creates a serious incentive problem in the classroom; teachers will have higher income when they teach less. In order to generate demand for private tutoring, teachers may reduce the quality of

schooling during regular school hours (Ille, 2015; Jayachandran, 2014). The lower a teacher's effort level in the classroom, the greater the incentives for students to take private tutoring with the teacher, thus increasing his or her income (Ille, 2015). As a result, when teachers can offer private tutoring, it reduces student learning and achievement, particularly for poorer students who are less able to access tutoring (Ille, 2015; Jayachandran, 2014). Thus, while private tutoring in Egypt may be necessary for success, it also further distorts the functioning of the education system.

2.3 Unequal Opportunities to Succeed in Basic Education

On the surface, the policy of free education in Egypt should provide children with equal chances to succeed in basic education; no child should be prevented from attaining a basic education because his or her family cannot afford school fees. This ideal is conceptually aligned with the idea of equal opportunity. Due to unequal public funding and low quality public schooling, compounded by the need for large private expenditures on education, the reality is severe inequality in the opportunity to learn and succeed. To assess inequality of opportunity in basic education, we draw on the framework developed by the well-known economist and philosopher John Roemer (1998). Conceptually, some inequality in outcomes, such as wages in the labor market or test scores in school, is a desirable aspect of a well-performing economy. When individuals are rewarded with higher wages or better grades because of the choices they make and the effort they expend, this creates strong incentives for higher performance. However, inequality due to circumstances beyond an individual's control—what is termed inequality of opportunity—is problematic both as a matter of social justice and in disconnecting effort from outcomes. When a girl from a poor family is less likely to complete basic education simply

because of her gender and the economic circumstances of her family this is inequality of opportunity. Inequality of opportunity can be assessed empirically by looking at differences in education outcomes by gender and socio-economic characteristics.

There is a substantial body of existing evidence indicating that there is inequality of opportunity in access to basic education in Egypt. This inequality starts at school entry. Although entry into primary school for Egyptian children is becoming almost universal, a most-marginalized group, primarily girls from poor families in rural Upper Egypt, are still disadvantaged in that regard (Elbadawy, 2015; Krafft, 2012). Among those who do enter the school system, poorer youth are more likely to repeat a grade and also are more likely to drop out during basic education (Elbadawy, 2015; Krafft, 2012). Besides unequal attainment, students experience unequal school quality depending on their background, and achieve unequal levels of learning (Assaad, Salehi-Isfahani, & Hendy, 2014; Population Council, 2011; Salehi-Isfahani, Hassine, & Assaad, 2014). We provide additional evidence on inequality of opportunity, linking the roles of low-quality public schools, supplemental private investments, and ultimately unequal opportunities.

3. Data and Methods

Surveys are the primary source of data used to assess the question of whether free and universal basic education is a myth or a reality for children in Egypt. We rely on the nationally-representative Egypt Labor Market Panel Survey (ELMPS) of 2012, which includes rich information on education, including private supplements to education, as well as young people's background and circumstances. The ELMPS 2012 is the third round of a longitudinal survey,²

² See Assaad and Krafft (2013) for detailed information on the different rounds of the ELMPS.

which allows us to look at the outcomes of students in the most recent round of the survey based on their circumstances in earlier rounds. For instance, we can look at how the wealth of a young person's household in 2006 affected their probability of completing basic education by 2012. This allows us to be sure that we are observing how family circumstances affect education—not how education affects the economic outcomes of the household.

The paper primarily relies on descriptive statistics to examine whether and how inequality in access to basic education, education supplements, and public spending occur along gender and socio-economic lines. Multivariate analyses are used to consider the net effects of different characteristics on outcomes. Although these methods are unable to identify causal relationships, they can identify important associations, and are interpreted as such.

4. Background: The Structure of the Education System in Egypt

Although pre-primary enrollments are expanding (Krafft, 2015), most young people in Egypt enter school at the primary stage. Figure 1 illustrates the structure of the Egyptian schooling system. On-time entry occurs at age six, and primary school comprises grades one through six. Upon completion of primary education, students proceed to preparatory school for grades 7-9, which correspond to ages 12-14 if a student is progressing on time. The primary and preparatory stages comprise basic, compulsory education in Egypt. If students continue beyond basic education, they are tracked into either vocational secondary, which is usually a terminal degree, or general secondary, which implicitly guarantees access to higher education if the student completes the stage. Higher education comprises post-secondary technical institutes, which are two-year institutions, higher institutes and universities, which are four-year institutions and in some cases longer. Passing from the basic to the secondary stage or from the secondary to

higher education stage is contingent on high-stakes exams that not only determine whether the student is allowed to continue, but also determine the type of education they are able to pursue.

Figure 1. Structure of the Egyptian Education System

<u>Basic education</u>		<u>Vocational secondary</u> Grades 10-12 Usually terminal	<u>Post-secondary institutes</u> Two-year
<u>Primary</u> ⇒ Grades 1-6 (Ages 6-11)	<u>Preparatory</u> ⇒ Grades 7-9 End of compulsory schooling (Ages 12-14)	<u>General secondary</u> ⇒ Grades 10-12 (Ages 15-17)	<u>Higher institutes</u> Four-year <u>University</u> Four-year (Ages 18 and up)

Note: Ages in parentheses are ideal, assuming on-time entry and no repetition.

5. Results

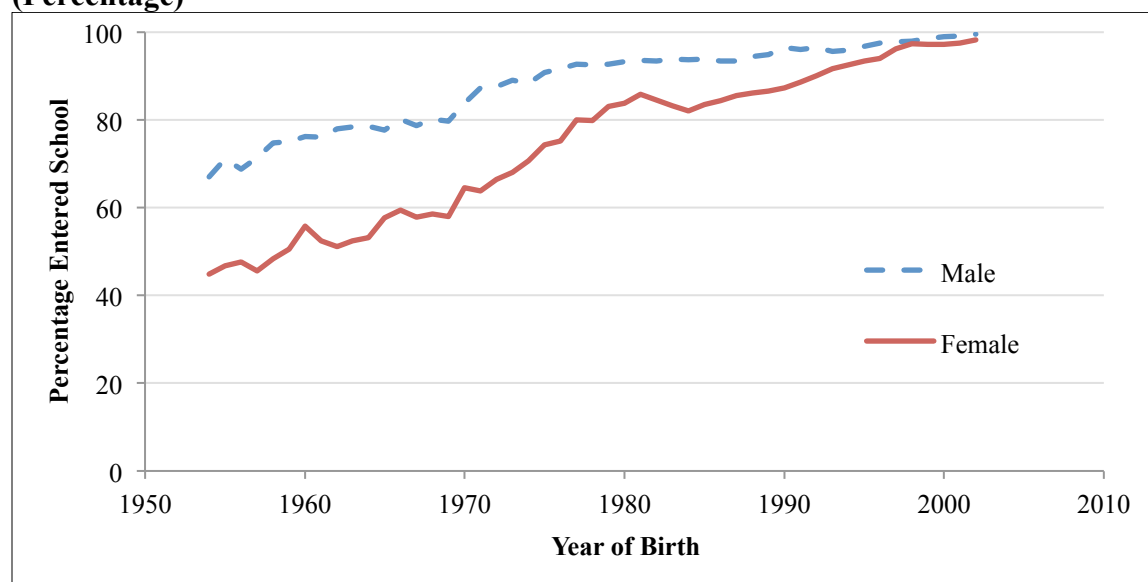
5.1 Basic Education: Access, Types of Schools, and Completion

5.1.1 Who Accesses Education?

There has been substantial progress over time in whether children actually enter primary school in Egypt (Figure 2). For Egyptians born in the 1950s, a substantial proportion never entered school and there was also a large gender gap in access. As shown in Figure 2, fewer than 50 percent of females born in the 1950s entered school, while the rate among males born in that decade ranged from 65 to 80 percent. Among more recent birth cohorts, starting with those born around the year 2000, school entry was nearly universal. Additionally, the percentage of girls entering school has nearly caught up with that of boys for the cohorts born after the mid-1990s. Among the most recent birth cohorts who are of school entry age, individuals born from 2000 to 2002, only 1 percent of boys and less than 4 percent of girls did not yet enter school. Essentially, the primary challenge facing the Egyptian education system has shifted over time, from a

historical challenge of ensuring that students entered school, to a challenge of ensuring that students complete basic education and achieve an adequate level of learning.

Figure 2. School Entry by Year of Birth and Gender, 3-Period Moving Average (Percentage)



Source: Authors' calculations based on ELMPS 2012.

5.1.2 What Types of Basic Education do Students Attend?

One of the methods families can use to address the inadequate quality of public basic education is to invest in education outside of the regular public system. In Egypt, alternatives to the regular public education system include public experimental schools, private regular or private language schools (the latter teaching in a foreign language such as English or French), or public Azhari (religious) schools. With the exception of Azhari schools, which are overseen by the Al-Azhar religious institution, all of these school types are overseen and regulated by the Ministry of Education and follow a standard curriculum.³

³ In recent years, foreign schools that provide international credentials and whose curriculum is not overseen by the Ministry of Education have been introduced in Egypt. These schools are still few in number and are very expensive

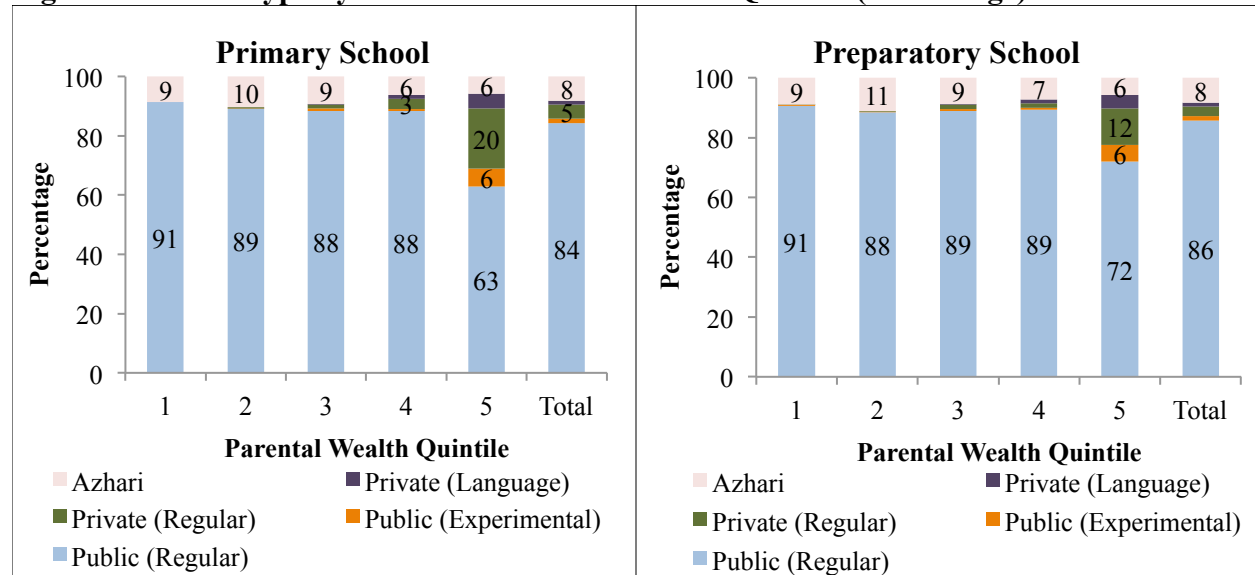
The majority of students attend regular public schools for the basic education stage (Figure 3). Between 84-87 percent of male and female students in primary and preparatory schools are in regular public schools. Azhari schools are the second most popular choice for primary and preparatory education, enrolling 8-9 percent of students. Private regular schools are the next most common form of education, enrolling 3-4 percent of students. Private language schools and public experimental schools each enroll only around 1-2 percent of students.

It is primarily the richest households that send their children to private schools and public experimental schools (Figure 3).⁴ This is particularly true for primary schools where about 25 percent of students from the richest fifth of households attend private schools and an additional 6 percent attend public experimental schools, which appear to be limited to children from the richest quintile of households. Azhari schools remain a common choice for students in both primary and preparatory education regardless of wealth. These patterns of the richest households sending their kids to private school also align with another measure of socio-economic status, mother's education (not shown). Private schools and public experimental schools are mostly an option for households with highly-educated mothers, with 46 percent of children with university-educated mothers going to private or public experimental schools at the primary level. There is some use of private schooling and public experimental schools among those with secondary educated mothers (12 percent at the primary level), but essentially none among youth with mothers with less than secondary education.

by Egyptian standards. As a result they only serve a tiny proportion of the wealthiest families, and only a few children attending these schools appear in our surveys. We therefore include this category of schools with private language schools in our analyses. Home schooling, which is also used by only a few respondents, is included in private regular schooling.

⁴ When examining youth who are not all currently in school, we use the wealth quintile of the individuals' households in 2006 to make sure that the individual was still living with his/her parents and thus the variable truly captures parental wealth. Household wealth quintiles are based on a wealth index calculated using factor analysis on household ownership of a large number of durable assets and housing conditions, a common approach (Filmer & Pritchett, 2001).

Figure 3. School Type by Level and Parental Wealth Quintile (Percentage)



Source: Authors' calculations based on ELMPS 2012.

Note: School type is for youth ages 13-22 in 2012. Parents' wealth quintile is from 2006.

5.1.3 Who Struggles During Basic Education?

While Egypt has made great strides in ensuring children enter school, their success in basic education is not assured. One helpful metric to assess both the quality and efficiency of the education system is whether or not students are repeating grades during school. Repeating a grade occurs when a student is unable to master the material covered in a grade during the course of the school year. High grade repetition rates are a symptom of low-quality education. Repetition also contributes to inefficiency and high costs, as it takes twice the investment for the student to master the same material. In this section, we assess the chances a student repeats a grade during basic education⁵ as a symptom of students' struggles in basic education.

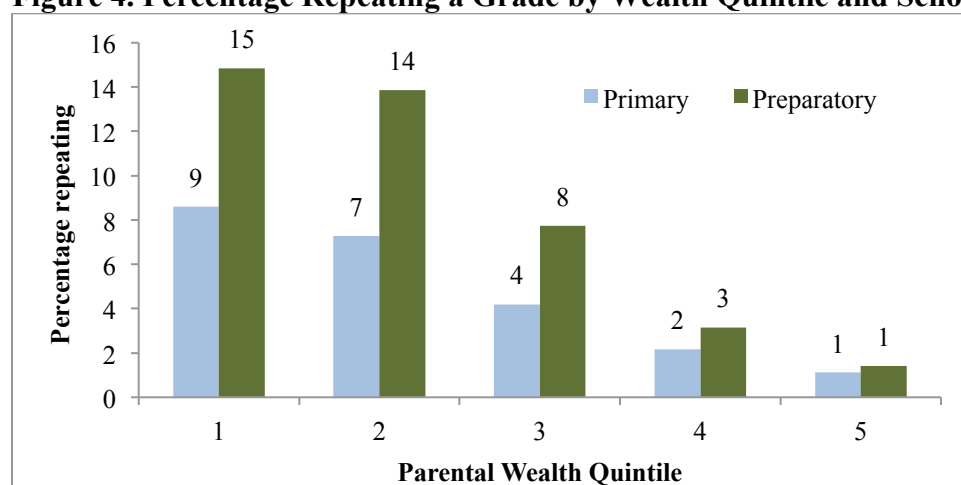
Grade repetition is common in Egypt, particularly during the preparatory stage. Around 5 percent of students repeat at least one grade in primary education, and 9 percent in preparatory

⁵ Students could repeat more than once within a level, but we do not quantify this possibility.

education.⁶ Male students are more likely to repeat a grade than female students. While 11 percent of male students repeat in preparatory, only 6 percent of female students do so. There is a similar gap at the primary stage as well (7 percent male, 4 percent female repetition).

The students who struggle the most to master the material of basic education are the students from the poorest wealth quintiles. Figure 4 shows the percentage of students who repeated a grade during primary or preparatory by wealth. Students in the bottom two wealth quintiles do by far the worst; 7-9 percent repeat during primary and 14-15 percent repeat in preparatory. In contrast, students from the richest wealth quintile have only a 1 percent chance of repeating in primary or preparatory. Family resources clearly intersect with the chances that children will succeed or struggle in basic education.

Figure 4. Percentage Repeating a Grade by Wealth Quintile and School Level



Source: Authors' calculations based on ELMPS 2012.

Note: Youth ages 16-22 in 2012 who attended these levels in the past. Parents' wealth quintile is from 2006.

It is youth with less educated parents who struggle and repeat grades during basic education. While students with secondary or university educated mothers have only a 1-2 percent

⁶ Youth ages 16-22 in 2012 who attended these levels in the past

chance of repeating a grade in primary or preparatory, those whose mothers have less than secondary education have a 7 percent chance of repeating during primary and an 11 percent chance of repeating during preparatory. Whether because mother's education is linked to socioeconomic status, or more educated mothers can compensate for the inadequate quality of basic education, children face unequal chances of school success depending on their parents' education.

Overall, there are clear differences in students' chances for school success depending on their backgrounds. Male students struggle more in school—evidenced by their higher rates of repetition—than female students. Students whose families are poor or whose parents are less educated struggle to succeed in basic education and have high repetition rates. In contrast, students from wealthier families or with educated mothers have greater success and easier progress during basic education. These differential experiences of struggles or success during basic education translate into different chances of completing basic education, as the next section demonstrates.

*5.1.4 Who Completes Basic Education?*⁷

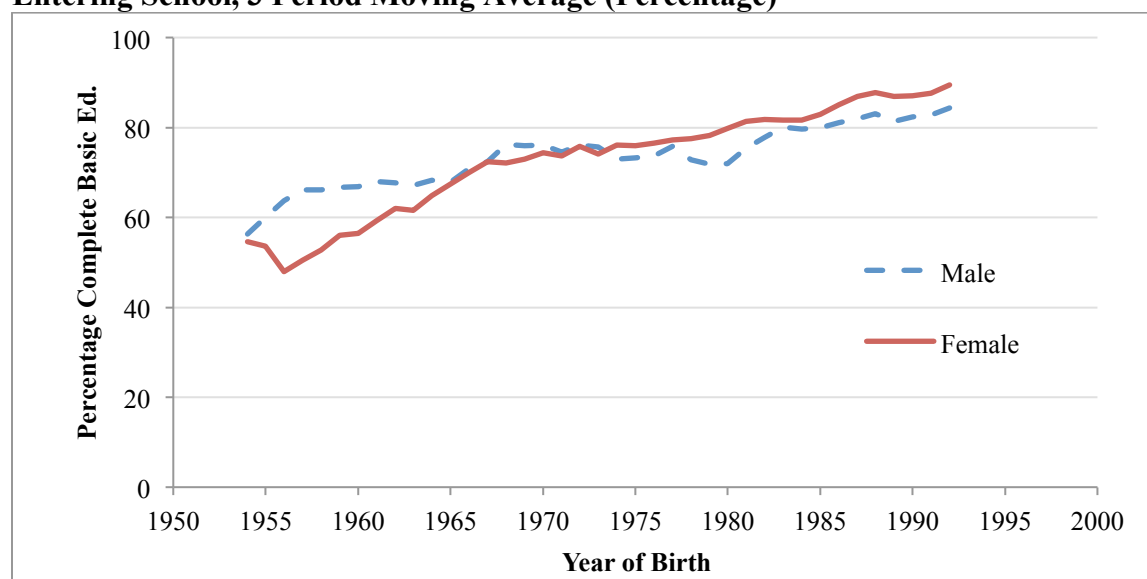
Whether or not a child completes basic education or not will depend on a number of factors. Parents (and as they become older, children) will decide whether to continue with schooling depending on whether or not the benefits or value of schooling are greater than the costs of schooling. Costs include not just the direct costs, such as fees or uniforms, but the opportunity costs of children's time. For instance, for boys, it may be possible to work at a young age, and so continuing in school imposes an opportunity cost in terms of income foregone. For

⁷ In examining basic education completion rates by cohort of birth, we focus on those born prior to 1992, and are therefore at least 20 years of age in 2012, to ensure that those who will complete have had the chance to do so. By the same logic and to have a sufficient sample size to work with, in examining current completion rates, we focus on youth who were 18 to 22 in 2012.

girls, there is an opportunity cost both in terms of domestic labor (chores), as well as potentially working in the market or engaging in subsistence production. Girls may also face a reputational cost to attending school if they have to mix with boys or be exposed to potentially unsafe public spaces on the way to school. Parents will weigh this multitude of costs against the benefits of schooling. Particularly since the quality of schooling is poor and the private returns to basic education are low (Said, 2015; Schwab, 2014; World Bank, 2008), as children age and costs rise, families may decide not to have them complete a low-value basic education.

Conditional on school entry (see Figure 2 for school entry rates), there has been a gradual increase in completion rates over time (Figure 5). The increases in both school entry and completing basic education conditional on school entry have led to a substantial increase in the chances of completing a basic education over time. While those who did enter school had a 60 percent chance of completing basic education among the cohorts born in the 1950s, younger generations of Egyptians born in the 1980s and 1990s have conditional completion rates that exceed 80 percent. Conditional on school entry, the gender gap in completion rates narrowed early on, virtually disappearing by the 1970 birth cohort. This suggests that the gender gap in completing basic education for subsequent generations was entirely due to gaps in school entry. In fact, starting with cohorts born after 1980, girls had a higher conditional basic schooling completion rate than boys. Girls' greater success in completing school, if they enter, is likely due to their better performance, including test scores (shown below) and lower rates of repetition (shown above). Girls also may face lower opportunity costs of remaining in school since they face poorer labor market prospects (Assaad & Krafft, 2015).

Figure 5. Completion of Basic Education by Gender and Year of Birth, among those ever Entering School, 3 Period Moving Average (Percentage)

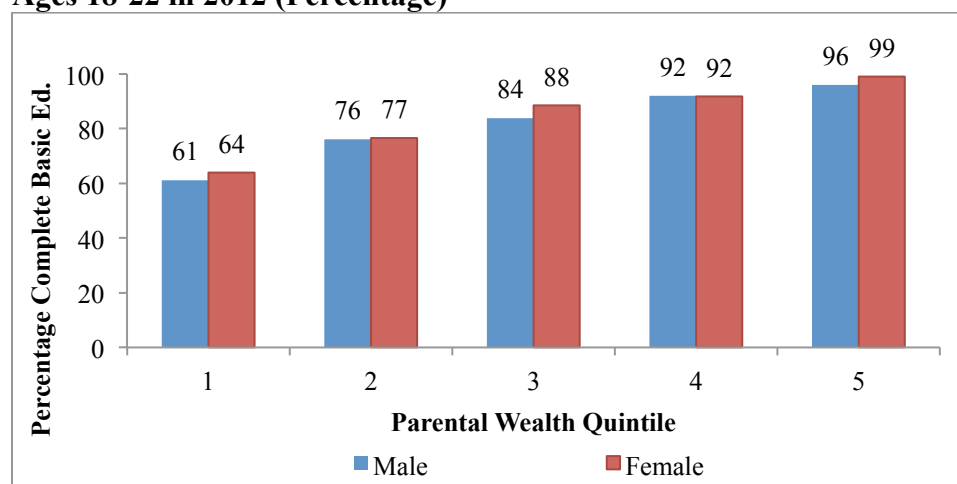


Source: Authors' calculations based on ELMPS 2012.

Basic schooling completion rates are strongly dependent on socioeconomic background. While 79 percent of all youth who were 18-22 in 2012 had completed a basic education, this rate varies substantially with parental education. Youth with mothers educated at the secondary level or university level have basic education completion rates in excess of 97 percent, as compared to a rate of 73 percent for those whose mothers have less than a secondary education. There are no appreciable gender differences in the effect of parental education on basic school completion rates.

The chance of completing basic education varies not only with parents' education and gender but also with parental wealth (Figure 6). As expected, children from richer families are more likely to complete basic education. Boys from the poorest fifth of households have approximately a 61 percent chance of completing basic education and girls a 64 percent chance, compared to nearly 100 percent for boys and girls from the richest fifth of households (Figure 6).

Figure 6. Completion of Basic Education by Sex and Parents' Wealth Quintile in 2006, Ages 18-22 in 2012 (Percentage)



Source: Authors' calculations based on ELMPS 2012.

In sum, we see young people have substantially different chances of completing basic education depending on parents' education and parental wealth. It is clear that, despite a policy of free education for all, young Egyptians face unequal chances of completing a basic, compulsory education depending on their circumstances. The current system is inadequate for providing a basic education for all, with the poor and those from less educated families facing particular disadvantage. These differential chances also translate into very different public investments, for students attending public schools. For fiscal year 2012/2013, the annual cost per student of a year of primary school was LE 2,454 and the annual cost of a year of preparatory school was LE 3,634.⁸ As students differentially attend and complete basic education, they receive differential public investments. In the next sections, we explore the role of private investments and how it may contribute to the inability of disadvantaged groups to succeed in the face of low-quality public education.

⁸ Data provided in correspondence with the Central Agency for Public Mobilization and Statistics. As of July 8, 2015, one Egyptian pound was equal to approximately US\$ 0.13.

5.2 *Use of Education Supplements*

In this section, we explore a variety of strategies parents can use to supplement public education in Egypt. Parents can assist their children with schoolwork, invest in more costly forms of schooling through the payment of tuition and fees, or invest in help groups or private tutoring for their children. If public education alone were sufficient to ensure school success, parents would not need to invest substantially in these supplementary strategies. Besides presenting descriptive statistics about the use of these alternative strategies, we discuss in this section the net effects of various circumstances on the use of education supplements based on the multivariate regressions presented in Table 1.⁹

Parents are likely to help their children with school work during the first few years of primary school (not shown). However, students receive less parental help¹⁰ as they advance through the education system. This may be due to the inability of less educated parents to help with advanced material. In the first year of primary school 65 percent of students received parental help, but only 20 percent did so by the time they reached the third year of general secondary. Students mostly receive help from their mothers. Other members of the household also chipped in to help, particularly during the last years of the basic and general secondary levels. These are the years with high stakes exams, and may be when older siblings are asked to provide study help for exams.

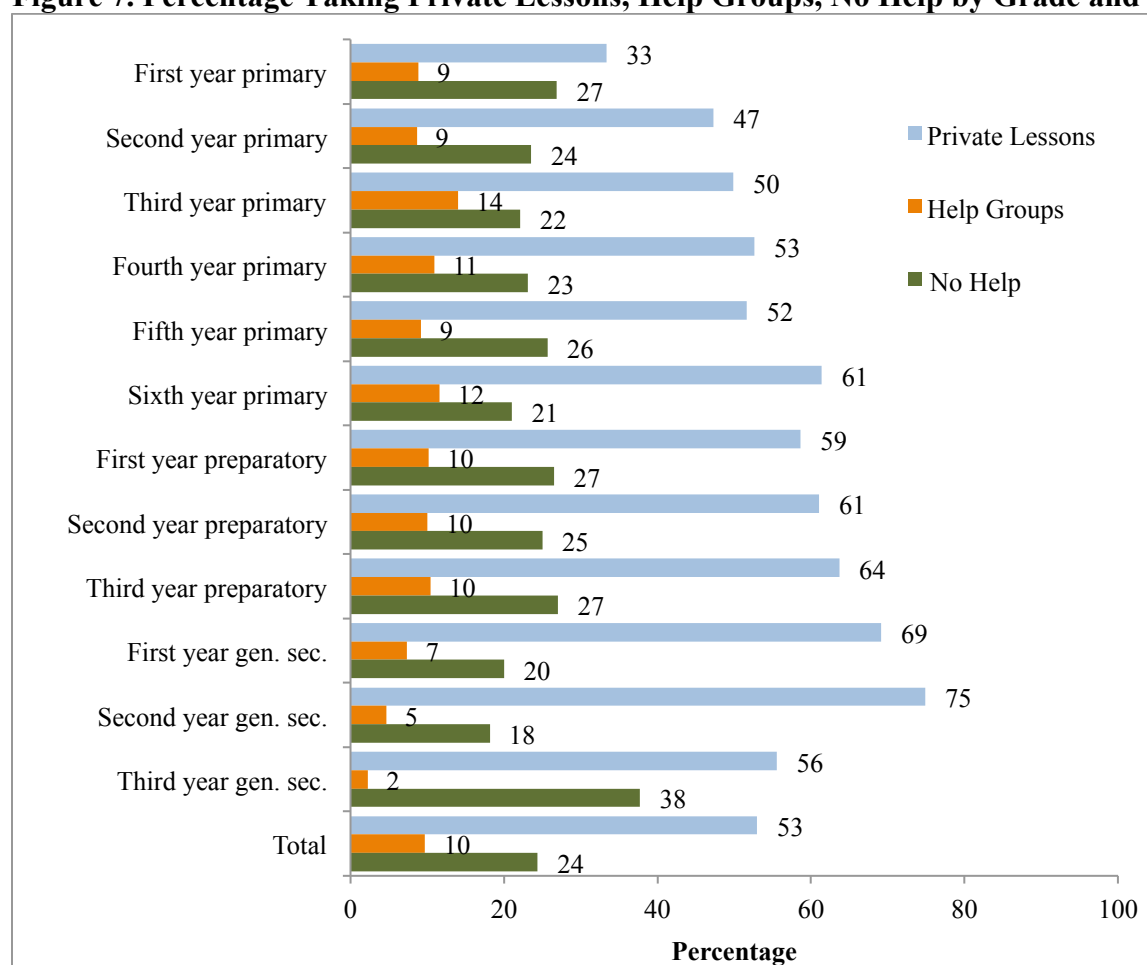
⁹ While we focus our discussion on gender and socio-economic patterns, regressions also include controls for Egypt's regions to account for potential regional differences in education supplements, such as possible differences in the supply of help groups.

¹⁰ What we refer to as parental help could also include help from other household members but, as we discuss below, it is primarily parents. The specific question was "Does a parent, sibling or relative help you with your studies?"

Private lessons become increasingly common as students advance in school. Overall, 53 percent of current students in primary, preparatory, or general secondary take private lessons, 10 percent participate in paid help groups that typically take place after hours on school premises, and 24 percent receive no help (including no parental help).¹¹ On average, the number of subjects covered in help groups and private lessons is around three subjects. Use of private lessons ranges from around 33 percent during the first year of primary to 75 percent during the second year of general secondary (Figure 7). Private lessons are common in every school year, but particularly in years with government exams, such as the sixth year of primary, the third year of preparatory and the second year of general secondary. The prevalence of private tutoring, particularly around high stakes exams, indicates the inadequacy of school alone as a mechanism for success in these exams. It also suggests a key pathway for inequality of opportunity, in that the need for tutoring around high stakes exams will exclude poorer families from succeeding and progressing.

¹¹ The questions about help groups and private lessons refer to the last academic year and the questions about parental help refer to the current year. In order to calculate the percentage of children receiving no help, parental help in the previous year is assumed to be the same as the current year.

Figure 7. Percentage Taking Private Lessons, Help Groups, No Help by Grade and Level



Source: Authors' calculations based on ELMPS 2012.

Note: School years reported are the years attended in the previous academic year for current students, which is the year for which they report the receipt of private lessons and help groups.

Help groups are not as common as private lessons mainly because they are either not available, or, if available, are perceived as not being as good as private lessons. Students who took private lessons were asked why they took private lessons and not just used the less costly help groups.¹² Half of the students who took private lessons in both the primary and preparatory levels reported that they do not have access to a help group in their school or community. That help groups were offered but were not as good as private lessons was also a common issue (36-

¹² See [working paper version of paper, citation removed for anonymous peer review] for additional information on costs.

38 percent), followed by help groups not being offered in the subjects needed (8 percent). Help groups are a lower cost alternative to private lessons, but clearly an alternative that is not as readily available, or as helpful when it is available.

Classroom teachers are also often the tutors in private lessons and help groups. This is likely to create incentives for teachers not to fully cover the necessary material in class, in order to receive fees for the assistance provided outside of class. This incentive problem has been shown in other countries to decrease learning in school and particularly harm poorer students (Jayachandran, 2014). Both private lessons and help groups are primarily taught by classroom teachers, but help groups are slightly more likely to be taught by classroom teachers than private lessons. Classroom teachers handle 80 percent or more of help groups in all basic education years except during the last year of preparatory school. Increasing from around 60 percent in the early years of primary school, classroom teachers provide 71 percent to 74 percent of private lessons for students in the final years of basic education.¹³

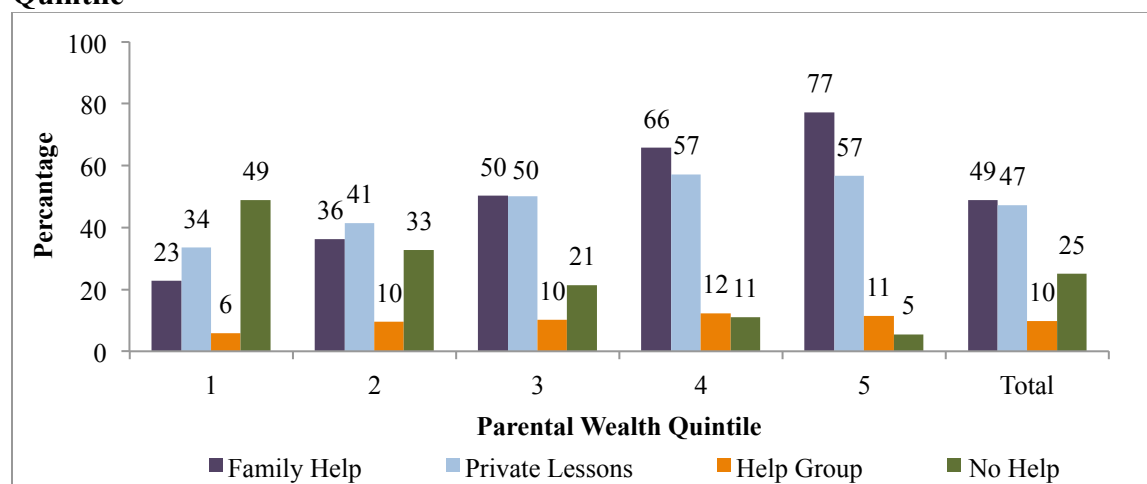
5.2.1 Who Receives Education Supplements?

Private lessons and help groups are a source of help for both poor and wealthy students, but there are substantial differences in the chances of using these supplements by wealth. Wealthier students are able to receive more family help in their studies than poorer students. Students from the poorest quintile of households have only a 23 percent chance of parental help compared with 77 percent for students belonging to the richest quintile of households (Figure 8). Moreover, around a third of students from the poorest quintile take private lessons, but almost half of them end up without any source of supplementary help. The share of students not

¹³ Private lessons are commonly taught by classroom teachers regardless of the school type in which the student is enrolled.

receiving any help drops sharply as wealth increases, to just 5 percent among those in the wealthiest quintile. Beyond the poorest quintile, around half of students receive private lessons. Help groups are a source of help for about 10 percent of students, a rate which does not vary appreciably across wealth quintiles. In the multivariate models (Table 1), there were statistically significant impacts for all wealth quintiles as compared to the poorest for parental help, private lessons, help groups, and receiving no help. The probability of no help dropped with increasing wealth, while the probability of private lessons, help groups, and parental help increased at higher wealth levels.

Figure 8. Percentage with Parental help, Private Lessons, Help Groups by Parent's Wealth Quintile



Source: Authors' calculations based on ELMPS 2012.

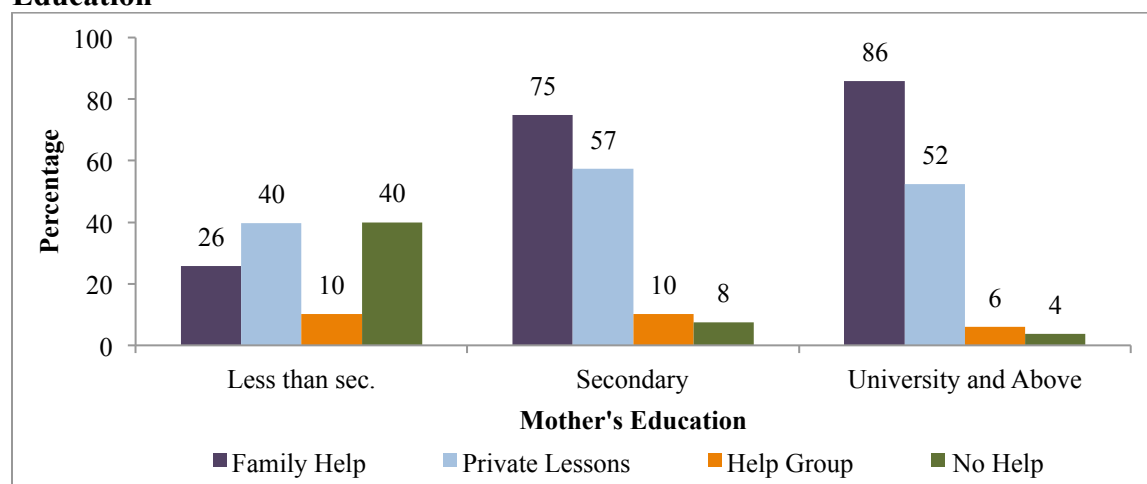
Note: Current students attending preparatory or primary schools. Parental wealth quintile is wealth quintile of current students in 2012.

Students with less educated parents are by far the most disadvantaged in terms of education supplements (Figure 9). Among students with less than secondary educated mothers, 40 percent receive no help, just 26 percent receive family help, 40 percent receive private lessons, and 10 percent attend help groups. More than half of students with mothers with secondary or higher education receive private lessons and around three quarters receive family help. Notably, for

students with secondary or higher educated parents, multiple forms of help are clearly common, including combinations of family help, help groups, and private lessons. Students with highly-educated mothers are more likely to receive family help and slightly less likely to receive private lessons compared to those with secondary educated mothers, suggesting there may be substitution of family help for private lessons among the more educated mothers.

In the multivariate regressions (Table 1), having a secondary or university educated father significantly decreased the probability of no help and increased the probability of parental help, compared to a youth with a less than secondary educated father. While a secondary educated father significantly increased the probability of private lessons, the effect for a university-educated father was not significant, and father's education had no effect on help groups. Having a mother with secondary or university education as compared to no education significantly decreased the probability of no help and increased the probability of parental help, but had no effect on private lessons. Having a university-educated mother slightly decreased the probability of help groups, suggesting some substitution of family help for help groups for children of mothers more able to provide such help. Notably, different dimensions of socio-economic status have different effects on the types of education supplements used, taking into account multiple characteristics. While wealth increases the use of all supplements, parental education affects primarily parental help and does not have large additional effects on other forms of assistance, after accounting for other characteristics.

Figure 9. Percentage with Parental Help, Private Lessons, Help Groups, by Mother's Education



Source: Authors' calculations based on ELMPS 2012.

Note: Current students attending preparatory or primary schools.

Although there are large differences in the use of education supplements by wealth and parent's education, there are essentially no differences by gender, nor are there statistically significant differences in the multivariate regression models (Table 1). There are also few differences by type of school. Those in public experimental schools are slightly more likely to receive no help than those in public regular schools, but no other school type is significantly different from regular public schools. Those in private regular schools are slightly more likely to receive parental help than those in public schools, but again no other school type is different. There are no significant differences in the probability of private lessons by school type, after accounting for other characteristics, but compared to public regular schools, every other type of school is related to a significantly lower probability of help groups.

The use of costly education supplements, particularly the use of private tutoring, is pervasive in Egypt. The common practice of teachers providing education supplements is likely to create perverse incentives, and reinforce the low quality of education in schools, requiring families to provide additional help. Families also play a key role in assisting their children with

school work, providing unequal assistance to children depending on their family background.

There are large disparities in the assistance children receive depending on their background, but even the poorest families invest in education supplements, a clear sign that supplements are often required for school success. The necessity of providing supplements indicates that young people cannot succeed in basic education simply by attending free public schools. The inadequacy of the public education system requires supplements that are particularly likely to limit opportunities for students from less privileged backgrounds.

Table 1. Regressions for Probability of Education Supplements, Current Primary or Preparatory Students

	Probability of no help	Probability of parent help	Probability of private lessons	Probability of group help
Model:	<i>Probit marginal effects</i>	<i>Probit marginal effects</i>	<i>Probit marginal effects</i>	<i>Probit marginal effects</i>
Reference probability:	0.370	0.214	0.295	0.258
Female	-0.007 (0.010)	-0.008 (0.011)	0.017 (0.013)	-0.003 (0.008)
Type of school (public regular omit.)				
Public experimental	0.106* (0.050)	0.001 (0.043)	-0.056 (0.042)	-0.089*** (0.012)
Private regular	0.023 (0.042)	0.134*** (0.040)	-0.008 (0.035)	-0.085*** (0.011)
Private language	0.074 (0.084)	-0.048 (0.056)	-0.042 (0.054)	-0.083*** (0.018)
Azhari	0.002 (0.015)	0.026 (0.017)	0.023 (0.020)	-0.053*** (0.013)
Wealth quintile (poorest omit.)				
Second	-0.079*** (0.015)	0.070*** (0.018)	0.053** (0.020)	0.028* (0.012)
Third	-0.092*** (0.016)	0.079*** (0.018)	0.086*** (0.020)	0.036** (0.013)
Fourth	-0.137*** (0.019)	0.136*** (0.021)	0.139*** (0.023)	0.032* (0.014)
Fifth	-0.159*** (0.022)	0.107*** (0.025)	0.180*** (0.026)	0.062*** (0.018)
Father's education (less than sec. omit.)				
Secondary	-0.105*** (0.014)	0.164*** (0.017)	0.042* (0.017)	-0.002 (0.011)
University	-0.139*** (0.020)	0.201*** (0.026)	0.016 (0.024)	-0.023 (0.014)
Mother's education (less than sec. omit.)				
Secondary	-0.155*** (0.016)	0.313*** (0.019)	0.029 (0.018)	-0.015 (0.012)
University	-0.163*** (0.023)	0.371*** (0.031)	-0.035 (0.029)	-0.047** (0.016)
Region (Greater Cairo omit.)				
Alex. and Suez Canal	0.066* (0.023)	-0.034 (0.031)	0.041 (0.029)	-0.167*** (0.016)

	Probability of no help	Probability of parent help	Probability of private lessons	Probability of group help
Model:	<i>Probit marginal effects</i>	<i>Probit marginal effects</i>	<i>Probit marginal effects</i>	<i>Probit marginal effects</i>
Reference probability:	0.370	0.214	0.295	0.258
	(0.031)	(0.030)	(0.033)	(0.026)
Urban Lower Egypt	-0.033	0.000	0.272***	-0.201***
	(0.025)	(0.028)	(0.029)	(0.024)
Urban Upper Egypt	0.173***	-0.067*	-0.061*	-0.229***
	(0.024)	(0.026)	(0.028)	(0.024)
Rural Lower Egypt	-0.004	-0.041	0.198***	-0.174***
	(0.022)	(0.025)	(0.027)	(0.024)
Rural Upper Egypt	0.246***	-0.111***	-0.139***	-0.221***
	(0.023)	(0.026)	(0.028)	(0.024)
N (Observations)	7972	7972	7972	7972

Source: Authors' calculations based on ELMPS 2012.

*p<0.05, **p<0.01, ***p<0.001

Notes: Regressions for probability are based on probit models. Marginal effects are presented here.

Reference values are the probability when all categorical covariates are set to the reference, omitted category.

In order to explicitly test the potential tradeoffs between different types of education supplements, we estimated bivariate probit models. These models allow for tests of the relationship (correlation (ρ)) between different help strategies. The results are presented in Table 2. Although there is not a statistically significant relationship between parent help and help groups, there are significant tradeoffs (negative correlations) between parent help and private lessons, and particularly private lessons and help groups. These negative correlations indicate that parents see these strategies as substitutes for each other controlling for ability to pay and other characteristics. In summary, after accounting for other factors, there is no apparent tradeoff between parental help and help groups. Parental help and private lessons are clear substitutes, as are private lessons and help groups. This implies that providing additional help groups might potentially reduce the reliance on private lessons.

Table 2. Correlation (Rho) Between Different Help Strategies (Based on Bivariate Probits)

Relationship	Correlation (Rho)	Significance
Parent Help & Private Lessons	-0.167	***
Parent Help & Help Groups	0.040	
Private Lessons & Help Groups	-0.291	***

Source: Authors' calculations based on ELMPS 2012.

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

5.3 Education Outcomes

In this section, we examine two important education outcomes in Egypt: test scores and tracking into general secondary versus vocational secondary at the end of the basic education stage. Test scores demonstrate whether students have mastered the material required to pass a level. We examine students' performance on the exams taken during their sixth year of primary and third year of preparatory in Egypt. The preparatory exam is particularly high-stakes, as it determines whether students can access general secondary (university-track) or vocational secondary (which is almost always a terminal degree). Additionally, we present in Table 3 multivariate regression models for preparatory test scores, the probability of entering the general secondary track, and the probability of entering the general secondary track after accounting for test scores. Theoretically, only test scores should determine tracking into general or vocational secondary, although test scores might be affected by students' background.

5.3.1 Test Scores in Egypt

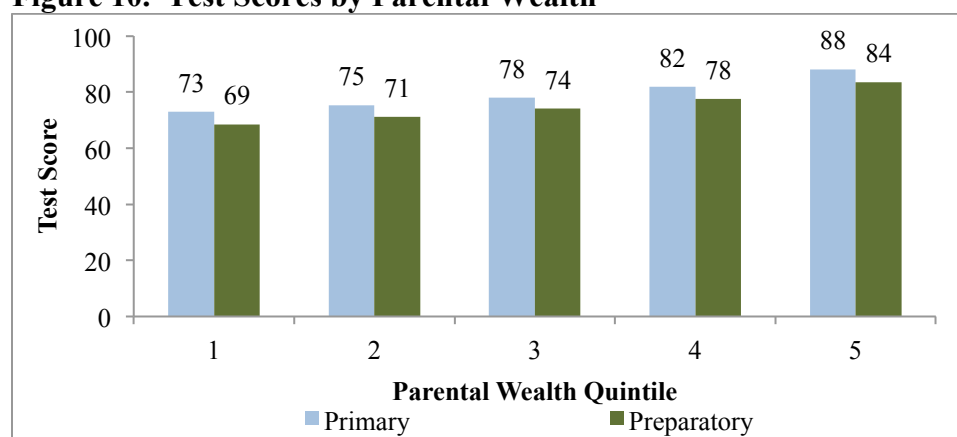
Primary students have slightly higher averages on their exams compared with preparatory students. Primary test scores averaged 80 on a scale of 100, compared with the mean of 76

achieved by preparatory students.¹⁴ Only a few students, about 4-5 percent, did not sit or failed in the exam. However, around half of students reported that they do not know their exam scores for both the primary (54 percent) and preparatory (43 percent) stages. For the remainder of the section, we report results based on only those who report a numerical score. Girls performed slightly better than boys in both levels. Scores of female students averaged 81 and 77 in their final primary and preparatory years, respectively, a 2-point advantage over the mean score of male students in the same years. In the multivariate models, although females averaged 1.5 point higher scores, the differences were not statistically significant (Table 3).

There is a strong relationship between test scores and household wealth, a reflection of the greater resources wealthier families can draw upon to assist their children to succeed in school. Figure 10 shows a clear pattern of higher scores for students from wealthier households. Mean scores for primary students belonging to the wealthiest quintile of households reached 88, a 15-point advantage over the mean score of students from the poorest quintile of households. Preparatory students from the wealthiest quintile of households, who scored an average of 84, had the same 15-point advantage over preparatory students from the poorest quintile of households. After accounting for other characteristics (Table 3) test scores were higher for every other wealth level compared to the poorest, but differences were significant only for the fourth (4.7 points higher) and fifth (8.2 points higher) wealth quintiles.

¹⁴ Test scores are for ages 13-17 for primary level and ages 16-19 for preparatory level

Figure 10. Test Scores by Parental Wealth



Source: Authors' calculations based on ELMPS 2012.

Note: Ages 13-17 for primary level and ages 16-19 for preparatory level.

Mother's education is also positively related to student performance. Students with university-educated mothers reached mean scores of 91 and 87 in the primary and preparatory exams, respectively. However, students with less than secondary-educated mothers scored 15 points less, on average, in both exams. Having more educated parents is significantly related to test scores even after accounting for other characteristics (Table 3). Compared to those with fathers with less than secondary education, those with secondary educated fathers had test scores that were higher by 4.6 points and those with university-educated fathers had test scores higher by 8.7 points. There were not significant differences comparing secondary educated mothers to mothers with a less than secondary education, but mothers with a university education were associated with a 3.6-point increase in test scores.

Students going to the more common regular public and Azhari schools also have the weakest performance in exams with mean scores around or below 80, compared with those attending public experimental and private schools whose mean scores average at least 87; however this difference is likely due to only the most educated and wealthy families, who are high-scoring anyway, sending their children to these schools.

5.4 Tracking into General Secondary versus Vocational Secondary

One of the most important measures of success in the basic education stage is whether or not a child is then able to track into general secondary education or relegated to the inferior vocational secondary track. Although providing vocational secondary education is touted globally as having a strong economic rationale, the global evidence does not support vocational secondary as superior to general secondary education (Bennell, 1996; Kahyarara & Teal, 2008; Moenjak & Worswick, 2003; Newhouse & Suryadarma, 2011; Pugatch, 2014). The vocational secondary track in Egypt can be characterized as inferior on a number of grounds. Vocational secondary is attended by students with lower test scores in preparatory; only those who have high test scores can attend general secondary and subsequently higher education. Vocational secondary is poorly regarded by society and employers (OECD/The World Bank, 2010; World Bank, 2013), in part because the skills and equipment used tend to be outdated, instructors are poorly trained, and connections to the private sector are weak (OECD/The World Bank, 2010; UNDP & Institute of National Planning, 2010). As a result, only a minority of attendees report receiving hands-on training that was useful in the labor market (Krafft, 2012). Because of the poor quality of their education, recent vocational secondary graduates earn no higher wages than those with lower levels of schooling (El-Araby, 2013; Krafft, 2013). Those who go on to general secondary and then higher education do ultimately obtain better jobs and higher wages (Assaad & Krafft, 2014; El-Araby, 2013; Krafft, 2013; Salehi-Isfahani, Tunali, & Assaad, 2009). Thus, attending general as opposed to vocational secondary, for those who continue on for secondary education, represents a highly desirable outcome.

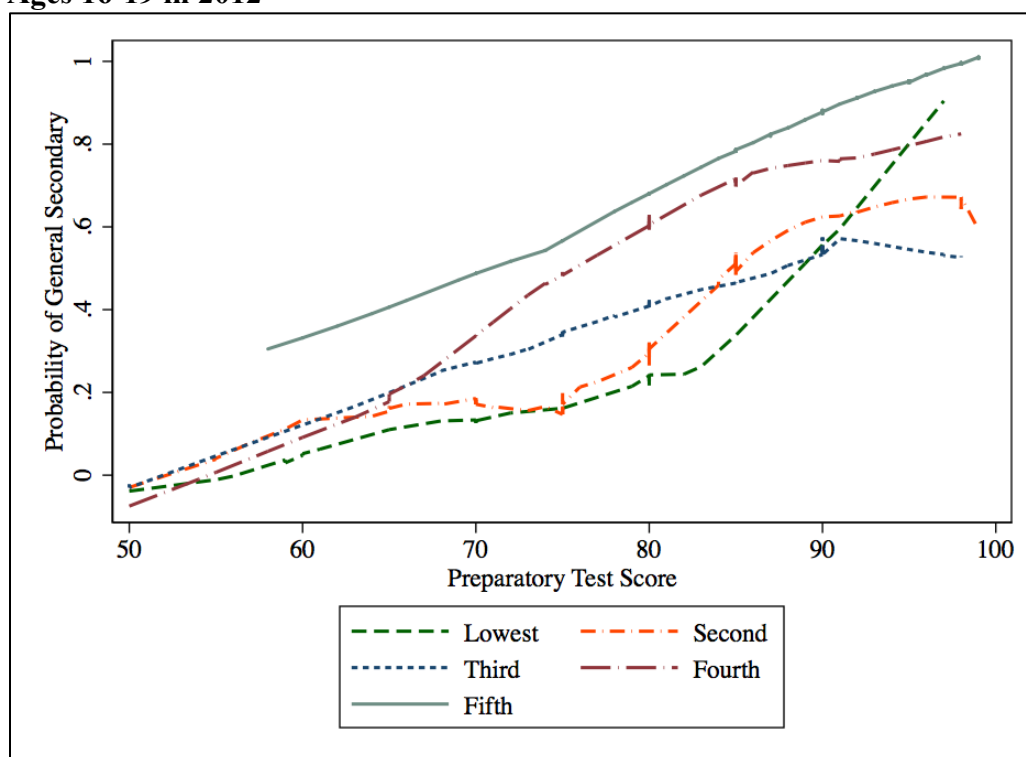
This section investigates the chances of attending general secondary as an outcome of the basic education stage. The average chance of attending general secondary (among those attending secondary) is 44 percent. The probability of tracking into general secondary is significantly higher for females than males by 8.5 percentage points, but this difference disappears once test scores have been accounted for (Table 3).

There are significant differences in the probability of entering the general secondary track by wealth (significant for third through fifth wealth levels as compared to the poorest), a difference as high as 27.1 percentage points for the richest fifth of households compared to the poorest fifth. Even at the same test scores, wealthier students have higher chances of general secondary. Figure 11 shows the observed probabilities of attending general secondary by scores in the preparatory exam for students from different wealth levels. Children from the richest quintile of households clearly have an advantage in accessing general secondary education over other students. For the wealthiest quintile of students, the probability of attending general secondary school is substantially higher than the rest even when they achieve the same test scores. The gap is particularly striking among students with low scores. At scores of 60 a student from the wealthiest quintile of households still has a 30 percent probability of attending general secondary school. In contrast, students belonging to the first to the fourth quintile with scores around 60 have little chance of making it to general secondary.

For all but the wealthiest students with scores below 65, there are no notable differences in the probabilities of attending general secondary school. However, for those who reach the cut-off score of 70, the chances of getting into general secondary vary, with those from the third and fourth quintiles gaining higher chances of attending general secondary schools than those from the bottom two quintiles. In the case of the least wealthy students, the probability of accessing

general secondary level only increases substantially when they reach scores above 80. After accounting for test scores (Table 3), the fourth and fifth wealth levels have significantly higher chances of general secondary, as high as a 25.1 percentage point increase for the richest fifth of households as compared to the poorest fifth. Because a one point higher preparatory score increases the probability of general secondary by 1.3 percentage points, a student from the poorest fifth of households would have to get a twenty point higher test score to have the same probability of general secondary as a student from the richest fifth of households.

Figure 11. Wealth, Test Scores, and Probability of Entering the General Secondary Track, Ages 16-19 in 2012



Source: Authors' calculations based on ELMPS 2012.

There are also significant differences by parents' education, comparing both secondary and university educated mothers and fathers to less than secondary educated parents before

accounting for test scores. After accounting for test scores, there are not significant differences for secondary educated mothers or fathers, but the probability of general secondary is significantly higher with a university educated father (14.2 percentage points) or mother (21.4 percentage points). Overall, family background impacts not just school performance, but secondary tracking even after accounting for performance.

Table 3. Regression models for test scores and type of secondary, Ages 16-19 in 2012

	Preparatory score	Probability of general secondary	Probability of general secondary (with test scores)
Model:	<i>OLS</i>	<i>Probit marginal effects</i>	<i>Probit marginal effects</i>
Reference value:	71.99	0.152	0.247
Female	1.483 (0.800)	0.085*** (0.022)	0.062 (0.032)
Wealth quintile (poorest omit.)			
Second	1.943 (1.651)	0.040 (0.036)	0.091 (0.067)
Third	2.900 (1.635)	0.093* (0.038)	0.125 (0.072)
Fourth	4.656** (1.718)	0.138*** (0.038)	0.187** (0.067)
Fifth	8.230*** (1.927)	0.271*** (0.048)	0.251*** (0.076)
Father's education (less than sec. omit.)			
Secondary	4.608*** (1.192)	0.159*** (0.032)	0.068 (0.044)
University	8.721*** (1.517)	0.347*** (0.055)	0.142* (0.066)
Mother's education (less than sec. omit.)			
Secondary	2.182 (1.302)	0.119*** (0.034)	0.030 (0.043)
University	3.562* (1.701)	0.330*** (0.080)	0.214* (0.085)
Region (Greater Cairo omit.)			
Alex. and Suez Canal	-1.698 (1.651)	-0.077 (0.051)	-0.092 (0.060)
Urban Lower Egypt	0.690 (1.332)	-0.037 (0.046)	-0.022 (0.054)
Urban Upper Egypt	0.099 (1.150)	0.010 (0.046)	0.071 (0.054)
Rural Lower Egypt	2.017 (1.228)	-0.072 (0.043)	-0.026 (0.048)
Rural Upper Egypt	-4.033** (1.375)	-0.088 (0.047)	-0.011 (0.064)
Preparatory Score			0.013*** (0.001)
Constant	71.199***		

	(1.700)		
N (Observations)	994	2114	785

Source: Authors' calculations based on ELMPS 2012.

*p<0.05, **p<0.01, ***p<0.001

Notes: Regressions for probability are based on probit models. Marginal effects are presented here.

Reference values are the test scores or probability of general secondary when all categorical covariates are set to the reference, omitted category. The reference value is simply the constant for the OLS model. In the model for general secondary including test scores, the reference value is for all categorical covariates set to the reference and test scores as observed.

6. Conclusions and Policy Recommendations

Free basic education in Egypt is failing Egyptian children. A policy of free education, designed to promote opportunities for children, has led to a distorted system where there is substantial inequality in succeeding in basic education depending on a child's family circumstances. With an under-funded basic education system, children are not guaranteed success through school alone. Substantial expenditures on basic education supplements, particularly private tutoring, are often necessary to succeed. These expenditures further exacerbate the unequal chances students of different backgrounds are facing for school success. Children from wealthier and more educated families have much higher chances of attending private schools and receiving education supplements such as tutoring. This contributes to further inequality in not just completion of basic education, but unequal performance on tests and unequal access to general secondary and thus higher education.

The current system is clearly not meeting its goals of providing equitable and adequate education for Egyptian children. The failure of the public education system to provide quality education equitably to young people has contributed to the sense of social injustice articulated in the January 25th, 2011 revolution in Egypt. While Egypt, like other Arab countries, rapidly expanded its education system, raising youth expectations, rising education levels were met with diminishing opportunities in the labor market (Assaad & Krafft, 2014; Campante & Chor, 2012). Attempts to secure quality education and quality jobs through additional education investments

have also been largely fruitless (Assaad, Krafft, & Salehi-Isfahani, 2014; Assaad & Krafft, 2014). As with other areas of human development in Egypt and much of the Middle East and North Africa region (Assaad, Krafft, Hassine, & Salehi-Isfahani, 2012; Assaad, Salehi-Isfahani, & Hendy, 2014; El-Kogali & Krafft, 2015; Ersado & Aran, 2014; Krafft & El-Kogali, 2014; Salehi-Isfahani, Hassine, & Assaad, 2014), inequalities in education are limiting human rights, preventing the equitable development of individuals' capabilities, and precluding social justice.

The problems within the education system are complex, and no single policy can address them all. However, a series of reforms targeting school financing, altering the incentives schools and educators face, and providing support to students in need can make a substantial difference in both education quality and equality within the education system.

How education is funded in Egypt needs to undergo substantial changes. Despite substantial public spending, all levels of education are underfunded. As it stands, young people cannot succeed with free basic education alone. Education is supposed to receive a greater public investment per the new Egyptian constitution (Egypt State Information Service, 2014). Particularly given rising demographic pressures (Krafft & Assaad, 2014; Youssef, Osman, & Roudi-Fahimi, 2014), further investments may be needed to improve equity and quality.

There are also some important opportunities even within education system funding to address equity. Currently, spending increases with the level of education. Yet access decreases at higher levels. For instance, while just 9 of young people from the poorest fifth of households attend university, 80 percent of young people from the richest fifth of households go to university (Assaad, 2013). This pattern makes education spending, particularly public spending on higher education, extremely regressive (Assaad, 2013; El-Baradei, 2013). The cost structure must change. Higher education should no longer be free of charge; students and families should

contribute a large share of the costs of higher education, with scholarships for those who can demonstrate financial need and merit. Savings from the higher education budget should be directed towards basic education, including pre-primary education, which is currently *not* available to all free of charge (UNESCO International Bureau of Education, 2006), unlike every other level of schooling, and where there is substantial inequality of opportunity (Krafft & El-Kogali, 2014). Easing regulations on private schools and encouraging growth and competition among private schools—which wealthy families are more likely to use—could also allow the rich to opt out of the public school system and free up public resources to improve basic education for less wealthy students. Such savings could enable the government to increase investments in basic education quality.

The need for families to invest in private supplements to education is unlikely to be resolved solely by channeling additional resources into the existing system. Additional investments in education can have wildly varying effects on education outcomes depending on the nature of the investments (Glewwe, Hanushek, Humpage, & Ravina, 2013; Kremer, Brannen, & Glennerster, 2013; McEwan, 2014). Raising teachers' salaries within schools may help to address the strong incentives for teachers to provide private tutoring to their own students, and its damaging effect on opportunities and learning. Simply prohibiting teachers from tutoring their students is unlikely to be enforceable or effective. Teachers' and schools' incentives need to be addressed more directly. Stronger incentives and organizational changes may be more effective than additional resources; an experiment in Kenya found that approximately halving the pupil-teacher ratio had little impact on test scores, but using local teachers on short contracts and training school committees led to significant improvements in test scores (Duflo, Dupas, & Kremer, 2009).

Although frequently advocated, direct financial incentives targeting teachers (performance payments) have shown mixed impacts globally, with impacts on student outcomes that range from small to impressive (Glewwe, Ilias, & Kremer, 2010; Lavy, 2009; Sojourner, Mykerezi, & West, 2014; Springer, Ballou, Hamilton, et al., 2010; Sundararaman, 2011). While worth testing in Egypt, rewards and incentives need to be structured very carefully so the policy does not result in perverse effects, such as teaching to only the best students, or teachers being unwilling to work in poorer areas because, in the absence of educated parents at home, students may improve less. Having meaningful measures of student success is also very important in designing teacher incentives. A randomized study of the effectiveness of teacher incentives in Kenya found that, while incentives caused increases in the tests for which teachers were rewarded, this was primarily driven by increases in multiple-choice-question scores, and did not correspond to improvements on other exams (Glewwe, Ilias, & Kremer, 2010). Thus the design of incentives and how learning and gains are measured are both extremely important to whether incentives will substantially improve learning (Mizala & Romaguera, 2004).

Additional accountability can be achieved by making both schools and teachers more accountable to parents and local communities for their performance. Egypt's education system is highly centralized. Decentralizing authority and resources to local school districts or school boards is often touted as a key reform to increase accountability and improve outcomes (El Baradei, 2015; World Bank, 2008). For instance, local authority to fire teachers who limit their teaching during the school day in order to receive private tutoring income (Ille, 2015; Jayachandran, 2014) could help address linked quality and equity issues in basic education. Decentralization is not a panacea; a randomized evaluation of four different interventions to strengthen school committees in Indonesia found that grants and training had little effect, but that

linking the school committee to the village council and democratic elections of school committee members significantly improved test scores (Pradhan, Suryadarma, Beatty, et al., 2011).

Involving parents in school-based management committees in rural Mexico reduced grade failure and grade repetition (Gertler, Patrinos, & Rubio-Codina, 2008). While in Argentina, decentralization measures improved overall outcomes (Galiani, Gertler, & Schargrotsky, 2008), they did not help the poor, but in Bolivia decentralization helped the poorest areas by increasing their resources (Faguet & Sánchez, 2008). Context and design of decentralization measures determines their effectiveness. Decentralization does not necessarily improve education outcomes and quality, and its effects are contingent on local capacities, policy design, and complementary and supportive resources (Chapman, Barcikowski, Sowah, Gyamera, & Woode, 2002; Chikoko, 2009; de Guzman, 2007; El Baradei, 2015; Gershberg, Meade, & Andersson, 2009). Any attempt to implement decentralization reforms in Egypt should draw on the richness of international experience on what is and is not effective.

Addressing some of the quality problems in basic education, such as poor funding and teacher and school incentives, will help equalize opportunities for students to some extent. However, additional targeted policy measures need to address children's unequal opportunities directly. Education policies play an important role in educational inequality and later in labor market inequalities. One study found that the policy that can lead to the largest reduction in education inequality is public pre-primary education (Checchi & van de Werfhorst, 2014). More must be done in Egypt to ensure children enter school on equal footing, and early childhood programs such as pre-primary education play a particularly important role in equalizing opportunities. For instance, an early childhood program in Indonesia reduced the achievement gap between rich and poor children when they entered school (Jung & Hasan, 2014).

Besides policies that help place children on equal footing before they start basic education, policies that help struggling and disadvantaged students during the school years are important. Policies and programs must address and compensate for poor home environments and ensure that students have all the help they need to master material. Programs for students who have poor performance and who are at risk of failure or dropout can take a number of forms. Special instruction for children who are failing is one important element of addressing inequality. Additional or special instruction can be extra time after school, extra days of school during breaks or summer, or targeted help during the school day. Targeted additional instruction helped address repetition and dropout and improved educational outcomes in Latin America (Randall & Anderson, 1999). Remedial tutoring for struggling students can be extremely cost effective. A remedial tutoring program in India targeting students struggling with basic numeracy and literacy used young women from the community to deliver tutoring by taking students out of class for tutoring during the school day. The program had a large impact on learning outcomes (Banerjee, Cole, Duflo, & Linden, 2007). Particularly in the context of Egypt, where mastery of the material during the normal school day is difficult in the face of private tutoring, public or publicly funded programs that provide additional instructional time to disadvantaged or struggling students are important.

Moving forward, Egypt must take a number of steps in order to ensure that students have equal chances to succeed in basic education regardless of their background. Shifting funding from higher education, by imposing cost sharing at that level, could provide substantial additional resources for basic education. Additional spending on education is also planned; the constitution of January 2014 mandates that pre-university education spending be 4 percent of the gross national product (Egypt State Information Service, 2014), an increase over current levels

(El-Baradei, 2013). The additional funds for education should be, at least in part, managed at the local school level by parent committees to strengthen incentives and accountability.

The quality of basic education in Egypt is very low, and this is reflected in the poor ranking of Egypt's education in comparison to other countries (Schwab, 2014), as well as essentially zero returns to basic education in the labor market (Said, 2015). Families often must invest in substantial additional expenditures in order to ensure their children can succeed in school; so-called "free" basic education in Egypt is a myth. Children face low and unequal chances of school success as a result of the low quality, inefficiencies, and incentive problems within the school system. Improving the quality of basic education and addressing inequality in school success will require a concerted effort on a number of fronts, but is vital to the development of Egypt and the future of Egyptian youth.

Acknowledgments

The authors acknowledge the funding support of the Egyptian Center for Economic Studies for this project. The findings, interpretations, and conclusions are the authors' own. The authors are grateful for the able research assistance of Iloila Tan and the assistance, questions, comments and suggestions provided by the Egyptian Center for Economic Studies staff.

References

- Assaad, R. (2013). Equality for All? Egypt's Free Public Higher Education Policy Breeds Inequality of Opportunity. In A. Elbadawy (Ed.), *Is There Equality of Opportunity under Free Higher Education in Egypt? (Arabic)*. New York, NY: Population Council.
- Assaad, R. (2014). Making Sense of Arab Labor Markets: The Enduring Legacy of Dualism. *IZA Journal of Labor & Development*, 3(1), 1–25.
- Assaad, R., & Krafft, C. (2013). The Egypt Labor Market Panel Survey: Introducing the 2012 Round. *IZA Journal of Labor & Development*, 2(8), 1–30.
- Assaad, R., & Krafft, C. (2014). *Youth Transitions in Egypt: School, Work, and Family Formation in an Era of Changing Opportunities*. Silatech Working Paper No. 14-1. Doha, Qatar: Silatech.
- Assaad, R., & Krafft, C. (2015). The Evolution of Labor Supply and Unemployment in The Egyptian Economy: 1988-2012. In R. Assaad & C. Krafft (Eds.), *The Egyptian Labor Market in an Era of Revolution* (pp. 1–26). Oxford, UK: Oxford University Press.
- Assaad, R., Krafft, C., Hassine, N. B., & Salehi-Isfahani, D. (2012). Inequality of Opportunity in Child Health in the Arab World and Turkey. *Middle East Development Journal*, 4(2), 1–37.
- Assaad, R., Krafft, C., & Salehi-Isfahani, D. (2014). *Does the Type of Higher Education Affect Labor Market Outcomes? A Comparison of Egypt and Jordan*. Economic Research Forum Working Paper Series No. 826. Cairo, Egypt.
- Assaad, R., Salehi-Isfahani, D., & Hendy, R. (2014). *Inequality of Opportunity in Educational Attainment in Middle East and North Africa: Evidence from Household Surveys*. Economic Research Forum Working Paper Series No. 834. Cairo, Egypt.
- Banerjee, A. V., Cole, S., Duflo, E., & Linden, L. (2007). Remedying Education: Evidence from Two Randomized Experiments in India. *The Quarterly Journal of Economics*, 122(3), 1235–1264.
- Bennell, P. (1996). General versus Vocational Secondary Education in Developing Countries: A Review of the Rates of Return Evidence. *Journal of Development Studies*, 33(2), 230–247.
- Binzel, C. (2011). *Decline in Social Mobility: Unfulfilled Aspirations among Egypt's Educated Youth*. IZA Discussion Paper Series No. 6139. Bonn, Germany.
- Binzel, C., & Carvalho, J. (2013). *Education, Social Mobility and Religious Movements: A Theory of the Islamic Revival in Egypt*. IZA Discussion Paper Series No. 7259. Bonn, Germany.
- Bray, M. (2003). *Adverse Effects of Private Supplementary Tutoring: Dimensions, Implications and Government Responses*. Paris, France: International Institute for Educational Planning.
- Bray, M., Zhan, S., Lykins, C., Wang, D., & Kwo, O. (2014). Differentiated Demand for Private Supplementary Tutoring: Patterns and Implications in Hong Kong Secondary Education. *Economics of Education Review*, 38, 24–37.
- Campante, F. R., & Chor, D. (2012). Why Was the Arab World Poised for Revolution? Schooling, Economic Opportunities, and the Arab Spring. *Journal of Economic Perspectives*, 26(2), 167–188.

- Chapman, D., Barcikowski, E., Sowah, M., Gyamera, E., & Woode, G. (2002). Do Communities Know Best? Testing a Premise of Educational Decentralization: Community Members' Perceptions of Their Local Schools in Ghana. *International Journal of Educational Development*, 22(2), 181–189.
- Checchi, D., & van de Werfhorst, H. G. (2014). *Educational Policies and Income Inequality*. IZA Discussion Paper Series No. 8222. Bonn, Germany.
- Chikoko, V. (2009). Educational Decentralisation in Zimbabwe and Malawi: A Study of Decisional Location and Process. *International Journal of Educational Development*, 29(3), 201–211.
- Cogan, J. J., & Morris, P. (2001). The Development of Civics Values: An Overview. *International Journal of Educational Research*, 35(1), 1–9.
- Dang, H. A. (2007). The Determinants and Impact of Private Tutoring Classes in Vietnam. *Economics of Education Review*, 26(6), 683–698.
- De Guzman, A. B. (2007). Chronicling Decentralization Initiatives in the Philippine Basic Education Sector. *International Journal of Educational Development*, 27(6), 613–624.
- Duflo, E., Dupas, P., & Kremer, M. (2009). *Additional Resources versus Organizational Changes in Education: Experimental Evidence from Kenya*. Unpublished manuscript. Abdul Latif Jameel Poverty Action Lab (JPAL), Cambridge, Mass.: Massachusetts Institute of Technology.
- Edmonds, E. V. (2008). Child Labor. In T. P. Schultz & J. A. Strauss (Eds.), *Handbook of Development Economics* (Vol. 4, pp. 3607–3709). Elsevier B.V.
- Egypt State Information Service. (2014). Constitution of The Arab Republic of Egypt (English Translation). Retrieved November 11, 2014 from <http://www.sis.gov.eg/Newvtr/Dustor-en001.pdf>
- El Baradei, L. (2015). *The Case for Decentralization as a Tool for Improving Quality in Egyptian Basic Education*. Egyptian Center for Economic Studies Working Paper No. 180. Cairo, Egypt.
- El-Araby, A. (2013). Economics of Egypt's Tertiary Education - Public Versus Private and Fairness and Efficiency Considerations. In A. Elbadawy (Ed.), *Is There Equality of Opportunity under Free Higher Education in Egypt? (Arabic)*. New York, NY: Population Council.
- El-Baradei, M. (2013). Inequality of Opportunity in Higher Education in Egypt: Indicators and Explanations. In A. Elbadawy (Ed.), *Is There Equality of Opportunity under Free Higher Education in Egypt? (Arabic)*. New York, NY: Population Council.
- El-Kogali, S., & Krafft, C. (2015). *Expanding Opportunities for the Next Generation: Early Childhood Development in the Middle East and North Africa*. Washington, DC: World Bank.
- Elbadawy, A. (2015). Education in Egypt: Improvements in Attainment, Problems with Quality and Inequality. In R. Assaad & C. Krafft (Eds.), *The Egyptian Labor Market in an Era of Revolution* (pp. 127–146). Oxford, UK: Oxford University Press.
- Ersado, L., & Aran, M. (2014). *Inequality of Opportunity Among Egyptian Children*. World Bank Policy Research Paper No. 7026. Washington, DC: World Bank.
- Faguet, J. P., & Sánchez, F. (2008). Decentralization's Effects on Educational Outcomes in Bolivia and Colombia. *World Development*, 36(7), 1294–1316.

- Filmer, D., & Pritchett, L. (2001). Estimating Wealth Effects Without Expenditure Data--Or Tears: An Application to Educational Enrollments in States of India. *Demography*, 38(1), 115–132.
- Galiani, S., Gertler, P., & Schargrodsky, E. (2008). School Decentralization: Helping the Good Get Better, but Leaving the Poor behind. *Journal of Public Economics*, 92(10-11), 2106–2120.
- Gershberg, A. I., Meade, B., & Andersson, S. (2009). Providing Better Education Services to the Poor: Accountability and Context in the Case of Guatemalan Decentralization. *International Journal of Educational Development*, 29(3), 187–200.
- Gertler, P., Patrinos, H., & Rubio-Codina, M. (2008). *Empowering Parents to Improve Education: Evidence from Rural Mexico*. World Bank Policy Research Paper No. 3935. Washington, DC.
- Glaeser, E. L., Ponzetto, G. A. M., & Shleifer, A. (2007). Why Does Democracy Need Education? *Journal of Economic Growth*, 12(2), 77–99.
- Glewwe, P., Hanushek, E. A., Humpage, S., & Ravina, R. (2013). School Resources and Educational Outcomes in Developing Countries: A Review of the Literature from 1990 to 2010. In P. Glewwe (Ed.), *Education Policy in Developing Countries* (pp. 13–64). Chicago, IL: University of Chicago Press.
- Glewwe, P., Ilias, N., & Kremer, M. (2010). Teacher Incentives. *American Economic Journal: Applied Economics*, 2(3), 205–227.
- Hanushek, E. A., Lavy, V., & Hitomi, K. (2008). Do Students Care about School Quality? Determinants of Dropout Behavior in Developing Countries. *Journal of Human Capital*, 2(1), 69–105.
- Ille, S. (2015). *Contrived Private Tutoring in Egypt: Quality Education in a Deadlock between Low Income, Status and Motivation*. Egyptian Center for Economic Studies Working Paper No. 178. Cairo, Egypt.
- Jayachandran, S. (2014). Incentives to Teach Badly: After-School Tutoring in Developing Countries. *Journal of Development Economics*, 108, 190–205.
- Jensen, R. (2010). The (Perceived) Returns to Education and the Demand for Schooling. *The Quarterly Journal of Economics*, 125(2), 515–548.
- Jung, H., & Hasan, A. (2014). *The Impact of Early Childhood Education on Early Achievement Gaps: Evidence from the Indonesia Early Childhood Education and Development (ECED) Project*. World Bank Policy Research Working Paper No. 6794. Washington, DC.
- Kahyarara, G., & Teal, F. (2008). The Returns to Vocational Training and Academic Education: Evidence from Tanzania. *World Development*, 36(11), 2223–2242.
- Krafft, C. (2012). *Challenges Facing the Egyptian Education System: Access, Quality, and Inequality*. SYPE Policy Brief No. 2. New York, NY: Population Council.
- Krafft, C. (2013). *Is School the Best Route to Skills: Returns to Vocational School and Vocational Skills in Egypt*. Minnesota Population Center Working Paper Series No. 2013-09.
- Krafft, C. (2015). Increasing Educational Attainment in Egypt: The Impact of Early Childhood Care and Education. *Economics of Education Review*, 46, 127–143.

- Krafft, C., & Assaad, R. (2014). *Beware of the Echo: The Impending Return of Demographic Pressures in Egypt. Economic Research Forum Policy Perspective No. 12*. Cairo, Egypt.
- Krafft, C., & El-Kogali, S. (2014). *Inequalities in Early Childhood Development in the Middle East and North Africa. Economic Research Forum Working Paper Series No. 856*. Cairo, Egypt.
- Kremer, M., Brannen, C., & Glennerster, R. (2013). The Challenge of Education and Learning in the Developing World. *Science*, 340(6130), 297–300.
- Kuhn, R. (2012). On the Role of Human Development in the Arab Spring. *Population and Development Review*, 38(4), 649–683.
- Lavy, V. (2009). Performance Pay and Teachers' Effort, Productivity, and Grading Ethics. *American Economic Review*, 99(5), 1979–2011.
- Lindelow, M. (2008). Health as a Family Matter: Do Intra-Household Education Externalities Matter for Maternal and Child Health? *Journal of Development Studies*, 44(4), 562–585.
- Lloyd, C. B., El Tawila, S., Clark, W. H., & Mensch, B. S. (2003). The Impact of Educational Quality on School Exit in Egypt. *Comparative Education Review*, 47(4), 444–467.
- McEwan, P. J. (2014). *Improving Learning in Primary Schools of Developing Countries: A Meta-Analysis of Randomized Experiments*. Mimeo: Wellesley College.
- Mizala, A., & Romaguera, P. (2004). School and Teacher Performance Incentives: The Latin American Experience. *International Journal of Educational Development*, 24(6), 739–754.
- Moenjak, T., & Worswick, C. (2003). Vocational Education in Thailand: A Study of Choice and Returns. *Economics of Education Review*, 22(1), 99–107.
- Newhouse, D., & Suryadarma, D. (2011). The Value of Vocational Education: High School Type and Labor Market Outcomes in Indonesia. *The World Bank Economic Review*, 25(2), 296–322.
- OECD/The World Bank. (2010). *Higher Education in Egypt*. OECD Publishing.
- Popa, S., & Acedo, C. (2006). Redefining Professionalism: Romanian Secondary Education Teachers and the Private Tutoring System. *International Journal of Educational Development*, 26(1), 98–110.
- Population Council. (2011). *Survey of Young People in Egypt: Final Report*. Population Council.
- Pradhan, M., Suryadarma, D., Beatty, A., Wong, M., Alishjabana, A., Gaduh, A., & Artha, R. P. (2011). *Improving Educational Quality through Enhancing Community Participation: Results from a Randomized Field Experiment in Indonesia. World Bank Policy Research Working Paper No. 5795*. Washington, DC.
- Psacharopoulos, G., & Patrinos, H. A. (2004). Returns to Investment in Education: A Further Update. *Education Economics*, 12(2), 111–134.
- Pugatch, T. (2014). Safety Valve or Sinkhole? Vocational Schooling in South Africa. *IZA Journal of Labor & Development*, 3(18), 1–31.
- Randall, L., & Anderson, J. B. (Eds.). (1999). *Schooling for Success: Preventing Repetition and Dropout in Latin American Primary Schools*. Armonk, NY: M.E. Sharpe.

- Roemer, J. E. (1998). *Equality of Opportunity*. Cambridge, MA: Harvard University Press.
- Said, M. (2015). Wages and Inequality in the Egyptian Labor Market in an Era of Financial Crisis and Revolution. In R. Assaad & C. Krafft (Eds.), *The Egyptian Labor Market in an Era of Revolution* (pp. 52–69). Oxford, UK: Oxford University Press.
- Salehi-Isfahani, D., Hassine, N. B., & Assaad, R. (2014). Equality of Opportunity in Educational Achievement in the Middle East and North Africa. *The Journal of Economic Inequality*, 12(4), 489–515.
- Salehi-Isfahani, D., Tunali, I., & Assaad, R. (2009). A Comparative Study of Returns To Education of Urban Men in Egypt, Iran, and Turkey. *Middle East Development Journal*, 1(2), 145–187.
- Schultz, T. P. (2002). Why Governments Should Invest More to Educate Girls. *World Development*, 30(2), 207–225.
- Schultz, T. W. (1961). Investment in Human Capital. *The American Economic Review*, 51(1), 1–17.
- Schwab, K. (2014). *The Global Competitiveness Report: 2014-2015*. Geneva, Switzerland: World Economic Forum.
- Sen, A. (1999). *Development as Freedom*. Oxford, UK: Oxford University Press.
- Sojourner, A. J., Mykerezi, E., & West, K. L. (2014). Teacher Pay Reform and Productivity: Panel Data Evidence from Adoptions of Q-Comp in Minnesota. *Journal of Human Resources*, 49(4), 945–981.
- Springer, M. G., Ballou, D., Hamilton, L., Le, V.-N., Lockwood, J. R., McCaffrey, D. F., Pepper, M., & Stecher, B. M. (2010). *Teacher Pay for Performance: Experimental Evidence from the Project on Incentives in Teaching*. Nashville, TN: National Center on Performance Incentives at Vanderbilt University.
- Sundararaman, K. M. V. (2011). Teacher Performance Pay: Experimental Evidence from India. *Journal of Political Economy*, 119(1), 39–77.
- Tansel, A., & Bircan, F. (2006). Demand for Education in Turkey: A Tobit Analysis of Private Tutoring Expenditures. *Economics of Education Review*, 25(3), 303–313.
- Temple, J. A., & Reynolds, A. J. (2007). Benefits and Costs of Investments in Preschool Education: Evidence from the Child–Parent Centers and Related Programs. *Economics of Education Review*, 26(1), 126–144.
- Tikly, L., & Barrett, A. M. (2011). Social Justice, Capabilities and the Quality of Education in Low Income Countries. *International Journal of Educational Development*, 31(1), 3–14.
- UNDP, & Institute of National Planning. (2010). *Egypt Human Development Report 2010*. Egypt.
- UNESCO. (2012). *Education For All Global Monitoring Report 2012: Youth and Skills: Putting Education to Work*. Paris, France.
- UNESCO. (2014). *Teaching and Learning: Achieving Quality for All: Education for All Global Monitoring Report 2013/4*.
- UNESCO. (2015). UNESCO Institute for Statistics. Retrieved July 6, 2015 from <http://data.uis.unesco.org>
- UNESCO International Bureau of Education. (2006). *Egypt: Early Childhood Care and Education (ECCE) Programmes. Country Profile Prepared for the Education for All Global Monitoring Report 2007*. Geneva, Switzerland.

- United Nations Office of the High Commissioner for Human Rights. (1990). Convention on the Rights of the Child. Retrieved July 6, 2015 from <http://www.ohchr.org/EN/ProfessionalInterest/Pages/CRC.aspx>
- World Bank. (2008). *The Road Not Traveled: Education Reform in the Middle East and North Africa*. Washington, DC: World Bank.
- World Bank. (2012). *Arab Republic of Egypt - Inequality of Opportunity in Access to Basic Services among Egyptian Children*. Washington, DC: World Bank.
- World Bank. (2013). *Jobs for Shared Prosperity: Time for Action in the Middle East and North Africa*. Washington, DC: World Bank.
- Youssef, H., Osman, M., & Roudi-Fahimi, F. (2014). *Responding to Rapid Population Growth in Egypt. Population Reference Bureau Policy Brief*. Washington, DC.