

**Access to Higher Education in Egypt:
Examining Trends by University Sector¹**

¹ Data analysis do file, and online appendices are all available for download on the authors' personal website.

Abstract

Young people's access to higher education in Egypt is expanding in both the public and private sector. Although growth in both sectors facilitates overall expansion, the two sectors have fundamentally opposite implications for *equality* of access across different demographic groups. Using a new sample of nationally representative data from the Survey of Young People in Egypt (SYPE), this article brings new and substantially improved data to the question of access to higher education in Egypt, which allows us to examine trends in access not only across demographic groups but also by university sector. Findings suggest that recent trends in access to public universities are in line with equalizing logics – access in the public sector is growing most rapidly for women, rural youth, and middle-class Egyptians. Academic achievement is a key determinant of access and as such, the fact that the wealthy consistently perform better on secondary exit exams is an important contributor to inequality in the public sector. In contrast, access to private universities is growing most rapidly at private universities for males, urban youth, and the top wealth quintile, with wealthy but low-achieving youth seeing substantial growth in the private sector. The findings do not suggest that access to higher education is becoming equal in Egypt, but do indicate that continued expansion of the public sector will promote greater inclusiveness, while expansion of the private sector may exacerbate inequalities.

Introduction

Egypt's higher education landscape is currently transitioning from a predominantly elite system of public universities, to a mass system with both public and private universities (Trow 1973; Trow 2007). This shift has important implications for not only *how many* students attend higher education, but also *who* these students are, and *what types* of institutions they attend. This paper conceptualizes these changes as occurring within two sectors, public and private, governed by fundamentally different logics: meritocracy and market demand. While expansion in both sectors facilitates overall access, the two sectors have opposite implications for *equality* of access.

A number of studies on higher education in Egypt have argued that despite rhetoric of meritocracy, access to higher education is biased against the poor. In 2005, individuals from the highest quintile still occupied more than 40% of spaces in Egyptian universities, while those from the lowest wealth quintile represent less than 10% (Cupito and Langsten: 192-193). Nonetheless, the policies pursued by Egypt since 2005 signal a desire to widen access to substantially more youth, in line with “massification” policies, which have traditionally connoted the expansion of access to the “masses” (Trow 1973; Trow 2007). Egypt has established five new public universities since 2005, and initiated income-generating programs to help offset costs of expansion. Quantitatively, enrollment in public universities rose from roughly 1.49 million in 2001 to 1.93 million in 2009, and continued expansion is planned (CAPMAS 2011).

Substantial research in the sociology of education finds that educational expansion does not reduce the effect of parental resources on educational attainment, a phenomenon known as “persistent inequality” (Shavit and Blossfeld 1993; Shavit et al. 2007; Pfeffer 2008). Yet, research does suggest that once a saturation point has been reached among the upper classes at a

given level of education, continued expansion of that level will increase access for traditionally excluded youth, a phenomenon known as “inclusiveness” (Shavit et al. 2007). Therefore, we expect that the continued expansion of higher education in Egypt will eventually be associated with more individuals from all backgrounds attending higher education (Cupito and Langsten 2008). However, to date, we do not know whether Egypt has reached its saturation point since implementing the 2005 reforms.

In addition to public sector growth, privatization reforms initiated in 1992 and expanded in 2005 have created a separate university sector governed by market dynamics. The private university sector is highly controversial in Egypt, as privatization is linked to the larger project of building an Egyptian “knowledge economy,” encouraged by foreign donors, including the World Bank and the IMF (Mazawi 2010). New private universities charge tuition, and are often targeted towards the elite and upper middle classes, who are willing and able to pay substantial tuition. While private higher education serves 17% of all post-secondary students, private universities serve only 2.5% of all Egyptian university students, meaning they still play a small role in the higher education landscape. Nonetheless, enrollment in Egypt’s private universities tripled between 2000-2005, and expansion of the private universities is viewed as an integral part of Egypt’s attempt to increase access to higher education (Fahim and Sami 2011).

In Egypt, the newly founded private universities have higher tuition and fees than public universities, and researchers have already expressed concern that private universities are only accessible to the upper and upper-middle classes (Fahim and Sami 2011). Yet, Egypt’s new private universities also have lower admissions standards and are considered by many to be lower quality than the public universities. As such, the wealthy may use their considerable resources to help their children enroll in public universities, by investing in both private tutors

and paying for spots in new programs in public university tracks (Elbadawy et al. 2007; Sobhy 2012).

We know little about how student populations in public and private universities may differ in Egypt, or whether family wealth plays a more important role in determining access to the public or private sector. Nor do we know how Egypt's policies to privatize access to higher education have interacted with the many factors that shape families' decisions about investment in education. Given the fact that women's labor force participation rates in Egypt are among the lowest in the world,² it is possible that families are making different investment decisions for their female children than their male children.

Additionally, we have little understanding of what the effects of increasing the number of private universities will be on equality of access. Despite a growing body of research on private higher education worldwide, the theoretical literature on the effects of the privatization of higher education is inconclusive – on the one hand, comparative education research consistently indicates that the tuition-dependent private sector is likely to serve students from more advantaged backgrounds, which would suggest that the expansion of private higher education exacerbates inequalities in access (Altbach and Levy 2005; Levy 2006; Goyette 2012; Torche 2005). Nonetheless, in a cross-national study of access to higher education, Shavit, Arum and Gamoran (2007) find that the effects of privatization on inequality are offset by the system-wide expansion and diversification of higher education providers, such that privatization has no net effect on inequality in access.

To shed light on how access to higher education in Egypt is changing, this article provides a comprehensive view of recent trends in access to higher education in Egypt by

² According to the 2006 census, the unemployment rate for all women was 25%, which is substantially higher than that of the labor force as a whole (9.3%) (Hamid 2010).

disaggregating patterns of access by university sector. It takes a three-pronged approach: a) first, it examines demographic characteristics of students in each sector; b) second, it examines which factors affect eligibility and enrollment in higher education overall and by sector; and, c) finally, it examines patterns in access to higher education across two cohorts of Egyptian youth to understand how the 2005 higher education reforms are influencing access and equity.

Research Significance

This paper provides a baseline of knowledge on access to higher education in the Arab World, where many have noted that we lack in-depth understanding of higher education (Donn and Manthri 2010; El-Araby 2011; Abi-Mershed 2010; Rugh 2002). Although a number of recent studies have examined the financing of higher education in Egypt (Fahim and Sami 2011), and demographics of university students (Megahed 2010; Cupito and Langsten 2008), these studies have not investigated the question of university sector with student-level data. The present study brings new and substantially more detailed data to the question of access to higher education in Egypt by using a nationally representative survey of youth (The Population Council 2010). By using a new, nationally representative dataset that includes information on high school type and secondary exit exam score, this article is able to examine how academic performance in secondary school interacts with other demographic characteristics to shape youth access to higher education. Moreover, no studies to date examine differences in student demographics across educational sector (i.e. public or private universities) in the Arab World, which this article is able to do thanks to improved data.

The larger question of inequality of educational opportunity in Egypt is an important concern for researchers and international observers alike. The explosion of youth-led protests throughout

the Arab Middle East, known as the Arab Spring, cannot be divorced from larger discussions of youth education and employment (Al-Momani 2011; Anderson 2011). In Egypt, worldwide attention has focused on the role that youth played in leading and organizing nearly three weeks of daily marches and protests in January 2011, which ultimately led to the ouster of former President Hosni Mubarak. The most vocal protesters were discontent youth, angry over the lack of employment opportunities, widespread corruption and exacerbating income inequalities. Thus, the question of persistent inequality in Egypt, and the role of the higher education system in the differential structuring of young people's opportunities is one with very real geo-political consequences. Moreover, despite the widespread concern over the quality of higher education in the Middle East and North Africa (MENA), and the ability of higher education institutions to prepare graduates for professional work (Rugh 2002; Dhillon and Yousef 2009; Labaki 2009), reforms to higher education in MENA are often suggested in line with global models of privatization, with little understanding of who goes to higher education and what the effects of privatization may be on dynamics of quality and inequality in higher education (Sanyal 1998; Rugh 2002).

Higher Education in Egypt

In 1952, there were only three national universities in Egypt – Cairo University, Alexandria University, and Ain Shams. In addition, two religiously affiliated private universities were operating, namely Al-Azhar University and the American University in Cairo. After the national revolution in 1952, the Nasser regime instituted a number of important higher education reforms, in line with revolution's goals of social justice and equality (Arabsheibani 1988). Major reforms included: 1) guaranteeing admission to higher education to all secondary school

graduates; 2) instituting a national secondary exit exam (known as the *thanawiya amma*) to determine one's placement in higher education; 3) eliminating tuition fees; and, 4) guaranteeing all university graduates public sector employment (Howard-Merriam 1979; Cupito and Langsten 2008; Rugh 2002). These policies were specifically designed to counter the colonialist legacy of reserving higher education to the wealthy and well connected.

Egypt's current higher education system is largely a product of its original nationalist reforms. As in many Arab nations, Egyptian students are sorted into secondary school tracks based on exit exams at the end of primary schooling into: general (i.e. academic) or vocational secondary education, where they can specialize in industrial, agricultural or commercial studies. A small percentage of secondary students also study at Azhar-sponsored high schools. In 2005/2006, 56.4% of students attended vocational secondary, 35.6% attended general secondary and 8% were in Azhar secondary schools. In 2006-07 the transition rate from general secondary to post-secondary school was 80.7%, while the transition rate from vocational secondary was 8.9% (Hamid 2010). As such, admission to the general secondary track is an important determinant of university enrollment.

The Supreme Council of Universities (SCU) determines the number of spaces available in each university program, and the Admission Office of Egyptian Universities is in charge of coordinating the application and admissions process (Helms 2008). Admissions decisions is based primarily on the *thanawiya amma* (Helms 2008). Performance on this secondary exit exam determines precisely which educational options are open to young people – generous government subsidies mean that attending public universities is nearly free for high academic achievers. (Hargreaves 1997). In principle, access to higher education is meritocratic, as admission is granted to only most academically gifted students, regardless of the family's ability to pay. In

reality, however, the *thanawiya* requires extensive memorization, and places a huge financial burden on families for private tutoring, which is thought to contribute to inequalities in access (Sobhy 2012; Valverde 2005; Elbadawy, Ahlburg, and Levison 2009). Yet even when confronted with criticism of the higher education admissions process in 2001, Egypt's Minister of Higher Education, Mufid Shebab, remained a staunch advocate of the examination system on both logistical and ideological grounds, stating that "the application system still has one significant virtue: equal opportunity" (Al-Ahram Weekly 2001).

Egypt's higher education system is the largest in the region, and recent reforms have focused on expansion. In 2009-2010, more than 2.4 million Egyptians are in some form of post-secondary institute or university, and of those 1.9 million are in government universities (CAPMAS 2011). The Strategic Planning Unit (SPU) anticipates continued growth rates of 3% annually, from roughly 28% in 2006 to upwards of 35% in 2021 (Cupito and Langsten 2008; Helal 2007; The World Bank 2010). In recent years, the Ministry of Higher Education has actively expanded the number of universities. In 2005-2006, five new universities were established, bringing the total to 17 public universities, in addition to Al-Azhar, a publicly funded Islamic university that operates within its own administrative and admissions structure.

In 2006, Egypt also instituted a number of reforms that garner additional funding for public universities, consistent with the global trend of cost sharing as a way of raising private revenues for public universities (Johnstone and Marcucci 2010). The Egyptian government has "allowed public universities to charge nominal tuition fees for special academic programs that are perceived to be of high academic quality and for which there is high demand" (Fahim and Sami 2011: 61). Some universities charge small fees and in recent years, students with lower exit exam scores have been allowed to pay tuition to enroll in the faculties of Law, Commerce and

Arts.³ These cost-sharing reforms now allow students with lower scores to secure spots in public universities (Rugh 2002; The World Bank and UNESCO 2000). However, this program is limited to certain programs and the fees charged amount to only 33% of the total cost (Fahim and Sami 2011: 61).

In addition to expansion in the public sector, the private university sector has also been growing. A major overhaul of higher education law was passed in 1992, which first permitted the establishment of new private universities, and the first private universities were licensed in 1996. In the year 1999, only four private universities were operating, serving roughly 6,000 students, compared to the 12 public institutions serving nearly 1.5 million students (Farak 2000:16). However, enrollments in private universities started growing rapidly in 2002, with 12 new private universities established between 2002 and 2010, and six of those founded in 2006-2007 (Hamid 2010). The number of students enrolling in private universities also increased dramatically from 11,000 to 48,000 between 2000 and 2005 (Fahim and Sami 2011). As of 2009-2010, private universities serve approximately 70,000 young people (CAPMAS 2011; The World Bank 2010). The expansion of private universities suggests a shift in the logic of higher education admissions. Fundamentally, privatization suggests that access to higher education is no longer solely a matter of state-planning, but also operates within an open market for credentials, governed by individual calculations of costs and benefits (Galal 2002).

Many Egyptians have expressed concern over the effect of privatization on equality and quality. Fahim and Sami (2010) argue that the transition to the private provision of higher education will most likely negatively affect equity of access to higher education, as tuition may prevent the poorest from attending university (Fahim and Sami 2011). The authors explain that:

³ Tuition at these programs varies. El Sebai (2006) reports that fees are approximately 280 USD as annual tuition for a degree program in business that uses English as a medium of instruction, and a one-time admission fee of 100 USD for programs in Law, Commerce and Arts (El Sebai 2006: 81).

“the main concern is equitable access to higher education and cream skimming,” as “less affluent students will not be able to enroll in these institutions, placing them at a disadvantage to the rich” (Fahim and Sami 2010: 60).

Additionally, the quality of the private universities remains highly debated. In 2002, the Egyptian Ministry of Education established a minimum score of 80 on the *thanawiya amma* for students specializing in science majors at private universities, and a minimum of 65 for those in literature and the humanities (Al-Ahram Weekly 2001). Although this is a first attempt to regulate quality, these benchmarks are far below admissions requirements in the public sector, where medicine requires scores above 95% and engineering programs typically require 88-92% (Mahmoud 2010; El Sebai 2006). In fact, private universities are widely perceived as “selling” their degrees, as many private universities reap a profit (ICHEFP 2011).

Access to Higher Education

This article draws on sociological research on inequality in access to higher education to understand recent trends in Egypt. Research consistently finds that the wealthy use their substantial resources to secure both qualitative and quantitative advantages in the formal education system (Buchmann and Hannum 2001). Lucas’ (2001) Effectively Maintained Inequality thesis (EMI) argues that the wealthy use their financial resources to disproportionately gain access to levels of education that are not universal, and to obtain a qualitatively better education regardless of whether a level of education is universal or not (Lucas 2001). In the Egyptian case, scholars have consistently pointed out that despite the meritocratic claims of Egyptian educational rhetoric, higher education policies actually serve as a subsidy for the upper

classes because wealthy have access to higher quality primary and secondary schooling, which help their children get into the academic secondary track (Cupito and Langsten 2008).

Parents also pay for extensive outside tutoring to improve their students' scores on secondary exit exams (Fahim and Sami 2011; Elbadawy et al. 2007; Hartmann 2007). Elbadawy, Ahlburg and Levinson (2009) report that 62% of secondary students pay for private tutoring (Elbadawy, Ahlburg, and Levison 2009). The case of Egypt is in line with substantial cross-national research on the rise of shadow education markets, which finds that families pay substantial out-of-pocket costs to help children perform better on standardized tests (Baker and LeTendre 2005; Kuan 2011; Bray and Silova 2006).

Nonetheless, cross-national research has consistently indicated that as youth move through the formal education system, the effect of parental resources tends to decline with each successive transition (Shavit and Blossfeld 1993). If this is true in Egypt, it could mean that family wealth is a less significant predictor of access at the university level than at lower transitions. In particular, given Egypt's consequential two-year secondary exit exams, family resources may matter more at helping students graduate secondary school than in their decision to enroll in university or not. However, it is also possible that family resources matter more in facilitating access to the private sector than the public sector, given expensive tuition in the private sector. The relative role of wealth at each educational transition, and within each university sector, is still not yet well understood in Egypt, and is a question this article addresses.

Expansion and Equality of Access

Research on access to education worldwide shows that expansion means greater inclusiveness – essentially, more young people, and those from less advantaged backgrounds,

attend higher education (Trow 2007). Yet, the empirical research is quite mixed as to whether expansion actually leads to greater *equality of access*. A wide body of cross-national research on educational opportunity has found that the effect of parental resources on educational attainment has remained relatively constant across time and across various nations, despite massive educational expansion worldwide and varied nation-level educational policies (Shavit and Blossfeld 1993; Torche 2010). For example, Shavit and Blossfeld (1993) find that expansion of the higher education system did not reduce relative inequality in educational attainment in 11 of 13 countries studies, although there are examples of expansion both increasing inequality (e.g., Russia) and decreasing inequalities (e.g., Sweden) (Shavit and Blossfeld 1993).

Expansion of the higher education system exacerbates wealth inequalities if the upper classes are able to use their financial and cultural capital to disproportionately gain access to additional spots in higher education, which occurs when there is unmet demand prior to expansion (i.e., a bottleneck) (Gerber and Hout 1995). In contexts where achievement on exit exams is an important factor, parental resources may have a large impact on students' ability to access the next level of schooling, if family wealth is used to improve student achievement on exams (Baker and LeTendre 2005).

Indeed, *expansion without equity* befits the initial years of massification in Egypt. In a recent study of Egypt's expansionist policies in higher education, Cupito and Langsten (2008) find that Egypt's long-standing policies to expand and democratize access to university have not equalized opportunity to Egyptians from lower class backgrounds. They argue that saturation had not been reached by the year 2005: "Since demand by the wealthy was not saturated in 1988, the wealthiest groups seized the new higher education spaces first. In all likelihood, demand by the advantaged groups remains unsaturated in 2005" (194). Yet, Cupito and Langsten's (2008)

findings are also limited by their data; they cannot control for important factors such as high school track or academic achievement, and as such, cannot examine whether saturation has been reached among those in the academic track.

As the higher education system continues to expand, research suggests a saturation point will be reached. Once all upper class youth who are interested and able to go to higher education are actually enrolled, the continued expansion of the system means that opportunities for enrollment “trickle down” to more students from lower classes (Raftery and Hout 1993). In a cross-national study of access to higher education over time, Shavit, Arum and Gavorum (2007) argue that despite the fact that the wealthy may maintain their advantage in other ways, such as advanced credentials, greater inclusiveness is itself an important finding. The authors argue that the continued expansion of higher education ultimately increases access to that level for traditionally excluded youth, which has positive social benefits in and of itself (Shavit et al. 2007). In Egypt, an important empirical question is whether a saturation point for university has been reached among the upper class since 2005.

Expansion of higher education is often facilitated by private higher education, yet the theoretical literature on the effects of the privatization is inconclusive. Comparative education research consistently finds that the tuition-dependent private higher education sector tends to serve students with lower academic qualifications, and those from more advantaged backgrounds, which would suggest that the expansion of private higher education exacerbates inequalities in access (Altbach and Levy 2005; Levy 2006; Shavit et al. 2007). In analyzing the emergence of the private sector in Vietnam, Goyette (2012) finds that the private sector in Vietnam privileges more affluent students, and those from urban centers (Goyette 2012).

Yet, Shavit, Arum and Gamoran (2007) find that the net effects of private funding of higher education on inequality are minimal because privatization is associated with system-wide expansion and diversification of higher education providers. As such, they argue that the tendency of privatization to exacerbate inequalities is counter-balanced by the greater overall inclusiveness. However, the Shavit et al. (2007) findings are based on static correlations between the percent of funding for higher education from private sources and the overall levels of inequality in access to higher education in a sample of nations. A limitation to their analysis, which the authors recognize, is that they do not analyze the effects of changing patterns of funding in the same country over time. The Shavit et al. (2007) study makes it clear that national higher education systems that incorporate more private funding tend to be diversified and more inclusive than predominantly publically funded systems. However, it is also clear that greater reliance on private funding could also lead to greater inequality, if privatization is not accompanied by greater inclusiveness. In Egypt, it is unclear whether the equalizing trends of massification – which are occurring contemporaneously – outweigh the expected inequalities introduced by expanding privatization. Additionally, the Shavit et al. (2007) analysis relies on a measure of private funding of higher education, not the extent of private-sector higher education; indeed, the growth of cost-sharing (i.e., charging tuition) in the public sector may facilitate access to the public sector, independent of the effects in the tuition-dependent private sector. To understand how patterns of access to higher education in Egypt are affected by university sector, I now turn to empirical analyses of access to higher education across sector and cohort.

Data and Methodology

Data come from the Survey of Young People in Egypt (SYPE), a nationally representative sample of Egyptian youth aged 12-29, conducted by the Population Council, in collaboration with the Egyptian Cabinet Information and Decision Support Center. The survey is a multi-stage stratified cluster sample that drew on the 2006 Population Census to select a representative sample of young people. Data was collected in the first quarter of 2009. The final sample of interviewed households was included 11,372 households yielding 15,029 young people aged 10-29 (SYPE: 266). Household and individual weights are used in the analysis to accurately reproduce the structure of the population in the 2006 census.⁴

The population of interest is all surveyed youth aged 21-29. The minimum age is set at 21 to eliminate potential bias, as repetition rates in primary and secondary schooling are high (33.5% in the sample) and repetition is also negatively correlated with family wealth, meaning youth from poorer backgrounds are more likely to take longer to graduate high school. For the majority of my analyses, I focus exclusively on university education because 75% of all youth in higher education enroll in university, and university remains the favored governmental policy (Cupito and Langsten 2008: 186). Additionally, university education is more comparable across sectors than are technical programs. University enrollment is defined as having ever attended university.

Descriptive Variables: Table 1 provides the means and number of observations for variables used in later analyses. Of all youth selected to participate in the survey, 6,798 were aged 21-29, and the survey sample is slightly more female than male (53% to 47%). Of those surveyed, 4,069 had graduated high school (roughly 87%), with 35.6% attending the academic track. In the sample, 1,664 (25.0%) young people were either in some form of post-secondary schooling at the time of the survey or had graduated from higher education. Of those enrolled in

⁴ See Population Council (2010) for more details on the SYPE sampling frame and methodology.

university, 1,086 studied in public universities, 219 in private universities, and 103 in Al-Azhar. Of the students in public institutions, 87.4% were studying at the university level, while 73.7% of students in private institutions were studying at the university level.

I used factor analysis to construct a wealth index household characteristics and assets. The specific variables used to construct the wealth index include: family members per room, the materials of the floors, drinking water source, type of toilet facility, presence of a kitchen, type of cooking fuel, electricity, garbage disposal method, and ownership of various household assets and durable goods.⁵

TABLE 1

Data Analysis Strategy: Data analysis is guided by the research questions and centers on three major topics: student demographics, factors affecting access to university, and the effects of expansion. The analytic focus of each section is whether differences exist across university sector. First, to understand who goes to higher education in Egypt and how student characteristics vary in Egypt's different higher education sectors, I run summary statistics on the demographic characteristics of students in each sector.

Second, to assess the role of family wealth in determining access to higher education, I carry out a set of multivariate logistic models to examine the relative effect of various demographic characteristics on Egyptian students' likelihood of making a given educational transition. In particular, I examine when, and to what extent, family resources positively

⁵ A Kaiser-Meyer-Olkin (KMO) test of sampling adequacy was used to validate the factor analysis; the KMO statistic was 0.785. Any KMO statistic above 0.5 can be considered appropriate for factor analysis, although the higher the value, the more reliable it is (Ferguson and Cox 1993). The constructed index was highly correlated with the wealth index provided by SYPE (0.98) and with wealth index quintiles (0.96).

influence students' educational transitions. To test whether these factors differ by sector, I carry out a multinomial logit that uses students in the public university as the baseline.

Third, because my data covers two cohorts of Egyptian youth – those entering higher education before and after the 2005 reforms, I examine changes in demographics across each sector and use multivariate logit models with cohort interaction to visualize how patterns of access to higher education vary cohort and sector for different wealth quintiles.

Dimensions of Inequality

I predict that four factors will play an important role in shaping access to higher education: 1) student academic achievement; 2) family wealth; 3) gender; and 4) region.

Academic Achievement: Student performance on the *thanawiya*, determines how numerous and prestigious students' options are for university. Assuming that public universities are still the most desirable options for the vast majority of Egyptians, *thanawiya* scores will likely be positively correlated with attending university overall, and negatively correlated with the probability of attending a private university.

Family Wealth: Financial resources help students attain higher education, namely: a) the wealthy are more likely to attend general academic secondary schools than vocational secondary schools; b) they are able to afford extensive private tutoring score higher on the *thanawiya*; and c) they can afford the direct and indirect costs of higher education (Fahim and Sami 2011). However, if we assume that scores on one's *thanawiya* embody the academic and cultural capital a family has devoted to its children's education, then by controlling for scores on the secondary exit exam, we can test whether family financial resources benefit the upper classes directly, and how this effect is changing over time and by sector. Given that the private universities charge

substantially higher tuitions, we expect that family wealth will be more important in determining access in private universities than in public universities.

Gender: Gender is an important predictor of university enrollment and may influence the choice of university sector. Recent statistics suggest a significant increase in females' access to higher education in Egypt. Fahim and Sami (2011) find that in 2006, university graduation rates are actually higher for females than males, and that urban females have equal enrollment rates in higher education. Nonetheless, Cupito and Langesten (2010) find that although women have made substantial gains in access to higher education, they are still 70% less likely overall to be in university, holding other demographic variables equivalent. This discrepancy is most likely because females tend to score better on the secondary exit exam than males.

Additionally, researchers have pointed out that the payoff to education differs by gender. Unemployment rates for Egyptian females are much higher than for males⁶ (The Population Council 2010). Egyptian women are more likely to be found in lower status and lower-paid professions than are men (Megahed and Lack 2011). Female employees also face discrimination in the private sector, where employers do not want to pay for mandated benefits such as maternity leave (Yousef 2004). If we adopt the perspective of the “economy of the family,” whereby families make rational decisions about the payoff to education for their children, then we might expect that families will be less willing to pay expensive tuition at private universities for their daughters than their sons.

However, Barone (2011) finds that families are not choosing to “invest” differently in their children, but rather, young women may be opting into care professions as opposed to technical ones (Barone 2011). This certainly may be the case in Egypt; Megahed (2010) finds

⁶ Findings from the SYPE find that average male youth unemployment is 12.6%, while female unemployment is 31.7% (Population Council SYPE 2010 Final Report, p. 96).

that in 2006–2007, women made up 72% of the Humanities, 73% of the Arts and 72% of Education enrollments, but only 28% of Engineering (Megahed 2010). Because private universities tend to specialize in technical fields such as business or technology, women may choose not to enroll in them. Importantly, both mechanisms –the economy of the family and gendered preferences for major – suggest that gender differentials will be greater in private universities than in public universities.

Region: Prior research suggests that higher education in Egypt is extremely biased in favor of urban areas and Lower Egypt (i.e., Cairo and surrounding areas). Approximately 70% of all residents of Cairo are enrolled in some form of higher education, less than 10% of youth in Fayoum, Luxor and Minya are enrolled in higher education (54). Geographic differences exist because graduation rates from primary and secondary schooling are much lower in rural areas, and in general, rural Egyptians are still generally poorer, and rely more on agricultural economies. Nonetheless, private universities are concentrated in and around Cairo, while public universities tend to be built in urban centers throughout the country. As such, geographic disparities may exist between the two sectors. In the following analyses, I examine how various factors shape young people’s access to higher education, and whether predictors differ by sector.

Findings

1. *Who goes to university in Egypt, and do demographic characteristics vary by sector and type of post-secondary institution?*

Table 2 presents student demographics, distinguishing between three sectors: public, private and Al-Azhar. It is clear that there are significant sector differences in student characteristics. Students at Al-Azhar are much more likely to come from rural areas, from lower socio-economic backgrounds and slightly more likely to be female than those in public schools.

Students in private universities exhibit the opposite trends – they are much less likely to be female, and more likely to come from urban areas, and specifically greater Cairo. The gender gap is quite substantial in private universities – only 38% of students in private universities are female, whereas more than 50% of students in the other two sectors are female.

There are also significant differences between public and private universities in the top wealth quintile –the top 20% of Egyptians make up approximately 55% of all youth in public universities, and 65% of students in private universities. We also note that the mean age of students who studied in private universities is younger and over 80% of youth in the sample who attend private universities are aged 21-25, which reflects the fact that private universities are newer and have only recently grown to be a player in the Egyptian higher education system.

TABLE 2

Table 2 also indicates that students in private universities also have lower mean scores on their secondary exit exams (73.0 to 82.15), and are also more likely to have ever failed or repeated a grade in secondary school. Students in private universities are also much more likely to have attended vocational education (19% to 7% for students in public universities).⁷

Given the strong, positive correlation between family wealth and academic achievement worldwide, the fact that Egypt's private universities serve both more wealthy and less academically prepared students suggests that private universities may be seen as a last resort for wealthy families, who would prefer to send their children to the free public universities. It also raises an important question of when and how family resources matter in helping students access higher education, the question I turn to next.

⁷ Additional information on exit exam distributions available in online Appendices.

2. *What student characteristics affect access to higher education, and do determinants differ by sector?*

Important predictors of student access to higher education, such as region, family wealth and educational achievement, tend to co-vary. To better understand the factors that facilitate access to higher education in Egypt, I carry out a set of multivariate logit models to predict the likelihood that a student will be enrolled in a given level or sector. The multivariate analyses isolate which factors have the strongest independent effects on enrollment, while also allowing us to compare how student characteristics matter at each educational stage. In each model, the dependent variable is an indicator variable, coded as one if the student: a) ever enrolled in secondary school (Model 1); b) enrolled in the academic track in high school given enrollment in secondary (Model 2); c) ever graduated high school given enrollment in general secondary (Model 3); d) enrolled in a four-year public university given graduated secondary (Model 4), and e) enrolled in a four-year private university given graduated secondary (Model 5). Table 3 presents odds ratios of the results.⁸

TABLE 3

Table 3 indicates that student characteristics differ by university sector. Controlling for other factors, females are less likely than males to ever enroll in secondary school, and less likely to be enrolled in the general track. However, they are not less likely to graduate from high school – most likely because they tend to perform better than their male counterparts on the *thanawiya*. At

⁸ A fuller version of multinomial models is provided in the online Appendix. A one-unit change in the independent variable is associated with B change in the odds of the dependent variable occurring, adjusted for the effects the other variables.

the university level, females are less likely to enroll in private universities, but not public universities.

Model 4 also shows that while public university students tend to come from more urban backgrounds generally, they are not exclusively concentrated in Cairo. In contrast, students in the private universities are much more likely to be from Cairo, but not other urban areas in Egypt. This makes sense, as private universities are highly concentrated in greater Cairo, while Egypt's public universities are located in major urban areas throughout the country.

Family wealth is a statistically significant predictor of enrollment at each transition level, as predicted by the EMI (Lucas 2001). In line with prior findings on educational transitions, the magnitude of the wealth coefficient generally declines over time; however, results also indicate that family wealth have the largest positive impact on helping students graduate from high school and that the effect of family resources is quantitatively larger association on graduation from high school than at any other level. In fact, Model 3 indicates that family wealth is the largest predictor of high school graduation given enrollment in a general track high school – even more important than high school exit exam score. These transition models indicate that family resources matter more at lower levels of schooling than they do in the transition to university, by helping young people enroll in, and graduate from, the academic track of secondary schooling.

Models 4 and 5 also suggest that family resources may be a more significant predictor of enrollment in the private sector than the public sector, as the coefficient is quantitatively larger in Model 5 than Model 4. To test whether the factors predicting enrollment in the private sector are statistically different than those in the public sector, I run a multinomial logit model with public university enrollment as the base category. A multinomial model is the preferred technique because after graduation, students have many choices, including no postsecondary, a two-year

vocational degree, the public university sector, private university sector and Al-Azhar. Table 4 presents the results, comparing relative risk ratios of students in the private sector to the baseline of students in the public sector.⁹

TABLE 4

Table 4 indicates that students in private universities are twice as likely to be from greater Cairo, and more than twice as likely to be from the younger cohort. However, they are much less likely than public university students to be female, or to have gone to a general high school. Their average exit exam scores are also lower than students in the public sector. Nonetheless, after controlling for other factors, students in private universities are not significantly more likely to be from urban areas. These findings align to those in Table 3. The relative role of family resources as a predictor of access is also statistically higher in the private sector, even after controlling for the many other factors, which confirms the hypothesis that wealth is a more important predictor of access in the private sector than public sector, after controlling for other variables. To understand how growth may affect access, the next section examines how expansion of higher education generally is influencing patterns of access.

3. Have the 2005 reforms altered patterns of access to higher education and do trends differ by university sector?

The percent of young people attending higher education in Egypt is increasing. Among the younger cohort, 26.8% of Egyptian youth are attending some form of post-secondary schooling, up from 20.8% in the older cohort. And 23.2% of Egyptian youth are enrolled in a four-year degree, up from 17.4%. Additionally, expansion rates are higher for females than it is for males. Females in the younger cohort actually outnumber their male counterparts at public universities,

⁹ Full models available online.

17.9% to 16.4%. In this section, I further investigate how recent expansion is affecting patterns of access. For this analysis, youth are grouped into two separate cohorts – 21-25 year olds, who came of university age after the 2005 reforms, and an older cohort of 26-29 year olds, who would have graduated high school before the implementation of the 2005 reforms.

To examine how access to university is increasing among different types of students, I examine the absolute change in access to higher education, by sector, for various demographic groups, which is calculated by subtracting the older cohort from the younger cohort. These are reported in Table 5, with the results from a two-group mean comparison of cohort. The null hypothesis is that the two age cohorts (i.e. 21-25 and 26-29) have the same mean, which would suggest that there has not been a significant expansion or reduction in access for that demographic group.

TABLE 5

Table 5 indicates that access to university generally is growing and that expansion is occurring across nearly all sub-groups of demographics. These findings are in line with Shavit et al. (2007) argument that higher education is expanding to more youth broadly. Females' access has grown in both the public and private sectors, indicating that females have been one of the main beneficiaries of university expansion overall. However, growth rates differ by demographic group; in the public sector, growth rates are quantitatively largest among students from unincorporated urban areas (0.08) and females (0.04) as well as the third and fourth wealth quintiles (0.04 and 0.06, respectively). This growth represents only a few percentage points more than growth among the top quintile (0.03), but we also find that access to higher education

among the lowest quintile of Egyptians is equal to that of the wealthiest Egyptians (0.03 for both). Thus, expansion in the public sector is not exacerbating inequality between the top and bottom quintiles, and does seem to be reducing the advantage of the wealthiest quintile to a small extent, as the middle and upper middle classes catch up slightly. This contrasts the patterns of growth in the private sector, where growth rates are much faster for urban youth (0.05), the wealthiest quintile (0.08), and the wealthy with poor academic achievement (0.19). There has been no real increase in access to private universities among the poorest 40% of Egyptians, which suggests that private sector expansion is not benefiting the lower classes at all.

To better represent how patterns of access are changing by sector, I run multivariate logistic models with interaction terms between wealth index and cohort, and gender and cohort. I then visualize the predicted probability of enrollment in public and private universities by wealth index quintile.¹⁰ Figure 1 presents the findings; Figure 1a presents findings from private universities without any controls, while Figure 1b presents findings with controls for academic achievement (high school type and exit exam score). Similarly, Figure 2a and 2b depict the predicted probability of enrollment in the public sector by cohort and gender, with and without controls.

FIGURE 1

Figure 1 indicates that enrollment in the private sector is increasing rapidly for the top wealth quintiles, but access has hardly expanded at all for the lowest two quintiles. Instead, we note that access to private universities has increased most rapidly for males, with the gap between male

¹⁰ The focus of this analysis is on changing patterns of access, by cohort, so I choose not to include the regression table. Regression analyses available in the online Appendix.

and female enrollment in private universities actually wider in the younger cohort. It is also clear from Figure 1b that controlling for academic achievement does not have a discernable impact on patterns of access; rather, access to the private sector increases rapidly, and at an increasing rate, as family wealth increases. Moreover, socioeconomic and gender inequalities in access to the private sector are actually exacerbated in the younger cohort of Egyptians.

FIGURE 2

Figure 2 suggests that patterns of access to the public sector are distinct from the private sector. Figure 2A shows that – as in the private sector – enrollment in the public sector increases significantly with increases in wealth. However, it is also important to note that access to public universities among the younger cohorts is increasing most rapidly for females at all wealth quintiles, possibly because females tend to score better on the *thanawiya*. Importantly, we also notice that despite the extreme inequalities in access by wealth quintile, there is no exacerbation of inequalities between the older or younger cohorts. Rather, trends in access appear relatively constant between the two cohorts.

Figure 2b indicates that academic achievement has a significant and dramatic impact on access to the public sector. Once controlling for type of high school and exit exam score, the effect of wealth on access to university among males from the younger cohort all but disappears (i.e., the slope on the line is essentially flat), and declines significantly for females. Comparing Figures 1 and 2 indicates that while access to university in both sectors is highly unequal, academic achievement is the driver of access to public universities for youth, while family wealth is the dominant determinant of access in the private sector.

Discussion

Data analyses demonstrate that recent higher education policies in Egypt are contributing to system-wide expansion, which is allowing a greater proportion of Egyptian students to attend university. Expansion in the public sector is benefiting some traditionally marginalized groups including females and some from the lower middle classes, albeit to a small extent. While scholars have long argued that Egypt's admissions processes are not truly meritocratic, Table 5 indicates that growth rates in public sector universities are highest for youth from the third and fourth wealth quintiles, indicating a trickling down of access to those in lower quintiles. This finding is supported by Figure 2b, depicting a decline in the importance of being in the top wealth quintile for both males and females in the younger cohort, after controlling for academic achievement. Together, these analyses suggest that continued expansion of the public sector will lead to greater inclusiveness, which likely means the continued trickling down of access to lower quintiles.

However, prior research on educational equality suggests that expansion of undergraduate higher education may actually worsen other inequalities, an outcome this analysis does not rule out (Lucas 2001). We would predict increasing inequalities in the postgraduate sector, as well as the potential for even greater concentration of the wealthy among elite careers such as medicine, and a concentration of wealthy in better universities. As such, the quality of education in terms of learning environment and employment outcomes becomes an important area for future research. Currently, analyses suggest that the public sector is still the first choice of high academic achievers. This finding may allay concerns, at least for the time being, that private universities are cream skimming the best students from public universities. However, it is still unclear what "better" means in the evolving Egyptian landscape, particularly given the fact

that widespread criticism of overcrowded classrooms and poor quality teaching in many public universities is coupled with their higher admissions standards. Future research should investigate relative prestige of each sector and preferences of Egyptian youth and families.

Moreover, despite overall expansion, it is also clear that the poorest Egyptians are still much less likely to attend university than their peers, and as such, even the equalizing tendencies found here do not represent an “equalization” of opportunity across wealth quintiles. Importantly, the source of inequalities seems to differ by sector. Academic achievement – and the ability of the upper classes to ensure higher achievement on the secondary exam – is perpetuating inequalities in the public sector. In contrast, privatization is associated with an exacerbation of traditional inequalities, and an entrenchment of family wealth in determining access. In particular, analyses suggest that the private sector may be serving a niche clientele – wealthy families whose children do not score high enough to enroll in their desired major in the public sector.

This study also finds that the role of family resources is nuanced. Although the role of family resources declines generally across transitions, as expected, the effect of family wealth is quantitatively largest as a predictor of high school graduation. This finding is interpreted in light of substantial prior research on the role of private tutoring in Egypt. Although Tables 1 and 4 indicate that wealthy students are more likely to be found in private universities, Table 3 shows that family wealth is a more significant determinant of university eligibility than university sector. The ability of wealthy families to achieve significantly higher scores on the *thanawiya* maintains their advantage in the public sector. Family wealth just plays a larger role at lower levels of schooling in the public sector than in the private sector, where the relationship between family wealth and enrollment is direct. Nonetheless, admissions policies in Egypt are frequently

undergoing reform; in April 2011, Parliament voted to reduce the *thanawiya* test from two years to one year, with the aim of reducing the financial burden of private tutors on families (Reem 2012). The effect of these reforms on access to university is an area in need of future research; it is possible that a reduction in the cost of private tutoring will benefit students from less advantaged backgrounds, even if only to a small degree.

Findings also suggest that females are much less likely to attend private universities both before and after controlling for the fact that females tend to perform better on the exit exam overall. This finding could indicate an economic decision on the part of the family, but could also suggest that female students are simply less interested in attending private universities, either because of their generally inferior reputations, or their more limited selection of majors. More qualitative research on that factors that shape females' decisions about higher education is needed to parse out discrimination from preferences.

Finally, the analyses suggest that the public and private sectors are experiencing countervailing trends. The real question is whether expansion in the public sector can actually occur without an accompanying private sector. Shavit et al. (2007) find that increased private funding of higher education is associated cross-nationally with larger and more expansive higher education systems. Private financing for higher education could hypothetically be increased in the public sector through increases in tuition fees. Although Egypt has begun to implement a variety of cost-sharing programs within the public sector, the fees are still relatively small. Moreover, higher education policies in Egypt are highly politicized, and charging higher tuition rates in the public sector remains controversial. Nonetheless, the findings from this study do indicate that assuming a goal of greater equity, increasing public sector fees would be a

preferable option to expanding the private university sector, particularly if tuition fees could be progressive in nature and graduated according to family wealth.

Conclusion

This paper argues that access to higher education in contemporary Egypt is occurring within two separate sectors, founded on two distinct logics, and as such, analyses of access should be disaggregated by sector. Although access to public universities is highly unequal and strongly biased in favor of urban and wealthy youth, its underlying logic of meritocracy is apparent in recent trends in access – females, rural students, and the upper middle classes are gaining access to higher education at higher rates than the urban and very wealthy. Academic achievement is the main predictor of access in the public sector. In contrast, private universities are governed by the logic of private resources and individual preferences, which has tended to exacerbate inequalities in access.

TABLE 1: DESCRIPTIVE VARIABLES

Variable (Ages 21-29)	Mean	N
<i>Demographic Characteristics</i>		
Female	0.53	3625
Age	24.70	6798
Young Cohort (Age 21-25)	0.61	4170
<i>Residency</i>		
Urban	0.32	2312
Rural	0.57	3785
Unincorporated urban	0.11	701
<i>Governate</i>		
Greater Cairo (Other = excluded)	0.12	838
<i>Wealth Quintiles</i>		
Q1 (Lowest)	0.18	1241
Q2 (Second)	0.21	1409
Q3 (Middle)	0.22	1452
Q4 (Fourth)	0.21	1432
Q5 (Highest)	0.18	1264
<i>Primary and Secondary Vocational</i>		
HS Graduate	0.87	4069
Attended Academic Secondary	0.36	1458
Attended Vocational Secondary	0.63	2563
Average Secondary Exit Exam Score	74.33	3057
<i>Post-Secondary Education</i>		
Ever Enrolled in Post-Secondary	0.25	1664
Attended Technical College or Institute	0.04	240
Attended Four Year University	0.21	1426
Public University	0.16	1086
Private University	0.03	219
Al-Azhar	0.02	103

TABLE 2: DEMOGRAPHICS OF STUDENTS, BY SECTOR

	All University	Al-Azhar	Public	Private
Female***	0.52	0.58	0.54	0.38
Age***	24.31	24.52	24.42	23.63
Urban***	0.53	0.2	0.53	0.69
Rural***	0.34	0.69	0.33	0.19
Unincorporated urban	0.13	0.10	0.14	0.11
Q1 (Lowest)	0.03	0.12	0.03	0.01
Q2 (Second)	0.07	0.16	0.07	0.05
Q3 (Middle)	0.12	0.25	0.12	0.09
Q4 (Fourth)	0.24	0.31	0.24	0.20
Q5 (Highest)**	0.53	0.16	0.55	0.65
Age 21-25***	0.68	0.62	0.66	0.81
Exit Exam Score (0-100)***	80.37	77.69	82.15	73.02
Vocational High School***	0.08	0.00	0.07	0.19
Ever Failed or Repeated in Secondary***	0.22	0.29	0.16	0.41
Greater Cairo (Cairo and Giza)***	0.25	0.05	0.22	0.48
Public-private mean tests were conducted; null hypothesis is that group means are the same.				
* p<0.05; ** p<0.01; *** p<0.001				

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TABLE 3: ODDS RATIOS REPORTING FACTORS PREDICTING ELIGIBILITY AND ACCESS TO HIGHER EDUCATION

	Model 1	Model 2	Model 3	Model 4	Model 5
	Ever Secondary	Academic Track	High school Graduate	Public University	Private University
Female	0.636*** (0.042)	0.770** (0.063)	1.628 (0.609)	1.038 (0.118)	0.606** (0.094)
Family Wealth Index	2.480*** (0.112)	2.495*** (0.153)	3.112*** (0.766)	1.564*** (0.128)	2.018*** (0.267)
Young Cohort	1.600*** (0.107)	1.361*** (0.116)	1.053 (0.400)	0.837 (0.098)	2.570*** (0.478)
Urban	0.677*** (0.059)	0.997 (0.100)	1.437 (0.836)	1.428* (0.202)	1.296 (0.262)
Greater Cairo	0.714** (0.084)	0.878 (0.112)	0.398 (0.245)	0.595** (0.100)	3.117*** (0.576)
Middle School Exam Score	0.636***	0.770** 1.162*** (0.008)	1.628	1.070	0.603**
Secondary Exit Exam Score			1.036 (0.020)	1.100*** (0.007)	0.946*** (0.007)
Vocational High School				0.022*** (0.003)	0.149*** (0.029)
Constant	1.407*** (0.0677)	-13.16*** (0.539)	0.473*** (0.122)	-10.81*** (0.515)	-1.258* (0.524)
Observations	6006	4065	1496	4065	4065
Pseudo R-squared	0.084	0.308	0.147	0.551	0.244
BIC	5808.872	3789.898	342.937	2236.647	1368.373

Notes: Includes an indicator variable for missing exit exam score data to control for non-random missing data.

* p<0.05; ** p<0.01; *** p<0.001

TABLE 4: RELATIVE RISK RATIOS FROM MULTINOMIAL LOGISTIC REGRESSION
PREDICTING ENROLLMENT IN PRIVATE UNIVERSITY (PUBLIC = BASE)

	Model 1	
Female	0.588 (0.097)	**
Family Wealth Index	1.449 (0.203)	***
Young Cohort	2.364 (0.456)	***
Urban (Rural and Unincorporated = excluded)	1.133 (0.242)	
General High School	0.304 (0.07)	***
Exit Exam Score	0.917 (0.008)	***
Greater Cairo (Other = excluded)	2.777 (0.545)	***
Constant	142.854 (97.057)	***

Notes:

i. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

ii. Five options were included in full model: a) no higher education; b) vocational post-secondary; c) public university; d) private university; Al-Azhar university.

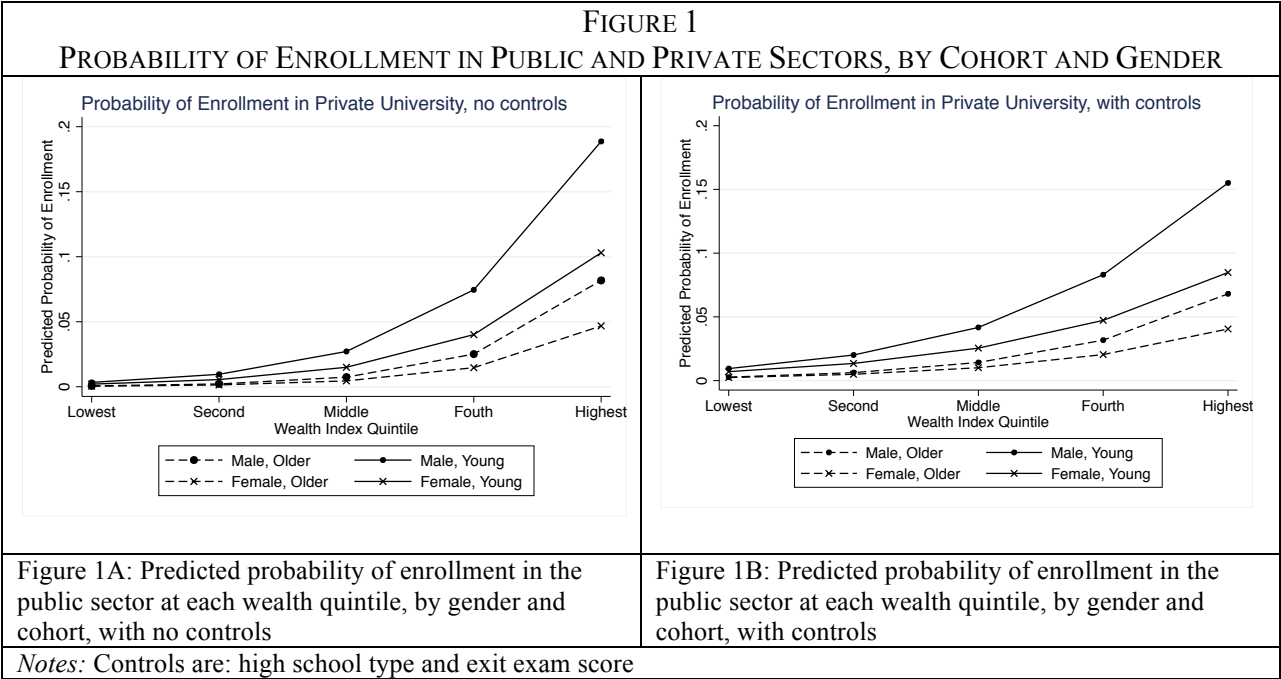
iii. Models include an indicator variable for missing exit exam score data to control for non-random missing data.

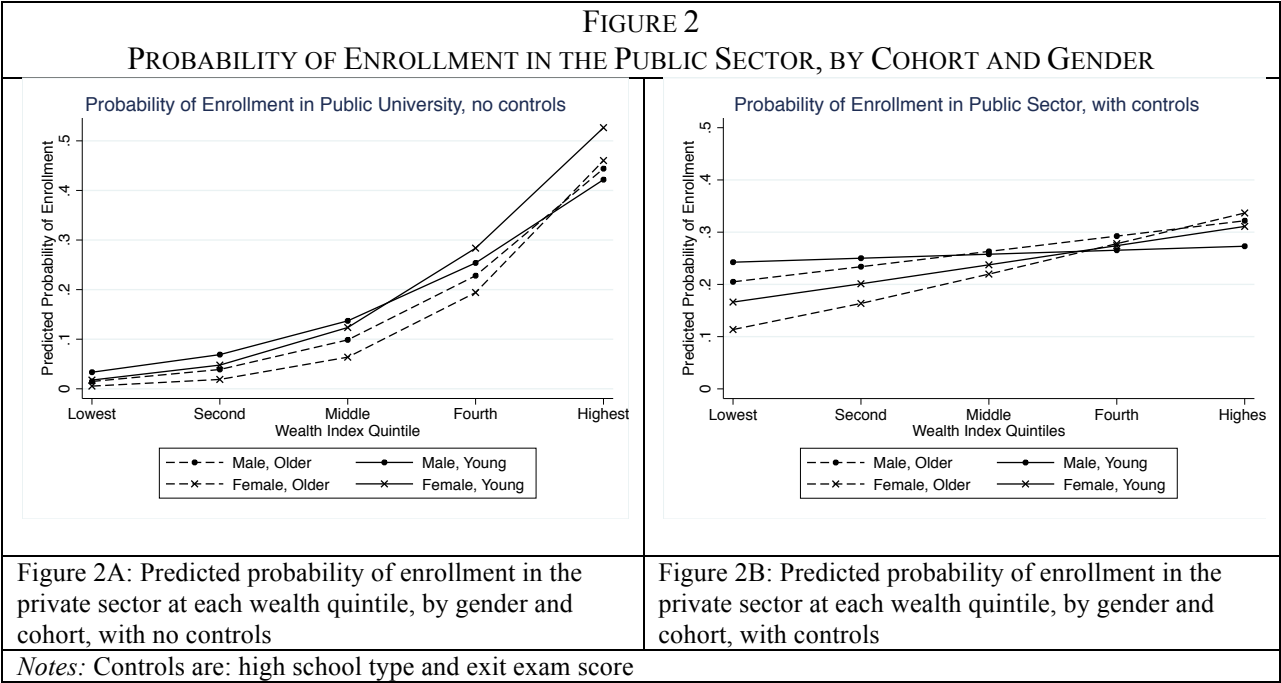
TABLE 5: COHORT CHANGES IN ACCESS TO HIGHER EDUCATION BY SECTOR
(ABSOLUTE GROWTH RATE BETWEEN OLDER AND YOUNGER COHORT)

	Growth Rate All University		Growth Rate Public University		Growth Rate Private University	
Female	0.06	***	0.04	***	0.02	***
Male	0.05	***	0.02		0.04	***
Urban	0.09	***	0.03		0.05	***
Rural	0.03	***	0.02	*	0.01	***
Slum	0.11	***	0.08	*	0.01	
Q1 (Lowest)	0.03	***	0.03	***	0.00	
Q2 (Second)	0.02		0.02		0.01	
Q3 (Middle)	0.06	***	0.04	*	0.02	***
Q4 (Fourth)	0.09	***	0.06	*	0.02	*
Q5 (Highest)	0.11	***	0.03		0.08	***
Attended Academic HS	0.01		-0.04		0.05	***
Attended Vocational HS	0.02	*	0.00		0.02	***
Under 65	0.03		-0.03		0.06	*
Q5 Under 65	0.14		-0.07		0.19	*

Notes: Growth rate is calculated by subtracting the proportion enrolled in the older cohort (age 26-29) from the proportion enrolled in the younger cohort (age 21-25). A positive value represents growth, while a negative value represents a decline.

* p<0.05; ** p<0.01; *** p<0.001





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