Pedagogy, Accountability, and Perceptions of Quality by Type of Higher Education in Egypt and Jordan

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A number of reasons have been proposed for the poor quality of higher education in the Arab world, including the poor incentive structures of public higher education institutions. The expansion of private higher education has been hailed as an important part of enhancing incentives and thus improving education quality. However, it is not clear whether the practices of private higher education institutions differ from those of public institutions. This article explores whether private provision improves the quality of higher education, as measured by pedagogy, accountability, and student perceptions of quality. The analysis focuses on commerce and information technology programs in Egypt and Jordan. The results indicate that pedagogy, accountability, and student perceptions of quality do not vary systematically by type of higher education institution in these countries and that expanding the role of private institutions in higher education is therefore unlikely to automatically improve educational processes or quality.

Introduction

Higher education in the Middle East and North Africa (MENA) is often characterized as low quality and lacking in relevance to the needs of the labor market.[1] A variety of studies have attempted to diagnose the poor performance of higher education institutions in MENA. A number of reasons have been proposed for their poor quality, including deficient incentive structures (OECD and World Bank 2010). The World Bank flagship report on education in MENA notes that the focus in education reform in the region has been on "engineering" reforms, targeting inputs, such as the quantity and quality of schools, teachers, and textbooks (World Bank 2008). Reforms have rarely addressed the incentive structures or accountability systems of educational institutions (World Bank 2008). One reason for the chronic poor performance of higher education systems in the Arab world may be the disconnect between higher education finance, which largely consists of centralized budget allocations to public institutions, and credible individual and

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[1] Rugh (2002); Fahim and Sami (2010); Wilkens (2011); Schwab (2014).

institutional incentives (Fahim and Sami 2010; Kanaan et al. 2010; Hellal 2013).

Since the incentives for delivering quality education ought to be stronger in private institutions than public ones, increasing the role of the private sector in the provision of education has been proposed as an important part of education reforms.[2] However, it is not clear to what extent the pedagogical and accountability practices of private higher education institutions actually differ from those of public institutions.[3] This article explores whether private higher education does, in fact, improve the quality of higher education, as measured by pedagogy, accountability, and student perceptions of quality. In order to reduce the heterogeneity of the higher education institutions we examine in this study, we focus on commerce and information technology (IT) programs in Egypt and Jordan. We find that the processes pursued by higher education institutions do not consistently and systematically vary by type of institution. While private institutions in Egypt tend to have more innovative pedagogy and better accountability practices than their public counterparts, the same is not true in Jordan. In Jordan, pedagogical and accountability practices are superior in public institutions. We conclude that increasing the role of the private sector in higher education will not, in and of itself, improve the quality of higher education in MENA.

Conceptual Framework

The argument that private institutions will deliver higher-quality or more cost-effective higher education than public provision rests on a set of assumptions about how incentives function in these institutions and among parents and young people investing in education. How do parents and young people make decisions about higher education? Economic theory suggests that the labor market signals the rewards to various education levels and to different skill sets. On the basis of these labor market signals, students and parents make decisions about the path to follow in their studies in order to maximize anticipated rewards (Becker 1962, 1993).

Once they have chosen the level of education and the skill sets that seem most desirable, students look for the particular higher education institutions that they expect to help them most in the labor market. In theory, private higher education institutions ought to have strong incentives to provide high-quality education, since they must cater to their clients' interests in order to receive tuition, their primary source of funding (Shleifer 1998; Bishop and

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[2] World Bank (2008); Fahim and Sami (2010); Kanaan et al. (2010); OECD and World Bank (2010).

[3] The World Bank, e.g., has emphasized the role of the private sector in the provision of education for a number of years as an important element of quality and efficiency, despite a weak evidence base (Mundy and Menashy 2014).

Wößmann 2004). Nonprofit private higher education institutions and public institutions may have similar incentives to provide quality higher education if tuition is an important source of their funding or if public funding is contingent on their quality. However, if public institutions receive funding regardless of the quality of education they provide, they have little incentive to deliver high-quality education.

The structure and nature of higher education in MENA does not, for the most part, incentivize high quality. The higher education systems in most of the countries in the region were established during periods of state-led development, when the civil service was the primary employer of graduates. Credentials, rather than skills, tend to be rewarded in the civil service (Salehi-Isfahani 2012), creating little incentive for high-quality education. Additionally, public higher education, like lower levels of education, is provided tuition-free as part of the social contract (Rugh 2002). Thus, public institutions face no incentive to deliver high-quality education on the basis of students' and their families' tuition payments. Additionally, public institutions are not funded on a per student basis, choice of higher education institutions is limited, and demand for higher education exceeds supply. As a result, public funding tends to be disconnected from performance indicators, weakening incentives for these institutions to structure their programs in order to maximize quality or meet student preferences and needs (Fahim and Sami 2010; Kanaan et al. 2010; Hellal 2013). In contrast, private institutions receive essentially no public funding (Hellal 2013). Because their income depends on their ability to attract students and charge tuition fees, private institutions are expected to face stronger incentives to offer better-quality education.

A number of factors may distort the functioning of both public and private higher education institutions. First, demand for higher education generally exceeds the number of places available. For instance, in Egypt families make enormous investments in tutoring in order to compete for the finite number of spots in the general secondary, higher education–bound track and to improve their children's performance in that track (Assaad and Krafft 2015b). Even private higher education institutions may not need to be competitive in order to ensure enrollments. Second, the government is still a major employer of higher education graduates, leading students and their families to be more focused on acquiring the credentials they need to obtain public sector jobs rather than skills. Historically, government hired graduates regardless of their quality or skills acquired; for instance, in Egypt until the mid-1980s, all higher education graduates were guaranteed public sector employment, although the queue for government jobs had already lengthened considerably by then (Assaad 1997; Salehi-Isfahani and Dhillon 2008). Nearly 70 percent of graduates with secondary degrees and above in Egypt and over 60 percent of graduates in Jordan who were entering employment in the late 1960s were working for the government in their first job. These

shares fell gradually in both countries but were still as high as 40 percent in Egypt and just under 60 percent in Jordan in 1990 (Assaad 2014b, 16).

The emphasis on credentials in MENA economies, an issue that pertains to both public and private institutions, has contributed to a focus on rote memorization and the neglect of critical thinking and problem-solving skills in higher education (Rugh 2002; OECD and World Bank 2010; Assaad 2014a). In part because of this historical emphasis on credentials, students and their parents have aimed to obtain these credentials at the lowest possible cost, without regard to quality. In a recent paper, Barsoum (forthcoming) suggests that the primary allure of private higher education in Egypt is that it is an "easy" route to a degree in desirable fields for those students who can pay but whose grades are too low for admission in these fields in a public institution.

Over time, the region has moved from state-led development toward more market-oriented economies. Although the government remains a major employer of higher education graduates, there is also growing demand for skilled higher education graduates among private employers. Productive and cognitive skills are of greater interest to private employers than credentials, since it is these skills that contribute to productivity and thus profits. Yet only a quarter of employers report that university graduates have the appropriate soft and hard skills in both Egypt and Jordan (World Bank 2013). Despite the changes in the structure of employment, public higher education has remained largely unchanged, and quality has not improved. This is in part because private sector employers are largely small and informal (Assaad 2014b; Assaad and Krafft 2015c), making it difficult for them to effectively signal the type of skills and educational quality that will be rewarded in the labor market, especially in contrast to the government's continuing demand for credentials. The education and training sectors in MENA operate essentially in isolation from the private sector and its needs (World Bank 2013). The problem that this article is concerned with is to identify ways of increasing the responsiveness of higher education institutions to this new landscape. Can private higher education institutions, which should have stronger incentives to respond to market forces, play an important role in delivering high-quality and relevant education? In this article, we specifically focus on the possible role of private higher education in terms of delivering higher-quality pedagogy, greater accountability, and better quality as perceived by students, in Egypt and Jordan.[4]

Institutional Capacity and Governance of the Higher Education Systems in Egypt and Jordan

In part as a result of the design of their governance structures and the ways they are financed, public higher education institutions in Egypt and

[4] See Assaad et al. (2014) for an investigation of the impact of private higher education and educational processes on labor market outcomes.

Jordan are not well positioned to deliver high-quality instruction.[5] The 2014–15 Global Competitiveness Report ranks Egypt 111 out of 144 countries in terms of its higher education and training competitiveness. An inadequately educated workforce has been identified as a problematic factor for doing business in Egypt (Schwab 2014). The poor performance of the education system in Egypt is not limited to higher education. More than half (53 percent) of eighth-grade students received "below low" scores on the Trends in International Mathematics and Science Study (TIMSS) mathematics test in 2007, similar to the MENA average of 54 percent but a much higher share than the international median (25 percent). Jordan's basic education system does somewhat better, with only 39 percent of eighth-grade students scoring below low on the TIMSS mathematics exam in 2007 (Assaad 2014a). Egypt slightly underperforms and Jordan slightly overperforms relative to their gross domestic product per capita on the TIMSS (World Bank 2008). Jordan's higher education system also performs better than Egypt's in international comparisons; it ranks 48 out of 144 countries in terms of higher education and training in the Global Competitiveness Report. However, as in Egypt, the report identifies an inadequately educated workforce as a challenge for doing business in Jordan (Schwab 2014).

Egypt

As of 2011/12, the higher education system in Egypt consisted of 23 public universities, including Al-Azhar University, which is operated by the Al-Azhar religious institution; 19 private universities; 131 private higher institutes; and four 4-year public academies (table 1).[6] In addition there are numerous 2-year middle technical institutes, which are outside the scope of this article. Gross enrollment rates in higher education in Egypt are expected to increase from 28 percent in 2006 to 35 percent by 2021 due to increasing demand for higher education (OECD and World Bank 2010).

Private universities are a relatively new development in Egypt; they became legal only in 1992, and the first four private universities opened in 1996 (Said 2013; Barsoum 2014).[7] Enrollment in private universities is still low at 4 percent of total bachelor-level higher education enrollment (see table 1), but it has grown rapidly, by 11.8 percent per annum from 2007/8 to 2011/12 (CAPMAS 2013). In contrast, enrollment in public universities has declined

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[5] For more information on the structure of higher education and incentives in Egypt and Jordan, see Barsoum (2014) and Barsoum and Mryyan (2014).

[6] Four-year academies are specialized public institutions such as the Arab Academy for Maritime Transport, the Police Academy and the Sadat Academy for Administrative Sciences. Because of their limited role in the commerce and IT fields and their limited overall enrollment, they are not a main focus of this article.

[7] There is one private university, the American University in Cairo, that substantially predates the 1992 law and has a unique legal status outside of the Private Universities Act of 1992 (OECD and World Bank 2010). Private higher institutes have been allowed since 1970 (El Baradei and El Baradei 2004).

by 3.3 percent per annum over the same period. Such rapid growth in private higher education is common to developing countries moving toward market-oriented economies (Levy 2006). The more specialized and less comprehensive private higher institutes have been around longer and enroll nearly four times as many students as private universities (see table 1). Because they have been around longer, they have not grown as fast as private universities. In fact, their enrollment has declined from 372,000 to 305,000 from 2007/8 to 2011/12 (CAPMAS 2013).

As shown in table 1, as of 2011/12, there were a total of 2.2 million students enrolled in bachelor-level higher education institutions in Egypt, of which just over three-quarters were enrolled in public universities. About 20 percent and 4 percent, respectively, of higher education enrollees were enrolled in the commerce and IT fields, the two fields that are the focus of this study. Students enrolled in the commerce field are disproportionately in public universities, whereas those enrolled in the IT field are disproportionately in private higher institutes.

Public universities tend to be very large in Egypt, averaging about 71,000 students each (table 1). Private universities, at 4,000 students each, on average, are less than a tenth this size, and private higher institutes are somewhat smaller at 2,300 students each. The faculties (or colleges) of commerce at public institutions also tend to be very large. At 19,000 students each, on average, they far exceed the size of entire private universities or higher institutes in Egypt and, for that matter, most universities elsewhere in the world. IT departments and colleges in public universities are much smaller.

Overall, student-faculty ratios (which include faculty and their assistants) are highest in private higher institutes (36) as compared to public universities (21) and private universities (12). However, these ratios vary a great deal between commerce and IT faculties. At 138 students per faculty member, student-faculty ratios in commerce in public universities are nearly 10 times higher than in IT. Even in private universities, student-faculty ratios in commerce are nearly twice as high as in IT (15 vs. 9; table 1).[8]

The higher education system in Egypt is highly centralized across various state authorities and several layers of control (OECD and World Bank 2010). As in many countries in the Arab region, public higher education institutions operate under a centralized control system and a rigid bureaucracy and are administered as extensions of state authority (Wilkens 2011). For instance, university presidents and deans are centrally appointed and are widely perceived to be selected for their loyalty to the governing party (Lindsey 2012). Although this changed for a brief period after the January 25, 2011, revolution, when presidents and deans were elected by university faculty, the new

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[8] The number of faculty members is not available by field of specialization in private higher institutes.

TABLE 1

Number of Enrolled Students, Faculty, and Assistants in 4-Year Higher Education Institutions in Egypt and Jordan, 2011–12

| | Egypt | | | | | | Jordan | | | | | |
| | Overall | | Commerce | | IT | | Overall | | Commerce | | IT | |
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Number of institutions/faculties:												
Public universities	23	13	20	NA	12	NA	10	34	9	36	9	36
Private universities	19	11	17	NA	13	NA	19	66	16	64	16	64
Private higher institutes	131	74	NA	NA	NA	NA						
Four-year academies	4	2	NA	NA	NA	NA						
Total	177	100	NA	NA	NA	NA	29	100	25	100	25	100
Number of students:												
Public universities	1,627,339	80	380,423	88	13,180	16	179,823	73	37,011	60	14,638	67
Private universities	75,956	4	11,095	3	2,204	3	66,061	27	24,781	40	7,055	33
Private higher institutes	305,204	15	33,417	8	68,692	82						
Four-year academies	27,670	1	4,985	1	0	0						
Total	2,036,169	100	429,920	100	84,076	100	245,884	100	61,792	100	21,693	100

Number of faculty and assistant faculty:										
Public universities	77,277	82	2,761	878	5,632	68	451	40	442	55
Private universities	6,303	7	731	259	2,653	32	689	60	365	45
Private higher institutes	8,563	9	NA	NA						
Four-year academies	2,119	2	NA	NA						
Total	94,262	100	NA	NA	8,285	100	1,140	100	807	100
Average number of students per institution/faculty:										
Public universities	70,754		19,021	1,098	17,982		4,112		1,626	
Private universities	3,998		653	170	3,477		1,549		441	
Private higher institutes	2,330		NA	NA						
Four-year academies	6,918		NA	NA						
All	12,154		NA	NA	8,479		2,472		868	
Student-faculty ratio:										
Public universities	21.1		137.8	15.0	31.9		82.1		33.1	
Private universities	12.1		15.2	8.5	24.9		36.0		19.3	
Private higher institutes	35.6		NA	NA						
Four-year academies	13.1		NA	NA						
All	22.8		NA	NA	29.7		54.2		26.9	

SOURCE.—Egypt: CAPMAS (2013), Jordan: MHESR (2013).
NOTE.—NA = not available.

law governing universities passed in June 2014 reverted to central appointments.

The state-dominated approach has led to numerous dysfunctions in the higher education system, stifling institutional autonomy, limiting flexibility of education and training programs, and, more important, weakening its responsiveness to student demands, the needs of the labor market, and national development goals (OECD and World Bank 2010). This lack of autonomy and self-management continues to produce a mismatch in the demand and supply of skills in the labor market, which is problematic for both graduates and employers. Despite public spending on higher education being relatively high in Egypt, because of the higher education expansion policies, public institutions are severely underfinanced in terms of faculty, infrastructure, equipment, and learning materials (OECD and World Bank 2010). Budget allocation mechanisms are not performance based and do not reflect the actual needs of the higher education institutions or provide the incentives required to align their educational processes and programs with societal needs and employers' expectations (Fahim and Sami 2010; OECD and World Bank 2010; Hellal 2013). This public-funding approach provides no financial incentive for institutions to use their limited resources more efficiently and cost effectively (OECD and World Bank 2010).

In addition, the Egyptian higher education system continues to be hindered by an outdated framework of public administration as well as an overly fragmented legal structure that allows for excessive state intervention in university affairs. State agencies control the curriculum design, the approval of new degrees, and student admissions. Like public institutions, private programs are similarly burdened by many of the restrictive laws and regulations, which undermines the potential of the private sector in higher education (OECD and World Bank 2010).

Student admission to public and private higher education institutions is based on scores in the secondary school examinations administered by the Central Placement Office. Specifically, there is a set number of spaces allocated to each specialization (faculty) within an institution by the Supreme Council of Universities. The council sets minimum scores for different faculties and institutions, but these minimum scores are often exceeded as a result of the matching process between student preferences and available spaces. Students rank their preferences over combinations of institutions and faculties (e.g., first choice of commerce at Cairo University, second choice of commerce at Ain Shams University, and third choice of arts at Cairo University). Students can express up to 42 ranked choices. The placement office then allocates students on the basis of their secondary exam scores and preferences until the set number of spots in each faculty is filled. Thus, the centrally determined supply side and the demand side of student preferences determine matching based on test scores. The minimum scores of

admission to each faculty-institution combination may vary somewhat from year to year, but their relative rankings in terms of selectivity generally remain fairly stable over time. Recently, a geographic criterion has been added in order to limit students' admission to institutions in their region of residence. This admissions system provides little institutional autonomy or flexibility for higher education institutions to shape their student body in light of their missions and capacities (OECD and World Bank 2010; Barsoum 2014). When we refer to the "selectivity" of a faculty-institution combination in what follows, it is based on the minimum score of admission as determined by this matching process.

Jordan

The higher education system in Jordan consists of 10 public universities, 19 private universities, and nearly 50 2-year community colleges that are outside the scope of this study (Kanaan et al. 2010; MHESR 2013). Until the end of the 1990s, higher education was entirely public (Kanaan et al. 2010), so as in Egypt private higher education is relatively new. The number of students enrolled in bachelor-level institutions in Jordan in 2011/12 was approximately 246,000 (table 1). Of these, 73 percent were enrolled in public universities and the rest in private universities. The average rate of growth in enrollment from 2007/8 to 2011/12 averaged 4.3 percent per year in public universities and 3.7 percent per year in private universities (MHESR 2013). This growth follows a period when gross enrollment rates in tertiary education had been expanding rapidly, from 13 percent in 1985 to 39 percent as of 2003 (World Bank 2008).

The commerce and IT fields account for 25 percent and 9 percent, respectively, of overall bachelor-level higher education enrollment in Jordan (table 1). Unlike Egypt, relative to overall enrollment, enrollment in commerce appears to be disproportionately tilted toward private universities. This is also the case for IT, but to a somewhat lesser extent. Public universities in Jordan are much smaller than in Egypt, averaging about 18,000 students each, but private universities are about the same size in the two countries. As in Egypt, commerce faculties in both public and private universities are much larger than IT faculties and also have higher student-faculty ratios. Nevertheless, student-faculty ratios in commerce faculties in Jordan's public universities are much lower than their counterparts in Egypt (82 vs. 138), but the opposite is true for IT faculties (33 vs. 15). Private universities in Jordan have more than double the student-faculty ratios in Egypt in both commerce and IT, but this comparison does not take into account private higher institutes, which account for most of the private enrollment in Egypt but have no counterparts in Jordan.

Universities in Jordan enjoy a greater level of autonomy than in Egypt. For instance, the law states that each university shall have a board of trust-

ees. In addition to the university president, the board includes members from academia as well as employers (Abu-El-Haija et al. 2011). Among other tasks, this board is responsible for establishing the university's overall policies; approving the university's strategic plan; assessing the university's academic, administrative, and financial performance; selecting vice presidents and deans; and setting the university's tuition and fees.

However, higher education institutions in Jordan do face different kinds of restrictions and state intervention. The Council of Higher Education is the main body that controls the higher education system in Jordan (Abu-El-Haija et al. 2011). The council determines the amount of funding allocated to public universities, defines the admission criteria for universities, determines the number of students to be enrolled in different programs at each university, and appoints presidents of both public and private universities. Student admission to public universities is administered by the Unified Admission Unit (Abu-El-Haija et al. 2011). As in Egypt, the total number of students to be admitted is set centrally, which in conjunction with student preferences and secondary test scores determines the allocation of students to faculty-university combinations and minimum scores of admission (Barsoum and Mryyan 2014).

In terms of finance, public spending on higher education in Jordan declined from 2.5 percent of the government budget in 1991 to 1.3 percent of the budget in 2011 (Chapman 2011). Universities in Jordan are defined in the law as both financially and administratively independent, but much of this independence is in name only (Abu-El-Haija et al. 2011). Public universities are allowed to transfer funds within approved budgets, subject to certain regulations. Nonetheless, central budget allocation mechanisms are mainly based on a crisis management approach in which funds are allocated to universities that demonstrate need even if they are poorly managed. Well-run universities may face budget reductions. The funding of public universities in Jordan does not reward good outcomes or management practices, nor does it provide adequate incentives through funding to promote good governance. In addition, although public higher education institutions are empowered by law to set their tuition fees, they are in fact not authorized to raise their fees unless approved by the cabinet (Abu-El-Haija et al. 2011).

Method

Our goal is to assess how different institutional characteristics and incentives, especially private versus public ownership, affect the pedagogical and accountability processes that higher education institutions use and the perceptions of quality among their students. There are, however, an enormous number of different dimensions to consider among educational processes. The use of problem-solving approaches, group projects, multiple-choice questions, and lectures are just a few elements within pedagogy—and pedagogy is

only one element of overall institutional processes. One method that allows researchers to assess multiple related elements of an underlying construct, such as the different elements of pedagogy, is factor analysis. Factor analysis is commonly used to create indexes of attitudes and perceptions, such as attitudes about gender equality (Zhang et al. 2007); to quantify behavior or capacities, such as cognition or externalizing behavior (Heckman et al. 2013); and to measure economic outcomes, such as wealth (Filmer and Pritchett 2001) or job quality (Krafft and Assaad 2015).

Factor analysis is a data-reduction technique that uses the empirical relationships between different variables that are all related to some underlying construct to create one or more continuous, standardized factor variables out of the original set of related variables (Harman 1976). Variables that are closely related have a higher communality, while variables that are less closely related have a higher uniqueness, which is $1 -$ communality. On the basis of the communalities between the original variables, factor loadings are calculated, which are then transformed into scoring coefficients (Kim and Mueller 1978). The scoring coefficients are like regression coefficients; they represent the change in the underlying factor per unit of change in one of the original variables. The value of a factor—for instance, pedagogy for a particular institution—can then be calculated on the basis of the scoring coefficients and the values of the original variables for that institution.

We examine three different factors in our data, one called the "pedagogy factor," one called the "accountability factor," and one called the "student perception of quality factor" (perception factor). Each is estimated separately for Egypt and Jordan. The variables that compose each of these factors and their uniqueness, factor loadings, and scoring coefficients are discussed below. These variables are then used as dependent variables in regression models to assess the impact of different institutional characteristics on educational processes. Because the factors are continuous and act as dependent variables, any random measurement error in the factors will not attenuate or bias the coefficients of our models (Wooldridge 2002).

Data

Sample

We are interested in the relationship between educational processes and perceptions of quality, on the one hand, and the characteristics and ownership status of higher education institutions in Egypt and Jordan, on the other hand. Our target population is individuals between age 25 and 40 in 2012 who (1) graduated from the two specified fields of study from 4-year higher education institutions, (2) have ever worked, and (3) live in urban areas.[9]

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[9] One concern with our sample is whether time trends might be driving the results since private institutions are a fairly recent development in both countries. However, empirically there was not a large

TABLE 2
SAMPLE NUMBER OF INSTITUTIONAL UNITS BY PUBLIC/PRIVATE,
SPECIALIZATION, AND SELECTIVITY, EGYPT AND JORDAN

Type	Egypt	Jordan
Nonselective commerce:		
Public	21	7
Private	39	14
Nonselective IT:		
Public	14	6
Private	45	10
Selective commerce:		
Public	5	2
Private	9	2
Selective IT:		
Public	3	3
Private	11	3
Private	104	29
Selective	28	10
IT	73	22
Total	147	47

NOTE.—Authors' calculations.

The sources of the sample are one quarterly round of the Labor Force Survey in Egypt and one round each of the Employment and Unemployment Survey and Household Income and Expenditure Survey in Jordan, all of which are nationally representative surveys. Return visits were made to individuals who met the eligibility criteria in the sample frames mentioned above. A detailed questionnaire inquired about education and labor market trajectories, along with the individuals' family background.[10] Particularly important, for the purposes of this article, is the inclusion of questions about students' experiences in their higher education institutions, including the teaching methods used, accountability measures (such as teacher evaluations), and students' perceptions of quality.

The final samples to which the surveys were administered consisted of 1,710 individuals in Egypt and 1,539 individuals in Jordan. This article excludes individuals in Jordan who attended higher education institutions outside of Jordan. We also consider separately the commerce and IT specializations in each institution represented in the sample. Thus, some higher education institutions may be represented by two "institutional units" if they have students in the sample in both the IT and commerce specializations. This resulted in 147 higher education institutional units being observed in

or consistent difference in average ages of graduates by institution type. In Egypt, private institutions had an average age of graduates (in 2012) of 27.3, and public institutions 28.8. In Jordan, private institutions had an average age of graduates (in 2012) of 30.1, and public institutions 28.7. Although private institutions are fairly recent, the population structures of Egypt and Jordan are such that the 25–40-year-old population itself is strongly skewed toward the younger end. Thus, we do not expect time trends to be driving our results.

[10] For additional information on the data, which are publicly available, see the Open Access Micro Data Initiative of the Economic Research Forum (OAMDI 2014a, 2014b).

Egypt and 47 in Jordan. These institutional units are our units of analysis in this article. See table 2 for the distribution of institutional units across institution types.[11]

Outcome Variables

We focus on three different educational outcomes: pedagogy, accountability, and student perceptions of quality. These are all of great importance to the quality of education that students receive and are shaped by the incentives that different types of institutions face. In terms of the pedagogy factor, we examine a number of questions about teaching methods, specifically,

> To what extent were the following teaching methods used during your bachelor degree:
>
> - Lectures
> - Group projects
> - Participation in research projects
> - Applied knowledge
> - Theories
> - Exclusive use of materials authored by professor
> - Education based on problem solving and case studies
> - Analytical assignments
> - Oral presentations by students
> - Multiple-choice questions
> - Writing topics
> - Computer-aided education

The response options for these questions were (1) never, (2) rarely, (3) sometimes, (4) often, and (5) used to a very high degree (always). We calculated a mean value for each variable for each institutional unit on the basis of the average of student-level responses on this scale and performed the factor analysis on these means. We expect institutions with "better" features and incentives (more selective or private programs) will have higher values of the pedagogy factor.

For the accountability factor, a number of yes/no questions were used, including:

> - Did the university provide students with the opportunity to evaluate faculty members on a regular basis?
> - Did the university survey students' satisfaction with the educational process during the course of study?
> - Did the university conduct a survey on students' satisfaction with the educational process at graduation?
> - Are you a member of the Alumni Association?

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[11] The allocation of institutional units across the selective and nonselective categories is explained in greater detail below.

- Does the university follow up on your status after graduation?
- Did the university provide services and guidance to assist their graduates in finding employment?

Yes responses were coded 1 and no 0, so that higher values of the resulting factor should indicate a greater degree of accountability. We calculated a mean value for each variable for each institutional unit on the basis of the average of student-level responses on this scale and performed the factor analysis on these means. We expect institutions with "better" features and incentive mechanisms (more selective or private programs) to have higher values of the accountability factor.

In terms of the student perceptions of quality, we include a series of questions on how appropriate students' bachelor degree was for

- Finding the first job
- Continued learning on the job
- Performance on the current job
- Preparation for future jobs
- Self-development
- Promoting your creativity

Response categories were (1) not at all appropriate, (2) inappropriate, (3) somewhat appropriate, (4) appropriate, and (5) very appropriate.

We also included in the perception factor a variable capturing overall satisfaction with the institutional unit, specifically the response to the question "If you had a chance to reconsider, would you choose the same major at the same university?" Responses were (1) not the same university, (2) a different major in the same university, and (3) yes (i.e., same major at the same university). We calculated a mean value for each variable for each institutional unit on the basis of the average of student-level responses on these scales and performed the factor analysis on these means. We expect institutions with "better" features and incentives (more selective or private programs) to have higher values of the perception factor.

Covariates

We are interested in the relationship between institutional characteristics and incentives, on the one hand, and pedagogical and accountability processes as well as student perceptions of quality, on the other. Whether a higher education institution is public or private was identified on the basis of the name of the university and not from student responses, as individual responses were sometimes contradictory. The specialization was specified as either commerce or IT. The selectivity of the institutional unit was determined relative to other institutional units of the same type (public commerce, private commerce, public IT, private IT) on the basis of how the minimum admission

score for a particular institutional unit, as reported by the centralized placement office in each country, compared to the distribution of minimum scores for that type.[12] Institutional units with minimum secondary scores that were at the 75th percentile or greater within their type were coded as selective. In the case of private institutions, the 75th percentile was the same as the lowest score for some types. In that case, we took the next highest score above the minimum as the threshold for selective institutional units. Selectivity is thus operationalized as an institutional unit (combination of institution and faculty) having a relatively higher minimum score on secondary exams, relative to other institutions of the same type.[13]

Since public institutions have much higher minimum scores for admission than private institutions in both countries, and since each type is only being compared to itself, nonselective public institutions have significantly higher minimum scores than selective private institutions. In Jordan, within each of the specializations, even the highest minimum score for a private institution is below the lowest minimum score for a public institution. Egypt has some overlap in the distribution of minimum scores across private and public institutions, but the mean differences are around 30 points in favor of public institutions (primarily due to the large number of private institutions requiring only a passing score to enter). Likewise, at least in public institutions, the threshold for selective institutional units is higher in the IT specialization than in commerce. The difference between the selective IT cutoff and the selective commerce cutoff is approximately 6.4 points in Egypt and 0.7 points in Jordan.

A concern with any econometric model is whether coefficients might be biased because of omitted variables. Omitted-variable bias will be a problem when omitted variables, such as socioeconomic status or secondary school performance, are related to both the covariates included in the model (institutional features) and the outcomes (higher education processes). Omitted variables about student characteristics, such as socioeconomic status and secondary school performance, definitely are related to the type of institution one attends (Buckner 2013; Krafft et al. 2013). However, it is unlikely that these characteristics directly affect our outcomes, higher education processes; that is, a student's socioeconomic status and secondary school score

[12] We use minimum scores from a single year to make consistent comparisons. Since there is substantial institutional inertia, institution rankings are unlikely to have changed much over time.

[13] We consistently used the minimum score for applicants from the "sciences" stream of general secondary education in both countries to undertake the comparisons. Students from the "arts" stream, if eligible for admission, typically had a somewhat different minimum score. This operationalization based on test score aligns well with universities' reputations. For instance, in Egypt, Cairo University is recognized as the most prestigious public institution and was identified as selective in the data based on test scores. Both well-known private institutions in Egypt, such as the American University in Cairo, and more specialized institutions, such as the Shorouk Academy, were identified as selective. In Jordan, prestigious public universities such as the University of Jordan were identified as selective in the data, and prestigious private institutions, such as Princess Sumaya University for Technology, were also classified as selective.

should not directly affect whether the higher education institution conducts surveys on student satisfaction, uses multiple-choice questions, or is appropriate for self-development. To be certain that omitted variables are not driving our results, we include in our models two measures summarizing secondary school performance and socioeconomic status. The first measure is the mean secondary school score that students attending the institution report. The second measure is the proportion of students whose father had a higher education, a proxy for socioeconomic status (Assaad and Krafft 2014; Assaad and Saleh 2015). Notably, our results are very similar (only small changes in coefficient size for the institutional features and no changes in statistical significance) between models with these variables included and excluded, indicating that omitted-variable bias is not driving the coefficients obtained for institutional features.[14]

Results

Factor Analysis

We first present the factor analysis results for the three factors in Egypt and Jordan, summarizing the items that were most important for each factor. In Egypt, problem solving has the highest scoring coefficient in pedagogy, meaning that the frequent use of problem-solving approaches is the variable that is most highly weighted for good pedagogy (table 3).[15] The use of oral presentations and applied knowledge approaches also have high coefficients. In Jordan, the most important element of the pedagogy factor is the use of applied knowledge approaches, which has the largest coefficient (table 3).[16] Group projects and research projects also have large coefficients. Although concepts such as pedagogy are always difficult to define, in the context of MENA where rote memorization is the norm (Rugh 2002; OECD and World Bank 2010; Assaad 2014a), pedagogical approaches apart from lectures are considered an improvement. Factors that weigh lectures negatively and a diversity of approaches positively are therefore an effective measure of the range of the pedagogical experiences available to students. At the same time, students may not accurately report the processes they experienced because they cannot recall them, since the respondents have typically graduated a number of years prior. However, the sizable correlations and eigenvalues for the pedagogy factor and other factors suggest that students do remember the pedagogical processes they were exposed to during their studies.

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[14] Additionally, in the models only one of the estimated 12 parameters for attendee characteristics is statistically significant (at the 5 percent level), a result that could have occurred essentially by chance.

[15] This first factor, the pedagogy factor, has an eigenvalue of 5.98 in Egypt; all other factors have eigenvalues less than 1.

[16] The pedagogy factor has an eigenvalue of 3.36 in Jordan. Two other factors have eigenvalues greater than 1, but those additional factors have been omitted in the analysis for the sake of comparability.

TABLE 3
Scoring Coefficients, Factor Loadings,
and Uniqueness for the Pedagogy Factor, by Country

Frequency of Use of	Scoring Coefficient	Factor Loading	Uniqueness
Egypt:			
Problem solving	.234	.873	.149
Oral presentation	.206	.863	.144
Applied knowledge	.179	.827	.209
Group projects	.133	.790	.204
Research projects	.120	.778	.224
Analytical assignments	.091	.825	.221
Writing topics	.072	.779	.315
Computer-aided education	.056	.680	.435
Multiple-choice questions	.046	.623	.516
Use of theories	.029	.556	.580
Lectures	−.019	−.204	.706
Exclusive use of materials authored by professor	−.038	−.272	.562
Jordan:			
Applied knowledge	.406	.857	.264
Group projects	.279	.798	.362
Research projects	.217	.705	.502
Use of theories	.114	.495	.754
Multiple-choice questions	.114	.527	.721
Exclusive use of materials authored by professor	.090	.325	.894
Analytical assignments	.074	.367	.864
Writing topics	.055	.566	.679
Problem solving	.026	.335	.887
Computer-aided education	.019	.358	.871
Oral presentation	.013	.414	.828
Lectures	−.045	−.030	.999

Note.—Authors' calculations. Number of higher education institutions = 147 (Egypt) and 47 (Jordan).

In terms of the accountability factor in Egypt (table 4), the presence of evaluation of education processes during the course of study has the largest coefficient, followed by teaching evaluations.[17] In Jordan, the most important element of the accountability factor is teaching evaluations (table 4).[18] Evaluation of education processes during the course of study is the next most important element of the accountability factor. In Jordan the accountability factor appears to be more strongly associated with evaluation during the course of study than with accountability after graduation.

The appropriateness of higher education in promoting creativity has a high coefficient for the perception factor in Egypt (table 5).[19] Better preparation for future jobs, self-development, continued learning on the job, the appropriateness of education to finding the first job, and current job per-

[17] The first factor, which we term the accountability factor, had an eigenvalue of 2.83 for Egypt. All other factors had eigenvalues less than 1.

[18] The accountability factor for Jordan had an eigenvalue of 1.72. All other factors had eigenvalues of 1 or less than 1.

[19] The perception factor for Egypt had an eigenvalue of 4.65. All other factors had eigenvalues less than 1.

TABLE 4
SCORING COEFFICIENTS, FACTOR LOADINGS, AND
UNIQUENESS FOR THE ACCOUNTABILITY FACTOR, BY COUNTRY

Prevalence of	Scoring Coefficient	Factor Loading	Uniqueness
Egypt:			
Evaluation of education processes			
during the course of study	.503	.921	.151
Teaching evaluation	.280	.871	.240
Satisfaction survey upon graduation	.126	.730	.466
Follow-up surveys after graduation	.102	.532	.716
Employment and career guidance	.058	.505	.744
Membership in alumni association	.047	.396	.842
Jordan:			
Teaching evaluation	.407	.749	.437
Evaluation of education processes			
during the course of study	.301	.661	.562
Satisfaction survey upon graduation	.087	.370	.863
Membership in alumni association	−.115	−.423	.821
Employment and career guidance	−.178	−.451	.796
Follow-up surveys after graduation	−.229	−.457	.790

NOTE.—Authors' calculations. Number of higher education institutions = 147 (Egypt) and 47 (Jordan).

formance all had fairly equal and positive coefficients. In Jordan (table 5), the appropriateness of the course of study for self-development has the largest coefficient in the perception factor.[20] This is followed by substantial coefficients for appropriateness to current job performance, preparation for future jobs, continued learning on the job, and promoting creativity.

How Do Pedagogy and Accountability Processes and Student Perceptions of Quality Relate to Institutional Characteristics?

We expect that different characteristics and ownership structures shape the educational processes of higher education institutions and that this should be evident in the values of the three factors estimated. Specifically, because of the better alignment of incentives, we expect private higher education institutions to have better pedagogy, to be more accountable to their students, and to be perceived as being more relevant for the labor market. We also expect more selective institutions to have better pedagogical and accountability processes, although it is possible that less selective institutions may work harder to improve their processes since they cannot take their student enrollments for granted. We do not hold specific hypotheses in terms of the relationship between the specialization of an institutional unit and the quality of its processes, but we expect that there may be varying patterns across IT and commerce due to the different materials being taught.

To test these hypotheses, we turn to multivariate models of the relationship between the various factors and institutional characteristics, to assess

[20] The perception factor for Jordan had an eigenvalue of 3.09. One other factor had an eigenvalue of 1.07; it is omitted for comparability.

TABLE 5
SCORING COEFFICIENTS, FACTOR LOADINGS, AND UNIQUENESS
FOR THE PERCEPTION FACTOR, BY COUNTRY

Perception of	Scoring Coefficient	Factor Loading	Uniqueness
Egypt:			
Promoting creativity	.246	.912	.167
Preparation for future jobs	.194	.916	.159
Self-development	.169	.891	.204
Continued learning on job	.165	.871	.240
Appropriateness of study to			
finding first job	.161	.835	.302
Current job performance	.151	.855	.267
Overall institutional satisfaction	.009	−.006	1.000
Jordan:			
Self-development	.404	.755	.429
Current job performance	.272	.553	.693
Preparation for future jobs	.206	.769	.408
Continued learning on job	.191	.801	.357
Promoting creativity	.131	.769	.408
Appropriateness of study to			
finding first job	.059	.556	.690
Overall institutional satisfaction	.038	.285	.918

NOTE.—Authors' calculations. Number of higher education institutions = 147 (Egypt) and 47 (Jordan).

whether the differences are statistically significant after accounting for the characteristics of attendees. The ordinary least squares regressions estimate 54 different coefficients (table 6); with a 10 percent significance level, at least five of these would be significant by chance. Joint tests for coefficients related to private, IT, and selective institutions are presented in table 7. Figure 1 presents the predicted values for the outcomes based on the models and their 90 percent confidence intervals to facilitate comparisons of how outcomes vary over different combinations of school characteristics. The overall mean of each factor is zero for each country, so positive values for a type indicate that the type has above-average performance on that factor. The units are standard deviations from the mean.

In the regressions, the reference or omitted case is a public, commerce, nonselective institution. In addition to the main effects for being a selective program, a private program, or an IT program, we include interactions between all three of these variables. Coefficients must be interpreted in comparison to the reference case, keeping in mind also the coefficients on the interaction terms. For example, the main effect for private shows how the reference case, commerce nonselective program, varies by public and private; comparing how public and private nonselective IT programs vary would require adding the interaction between private and IT to the main effect. The coefficients essentially show differences between types: a coefficient of 1.0 on IT implies simultaneously that IT performs 1.0 standard deviation better than commerce and that commerce performs 1.0 standard deviation worse than IT. Because the units are standard deviations, coefficients are inherently measures of effect sizes.

TABLE 6
REGRESSIONS OF FACTORS ON UNIVERSITY CHARACTERISTICS, EGYPT AND JORDAN

	Egypt			Jordan		
	Pedagogy Factor	Accountability Factor	Perception Factor	Pedagogy Factor	Accountability Factor	Perception Factor
Institution characteristic:						
Selective	−.159	−.099	−.334	.987	−.060	−.616
	(.467)	(.462)	(.493)	(.818)	(.685)	(.781)
Private	.790**	.572*	−.078	−.406	−.612	.497
	(.268)	(.266)	(.283)	(.595)	(.498)	(.568)
Selective and private	.327	.284	.903	−.945	.035	1.724
	(.581)	(.575)	(.613)	(1.109)	(.928)	(1.059)
IT	1.021**	−.027	.197	.203	.901+	.208
	(.323)	(.320)	(.341)	(.572)	(.479)	(.546)
Selective and IT	−.633	.000	.047	−.195	−.305	.051
	(.755)	(.748)	(.798)	(1.071)	(.897)	(1.023)
Private and IT	−1.346***	−.274	−.349	−.073	−.419	−.009
	(.383)	(.379)	(.404)	(.716)	(.599)	(.684)
Selective, private, and IT	.899	.445	−.232	−.114	.465	−1.608
	(.890)	(.881)	(.940)	(1.543)	(1.291)	(1.473)
Attendee characteristic:						
Mean secondary score	.011	.017	−.006	−.020	−.023	.107*
	(.011)	(.011)	(.012)	(.050)	(.042)	(.048)
Share of students with fathers with higher education	.268	.165	.247	.976	−.972	−.893
	(.227)	(.225)	(.240)	(.763)	(.639)	(.728)
Constant	−1.432	−1.594+	.407	1.256	2.146	−7.878*
	(.894)	(.885)	(.944)	(3.751)	(3.139)	(3.581)
Model p-value	.011	.061	.620	.528	.126	.341
R^2	.142	.109	.050	.181	.291	.222

NOTE.—Authors' calculations. Reference case for institution characteristics is a public, nonselective, commerce program. Number of higher education institutions = 147 (Egypt) and 47 (Jordan). Standard errors in parentheses.
+ $P < .10$.
* $P < .05$.
** $P < .01$.
*** $P < .001$.

TABLE 7
Joint Tests from Regressions of Factors on University
Characteristics, Egypt and Jordan

	Egypt		Jordan	
	F-Statistic	P-Value	F-Statistic	P-Value
Pedagogy:				
Private	4.674	.001**	1.067	.386
IT	3.212	.015*	.070	.991
Selective	.991	.415	.751	.564
Accountability:				
Private	2.447	.049*	.774	.549
IT	.565	.689	1.604	.194
Selective	1.067	.375	.115	.977
Perception:				
Private	1.094	.362	1.120	.362
IT	.378	.824	.687	.606
Selective	1.075	.371	.994	.423

Note.—Authors' calculations. All joint tests are F-tests with four degrees of freedom. Joint tests for private include the coefficient for private, the selective and private interaction, the private and IT interaction, and the selective, private, and IT interaction. Joint tests for IT include the coefficient for IT, the selective and IT interaction, the private and IT interaction, and the selective, private, and IT interaction. Joint tests for selective include the coefficient for selective, the selective and private interaction, the selective and IT interaction, and the selective, private, and IT interaction.
+ $P < .10$.
* $P < .05$.
** $P < .01$.
*** $P < .001$.

In Egypt, private programs have significantly better pedagogy than public programs. Public IT programs have a significantly higher pedagogy factor than the reference public commerce programs. However, because the interaction term of private and IT programs is significant and negative, it is really only in the commerce specialization that pedagogy in private programs is substantially better than public programs. Figure 1 shows that, with respect to pedagogy in Egypt, private programs do better than their public counterparts, except in the case of nonselective IT programs. The difference in the pedagogy factor between private and public selective commerce programs is more than a standard deviation, and the difference between private and public nonselective commerce programs is close to three-quarters of a standard deviation. In the case of IT, the difference between private and public selective programs is about two-thirds of a standard deviation but with large confidence intervals associated with the estimates. The difference between private and public nonselective IT programs is smaller and is in fact in favor of public programs. Joint tests of all the coefficients in the regression model for pedagogy in Egypt that included private, including interactions, were significant, and joint tests of all the coefficients that included IT were significant, but joint tests of all the coefficients that included program selectivity were not significant, suggesting that there are no differences in pedagogy across selective and nonselective programs in Egypt.
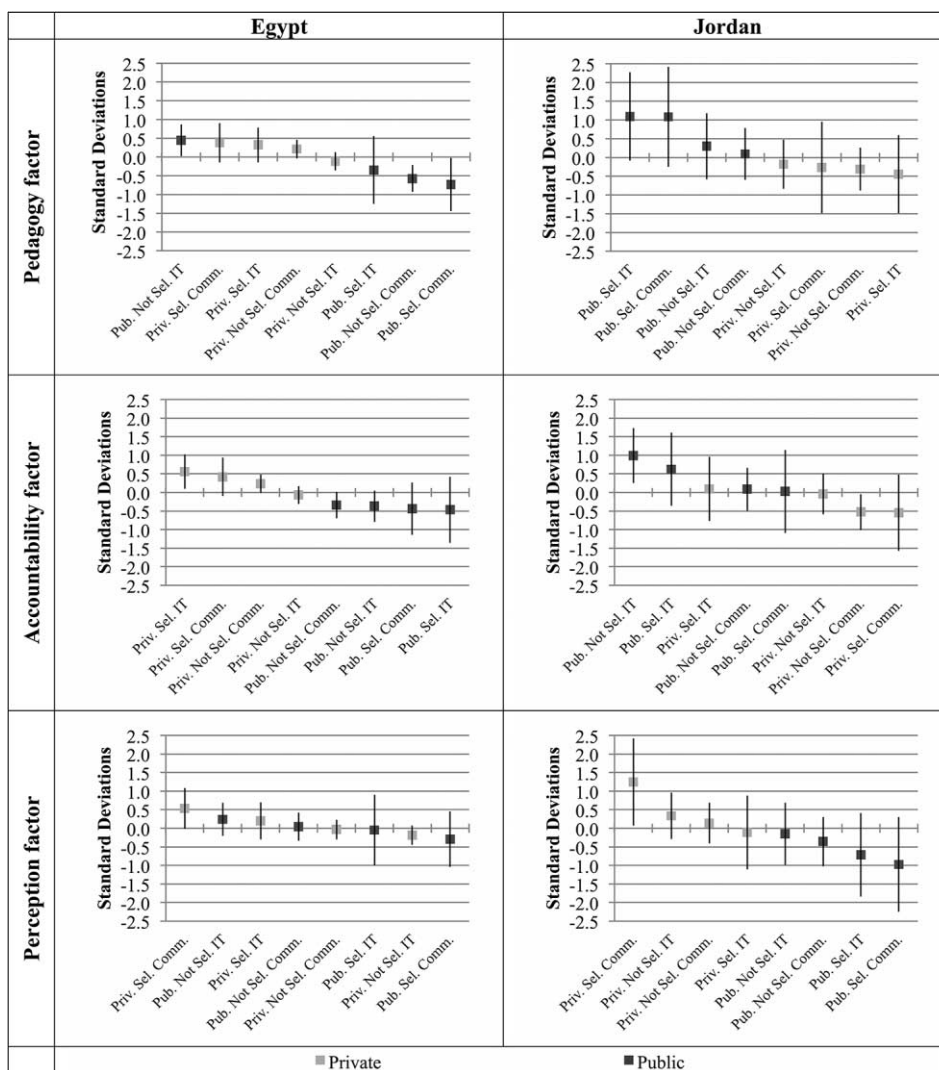
Fig. 1.—Predicted values and 90 percent confidence intervals of pedagogy, accountability, and perception factors, by public/private, specialization, and selectivity, Egypt and Jordan. Note.— Authors' calculations based on regressions in table 6 (estimated at country means for secondary test scores and share of students with fathers with higher education). Color version available as an online enhancement.

Again in the case of Egypt, no institutional characteristic appears to be a significant determinant of perceptions; in fact, the model as a whole is not statistically significant. However, for accountability the coefficient on private is significant, although (as for pedagogy) private and IT programs have a negative interaction, so only for commerce are private programs significantly

better. Figure 1 shows that the difference in the accountability factor between private and public selective commerce institutions is about 0.9 standard deviations, which is quite substantial, but there is a large confidence interval associated with the public selective estimate. There are not such large differences in accountability between private and public nonselective commerce institutions. Public nonselective IT programs perform slightly worse than private nonselective programs, but there is a much larger gap between the highest-performing private selective IT programs and the worst-performing public selective IT programs. However, none of the IT differences in accountability is statistically significant.

A joint test for all the main and interaction effects including private in the Egypt accountability factor regression is statistically significant, while those for IT and selectivity are not. None of the joint tests for all the coefficients with private, IT, or selectivity is significant for student perceptions. This suggests that private institutions in Egypt perform better on average on accountability, but there are no significant differences in the accountability factor across IT and commerce or selective and nonselective institutions. With regard to perceptions, there are simply no significant differences across any of the institutional types in Egypt.

In Jordan no institution characteristics are significant predictors of pedagogy or perceptions, and none of the models is statistically significant. The coefficient for IT is significant (10 percent level) and positive for the accountability factor, but none of the joint tests of all of the coefficients for private, IT, or selectivity is significant for any of the factors. In fact, looking at figure 1, it is clear that in Jordan the pedagogy factor is higher on average in public institutions than in private ones, but the estimates have fairly large confidence intervals. Public selective programs, in particular, score high on the pedagogy factor in Jordan, with both IT and commerce programs in that category being 1 standard deviation above the average for the country. The accountability factor is more mixed, but the highest values are still associated with public institutions. This time the highest values are associated with public IT institutions, whether selective or not, and the lowest are associated with private commerce institutions. Only in the perception factor do private institutions in Jordan stand out as being of higher quality than their public counterparts. The highest perception of quality is associated with private selective commerce institutions, which have a perception factor that is 1.2 standard deviations above the average for the country. The lowest perception of quality is associated with selective public commerce and IT institutions, the very institutions that scored very high on the pedagogy factor. This apparent contradiction between better pedagogical practices and poor perceptions of quality for these public selective institutions may have to do with the high expectations of students who enroll in such institutions. These are the best-performing students in the country, based on secondary school

grades, and they may thus have high expectations for quality that they perceive as not being met.

Comparing Egypt and Jordan, there is not a clear relationship between public/private status and the delivery of better educational processes and perceptions. While private institutions perform better on average (but not consistently so) in Egypt, in Jordan public institutions perform the best, particularly in terms of pedagogy and accountability for which the differences are notably large. This may be because there is more flexibility and better incentives built into the governance of public institutions in Jordan. However, the differences are not statistically significant in most cases, possibly due to a limited sample size, and the significant patterns observed are close to the patterns one would expect by chance when implementing multiple tests. We should note, however, that in Jordan the public selective institutions that perform well on pedagogy, and to a lesser extent accountability, perform very poorly on perceptions of quality, a contradiction we attribute to the high-quality expectations of the high-performing students who enroll in them. For Egypt there were not consistent patterns by selectivity after accounting for other characteristics. Selective institutions may be appealing because of their perceived elite nature rather than any real differences in how the institutions perform. IT programs likewise do not have clearly superior processes or perceptions; there may not be strong disciplinary differences across programs.

Discussion and Conclusion

The quality of higher education and education–labor market mismatches are serious challenges in both Egypt and Jordan.[21] We set out to test whether private higher education institutions, which presumably have stronger incentives to respond to market forces, delivered better educational processes. We examined factors for pedagogy, accountability, and student perceptions of quality and found some evidence that in Egypt private programs deliver superior pedagogy and accountability while in Jordan public programs perform better, although not significantly so. Overall, there is not a clear or statistically significant pattern of private higher education delivering better processes. The differences between Egypt and Jordan may be due to the two countries having different governance structures, institutional capacity, flexibility, and incentives within public and private higher education.

Proposed reforms to improve education quality and better connect higher education with the labor market often include proposals to increase the role of the private and nonprofit sectors in higher education (Fahim and Sami 2010; Kanaan et al. 2010; OECD and World Bank 2010). Similarly, our concep-

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[21] World Bank (2008); OECD and World Bank (2010); Mryyan (2014); Assaad and Krafft (2015a).

tual framework suggests that private higher education provides better incentives to improve quality because of its funding structure. Yet our findings indicate that increasing the role of private higher education does not guarantee better educational processes or quality. Jordan demonstrates that with more autonomous governance processes, it is possible for public institutions to perform better or at least as well as private institutions. Other studies of education privatization movements—such as school vouchers in Chile and Sweden—likewise have found that private education is no more effective than public education (Carnoy 1998). Thus, although conceptually privatizing education might be a good reform, either the concept or the way it is implemented does not guarantee improvements in the quality of education. However, it is possible that the competition provided by private higher educational institutions can spur public institutions to improve their quality if they have sufficient autonomy in governance and adequate incentives in place to do so.

A number of features of the education systems and labor markets in Egypt and Jordan may affect the impact of incentives in both public and private higher education institutions. The tradition of guaranteeing careers in government to higher education graduates and the prominent role of the public sector as an employer of those graduates generates a system in which young people seek credentials rather than skills or knowledge (Salehi-Isfahani 2012). The ease of obtaining a chosen credential and being admitted to a particular specialization, not the quality of education, may drive investments in private higher education (Barsoum, forthcoming). Rewards in the labor market may be driven more by family background than by individual ability or by the quality of higher education processes and features (Assaad et al. 2014). The limited rewards in the labor market may be due to educational credentials providing very little information about the quality of a graduate's skills to prospective employers. In turn, educational institutions may have very little information about the skills employers seek, how to deliver those skills, or how they are rewarded in the labor market. Thus, incentives are limited for both educational institutions and students to seek and invest in quality.

Another important issue to consider in relation to higher education policy is that increasing the role of private higher education may exacerbate inequalities. Students in Egypt already face enormous inequality in access to higher education and different specializations within higher education (Assaad 2013; Krafft et al. 2013). Privileged youth have greater access to private universities; expanding the private sector in place of expanding public institutions is likely to worsen socioeconomic and geographic inequalities in access to higher education (Buckner 2013) unless pro-poor scholarship programs are instituted. If, however, increasing the role of private higher education expands access to higher education overall, the net effects of expansion and privatization may not worsen the overall level of inequality in access to higher education (Arum et al. 2007).

Expanding private higher education may reduce the overall fiscal burden of higher education for the government but is unlikely to improve quality and is likely to increase inequalities, so MENA governments must be cautious about expanding private higher education. Other avenues to addressing higher education quality may be more effective. Given that public higher education is free of charge or heavily subsidized in the region, increased cost sharing (for those with the ability to pay) and using those funds to both improve quality and subsidize students who are not able to pay might be a better policy.

Finally, further research on more nuanced sector-wide reforms as well as specific programs that address incentives and governance in public and private higher education institutions is needed. The expanding enrollments in higher education in many countries warrant this greater attention to deepening knowledge about these reforms. Already, Egypt's gross enrollment rate in tertiary education is 28 percent (OECD and World Bank 2010), and Jordan's is almost 40 percent (World Bank 2008). This is a substantial piece of the education system that remains poorly examined.

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