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DIFFERENCES IN PEDAGOGY, ACCOUNTABILITY, AND PERCEPTIONS OF QUALITY BY TYPE OF HIGHER EDUCATION IN EGYPT AND JORDAN

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Abstract

A number of reasons have been proposed for the poor quality of higher education systems 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 improving education quality and labor market outcomes. However, it is not clear whether or to what extent the pedagogical and accountability practices of private higher education institutions differ from those of public institutions. This paper explores whether private provision improves 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 programs in Egypt and Jordan. We find that the processes pursued by higher education institutions do not consistently and systematically vary by the type of institution. Increasing the role of private higher education is unlikely to automatically improve educational processes or quality.

JEL Classifications: I23, I21, H4, H11

Keywords: Higher education, Private education, Incentives, Governance, Egypt, Jordan, Middle East and North Africa

ملخص

تم اقتراح عدد من الأسباب لتفسير سوء نوعية أنظمة التعليم العالي في العالم العربي ، بما في ذلك هياكل الحوافز الرديئة من المؤسسات العامة التعليم العالي. وقد اشيد بالتوسع في التعليم العالي الخاص باعتباره جزءا هاما من تحسين نوعية التعليم و نتائج سوق العمل. ومع ذلك، فإنه ليس من الواضح ما إذا كانت أو إلى أي مدى اختلاف الممارسات التربوية والمساءلة بين مؤسسات التعليم العالي الخاصة والمؤسسات العامة. تستكشف هذه الورقة ما إذا كان البند الخاص يحسن نوعية التعليم العالي، بقياس كل من التربية ، والمساءلة، وتصورات الطلاب عن الجودة. من أجل الحد من عدم تجانس مؤسسات التعليم العالي ندرس في هذه الورقة بالتركيز على برامج التجارة وتكنولوجيا المعلومات في مصر والأردن. نجد أن العمليات التي تتبعها مؤسسات التعليم العالي لا تختلف بصفة مستمرة ومنهجية وفقا لنوع المؤسسة. لذلك فمن غير المرجح أن زيادة دور التعليم العالي الخاص سوف تؤدى بالضرورة أو تلقائيا لتحسين جودة العمليات التعليمية.

1. Introduction

Several studies have attempted to diagnose the poor performance of higher education institutions in the Arab World. A number of reasons have been proposed for the poor quality of the higher education system, including the poor incentive structures of higher education institutions and those who work in them (OECD & World Bank 2010). The World Bank flagship report on education in MENA, "The Road Not Travelled: Education Reform in the Middle East and North Africa," notes that the focus in education reform 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 incentives or accountability of educational institutions and their employees (World Bank 2008). One reason for the poor performance of higher education systems in the Arab World may be that the financing of higher education is disconnected from incentives (Fahim & Sami 2010; Kanaan et al. 2010).

While the expansion of private higher education has been hailed as an important part of improving education quality and labor market outcomes, it is not clear to what extent the pedagogical and accountability practices of private higher education institutions differ from those of public institutions (Fahim & Sami 2010; Kanaan et al. 2010; OECD & World Bank 2010). This paper 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 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. Perceptions of quality are heterogeneous across program types in both countries. While private institutions in Egypt, whether selective or not, 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 selective institutions.

2. Conceptual Framework

How do incentives work in higher education systems? We assume that students and their parents receive signals from the labor market as to what skills will be rewarded and select education to maximize these rewards. In order to attract students, higher education institutions have incentives to provide high quality curricula and instruction to maximize students' employment potential and rewards. Private higher education institutions should have greater incentives to provide high quality education, since they must cater to their clients' interests in order to receive tuition, their primary source of funding. Non-profit 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 they otherwise receive funding contingent on their quality.

The structure and nature of higher education in MENA does not incentivize high quality. The higher education systems in most MENA countries arose during periods of state-led development, when the civil service was the primary employer of higher education graduates. Credentials, rather than skills, tend to be rewarded in the civil service, which created little incentive for high quality education. Additionally, higher education, like other levels of education, was provided free of charge. This removed the possibility of incentives to deliver high quality education based on students' and their families' tuition payments. Higher education institutions therefore were without strong incentives to structure their programs to maximize quality or meet student preferences and needs. Additionally, the government's role as a major employer of higher education graduates caused students and their families to be more focused on credentials than skills. The emphasis on credentials in MENA economies

has contributed to the focus of the education system on rote memorization and the neglect of critical thinking and problem-solving skills in higher education (OECD & World Bank 2010).

Over time, the region has moved from state-led development towards market-oriented economies. Although the government remains a substantial employer of higher education graduates, there is also 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 private employers' profits. Despite the changes in the structure of employment, public higher education has remained largely unchanged and low quality. This is in part because private sector employers are largely small and informal (Assaad & Krafft 2013a; Assaad 2012), making it difficult for them to effectively signal the type of skills and educational quality that will be rewarded on the labor market, especially in contrast to the government's continuing demand for credentials. The problem that this research is concerned with is to understand the inertia in the response of the higher education system to this changing employment landscape and to identify ways of increasing the responsiveness of higher education institutions to this new landscape. In this paper, we specifically focus on the possible role of private higher education in terms of delivering higher quality pedagogy, greater accountability, and better perceived quality in Egypt and Jordan.[1]

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

Due to their limited institutional capacity and the design of their governance structures, higher education institutions in Egypt and Jordan are not well positioned to deliver high quality instruction.[2] The 2013-2014 Global Competitiveness Report ranks Egypt 118th out of 148 countries in terms of the overall competitiveness of its institutions and higher education policies (Schwab 2013). Egypt's ranking actually fell since 2012-2013. As well as having an overall institutional environment that is inadequately competitive, Egypt also performs poorly in terms of its higher education and training competitiveness, where it also ranks 118th (Schwab 2013). An inadequately educated workforce has been identified as a problematic factor for doing business in Egypt. Jordan does somewhat better; it ranks 76th out of 148 countries on the overall 2013-2014 Global Competitiveness Index, and 56th in terms of higher education and training. Unlike Egypt, Jordan's higher education system includes schools of management and a greater availability of research and training centers. However, as in Egypt, the report identifies an inadequately educated workforce as a challenge for doing business in Jordan (Schwab 2013).

3.1 Egypt

The higher education system in Egypt is made up of 19 public universities, 19 private universities, and 131 private higher institutes, as well as Al-Azhar University (Barsoum 2014). As of 2011/2012, 1.6 million students were enrolled in public universities and around 87,000 in private universities. In terms of institutes, in 2011/2012, there were around 33,000 students enrolled in private institutes and around 305,000 in higher institutes supervised by the Ministry of Higher Education (CAPMAS 2013). Gross enrollment rates in higher education are expected to expand from 28% to 35% by 2021 due to increasing demand for higher education (OECD & World Bank 2010). However, the current system is not positioned to provide high quality education that will meet the needs of the labor market. The

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

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

higher education system is highly centralized across various state authorities and several layers of control (OECD & World Bank 2010). Like many countries in the Arab region, Egyptian higher education institutions operate under a very centralized control system and rigid bureaucracies (Wilkens 2011). Higher education institutions are administered as extensions of state authority (Wilkens 2011). For instance, university presidents were primarily selected for their loyalty to the governing party, although this has changed since the January 25th 2011 revolution (Lindsey 2012)

The state-dominated approach has led to numerous dysfunctions in the higher education system including stifled institutional autonomy, limited flexibility, rigidity of education and training programs, and more importantly, weak responsiveness to student demands, the needs of the labor market and national development goals (OECD & World Bank 2010). This lack of autonomy and self-management continues to produce a mismatch in the demand and supply of skills in the Egyptian labor market, which is problematic for both graduates and employers (OECD & World Bank 2010). Despite the fact the public spending on higher education is reasonably high in Egypt, due to the higher education expansion policies, public institutions are severely underfinanced in terms of faculty, infrastructure, equipment and learning materials (OECD & World Bank 2010). Budget allocation mechanisms are not performance-based, nor do they reflect the actual needs of the higher education institutions or provide the incentives required to align their educational processes and programs with community needs and employers' expectations (OECD & World Bank 2010; Fahim & Sami 2010). This public funding approach provides no financial incentive for public institutions to use the already limited resources more efficiently and cost effectively (OECD & 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 and detailed legal structure that allows for excessive state intervention. State agencies control the curriculum design, approval of new degrees, and admission of students. Like public higher education 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 & World Bank, 2010). Students' admission to public and private higher education institutions is solely based on secondary school examinations and centrally administered by the Central Placement Office. This admission process gives no institutional autonomy or flexibility for higher education institutions to incorporate their missions and capacities into their admissions (OECD & World Bank 2010).

3.2 Jordan

The higher education system in Jordan consists of 10 public universities, 16 private universities, and nearly 50 two-year community colleges (Kanaan et al. 2010). The number of students enrolled in bachelor degree programs in 2011 was approximately 230,000, counting both public and private universities in Jordan. Of these, 162,000 were enrolled in public universities and 68,000 in private universities (Tempus--European Comission 2010). Unlike Egypt, universities in Jordan enjoy a greater level of autonomy. For instance, the law states that each university shall have a board of trustees. 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 general policy, approving the university's annual strategic plan, evaluating the university's academic, administrative, and financial performance, appointing vice-presidents and deans, and determining the university's tuition fees. College councils include one or two society representatives (Abu-El-Haija et al. 2011).

However, higher education institutions in Jordan still face different kinds of restrictions and state intervention. The Council of Higher Education (CoHE) is the main body that controls the higher education system in Jordan (Abu-El-Haija et al. 2011). The CoHE determines the amount of funds allocated to public universities, sets the admission criteria to all universities, determines the number of students to be enrolled in different programs at each university, and appoints presidents of both public and private universities. Students' admission to public universities is administered by the Unified Admission Unit (Abu-El-Haija et al. 2011).

In terms of finance, public spending on higher education in Jordan declined from 2.5% of the country's GDP in 1991 to 1.3% of the country's GDP in 2011 (Chapman 2011). Universities in Jordan are enshrined in the law as both financially and administratively independent (Abu-El-Haija et al. 2011). Public universities are allowed to transfer funds within approved budgets subject to certain laws and regulations (Abu-El-Haija et al. 2011). Nonetheless, central budget allocation mechanisms are mainly based on a crisis management approach, where funds are allocated to universities that demonstrate need even if they are poorly managed. Well-run universities may face budget reductions. This indicates that financial management of public universities in Jordan is not outcome driven. It does not 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).

4. Methods

Our goal is to assess how different institutional characteristics and incentives, especially private versus public status, affect the processes 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, 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 a data reduction technique, which 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. Variables that are closely related have a higher communality, while variables that are less closely related have a higher uniqueness, which is 1-communality. Based on the communalities between the original variables, factor loadings are calculated, which are then transformed into scoring coefficients. The scoring coefficients are like regression coefficients; they represent the change in the underlying factor for a change in one of the original variables. The value of a factor—for instance, pedagogy for a particular university—can then be calculated based on the scoring coefficients and the values of the original variables for that university.

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.

5. Data

5.1 Sample

We are interested in the relationship between educational processes and higher education institution characteristics in Egypt and Jordan. To reduce the potential differences

(heterogeneity) between students and programs, we limit the study to two fields in which private higher education institutions are relatively common: commerce (business) and information technology (IT). Our target population is individuals between the ages of 25 and 40 in 2012 who (1) graduated from the two specified fields of study in four-year higher education, (2) have ever worked, (3) live in urban areas. The sources of the sample are the Labor Force Sample Survey in Egypt, and in Jordan the Employment and Unemployment Survey and Household Income and Expenditure Survey. In the field, return visits were made to individuals who met the criteria from the sample sources. A detailed questionnaire inquired about education and labor market trajectories, along with individuals' family background. Particularly important, for the purposes of this paper, 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 sample sizes collected were 1,710 individuals in Egypt and 1,539 in Jordan. This paper excludes individuals in Jordan who attended higher education institutions outside of Jordan. We also consider an institution to be a university or higher institute (four year program) and a specialization. Some higher education institutions may have two 'institutions' if they have students in the sample in both IT and commerce. This results in 137 higher education institutions being observed in Egypt, and 47 in Jordan. These institutions are our unit of analysis in this paper.

5.2 Outcome Variables

We focus on three different educational process outcomes; pedagogy, accountability, and student perceptions of quality. These are all of great importance to the quality of education students receive and are shaped by the incentives 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 only for your bachelor degree:

- Lectures
- Group projects
- Participation in research projects
- Practical general knowledge
- Theories
- Professor as the only source of information
- 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 (5) used to a very high degree (always). We calculated a mean value for each variable for each institution based on 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:

- " 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 study?
- Did the university conduct a survey on students' satisfaction with the educational process at graduation?
- Are you a member of the Graduates Association?
- Does the university follow up on your status after graduation?
- Did the university provide services and guidance to the employment of graduates?"

Yes responses were coded as one and no as zero, 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 university based on 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 accountability factor.

In terms of the student perceptions of quality, we include a series of questions on how appropriate their bachelor degrees were for

- "Beginning work
- Continuing education
- Performance on the current job
- Future jobs
- Self-development
- Creativity"

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

We also included in the perception factor a variable based on overall university satisfaction, specifically responses 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 (3) yes. We calculated a mean value for each variable for each university based on 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) will have higher values of the perception factor.

5.3 Covariates

We are interested in the relationship between institutional characteristics and incentives, on the one hand, and processes on the other. Whether higher education institutions were 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 information technology (IT). Selectivity was determined within a type (public or private and commerce or IT) based on how the minimum admission scores for a particular institutions as reported by the centralized placement scheme in each country compared to the distribution of scores for that type. Only institutions with scores that were at the 75^{th} percentile or greater within their type were coded as selective. In the case of private institutions, the 75^{th} percentile was the same for some types as the lowest score. In that case, we took the next highest score as the threshold for selective institutions. It should be kept in mind that because public institutions have much higher minimum scores for

admissions than private institutions in both countries, and that each type is only being compared to itself, non-selective public institutions could have significantly higher minimum scores than selective private institutions.

6. Results

6.1 Factor Analysis

We begin a discussion of our results by presenting the factor analyses for the three factors in Egypt and Jordan. In estimating the relationship between the different elements of pedagogy in Egypt, we retained one factor.[3] Table 1 shows the results for this factor in Egypt. Problem solving has the highest scoring coefficient for this factor, meaning that more frequent problem solving is one of the most important components of good pedagogy. Oral presentations and general knowledge also have high scoring coefficients. Group and research projects enter positively and moderately, while more frequent analytical assignments, writing topics, computer-aided education, multiple-choice questions, and the use of theories all enter positively, but with small scoring coefficients. More frequent lectures and the exclusive use of materials authored by the professor only enter with small negatives, meaning that when these occur more frequently, pedagogy is worse.

In Jordan, the most important element of the pedagogy factor[4] was general knowledge, which had the greatest scoring coefficient (Table 2). Group projects and research projects also had large scoring coefficients. There were moderate coefficients on the use of theories and multiple-choice questions, followed by small coefficients on the exclusive use of materials authored by the professor, analytical assignments, problem solving, computer-aided education, and oral presentation. Lectures' frequency entered with a small negative scoring coefficient in the pedagogy factor in Jordan, as was the case in Egypt.

In terms of the accountability factor[5] in Egypt (Table 3), evaluation of education processes had the largest scoring coefficient, meaning that when students answered yes to this question, it substantially increased the accountability factor. This was followed by teaching evaluations with a substantial scoring coefficient. Graduate satisfaction surveys and follow up surveys had moderate, positive scoring coefficients, and employment guidance and graduates' associations entered positively but with small scoring coefficients.

In Jordan, the most important element of the accountability factor[6] was teaching evaluations (Table 4). Evaluation of education processes was the next most important element of the accountability factor, and entered positively into the factor. Having a graduate satisfaction survey had a small, positive coefficient. Having a graduates' association actually entered negatively into the accountability factor, as did employment guidance, and especially follow up surveys. These last two elements are relatively rare in Jordan. However, it should be kept in mind that this factor appears to have more strongly identified evaluation during university than accountability thereafter.

The perception factor[7] in Egypt weighed the appropriateness of higher education in terms of creativity with the greatest scoring coefficient (Table 5). Better preparation for future jobs, self-development, continued education on the job, the appropriateness of study to finding the

[3] This first factor, which we call the pedagogy factor, had an eigenvalue of 5.98. All other factors had eigenvalues less than one.

[4] The pedagogy factor had an eigenvalue of 3.36. There were two other factors with eigenvalues greater than 1, but we omit analyses of these for comparability.

[5] The accountability factor for Egypt had an eigenvalue of 2.83. All other factors had eigenvalues less than one.

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

[7] The perception factor had an eigenvalue of 4.65. All other factors had eigenvalues less than one.

first job, and current job performance all had fairly equal scoring coefficients. Overall university satisfaction had a tiny scoring coefficient, meaning it was not strongly related to the other variables.

In terms of the perception factor[8] in Jordan (Table 6), the perception of higher education institutions' quality in terms of self-development had the greatest scoring coefficient. This was followed by substantial coefficients for current job performance, preparation for future jobs, continued education on the job, and creativity. The appropriateness of study to finding the first job and overall university satisfaction had small but positive coefficients.

6.2 Higher Education Processes and Institutional Characteristics

We expect that different characteristics and incentives will shape the educational processes of higher education institutions, and this should be evident in the values of the factor variables. Specifically, we expect that private higher education institutions will have better pedagogy, be more accountable, and be perceived as more relevant for the labor market. We expect more selective institutions will have better processes, although it is possible that less selective institutions will work to have better processes since they lack a reputation to attract students. We do not hold specific hypotheses in terms of the specialization of an institution and their processes, but we expect that there may be varying patterns across IT and commerce due to the different materials being taught.

Figure 1 (and Table 8, in the Appendix) present the first evidence as to whether incentives and characteristics shape processes; it presents the mean values of the different factors by different combinations of public/private, selective/non-selective and commerce/IT. The overall means of each factor are zero for each country, so positive values for a type mean the type has above average performance, and negative values indicate below average performance. The units are 'standard deviations,' because the factors themselves are standardized.

In Egypt, private programs do only slightly better than the average in terms of pedagogy, IT programs very slightly better, and selective programs somewhat better than the average, which is zero. However, in terms of accountability, while selective programs are above average, and private programs somewhat above average, IT programs have below average accountability. Selective programs are perceived as higher quality, but there is essentially no difference in the perception of private and public programs, or between IT and commerce. Overall, although the pattern is not consistent across all types, private higher education has slightly better pedagogy and accountability, but relatively comparable perceptions in Egypt. More selective programs do better on average across all the factors, but there is no clear pattern in terms of specialization.

Looking at specific combinations of characteristics in Egypt, public non-selective commerce programs have below average pedagogy, accountability, and perceptions; they particularly have poor pedagogy. Private non-selective commerce has above average pedagogy and accountability, although its perceptions are no better than average. Public non-selective IT has very good pedagogy, poor accountability, and above average perceptions. Private non-selective IT has below average pedagogy, accountability, and perceptions. Public selective commerce does extremely poorly on all measures, in fact worse than non-selective programs. In contrast, private selective commerce programs do very well. Reversing the pattern among the non-selective programs, public selective IT programs do poorly, and private selective IT programs do well.

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

Overall, in Jordan it is clear that public institutions perform better than private ones in terms of pedagogy, accountability, and perceptions. More selective institutions also have better pedagogy, and better perceptions, but below average accountability. IT programs also perform better than commerce on average in terms of all three factors. Examining specific combinations of characteristics in Jordan, public non-selective commerce programs are right around average in terms of their pedagogy, accountability, and perception. Private, non-selective commerce programs are substantially below average, around -0.3 standard deviations, on all three measures. Public, non-selective IT programs are above average on all three measures, especially in terms of accountability and perceptions. Private, non-selective IT programs are around average on pedagogy and accountability, and a bit below average in terms of perceptions. Public, selective commerce programs are small in number, but appear to have good pedagogy but average accountability and below average perceptions. Private selective commerce programs have below average pedagogy and accountability, but above average perceptions, although, again these programs are few in number. Public selective IT programs have the best pedagogy, more than a standard deviation above the average, and also good accountability and perceptions. Private selective IT programs have below average pedagogy and accountability, but above average perceptions.

Comparing Egypt and Jordan, while in both countries more selective institutions are delivering better processes, there is not a clear relationship between public/private status, which creates different incentives, and higher education processes. While in Egypt private institutions on average (but not consistently) perform better, and private selective institutions consistently perform better, in Jordan it tends to be public selective institutions that perform better. This may be because there is more flexibility and better incentives built in to the governance of public institutions in Jordan. That more selective institutions do better must be interpreted with some caution as well; it may be that institutions that deliver better pedagogy, accountability, and perceptions can be more selective, rather than selectivity (as a measure of good incentives or other forms of quality) causing better process outcomes. There is also suggestive evidence that improved pedagogy and accountability processes are reflected in perceptions of quality, as higher education types that performed the best in terms of pedagogy and accountability were perceived as above average in terms of quality.

6.3 Modeling the Relationship between Higher Education Processes and Institutional Characteristics

Although the different patterns observed in Figure 1 (and Table 8, in the appendix) are suggestive of some differences in processes by types, these differences could be due to random variation. Therefore, we turn to multivariate models of the relationship between the various factors and institutional characteristics to assess whether the differences are statistically significant. The reference, omitted case is a public, commerce, non-selective institution. As well as main effects for being a selective program, a private program, or an IT program, we include interactions between all three of these variables. The results, using OLS, are presented in Table 7. In Egypt, private programs have significantly better pedagogy factors than public programs. Public IT programs have a significantly higher pedagogy factor than the reference public commerce programs. However, private and IT programs have a negative interaction, and the net effect of private (main effect), IT (main effect) and the interaction is insignificant (not shown), so that really only in the commerce specialization that private programs are significantly better. Joint tests of all the coefficients into which private entered were significant, and joint tests of all the coefficients into which IT entered were significant, but joint tests of all the coefficients into which selectivity entered were not significant.

For accountability and perceptions in Egypt, no institution characteristics are significant, nor are the models as a whole significant. However, for accountability the joint test for all the coefficients with private was significant, while those for IT and selectivity were not. None of the joint tests for all the coefficients with private, IT, or selectivity were significant for perceptions.

In Jordan there are no significant predictors of pedagogy, accountability, or perceptions, and none of the models are statistically significant. Nor were any of the joint tests for all of the coefficients with private, IT, or selectivity significant for any of the factors. In sum, while there are some differences observed, we usually cannot rule out that the differences are due to chance. Only in Egypt, in terms of pedagogy, and only for commerce programs, are there significant differences between public and private institutions.

7. Discussion and Conclusions

Higher education quality and education-labor market mismatches are serious challenges in Egypt and Jordan (Assaad & Krafft 2013b; Mryyan 2012; OECD & World Bank 2010; World Bank 2008). We set out to test whether higher education institutions with stronger incentives, primarily private programs, delivered better educational processes. We examined factors for pedagogy, accountability, and student perceptions of quality, and found that there is suggestive evidence that in Egypt private selective programs deliver superior education processes, in Jordan it is public programs that perform better. This may be due to the two countries having different governance, institutional capacity, flexibility, and incentives within public and private higher education.

However, there is no statistically significant systematic pattern in terms of public/private programs, or even in terms of selectivity or specialization (among our sampled programs for commerce and IT). Proposed reforms to improve education quality and better connect higher education and the labor market often include proposals to increase the role of the private and non-profit sectors in higher education (Fahim & Sami 2010; Kanaan et al. 2010; OECD & World Bank 2010). Similarly, our conceptual framework suggested that private higher education would have better incentives due to its funding structure, which should yield improved processes and quality. Yet our findings indicate that increasing the role of private higher education is unlikely to automatically improve educational processes or quality. More nuanced reforms, that address incentives and governance within higher education in both public and private higher education, may yield better results. Further research is needed to assess incentives within higher education at the university level and determine if stronger incentives within higher education institutions generate improved educational processes.

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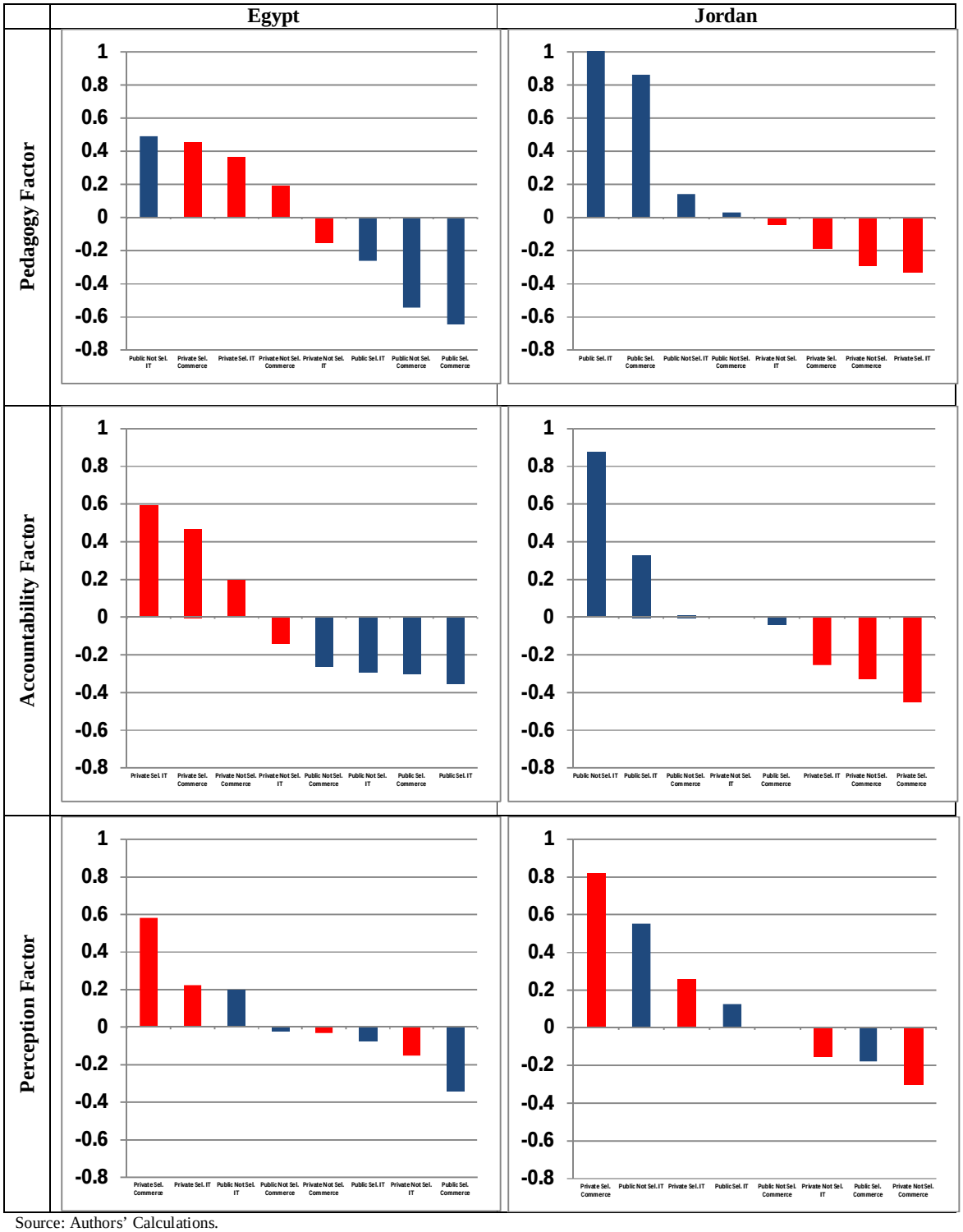
Figure 1: Mean Values of Pedagogy, Accountability and Perception Factors by Public/Private, Specialization, and Selectivity, Egypt & Jordan



Source: Authors' Calculations.

Table 1: Scoring Coefficients, Factor Loadings, and Uniqueness for the Pedagogy Factor, Egypt

Frequency of method use:	Scoring Coefficient	Factor Loading	Uniqueness
Problem solving	0.234	0.873	0.149
Oral presentation	0.206	0.863	0.144
General knowledge	0.179	0.827	0.209
Group projects	0.133	0.790	0.204
Research projects	0.120	0.778	0.224
Analytical assignments	0.091	0.825	0.221
Writing topics	0.072	0.779	0.315
Computer-aided education	0.056	0.680	0.435
Multiple choice questions	0.046	0.623	0.516
Use of theories	0.029	0.556	0.580
Exclusive use of lectures	-0.019	-0.204	0.706
Exclusive use of materials authored by professor	-0.038	-0.272	0.562
N (HE Inst.)	147	147	147

Source: Authors' calculations.

Table 2: Scoring Coefficients, Factor Loadings, and Uniqueness for the Pedagogy Factor, Jordan

Frequency of method use:	Scoring Coefficient	Factor Loading	Uniqueness
General knowledge	0.406	0.857	0.264
Group projects	0.279	0.798	0.362
Research projects	0.217	0.705	0.502
Use of Theories	0.114	0.495	0.754
Multiple choice questions	0.114	0.527	0.721
Exclusive use of materials authored by professor	0.090	0.325	0.894
Analytical assignments	0.074	0.367	0.864
Writing topics	0.055	0.566	0.679
Problem solving	0.026	0.335	0.887
Computer-aided education	0.019	0.358	0.871
Oral presentation	0.013	0.414	0.828
Exclusive use of lectures	-0.045	-0.03	0.999
N (HE Inst.)	47	47	47

Source: Authors' calculations.

Table 3: Scoring Coefficients, Factor Loadings, and Uniqueness for the Accountability Factor, Egypt

Prevalence of:	Scoring Coefficient	Factor Loading	Uniqueness
Evaluation of education processes	0.503	0.921	0.151
Teaching evaluation	0.280	0.871	0.240
Graduation satisfaction survey	0.126	0.73	0.466
Follow up surveys	0.102	0.532	0.716
Employment guidance	0.058	0.505	0.744
Graduates association	0.047	0.396	0.842
N (HE Inst.)	147	147	147

Source: Authors' calculations.

Table 4: Scoring Coefficients, Factor Loadings, and Uniqueness for The Accountability Factor, Jordan

Prevalence of:	Scoring Coefficient	Factor Loading	Uniqueness
Teaching evaluation	0.407	0.749	0.437
Evaluation of education processes	0.301	0.661	0.562
Graduation satisfaction survey	0.087	0.370	0.863
Graduates association	-0.115	-0.423	0.821
Employment guidance	-0.178	-0.451	0.796
Follow up surveys	-0.229	-0.457	0.790
N (HE Inst.)	47	47	47

Source: Authors' calculations.

Table 5: Scoring Coefficients, Factor Loadings, and Uniqueness for the Perception Factor, Egypt

Perception of:	Scoring Coefficient	Factor Loading	Uniqueness
Creativity	0.246	0.912	0.167
Preparation for future jobs	0.194	0.916	0.159
Self-development	0.169	0.891	0.204
Continued education on job	0.165	0.871	0.240
Appropriateness of study to finding first job	0.161	0.835	0.302
Current job performance	0.151	0.855	0.267
University satisfaction	0.009	-0.006	1.00
N (HE Inst.)	147	147	147

Source: Authors' calculations.

Table 6: Scoring Coefficients, Factor Loadings, and Uniqueness for the Perception Factor, Jordan

Perception of:	Scoring Coefficient	Factor Loading	Uniqueness
Self-development	0.404	0.755	0.429
Current job performance	0.272	0.553	0.693
Preparation for future jobs	0.206	0.769	0.408
Continued education on job	0.191	0.801	0.357
Creativity	0.131	0.769	0.408
Appropriateness of study to finding first job	0.059	0.556	0.690
University satisfaction	0.038	0.285	0.918
N (HE Inst.)	47	47	47

Source: Authors' calculations.

Table 7: Regressions of Factors on University Characteristics, Egypt & Jordan

	Egypt			Jordan		
	Pedagogy Factor	Accountability Factor	Perception Factor	Pedagogy Factor	Accountability Factor	Perception Factor
Selective	-0.101	-0.040	-0.319	0.830	-0.049	-0.179
	(0.466)	(0.463)	(0.490)	(0.787)	(0.685)	(0.782)
Private	0.732**	0.461	-0.011	-0.321	-0.339	-0.300
	(0.254)	(0.252)	(0.267)	(0.454)	(0.395)	(0.451)
Selective and Private	0.364	0.311	0.931	-0.723	-0.074	1.29
	(0.581)	(0.577)	(0.610)	(1.08)	(0.941)	(1.07)
IT	1.030**	-0.030	0.220	0.110	0.866	0.552
	(0.323)	(0.321)	(0.340)	(0.546)	(0.475)	(0.543)
Selective and IT	-0.649	-0.019	0.046	0.039	-0.497	-0.247
	(0.757)	(0.751)	(0.795)	(1.05)	(0.913)	(1.04)
Private and IT	-1.369***	-0.307	-0.341	0.140	-0.531	-0.405
	(0.383)	(0.380)	(0.402)	(0.681)	(0.592)	(0.676)
Selective Private and IT	0.903	0.482	-0.284	-0.433	0.359	-0.461
	(0.890)	(0.883)	(0.935)	(1.43)	(1.25)	(1.42)
Constant	-0.544**	-0.263	-0.021	0.030	0.010	0.000
	(0.205)	(0.203)	(0.215)	(0.371)	(0.323)	(0.369)
Model p-value	0.008	0.068	0.542	0.497	0.240	0.634
N (Higher education institutions)	147	147	147	47	47	47
R-squared	0.125	0.089	0.041	0.143	0.199	0.118

Source: Authors' calculations.

Appendix

Table 8: Mean Values of Pedagogy, Accountability, and Perceptions Factors by Public/Private, Specialization, and Selectivity, Egypt and Jordan

Egypt	**Pedagogy Factor**	**Accountability Factor**	**Perception Factor**	
Type	**Mean**	**Mean**	**Mean**	**N (HE Inst.)**
Public Not Sel. Commerce	-0.544	-0.263	-0.021	21
Private Not Sel. Commerce	0.188	0.197	-0.032	39
Public Not Sel. IT	0.487	-0.293	0.199	14
Private Not Sel. IT	-0.151	-0.139	-0.153	45
Public Sel. Commerce	-0.645	-0.303	-0.340	5
Private Sel. Commerce	0.451	0.469	0.581	9
Public Sel. IT	-0.264	-0.352	-0.074	3
Private Sel. IT	0.366	0.595	0.222	11
Private	0.083	0.117	-0.004	104
Selective	0.145	0.293	0.205	28
IT	0.045	-0.067	-0.025	73
Total	0.000	0.000	0.000	147
Jordan				
Type				
Public Not Sel. Commerce	0.030	0.010	0.000	7
Private Not Sel. Commerce	-0.290	-0.329	-0.300	14
Public Not Sel. IT	0.141	0.876	0.553	6
Private Not Sel. IT	-0.040	0.005	-0.153	10
Public Sel. Commerce	0.861	-0.039	-0.179	2
Private Sel. Commerce	-0.183	-0.452	0.817	2
Public Sel. IT	1.010	0.330	0.126	3
Private Sel. IT	-0.327	-0.256	0.255	3
Private	-0.200	-0.215	-0.115	29
Selective	0.340	-0.076	0.242	10
IT	0.113	0.251	0.133	22
Total	0.000	0.000	0.000	47

Source: Authors' calculations.