FINANCIAL AID AT PRIVATE UNIVERSITIES IN THE MIDDLE EAST: ITS IMPACT ON PERSISTENCE AND STUDENT SATISFACTION, THE CASE OF LEBANON

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Abstract – *Many private universities around the world sustain their growth and retain students through a system of 'cost-sharing' where fees and tuition are channelled back to students in form of financial aid. Not all students are successful in obtaining financial aid solely based on need, but are also awarded aid based on their academic performance. This study questions whether a combination of financial aid types has a positive impact on graduating from a private university in Lebanon. Furthermore, this study assesses students' satisfaction with the university at large by comparing those who received a combination of financial aid with those who applied and were not granted financial aid. Findings illustrate that the frequency and amount of financial aid received by students produced greater graduation percentages. In addition, no difference appeared between graduates and those who did not complete degree requirement regarding their satisfaction with university services and programmes.*

Introduction

The Arab World includes some of the richest and poorest countries in the world. The oil rich Gulf States have seemingly unlimited amounts of disposable income while other countries, such as Egypt and Yemen, house hundred of thousands of people living below the World Bank poverty line (Lancaster, Smith & Land, 2008). The wealthier Arab countries have embraced higher education by devoting billions of dollars to educational reform. The Gulf States alone have invested over 22 billion over the past five years to provide world-class higher education (Lancaster, Smith & Land, 2008).

What is the impact on public universities? Most Arab public universities are unable to meet the needs of the population in either the number of students or the quality of education (Mahmoud, 2008). These universities are heavily subsidised, usually operate at a loss, are overcrowded, and cannot absorb students desiring enrolment in popular programmes such as business administration and computer science. Furthermore, the university structure is difficult to develop and to adapt to the changing needs of the country.

Consequently, the development of private universities is a response to the inability of public education to meet the volume of demand for higher education and also the realisation that government monopolisation of higher education runs counter to national interests (Mahmoud, 2008). In Jordan alone, private universities serve 40% of the student enrolment (Mahmoud, 2008).

The same phenomena can be observed in Lebanon and Morocco, as well as in Oman, Bahrain and Kuwait. Currently there are roughly 150 private universities in the Arab World representing 41% of all Arab universities, when the corresponding figure for the United States is 20% of the total student enrolment (Mahmoud, 2008). Certainly, the boom of private universities reflects an important new trend in higher education in the Arab World.

Clearly a concern that surfaces is the cost of tuition and students' accessibility to financial aid of various sorts. The wealthier Gulf States provide citizens with resources. For example, Qatar has built Education City where the tuition and fees are the same as in American universities. However, Qatari citizens are reimbursed the cost from scholarships awarded by the country's Supreme Education Council (Lancaster, Smith & Land, 2008). However, this may be the exception since relying on the private sector is neither sufficient nor affordable for most people.

Our focus here is the affordability of private education but more importantly, the effect of various forms of financial aid such as loans, grants and scholarships on issues like student graduation, persistence, satisfaction and retention. In what follows, we examine student information from one private Lebanese university to determine the impact of financial aid on these elements.

Lebanese higher education

Similar to the growing worldwide trend, the growth in Lebanese higher education in this past decade has resulted in the development of over 42 private universities and one public university. Recent statistics illustrate the private sector's infrastructure growth with increasing enrolment in private than public universities. The Center of Educational Research and Development (CERD) of Lebanon reports that 45% of university students are currently enrolled at the only public university, the Lebanese University (LU), while the remaining students seek educational opportunities at private universities (CERD, 2007).

LU was developed after the establishment of private universities such as the American University of Beirut and Saint Joseph University. The LU was built with the vision and goals for national and social unification, and economic improvement by opening the door to education for lower-income groups who had been deprived of educational opportunities for decades. However since the

establishment of LU, Lebanon has experienced a civil war, several political assassinations and other political upheavals. As many Arab countries have learnt from experience, the public university has been transformed into a liability, adding strain on the already growing national debt. In addition, LU remains archaic, highly influenced by the political forces, lacking in adequate infrastructure, and housed in apartment-like buildings. The university is underdeveloped and fails to maintain the global quality 'standards' that many universities worldwide are sharing through quality assurance measures and accreditation. With the greater costs in maintaining public higher education, the Lebanese government has encouraged the development and growth of the private sector. In fact, in the past decade, LU has lost more than 20% of its student population due to the rise of the private sector.

Currently, private universities are situated in an advantageous position compared to LU. Private institutions are responsible for their own funding, are responsible for their own internal governance, and have limited interference from government or public authorities. In fact, the perception of private universities is positive in the sense that tuition paid by students to the private universities is believed to be an investment contributing to the individual good (Altbach, 1999), with the investment amortised in future jobs, occupational attainment, and salaries. Many parents with low income are willing to invest in private universities by taking out loans or relying on well-off extended family members in the belief that there will be a 'payoff' upon graduation in the form of future income. They can also draw from financial aid or internal university loans available at private universities.

Private universities in Lebanon vary in the tuition and fees, based on both the education provided and how the university is perceived. For instance, Francophone universities are viewed as less enterprise-like than American-style universities, and therefore charge a lower tuition. It is clear that those universities that model themselves after American universities seem to draw more students and can secure high tuition fees. In fact, the Lebanese American University (LAU), which is a private American-style university, is now a candidate for US-based accreditation by the North East Association of Schools and Colleges. The American University of Beirut (AUB) follows close on its heels, and the two have the highest tuition fees in Lebanon.

Generally, students who are not accepted in a public university seek admission to private institutions, opting for programmes in medicine, dentistry, engineering or business administration which have lower admission standards than LU. However, this becomes problematic for many of these students because private universities do not offer state loans, government grants or financial aid for students. Only students whose parents are public servants receive government-

subsidised grants. In fact, students who rely on university financial aid, scholarship or loans must provide evidence for need and maintain a level of academic success.

With a greater number of students who now seek admission to private universities, there is a greater demand for financial aid that drives students to perform better and attempt to complete their degrees at faster rates. The increase of student tuition and fees at private universities forces universities to balance cost sharing with cost benefits in order to provide quality education for students. Few studies have been carried out in Lebanon and other countries in the region that examine the effects of such financial aid on output measures such as student continuation and satisfaction. With this in mind, we wanted to find out whether financial aid factors might influence student success in graduation.

Previous studies

Since the 1980s numerous international studies have examined factors that might impact on enrolment levels and choice of institution. In particular, these studies examine the availability of financial aid (Heller, 1997; Braunstein, McGrath & Pescatrice, 1999), student enrolment (Paulsen, 1990) in relation to retention, persistence, and matriculation decisions (St. John, 1990, 1993; St. John & Somers, 1993; Hilmer, 1998; DesJardins, Ahlburg & McCall, 2002a). Studying the impact of financial aid, in relation to attitudes and conditions as an economic investment, may prove to be far better and less expensive in both economic and social terms. With different social and economic levels, do such systems suffice to determine the level of student need for financial aid?

There are various studies that examine how financial aid factors influence student satisfaction, institutional commitment and persistence. Table I illustrates the studies and findings that are relevant for this study.

These findings illustrate the impact of various forms of financial aid on elements such as persistence, attainment rates and graduation. We can see that students receiving financial aid can be impacted both in a negative or positive manner by the various sources of aid whether loans, scholarships, work-study or grants. However, there is literally not a single research study that assesses the impact of financial aid on performance outcomes in Lebanon, or Arab countries in the Mediterranean or the Middle East.

With the large growth of private universities in Lebanon and the Arab World, many of these universities integrate supply and demand dynamics with financial aid policy. This information, if used with the institutional output data (i.e., those who graduate or do not) could provide strategic information about finances and student

TABLE 1: Relevant research findings regarding the impact of financial aid

Study	Relevant Findings
Strauss & Volwein (2004)	Multiple student-level variables influence student satisfaction and institutional commitment. The most important influences were located in academic factors, social integration and growth, followed by financial aid and academic satisfaction.
St. John, Hu & Weber (2001)	Receiving grants and loans improved college graduation rates in general, but receiving loans neither lowered nor raised college persistence.
DesJardns, Ahlburg & McCall (2002a)	Changing loans to scholarships had a large impact on retention while frontloading financial aid had a modest impact on retention.
St. John & Starkey (1995)	Grant aid and scholarships positively influenced persistence in college, while loans and work-studies had a negative effect on persistence in college.
Cofer & Somers (2000)	A significant positive relationship between grant and loan amounts and student persistence in both private and public colleges. Over a five-year period, loans did not contribute to higher persistence and attainment rates. Instead, loans were found to have a negative influence on persistence and no effect on attainment.
Singell & Stone (2002)	A positive effect of subsidised loans on persistence and an insignificant effect of unsubsidised loans; positive for merit scholarships and need-based grants on persistence and attainment rates.
DesJardins, Ahlburg & McCall (2002b)	A negative loan effect on persistence and positive effect for merit scholarships and need-based grants on persistence and attainment rates; work-study and other components of financial aid do not directly influence graduation chances.
Dowd & Coury (2006)	Students who take loans arrive at a more negative assessment of the net benefits of a college education than those who do not.
Paulsen & St. John (2002)	A negative impact for grant and loan dollars on college persistence, specifically for those students of low socioeconomic status.

output. To this end, this study set out to determine empirically the effectiveness of these financial support packages at a private university in Lebanon, and whether these had a direct impact on student persistence, academic completion, and satisfaction with their university experience – in comparison with those who apply for, but do not receive, aid. This study also set out to determine whether the policy in relation to the amount of financial aid at this private university was 'equitably distributive', that is, whether the faculties which charged a higher amount per credit hour were offering the highest amount of financial aid.

Two faculties, namely the Faculty of Health Sciences and the Faculty of Engineering, charged the highest dollar per credit hour and, hence, it was expected that students in both faculties would have a cumulatively larger financial aid amount than in other faculties. We also looked at differences between males and females to see whether there were more female than male graduates and whether one or the other received higher financial aid. Our results shed light on new attempts at relating financial aid to the quality of programmes and general student satisfaction, in a context where there is a dearth of data and analysis issued by the accrediting bodies that are charged with regulating universities and disseminating information based on institutional research data.

Financial support at a private university in Lebanon

Students in Lebanon initially qualify for financial support based on need as defined by criteria set by the various private universities. Unlike US, Canadian or Australian Universities, financial support in the American-style Lebanese universities is all 'in-house'. Students who lack the required funding, whether from parents or through scholarships, have no alternative but to attend the public LU.

As with any private university, there are strict guidelines for the distribution of financial aid. Lebanese universities differ from American universities in that newly admitted students have no prior knowledge of the financial aid package they will get before they enrol at the university. American students receive a detailed financial aid package prior to enrolment, allowing parents and students to make decisions whether or not to enrol in a particular university, and how to supplement the grant with additional funds.

In order to continue receiving financial aid, students must have successfully completed 12 credits or more, with a cumulative grade average of 70% or higher. All students receiving financial support must secure full-time status (12 credits), and students taking remedial courses have no access to financial support. Many private universities also provide loans for students. These students are liable to begin the repayment of the loan once employment is secured. The various forms

of financial support are not only based on determined need, but also the educational performance of students. Unlike most American universities, financial support is awarded biannually rather than annually, toward the end of each semester.

Private Lebanese universities make available four types of financial support. First, there is a financial aid support package that is based on assessed need. Students who qualify for this form of aid must be full-time students coming from low-income families. The continuation of the award package is linked to the student's performance after the completion of one full semester. If the student is successful in achieving above a 70% score in completed coursework, the financial aid continues. Second, financial aid is available under what is termed a 'sibling grant'. A sibling grant is given when two or more brothers and/or sisters are registered at a particular university with proven financial need. If deemed eligible, siblings receive tuition discounts based upon their particular need. Third, the 'work-study grant' provides students with determined needs with opportunities to spend a maximum of 15 working hours per week at a unit within the university. Students are paid an hourly rate and are able to earn a particular percentage of their tuition. Work-study programmes have requirements, such as the completion of one full semester, a student average of above 70%, and full-time enrolment status. Finally, universities offer students who rank above the 95-percentile in their studies a semester based 'merit grant'. These students can lose the merit grant if they drop below the 95-percentile rank irrespective of need.

In this study, three types of financial aid were selected, namely: (i) financial aid based on need; (ii) work-study; and (iii) merit. These financial aid types were chosen based on a provision that students maintain an academic level that allows them to continue in their enrolment. Financial aid secured through loans was not considered in this study because of the anomalous data record.

Procedure

Two data sets were accrued from the University's Computer Information System. The first data set provided information as to whether the student received financial aid or not, whether the student was enrolled or not, whether s/he had continuing or graduated status, and the amount of money received. The second data set included responses to a satisfaction scale. Student identification numbers were used to tag and merge the two data sets. The first data set included a subgroup of 1578 undergraduate students. In the second data set, a subgroup of 473 students was included. This subgroup was used to compile both the satisfaction and the financial aid data.

To obtain a general measure of satisfaction, a scale was constructed, adapted mainly from Delaney (2005), Pascarella & Terenzini (1983), and Sanders & Chan (1996) – with some modifications made to the initial conceptualisation of the survey. Two basic dimensions were considered for the satisfaction scale, those that include explicit and those that include implicit services. Explicit satisfaction measures included students' satisfaction with specific university structures. Implicit satisfaction measures included student satisfaction with staff and faculty, and student relations with other students (such as friendliness, social activities and other cultural programmes that take place on campus). The satisfaction scale information was uploaded electronically on to the Student Information System – an automated registration and information system for students. Once students logged in, a reminder to fill the satisfaction scale appeared on the system. Students replied by filling the questionnaire and submitting it back to the computer system, which was then sent to the authors.

The first analysis compares those who had financial support with those who had applied but were not awarded aid. The method used a score called 'financial award measure' (FAM), defined as the number of times the students received the financial support subtracted from the number of times they applied but did not receive financial support. This calculated score was based on data from Fall 2002-2003 to Fall 2007-2008. If the student decided to leave the university and then return, the measure was calculated based on the number of times the student enrolled. If the student applied for financial support in a particular semester based on need, and was not awarded support, then the measure was subtracted from the number of times the student received financial aid. As an example, if the student was enrolled in the Fall semester of the academic year 2002-2003, and if s/he applied for and was awarded financial support for that semester based on need, then the value of FAM for that semester would be '1'. If the student applied the following semester for financial support and was not awarded support, then the value of FAM for the two consecutive semesters would be '1-1=0'. If the student applied for financial support for four semesters and was not awarded on all four occasions, the student would have a FAM score of '-4'. The datum for this measure was Spring 2006-2007. Thus, if a student was enrolled in Fall 2002-2003 and received financial support from the time of his enrolment to Spring 2006-2007, then FAM would have a value of 10. FAM as a measure of the number of times awarded financial support was reclassified into three approximate homogenous classifications, ranging from a low FAM level '1', a middle FAM level '2', and a high FAM level '3'. We crossed FAM with those who graduated or did not graduate.

A second measure used in this study was 'financial amount' (FA), defined as the total sum of financial aid received over the years spent at university. This aggregated amount was recoded into a three level classification based on the

distribution of the data. We crossed financial amount (FA) with those who graduated and those who did not graduate. Finally, an aggregate score of the 24-item satisfaction scale was summed and divided by 24. The resulting mean score for the satisfaction scale indicates the level of satisfaction among the students who received financial aid. The mean for the satisfaction scale could range from '1 = low' to '5 = high'. Both FAM and FA were run on the aggregate measure for satisfaction. We also used faculty and gender to determine whether the university maintained an equitable distribution of money for the different faculties

Results

We used socio-demographic variables to study the effects of gender and major, and to understand whether the level of financial aid was related to whether students graduated or not. FAM was crossed with those who graduated or did not graduate. FAM ranged from a value of -11 to 10 and was recoded into three homogeneously distributed FAM levels, namely, '1 = low', '2 = middle' and '3 = high'. A significant chi-square (χ^2 (2, 1421) = 104.67, $p < .001$) indicated that students with a high FAM (45.7%) are more likely to graduate in comparison to those with low (27.7%) or middle (26.6%) FAM. In comparison, those who did not graduate had a higher percentage at the middle FAM than the high FAM (see Table 2).

In the second analysis we used an aggregate financial amount of those who applied and received financial aid crossed with those who graduated or did not graduate. The aggregate financial amount was recoded into three homogenous classifications, namely, the lower one-third, the middle one-third and the upper one-third of the distribution. The results showed that a significant relation appeared between the financial amount and those who graduated/did not graduate (χ^2 (2, 1421) = 132.2, $p < .001$). For 40.9% of those who graduated had the highest amount compared to the corresponding 28.8% who received the lowest amount. And with regard to those who did not graduate, 15.3% received the highest amount compared to 60.3% who received the lowest amount (see Table 3).

In a third analysis, we examined gender crossed with the graduate classification. As more males than females enrol in majors traditionally associated with males (Abouchedid & Nasser, 2000), males graduate at higher rates. Since males are more likely to take 'masculine-type' programmes, they are apt to enrol in engineering and hard sciences that charge higher fees than other faculties do. Specifically, we wanted to find out whether there was financial award equity among males and females in these majors that have higher rates of males enrolled in them. Using a two-way 2x2 factorial design with sex (male, female) x graduate classification (graduate, did not graduate) showed that there was a main

TABLE 2: FAM crossed by those who graduated/did not graduate

		Recoded Financial Aid Measure			Total
		1.00	2.00	3.00	
Graduated	Count	287	276	473	1036
	% within Row	27.7%	26.6%	45.7%	100.0%
	% within Column	67.5%	60.3%	87.9%	72.9%
Did Not Graduate	Count	138	182	65	385
	% within Row	35.8%	47.3%	16.9%	100.0%
	% within Column	32.5%	39.7%	12.1%	27.1%
Total	Count	425	458	538	1421
	% within Row	29.9%	32.2%	37.9%	100.0%

significant difference between males and females (F (1, 189) = 15.77, $p < .001$) with a greater average amount of aid given to females than males in ratio to their numbers. An interaction effect was also found (F (1, 189) = 5.916, $p < .05$) with a higher amount given to females who did not graduate compared to those who graduated and a lesser amount given to males who graduated compared to those who did not graduate. Thus, in this case study we note a slight advantage for females in terms of available money. Possibly, females have a higher performance in subjects such as mathematics and science, and this may have enticed these women to enrol in the engineering and sciences. In using cumulative grade point average as the covariate and by removing the variances associated with cumulative grade point average, we found a significant difference between those who graduated compared with those who did not graduate on the amount of financial aid received (F (1, 185) = 7.132, $p < .01$). In addition, by using the cumulative grade point average as a covariate, we found a main significant difference between females and males (F (1, 185) = 8.692, $p < .01$) and interaction effects (F (1, 185) = 7.01, $p < .01$). This indicates that gender differences were apparent irrespective of the performance of these students.

TABLE 3: FA crossed by those who graduated/did not graduate

		Recoded Financial Amount			Total
		1.00	2.00	3.00	
Graduated	Count	298	314	424	1036
	% within Row	28.8%	30.3%	40.9%	100.0%
	% within Column	56.2%	77.0%	87.8%	72.9%
Did Not Graduate	Count	232	94	59	385
	% within Row	60.3%	24.4%	15.3%	100.0%
	% within Column	43.8%	23.0%	12.2%	27.1%
Total	Count	425	530	408	483
	% within Row	29.9%	37.3%%	28.7%	34.0%

Because the students who received the lowest amount may have stayed a shorter time at the university, the third analysis investigated whether the time students enrolled at the university was related to their graduation or non-graduation. If there was a higher percentage of non-graduates who stayed a shorter period of time and received a greater amount of financial aid, this would indicate that the amount received is related to the time students remain at the university. When students enrol for a longer period of time, receive higher amounts of money and still do not graduate, the financial aid would have been allocated somewhat unwisely. On the other hand, if the graduates enrolled for shorter periods and received lower amounts of financial aid, this would indicate that the university has a wise policy for financial support to strategically aid students. As many private universities in Lebanon survive from student tuition fees, the over-allocation of funds for financial aid eats into potential profit margins. Thus, private universities try to keep a balance in maintaining students through a cost-sharing system.

The time spent by students from the academic semesters of Fall 2002-2003 to Spring 2006-2007 is 10 semesters. This time variable was recoded into a three-level classification: the lower one-third, the middle one-third and upper one-third

of the distribution. The first part of Table 4 presents the recoded time spent at the university crossed with recoded financial amount by controlling for graduates. A significant finding was that those who enrol at the middle-time level receive the highest amounts of financial support (χ^2 (4, 1036) = 66.51, $p < .001$). The second part of Table 4 indicates that those who did not graduate received the lowest amount of financial help and spent a shorter time at the university (χ^2 (4, 385) = 79.78, $p < .001$).

We also investigated the availability of aid packages for students in faculties that charge the highest dollar for semester credit hour, focusing in particular on the Faculty of Health Sciences and the Faculty of Engineering. We wanted to see whether students enrolled in both these faculties had access to financial aid packages that were greater than those available to student in other faculties. If this was the case, this would indicate the prevalence of a fair policy. A one-way ANOVA showed a significant difference (F (6, 870) = 4.97, $p < .001$), while a post-hoc Scheffe' showed a larger difference between the Faculty of Health Sciences and the Faculty of Business and Management (mean difference = 2218670.14, $p < .05$) with a higher mean value of financial aid amount for those in the Faculty of Health Sciences followed by the Faculty of Engineering compared to lower financial aid packages to the other faculties at this private university.

To understand the quality of the higher education experience related to financial aid, we ran a one-way ANOVA using the three-level classification on the aggregate measure of satisfaction as a mean score. A subgroup of 473 students continuing at the university responded to the satisfaction scale. Two analyses were performed using the number of times students received financial aid and the amount of financial aid students received as factors on the aggregated mean satisfaction. Both the number of times students received financial aid and the amount received were recoded based on the distribution of those who continued at the university. A non-significant difference between the financial amount levels was obtained on the aggregate satisfaction measure (F (2, 397) = 0.45, $p > .05$). The financial aid amount was recoded because the distribution in a two classification level did not impact student satisfaction (F (1, 398) = 0.74, $p > .05$).

Discussion

Financial support is related to student success in a private university in Lebanon. These findings reflect some level of significance in the relation between the receipt of financial aid and the monetary value of aid received on graduation,

TABLE 4: Time spent crossed by FAM and FA for those continuing at the university

Graduates Recoded Time						
			1.00	2.00	3.00	
Recoded Financial Amount	1.00	Count	102	104	92	298
		% within Row	34.2%	34.9%	30.9%	100.0%
		% within Column	39.7%	23.2%	27.9%	28.8%
	2.00	Count	102	140	72	314
		% within Row	32.5%	44.6%	22.9%	100.0%
		% within Column	39.7%	31.2%	21.8%	30.3%
	3.00	Count	53	205	166	424
		% within Row	12.5%	48.3%	39.2%	100.0%
		% within Column	20.6%	45.7%	50.3%	40.9%
Did Not Graduate Recoded Time						
Recoded Financial Amount	1.00	Count	136	69	27	232
		% within Row	58.6%	29.7%	11.6%	100.0%
		% within Column	78.2%	58.5%	29.0%	60.3%
	2.00	Count	33	31	30	94
		% within Row	35.1%	33.0%	31.9%	100.0%
		% within Column	19.0%	26.3%	32.3%	24.4%
	3.00	Count	5	18	36	59
		% within Row	8.5%	30.5%	61.0%	100.0%
		% within Column	2.9%	15.3%	38.7%	15.3%

discontinuation or dropout levels. Specifically, we wanted to see whether financial aid had substantial negative consequences on students graduating in a normal time frame, or whether financial aid prolonged students' stay at the university. Astin's (1975) classic study had found a small effect on student persistence or staying on at the university.

The findings in this study showed that for those students in the third and highest level of receipt of financial aid, the percentage of graduating students was higher compared to those who did not graduate. For those who did not graduate, the number of times they received financial aid was at the middle level. In terms of the amount of financial aid, those who graduated received most of the aid, while those who did not graduate received the least amount. These results are encouraging because it appears that the university is supporting graduates more substantially than those who drop out. This is particularly the case with those graduates who spent four to six semesters at the university and who received middle level amount of aid. Comparatively, a high percentage of those who did not graduate received the lowest amount of financial support, having spent one to three semesters at the university.

The private higher education revolution has mitigated a number of issues seemingly unregulated by governance, accountability or accreditation. Even though there are wide variations among the different types of private universities in Lebanon (whether they are for-profit or not, 'religious' or 'cultural', enterprise-like or bureaucratic, Francophone or American-style), all need student tuition fees to survive. This has increased university cost-sharing programmes, especially for those who cannot afford the fees charged. As has been argued, however, such financial support can pose problems for the private university.

In this study we looked at whether this university, like other private American-style universities in Lebanon and the Middle East, has an 'equitable' and balanced distribution of cost-sharing. One important finding showed that universities that charge higher tuition fees provide higher subsidies through financial aid when compared to other universities. Even more significantly, these universities encourage female engineering and science students to pursue their studies by providing a higher amount of aid for needy female students. These results tend to be similar to those obtained by Reuterburg & Svensson (1983) in their studies on higher education in Sweden. These authors found that financial aid was important not only for recruiting students, but was also related to persistence and degree attainment, particularly for students from lower socio-economic strata and for females.

The satisfaction scale assessed students' experiences in a variety of academic and supporting functions, including student affiliation and belonging to the university. The different experiences of these students were not impacted by

financial aid, a result that stands in contrast to the finding of Cabrera, Nora & Castaneda (1993) who noted that financial aid factors affect students' attitudes. The analysis of variance results did not show any significant difference between the number of times students received financial aid and satisfaction. In addition, the two-level classification of financial amount did not show a significant difference on the aggregate measure of satisfaction.

Other factors may possibly be at play where students could see other intangible aspects much more important to their satisfaction and to the quality of education at the university. Particularly notable is McNay's (1995) notion of culture within higher education, which has an impact on the way higher education is structured, organised and operationalised. According to McNay, the culture of a university influences a range of factors associated with academic and student life on campus, including satisfaction.

More important is the fact that institutions may forego large amount of money for financial aid to sustain and solicit academically successful students in the hope of improving student quality and, in turn, improve the university's reputation and public perception. Quality students leaving the university and entering the workforce can only be an asset for the university in terms of reputation and recruitment.

Therefore maintaining the difficult balance between financial aid and seeking high achieving students is a major strategic issue that universities must consider in devising admission policies. This study was exploratory but it provided a picture of financial aid with respect to student output. The data showed to some extent that when financial aid is used wisely, students are more likely to graduate in a timely manner, in comparison to those who receive the lowest amount of financial aid and leave the university.

Limitations and next steps

One limitation of this study is that financial aid is only one variable that might affect the student's decision to continue or to leave the university. It is also considered as a gross indicator of students' academic experiences. Students may have various reasons for leaving or for poor academic performance. Many of these reasons are unrelated to financial aid and future studies may consider a host of possible factors, including variables that influence student satisfaction such as academic abilities, programmes offered at the university attended, the quality of university professors and of teaching, and the overall university culture and climate. More importantly, achievement tends to be a far more persuasive factor for students in succeeding in getting financial aid, in staying or leaving the

university. Hence, future studies could use multivariate analysis to investigate the effect of abilities or achievement as a covariate measured through cumulative grade point average as it impacts on graduation or retention rates.

Conclusion

This study raises important questions about the Arab World's understanding of the funding of higher education and use of financial aid. First, the overall concept of funding higher education needs to be critically examined. A paradigm shift must take place where governments move away from the view of funding universities to the idea of funding students. No longer can public universities remain in privileged positions receiving funding without change or improvement. Rather competition should be added to the funding equation forcing universities to improve and change in order to better meet the needs of society and the individual student. Instead of unquestionably throwing money into public universities that fail to improve educational quality, government funding of private universities should be considered.

Second, these findings indicate that private universities embrace a perspective of financial aid that seriously considers the concept of equity. For example, our findings illustrate that more financial aid is given to females entering male dominated careers, thus facilitating equal access to these professions. Again this understanding of funding centres on the individual and not on the university.

Third, this study informs us that private universities and their financial packages result in a faster graduation rate. This provides additional room for other students who seek enrolment.

Fourth, there are several remaining and important questions to consider. What if the university's policy is to recruit top ranking students? Will this pose a problem to the institution? Will the university, through its financial aid resources and policies, be able to sustain these students? Improving the quality of students' overall university experience could possibly increase the number at the top of the graduating class and is likely to increase retention and graduation rates (DesJardins, 2001).

Finally, government officials need to stop embracing the dead hand of tradition of funding failing public universities and consider how their programmes and policies will promote a competitive system that will improve the country's overall education while meeting the political, social and economic demands of the country.

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