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THE POTENTIAL OF SCIENTIFIC RESEARCH SUPPORT AND ITS ROLE IN ENHANCING THE COMPETITIVENESS OF UNIVERSITIES “ZARQA UNIVERSITY AS CASE STUDY”2001-2013¹

Ahmad Assaf¹

¹ Economic and Administrative Sciences Faculty Zarqa University, Jordan

ABSTRACT

Change has become a modern-day feature, affect all human societies components, as organizations became one of the main components of human society, the ability of organizations to success is determined by its ability to deal with those variables positively and effectively. higher education institutions as a leader of knowledge and producer of it, it is also eligible for change like other organizations by different political, economic and social dimensions, , and many of the issues that were higher education institutions distance themselves from dealing with it, it became inevitable seen as a determinant of its ability to continue and survive. In this context, concepts such as market competition and customers have become importance issues and necessity in higher education institutions. In contrast the development is the most important issues related to developing economies, especially Arab ones, and since the development beyond the concept of capital development and production to human development intellectually and scientifically, the necessity require attention to this activity, which is a fundamental pillar for the development of the economy, the higher the level of development or activation of scientific research and technological development efficiently, the higher the level of progress in the economy. The researcher study the impact of financial Fund provided by universities to Academic staff on the competitiveness of higher education institutions expressed by the development of student numbers on one hand and the level of educational attainment for students. For this purpose, the researcher chose Zarqa University of Jordan as a model for the study. Using descriptive approach and statistical analysis program, The Pearson's correlation coefficient was used to analyse data and level of significance was set at the (0.01) level. Results of this study indicate that there is a positive relationship between scientific research support provided by Zarqa University and the competitiveness of Zarqa University.

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Contribution/ Originality

This study is one of very few studies which have investigated the impact of financial Fund provided by universities to Academic staff on the competitiveness of higher education institutions. This research is important at both the academic and practical levels. Academically, few studies are concerned with exploring the relationship between financial Fund provided by universities to Academic staff and the competitiveness of higher education institutions. Most of the studies are concentrating on the profitability side of universities. So the study can contribute to the accumulated knowledge in this area. From practical point of view, few universities in developing countries lack the link of funding with the performance criteria. Performance-based funding is a concept that is understood differently.

1. INTRODUCTION

In the meantime the dynamic process of globalization has a grand impact on stimulating economic growth, Improving quality of products, services and increasing a competitive environment among business organizations. The Traditional way of dealing with costumers in this increased competitive work environment is not enough to be successful for today's institution and business organization. Many challenges face business organizations and institutions in the 21st century such as changing customer values and orientations, overpopulated society, political instability, environmental degradation, world poverty, increase of global competitiveness educational problems and job creation (Ahmed, 1993).

The research study the impact of financial Fund provided by universities to Academic staff on the competitiveness of higher education institutions expressed by the development of student numbers on one hand and the level of educational attainment for students.

1.1. Research Problem

Methodologically, the main problem is finding the relationship between financial Fund provided by universities to Academic staff and the competitiveness of higher education institutions expressed by the development of student numbers on one hand and the level of educational attainment for students on the other hand. Thus, the research problem can be formulated in the following questions:

1. Dose the financial Fund provided by universities to Academic staff increase the competitiveness of Zarqa University?
2. Is there any correlation between financial Fund provided by universities to Academic staff and development of student's number in the university?

3. Is there any correlation between financial Fund provided by universities to Academic staff and the score of university's students?

1.2. Research Objectives

Generally speaking this research aims to achieve the following objectives:

1. Identifying the importance of financial Fund provided by universities to Academic staff.
2. Identifying the attitudes of universities towards financial Funds.
3. Identifying the impact of research done by Academic staff on the academic level of students.
4. Providing the necessary recommendations for Universities and researchers based on the findings of the present study.

Is important at both the academic and practical levels. Academically, few studies are concerned with exploring the relationship between financial Fund provided by universities to Academic staff and the competitiveness of higher education institutions. Most of the studies are concentrating on the profitability side of universities. So the study can contribute to the accumulated knowledge in this area. From practical point of view, few universities in developing countries lack the link of funding with the performance criteria. Performance-based funding is a concept that is understood differently. Performance-based funding is understood very differently across world. In many cases it is associated with formula-based funding, often without taking into account the "input" or "output" related nature of the criteria used in the formula. Competitive funding is also quite often associated with performance-based funding. A majority of systems consider their funding allocation mechanisms at least partially performance-based for teaching (via graduate-related criteria), with the most extensive case being Denmark in Europe (through its taximeter system to allocate funds for teaching), and partially or mainly performance-based for research, where indicators related to publications and external research funding are normally taken into account (Thomas, 2013).

2. THEORETICAL BACKGROUND

The term 'Higher Education System' generally encompasses all post-secondary educational institutions. In certain countries only programs lasting a minimum of two years are considered part of the Higher Education system. Universities, vocational schools, colleges, technical schools and other institutions which aim at providing practical employable skills so as to prepare the population of working age for active employment in the national, regional and global economies are usually part of the higher Education system.

2.1. Higher Education Competitiveness

Current and future students in the Higher Education System will be competing with other students from all over the world in ways that we cannot yet determine. In preparation for this,

many countries have engaged in preparation of strategies to improve their higher education sectors so as to meet minimal competitiveness requirements.

2.2. Measuring Competitiveness of Higher Education

Before embarking on a discussion of measuring international competitiveness of higher education, a definition of “competitiveness” must be agreed upon. Depending on whether the aim is to make higher education system competitive in terms of research, of attracting more students or in terms of how higher education contributes to the national economy, different indicators are appropriate. There is no single and unambiguous competitiveness indicator. Establishing baseline in order to measure higher education competitiveness is necessary. Unless baseline data for indicators are collected at the outset and systems for data collection are maintained, there is little likelihood of effective measurement or assessment of changes and outcomes.

Based on available data collected by UNESCO and other institutions, data on efficiency (finance, class sizes), R&D, personnel and expenditure (HERD - Higher Education Research and Development expenditure related to GDP per capita) exist across the world. The first report in a new series by UNESCO is Benchmarking Progress in 19 WEI countries UNESCO Study on Education indicators in 19 countries provides insight into various indicators measuring education at all levels presents data on education attainment, finance, participation, teachers and the learning environment in 63 countries. It also allows 19 WEI countries to compare their educational outcomes with those of OECD countries.

Several tools have been developed for ongoing institutional and individual performance measurement². The tools range from participatory self-assessments and check lists to formal institutional diagnostics. The “Knowledge Services and Learning, A UNDP Capacity Development Resource” conference paper (United Nations Development Programme, 2006) offers a variety of indicators to measure higher education competitiveness as well as steps to designing, building and sustaining a results based monitoring and evaluation system. Some indicators are based on administrative, procedural and other aspects of accessing learning opportunities, the equity of learning opportunities, the perceptions of value added from educational training, etc. All of them can be adapted depending upon the definition one chooses for competitiveness and the goals of the higher educational system on short, medium or long term.

2.3. Increasing Competitiveness through Higher Education

Knowledge is being treated as the key factor of economic growth, and ability to create new technological and sustainable development. In the opinion of [Maringe and Gibbs \(2009\)](#)

² for more information see “Integrating Capacity Development into Country Programs and Operations: Proposed Medium-Term Framework and Action Plan 2006–2010 Draft Final Report”

dynamic environment of the higher education points to the need of developing some new opportunities in the future, such as: greater complexity of the „educational product“, complex social role of education institutions, and importance of their financial performances and competition.

Higher education (HE) is of particular importance for the economic competitiveness of any society, since higher education institutions generate knowledge and develop expertise and skills which enable individuals to achieve their personal goals as well as become valuable members of society. HE is an infrastructure for future state-level social cohesiveness. HE is becoming increasingly competitive in terms of students, staff and resources.

Creating innovative higher educational institutions, where technology permeates every part of the curriculum, where creativity and innovation are included into each discipline, is of particular importance. From that depends encouraging the growth of creative people who have capital. Creative economy will have a key advantage in the growing competition. Because of this, many authors have attempted to model a way of gaining competitiveness of education. One of these models is shown in Figure 1 with modifications that serve the present study.

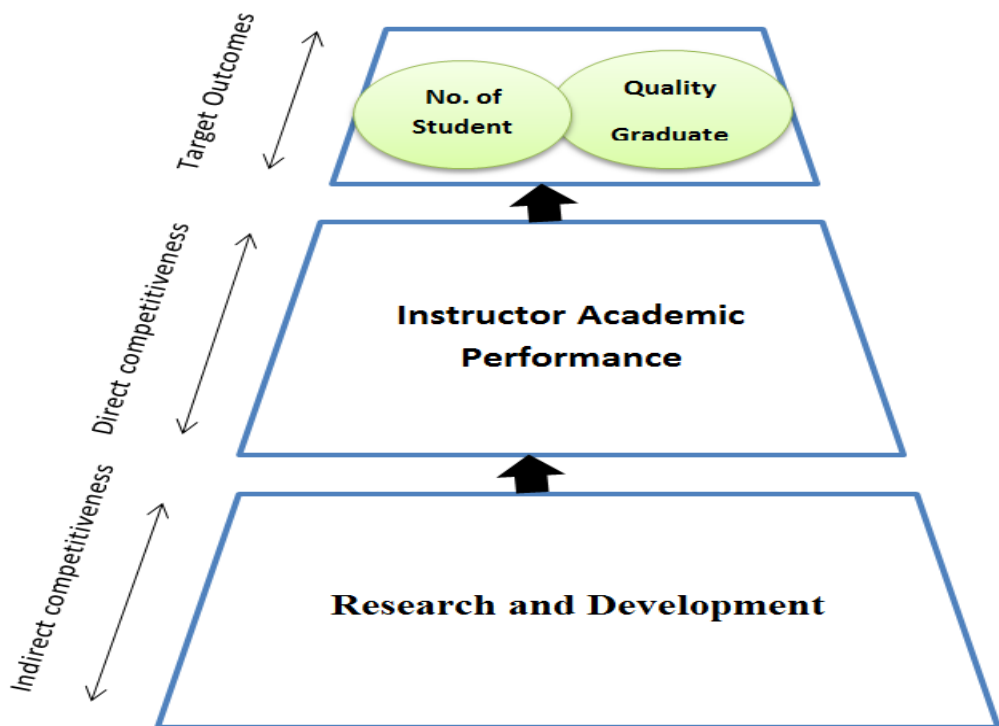


Figure-1. Pyramid Model of competitiveness in higher education

Source: adapted from Tamándl and Nagy (2013), and modified by the author.

Despite the importance of research support and its impact on student’s performance, there is surprisingly little evidence on the effect of funding teachers on student achievement. Most of the evidence concentrates on schools rather than higher education institutions.

One potential method to increase student achievement and improve the quality of individuals selecting teaching as a profession is to provide teachers with financial incentives based on student achievement. Theoretically, teacher incentives could have one of three effects. If teachers lack motivation or incentive to put effort into important inputs to the education production function (e.g. lesson planning, parental engagement), financial incentives for student achievement may have a positive impact by motivating teachers to increase their effort. However, if teachers do not know how to increase student achievement, the production function has important complementarities outside their control, or the incentives are either confusing or too weak, teacher incentives may have no impact on achievement. Conversely, if teacher incentives have unintended consequences such as explicit cheating, teaching to the test, or focusing on specific, tested objectives at the expense of more general learning, teacher incentives could have a negative impact on student performance (Holmstrom and Milgrom, 1991; Jacob Brian and Steven Levitt, 2003). Similarly, some argue that teacher incentives can decrease a teacher's intrinsic motivation or lead to harmful competition between teachers in what some believe to be a collaborative environment (Johnson, 1984; Firestone William and Pennell, 1993). There is a substantial literature on the relationship between teacher characteristics and student learning. Most prior research on this topic has focused on teachers' educational background, years of teaching experience and salaries. The results of this work are mixed. While it is clear that certain teachers are more effective than others at increasing student performance, there is considerably less consensus on whether specific, observable teacher characteristics such as education or experience produce higher performance. In particular, few studies credibly identify the causal effect of so-called merit pay programs that reward individual teachers—or groups of teachers—for the test score performance of their students. Glewwe *et al.* (2003) randomly assigned 50 Kenyan primary schools to a treatment group eligible for monetary incentives (21-43% of monthly salary). The winning schools were determined by their test-score performance relative to other treated schools, and all teachers in such schools received awards. The program produced test-score gains in treated schools, but they only lasted for the program's duration, and they appear to be the result of test preparation activities. Data from field experiments in Kenya and India yield effect sizes of approximately 0.20 standard deviations in math and reading when teachers earned average incentives of 2 percent and 3 percent of their yearly salaries, respectively (Glewwe *et al.*, 2010; Muralidharan and Sundararaman, 2011). Data from a pilot initiative in Tennessee, where the average treatment teacher earned incentives totaling 8 percent of their annual salary, suggests no effect of incentives on student achievement.³ In the 2007-2008 through the 2009-2010 school year, the United Federation of Teachers (UFT) and the New York City Department of Education (DOE) implemented a teacher incentive program in over

³ Non-experimental analyses of teacher incentive programs in the United States have also shown no measurable success, though one should interpret these data with caution due to the lack of credible causal estimates

200 high-need schools, distributing a total of roughly \$75 million to over 20,000 teachers.⁴ The experiment was a randomized school-based trial, with the randomization conducted by the author. Each participating school could earn \$3,000 for every UFT-represented staff member, which the school could distribute at its own discretion, if the school met the annual performance target set by the DOE based on school report card scores. Each participating school was given \$1,500 per UFT staff member if it met at least 75% of the target but not the full target. Note that the average New York City public school has roughly sixty teachers; this implies a transfer of \$180,000 to schools on average if they met their annual targets and a transfer of \$90,000 if they met at least 75% of, but not the full target. In elementary and middle schools, school report card scores hinge on student performance and progress on state assessments, student attendance, and learning environment survey results. High schools are evaluated similarly, with graduation rates, Regents exams, and credits earned replacing state assessment results as proxies for performance and progress.

2.3. Research Hypothesis

Based on the literature reviewed, the researcher proposed the following Hypothesis:

H₀: There is expected to be a negative relationship between scientific research support provided by Zarqa University and the competitiveness of Zarqa University measured by and development of student's number.

H₁: There is expected to be a positive relationship between scientific research support provided by Zarqa University and the competitiveness of Zarqa University measured by and development of student's number.

H₀: There is expected to be a negative relationship between scientific research support provided by Zarqa University and the competitiveness of Zarqa University measured by students' academic score.

H₂: There is expected to be a positive relationship between scientific research support provided by Zarqa University and the competitiveness of Zarqa University measured by students' academic score.

2.4. Research methodology

The researcher employed data on the number of students, the students' academic score, and the amount of research fund provided by Zarqa University for teachers for the year 2001-2013. Data collected from the Admission and Administration Unmint and Deanship of Scientific

⁴ The details of the program were negotiated by Chancellor Joel Klein and Randi Weingarten, along with their staffs. At the time of the negotiation, I was serving as an advisor to Chancellor Klein and convinced both parties that we should include random assignment to ensure a proper evaluation.

Research. The Pearson's correlation coefficient was used to analyse data and level of significance was set at the (0.01) level.

3. DATA ANALYSIS AND RESEARCH RESULTS

3.1. Data Analysis

1) Testing First Hypothesis

As far as the first hypothesis of this study, the analysis of correlations shown in table (2) high and positive correlation (92.2%) between scientific research support provided by Zarqa University and the competitiveness of Zarqa University measured by and development of student's number at significant level (99%). Accordingly, the researcher rejects the null hypothesis and accepts the alternative hypothesis which states that there is expected to be a positive relationship between scientific research support provided by Zarqa University and the competitiveness of Zarqa University measured by and development of student's number.

1) Testing Second Hypothesis

Upon the results of correlations shown in table (2), the analysis shows a moderate positive correlation (72.3%) between scientific research support provided by Zarqa University and the competitiveness of Zarqa University measured by students' academic score at significant level (99%). Accordingly, the researcher rejects the null hypothesis and accepts the alternative hypothesis which states that there is expected to be a positive relationship between scientific research support provided by Zarqa University and the competitiveness of Zarqa University measured by students' academic score.

3.2. Summary and Concluding Remarks

The research main hypothesis is that scientific research support will enhance the competitiveness of universities. This was done by employing data on the number of students, the students' academic score, and the amount of research fund provided by Zarqa University for teachers for the year 2001-2013. The Pearson's correlation coefficient was used to analyse data and level of significance was set at the (0.01) level. Results of this study indicate that there is expected to be a positive relationship between scientific research support provided by Zarqa University and the competitiveness of Zarqa University. Based on the above conclusion the researcher suggests the following recommendations:

1. The inclusion of a "performance" dimension in funding formulae of university should be done.
2. The development of performance agreements with specific targets should be a done between universities and teachers.
3. Limiting the number of indicators may enable universities to focus and deliver better results.

4. Attention should be paid by universities to the challenges linked to the funding system.
5. The extent to which it is in the universities' capacity to act upon the selected criteria is an important matter to consider, in order creating the appropriate incentives.
6. Monitoring processes should be set up in order to fully assess the impact of the funding mechanisms on institutions performance.

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