

The Effect of Supporting Scientific Research and Publication on the Globally Rank

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Abstract

The rankings of global universities have led to the notion of a global university market developed in a single platform, with the main objective being the opportunity for comparison. Consequently, this has led to international competitive pressures in the education sector. The present work illustrates with evidence through published international research and scientific research, the global rank of Prince Sattam bin Abdul Aziz University.

Design/methodology/approach -Data was gathered from various sources including deanship of scientific research, QS World university rankings website, and Shanghai ranking, along with a questionnaire distributed to the academic individuals from Prince Sattam bin Abdul Aziz University. The study made use of tools to test the relationships between the dependent and independent variables.

Findings- the finding of study will provide after data collection; we believe that the finding will support and enrich the previous literature review. Moreover, the findings help the academics and policy making to understand the current situation among Prince Sattam bin Abdul Aziz University.

Originality/value- we believe that this study is one of best study that to examine the effect of supporting scientific research and publication on the globally rank among Prince Sattam bin Abdul Aziz University. Moreover, this study adds significant information that enhances the current literature review and will be guide for future research. Point of Importance, the study is a unique endeavor as it illustrates the relationships backed by scientific research and publications of global rankings of universities, with a specific focus on elite universities.

Key word: published international research, supporting of scientific research, global rank, Prince Sattam bin Abdul Aziz University.

Introduction

In the context of higher education, ranking can be traced back to many decades [1-5]. this is particularly prominent true higher education systems around the globe in the past 30 years. In addition, global university rankings have led to the notion of competition among world universities in the education market upon which they are judged on a single platform for comparison, providing a boost to international competitive pressures in education[6, 7]

In the field of higher education, global rankings have found a great niche, as a result of which education policy and public arenas have had clear affects on institutional and policy behaviors. Despite the concern relating to the rankings impact and some criticisms of methods used, specifically in HEIs and nations whose institutions' performance were not up to par, a few efforts have been directed to the discredit the process of ranking to the acceptance of the general public [8-10]

Moreover, from the several global rankings, the top influential ranking is one developed by the Shanghai Jiao Tong University (SJTU), introduced in 2003, followed by the Times Higher Education Supplement, introduced in 2004. These two rankings were potential top rankings owing to the fact that they established the reputations of leading universities in the UK and the U.S., namely Harvard, Stanford, Yale, Berkeley, MIT, Cambridge, and Oxford [7, 10-12]. This led to the inclination to realize high-ranking research universities to symbolize national achievement and prestige and drive the growth of economies in light of global knowledge.

When it comes to rankings of Higher Education Institutions (HEIs) and relevant programs, they are connected to the demand for transparent information concerning the teaching quality and the HEIs standing, as well as the further stimulation of competitiveness among institutions all throughout the country. The various ranking systems combined together furnish the data that is pertinent to both public and private entities and positively/negatively affecting them. In fact, majority of ranking systems have

a tendency to stress on vertical differences existing in institutions in different countries [10, 13, 14].

It is notable that higher education standards have permeated the whole globe leading to the enabling of national ranking systems of international comparisons and competition, and driving the norms in higher education towards a more global market of nations and institutions[7] According to [9] “knowledge has become a commodity with enormous geo-political implications (p.2), and in this regard, global universities have maintained their competitiveness to obtain recognition as one of the 1-2% ultra-elite institutions in an attempt to achieve quality of education[6, 15, 16]. As a result, global competition has been utilized as a policy instrument in light of world-class universities, signifying the productivity, power and prestige of the country

According to [11, 12, 15] universities are political institutions of the state, which are organizations requiring the state resources, scarce benefits and charter authority [13, 17, 18] while representing the nation’s interests on the global platform. This shows that public and private universities can be deemed as the country’s political institutions as mentioned by [4, 19, 20]

In the current times, the world is undergoing a distinct scientific and technological formation stage, with the developed and emerging nations developing in leaps and bounds when it comes to their universities, scientific research and technological development – having researchers and academics competing for global publications, scientific innovation and applied inventions, while reaping the cultural and scientific awards and participating in international top conferences (medical, social and humanitarian specializations). Competition among international universities aims to develop classifications of the entities as suggested by the Shanghai Times and KIOS rankings [17, 18, 21]

In relation to universities, scientific research is one of the primary pillars that facilitate goals achievement and because the process of education has its basis on teaching, creative thinking and scientific communication fields, it is deemed to be one of the fundamental indicators of universities’ sophistication and development amongst the competitive rivals. Thus, universities often employ different strategies to boost faculty members’ publication of scientific and journals and papers in different specializations [2, 19, 22, 23].

On the basis of the above, it can be stated that one of the major roles of universities in countries is to stimulate development being the highest educational institutions where R&D takes place, seeking to push progress – such progress calls for the cooperation among universities and institutions in the search for scientific and technical solutions and in the identification of different institutional needs. This defines clear research paths and contributes to the societal progress and development, with coordination directed towards the achievement of united goals and aims, benefiting the relevant parties. Based on this standpoint, developed nations universities have focused on R&D programs, facilitating suitable scientific environment that caters to the research growth, providing laboratory equipments and scientific equipments that researchers holding various specialties can avail of. On the basis of this global and local role of universities, the present work primarily aims to examine the role of scientific support in contributing to a university’s scientific position.

To the best of the author’s knowledge, the present work is unique in that it covers international research and scientific research that contributes to the enhancement of university global and local ranking. In other words, financial support for scientific research assists in the development of such institutions – a development that supports the local and international scientific position of the entity.

This paper focuses on the way international research and supporting scientific research can improve the global and local university ranking. This enables researchers to

expend and direct efforts towards enhancing university ranking, making it significant for policy making and enhancing the relevant literature.

The remaining parts of the paper are organized as follows; the next section provides the literature review, and this is followed by the research methodology.

Literature review

Under this section, some factors relevant to the examined topic, including international research and support of scientific research are examined in their role of enhancing university global ranking.

Published International Research and Global Ranking

Academic research in higher education institutions (HEI) has become the emphasis upon which policy and geo-political interest has revolved around based on its role in driving economic growth and innovation [8, 9] Economic success appear to be reflected in countries who are able to develop and exploit new knowledge for the purpose of competitive advantage and performance, via investing in knowledge-based and intellectual assets (R&D), software, new process innovation design and human and organizational capital [6, 11, 15, 16]

Higher education is a must for international institutions competitiveness as well as individual opportunity and as such, its quality and status have been considered as significant indicators. For this reason, HE performance has been the focus of interest since the publication of the pioneering global ranking, the Academic Ranking of World Universities (ARWU) by the Institute of Higher Education of the Shanghai Jiao Tong University (SJT) in 2003. The Institute takes it upon itself to rank universities based on academic or research performance indicators such as, alumni and staff being granted high level awards (e.g., Nobel Prizes), those whose researches and articles are frequently cited in leading scientific journals and in the following several criteria; education quality, faculty quality, research output and institutional size.

In any given society, scientific research is deemed to be one of the most fundamental reason for scientific development as this enables participation in economic, industrial and agricultural fields and assist in searching for solutions to the sectors issues enhancing performance, maximizing production and establishing high product/service quality. Universities are deemed to be the center of work and scientific research, linking science and society and coordinating and directing efforts to advance human knowledge, while facilitating societal development and advancement [12, 22]

Moreover, universities have a key role in knowledge and research development providing resolutions to societal problems and scientific solutions in various fields of knowledge as a result of which society develops from better technological, economic, health, cultural and social progress. In developed nations, universities have set up specialized research centers and national laboratories that achieve key goals based on their orientations and interests, containing all research activities and reflecting the experience of the university, and assisting decision-makers in reaching informed decisions.

More importantly, because research is the most globalized activity in higher education and its capacity is the key marker in the higher education field, research standing of HEIs and nations reflect their capacity to generate globally salient results and achieve a level of attractiveness to other HEIs, potential students and economic capital[9] Based on the SJTUIHE global university ranking data, research performance of HEIs and upper research national systems can be compared. Also, scientific research centers and

universities compete in the publication of scientific works, with quality and production measured based on data indicators;

Scientific papers in the international scientific fields;

Number of citations reference papers garnered and this may be calculated by reviewing the Web of Science and Thomas Reuters – bases that depend on majority of classifications and reference citations around the globe;

On the other hand, the Shanghai classification has its basis on accurate and distinct data, with individual relative weight, and among the top criteria is the quality of research performance, which is gauged using the following two indicators;

Index of the number of published articles in international scientific peer-reviewed journals, nature/science (N&S) magazine, researches documented in science indices and social science indices. This indicator has a weight of 20% of the evaluation.

Index for the number of articles included in the Citation Index for Science and Social Sciences (PUB) Thompson Scientific Science Citation Index Expanded, with a weight of 20% of evaluation.

According to [9] findings of institutional leaders in different nations, rankings were perceived as crucial to the reputation of institutions and they form every aspect of institutions. Almost 90% of respondents in [9] employed strategies for enhancing institutional ranking to oversee performance of peer institutions and to employ rankings to establish institutional priorities and allocation of resources.

The above review of literature indicates that scientific research is one of the top fundamental university functions, without which they are merely educational school for science and knowledge generated by others and not one that caters to scientific creativity, knowledge development, enrichment and dissemination, seeking to use all of the above to provide solutions to different societal issues. University research is among the most crucial quality and discrimination indicators in the classification of universities on a local, regional and international level, and such researches function as a financial source significant in financing the universities via grants and donations gathered from other institutions/contracts to carry out research, assist in solving scientific and technical issues, assist in enhancing quality of products and enhancing marketing opportunities on a local and international scale. A university that stands out owing to its scientific research has enhanced opportunities to obtain government funding and contributions from private sector institutions, and attracting researchers from the graduate students and faculty members in their own countries and other countries, which would inevitably develop its educational initiatives and activities in the scientific fields. Thus, this study will hypothesize as follows:

H1: there is a positive association between published international research and rank of the university globally (Prince Sattam bin Abdul Aziz University).

Supporting of Scientific Research and Global Ranking

Indubitably, financial support in any field has positive implications and assists in achieving the objectives. Majority of theories and prior works have examined the significance of financial support to institutions in light of its basic role in the creation of creativity and development. In other words, financial support forms an environment that promotes competition among employees, urging them to search for optimum ways to achieve organizational objectives [2, 22] Similarly, financial support in the field of scientific research assists the publication of studies that serve to achieve university goals, raise scientific status and serve the society through qualitative and distinguished research of societal issues. Financial support to universities promotes academic studies and

enhances the university's position, eventually achieving its requirements, and raising its local and international status.

In relation to the above, financial support assists researchers in taking issues seriously and in publishing their researchers in well-known excellent impact factors journals like the ISI, Scopus, ABDC, among others. This will assist the enhancement of the local and international position of the university through which its mission and vision can be realized.

According to [6] R&D expenditure often exceeds the private rate and this brings about socially sub-optimal investment rate. Based on empirical outcome, even with the public support of R&D in OECD nations, the social rate of R&D investment is still sub-optimal (that it is pertinent to search for ways to promote increased R&D investment among public policy officials).

In the scientific research movement of the Arab world, the biggest issue is the gap between the volumes of spending on scientific research reflected by the number of Arab scientific papers published in scientific journals.

Also, a great proportion of the discussion concerning the research support performance has largely ignored global ranking of universities but focused instead on the level to which public grants lead to increased research expenditure by the firms that are funded, with the outcome being inconsistent.

According to [20] SBIR program outshines the research spending of the firm dollar-for-dollar, which is opposite to that of Lerner's (1999) finding revealed for the same program. Similarly, [11] revealed that Japanese funding of research consortia led to increased R&D of the examined firms. Government-funded firms have a higher likelihood to own best ideas, incentivized to spend money and garner support from other parties compared to their non-funded counterparts. Regression analysis compares the research expenditure of supported firms to non-supported ones highlighting the issues that have to be faced by the latter. Based on previous discussion, the hypothesis will be as follows:

H2: there is a positive relationship between supporting of scientific research and Rank of the university globally (Prince Sattam bin Abdul Aziz University).

RESEARCH METHODOLOGY

Data Collection

Data is collected from various sources, the first of which is from the deanship of scientific research and the second of which is from the developed questionnaire distributed to academic staff of Prince Sattam bin Abdul Aziz University. The third source is obtained from the QS World University Rankings website.

Model Specification

The outcome will be obtained through the use of OLS or GLS regression that will be conducted on the association between published international research and supporting of scientific research among Prince Sattam bin Abdul Aziz University.

Model: Rank = $\beta_0 + \beta_1 \text{PIRE} + \beta_2 \text{SSRE} + \beta_3 \text{AOU} + \epsilon_i$

Where are:

Rank: rank of the university globally, PIRE: Published International Research, SSRE: supporting of scientific research, AOU: Age of university, ϵ_i : Error.

Table 1

Measurement of the Variables

Variable name and Abbreviation	Operationalization	Data Source
Dependent Variable (DV)		
Rank of the university globally (Rank)	Measuring the location of the university during the past 15 years	QS World University Rankings and Shanghai Ranking
Independent Variable (IV)		
Published International Research (PIRE)	The number of international research published in good research rules	Deanship of scientific research and questionnaire
supporting of scientific research (SSRE)	The amounts paid for scientific research during the past 15 years	Deanship of scientific research and questionnaire
Control Variable (CV)		
Age of university	Age of university	The document of university

Conclusion and Policy Implications

This work examined the relationship between supporting scientific research and publications (published international research) and the global rank of Prince Sattam bin Abdul Aziz University using panel data of 10 years. Data is gathered from varied sources including the deanship of scientific research, QS World University Rankings website, and Shanghai Ranking, as well as questionnaire distributed to Prince Sattam bin Abdul Aziz University academic staff. The study employs tools to examine the relationship and contributes new information on the relationship between supporting scientific research and publication, and global university ranking. The present work has several implications; first, it is unique in its investigation of the relationship of supporting scientific research and publication (published international research), and global ranking of a Saudi university, Prince Sattam bin Abdul Aziz University. This is particularly significant in the face of fierce competition among universities based on research performance that exacerbates the demand for high-quality scientific efforts.

The second implication is the good outcome that can work as a guide for top management of Prince Sattam bin Abdul Aziz University to use in improving the entity's ranking. Here, ranking and competition improves vertical differentiation between HEIs that are research-intensive and those that are not, and among different levels of the former, where in many instances, relating to unitary national university systems. The third implication is the study's enrichment of prior literature on the topic.

As with other studies, the present one has several limitations, the first of which is its sole focus on Prince Sattam bin Abdul Aziz University conceptually. Future studies can be

conducted empirically. Secondly, it could cause comparisons between this university and others in the Kingdom. Third limitation is the limitation to examining two variables, where further studies can be conducted to include other variables (e.g., citation data, society, etc.), which could enhance university ranking.

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