Investigate the relationship between university financing methods and its academic ranking

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Abstract: One of the positive effects of higher education services is a contribution to improving the human capital of a country. But the problem of higher education is the problem of financing them which has been seen it was mainly used in the private and public sector. Various researches have been done on the type of financing of the university. The main purpose of this research is to investigate the relationship between financing methods of universities in Iran and their scientific ranking. Universities use different methods of financing, among which are the main methods in the universities of developed and developing countries, including central government support, student tuition fees, endowments and charitable wealth, and sales of educational and research services to applicants. According to these methods, the results showed that there is no significant relationship between financing methods and academic ranking of public universities in Iran.
Keywords: University Ranking, Ranking Criteria, Financing Methods

INTRODUCTION AND PROBLEM STATEMENT

In the second half of the twentieth century, the primary raging waves of government funding for the higher education sector were reduced, and governments in most countries have reduced their support for this sector and added to their demands. Governments have pushed higher education institutions to respond more and more flexibly to the changing economic and social needs to focus on their own activities. This situation has inevitably led to the application of management structures and funding methods and more precise appropriation in higher education institutions (Roshan, 2013). There is little consensus on the ranking of universities and how they should be ranked, and many believe that ranking has caused unhealthy competition between universities and universities are trying to set their activity according to ranking criteria so that they can maintain their high ranking (Keir&Henni, 2002). In contrast, some experts believe that ranking will improve the quality of higher education institutions and universities, but the point to be taken into account here is that quality is a matter of mind and quality of ranking should be done in the light of the goals of universities and higher education institutions. (Sidorenko&Gorbatova 2015). One common point of view about ranking universities is awareness of their status as compared to other peer universities; when universities that are active in a particular context are compared, their status will be fully revealed. Other views on university rankings are helping the academic system audience. Students in the choice of colleges of study, parents to learn about the status of universities and decision makers for ease of decision can use the results of ranking. Ranking can also be useful in collaborative academic activities between universities, because it represents many common points. On the other hand, some believe that ranking is a factor for the acceleration and movement of universities to a competitive context and ultimately increases their efficiency, because their performance is reviewed by the comparison of universities, and this is an important factor in the change and tendency toward improving the quality of their activities (Pavila, 2012). Research by Kenac et al. (2014) suggests that the appropriate and adequate budget is a superior indicator of a higher education institution to other institutions. Universities that can afford the most salaries to their faculty members and buy the best college equipment are likely to be able to attract better educated instructors and students. Of course, this is true in higher education systems that operate in a competitive environment. However, the importance of the financial status of a higher education institution in improving the quality of providing educational services cannot be ignored.

Research literature
University Ranking

The phenomenon of ranking has grown exponentially with the increasing expansion of universities and increased attention to higher education throughout the world. Ranking is often defined as a way to simplify and clarify a complex scenario for students and others. In other words, the purpose of ranking is to measure the quality of universities and higher education institutes and their research and training, and of course more importantly their presentation. As the competition between universities is increasing every day, the existence of a criterion for evaluating and ranking them seems important (Sidorenko&Gorbatova, 2015).

Worldwide Rankings of Universities

In addition to general rankings provided by various institutions, university rankings are also based on different academic disciplines. Also, rankings are available geographically, in different countries, and some other categories. Some of these rankings:
(Times Higher Education World University Rankings).
(Academic Ranking of the World University)
(Quacquarelli Symonds World university ranking)
(Islamic World Science Citation Center)
(Shanghai Jiao Tong University).
(University Ranking by Academic Performance)
(CINDOC) (Boulton, 2011).

Criteria in rankings
Times Higher Education World University Rankings

Universities are ranked based on 13 indicators in 5 categories: education, research, knowledge transfer (referrals to articles), industrial income and international image.

Quacquarelli Symonds World university ranking

In this ranking, there are 6 indicators: academic credibility, employer credibility, faculty/student ratio, average student papers, international to internal students' ratio, international faculty to internal faculty ratio.
Islamic World Science Citation Center ranking: This rankings rank the universities and research institutes of the country based on 23 indicators in the form of five general criteria: research, education, international image, facilities and socio-economic activities. These indexes and ranking criteria and methodology for calculating the relevant ranking as well as the weight assigned to each indicator and its components is approved by the Sixth Extraordinary Ministerial Conference on Higher Education in Islamic Countries, which has been compiled by experts in ranking science.

Shanghai Jiao Tong University ranking

The indexes of this rating are mostly related to the field of natural sciences, and include the number of articles published in Nature and Science magazines, the number of Nobel laureates and the Fields Award.

University Ranking by Academic Performance

Based on six university research performance indexes: current productivity (published articles), long-term productivity based on Google Scholar site results, research factor based on ISI data citation rates, IF indexes of various journals (index H) and ultimately international cooperation.

CINDOC

An index is used to rank the websites of universities and scientific, educational and research centers around the world based on a number of criteria including the size of the information on the web, the size of visibility, the proportion of information published on the web to the number of links Its Rich Files, the number of articles published and their referrals (Sarmdipour, 2016).

Methods of financing universities

Higher education is now openly available to the public, because the number of higher education has increased in all countries especially in recent years. An important development is the increase in the private sector financing of universities. Today, we have seen changes in the funding system of universities. Higher education funding sources can be divided into four groups according to the beneficiary groups:
Households (students or their parents);
Institutions (Educational and Research Services Buyers),

Government representing the community (social returns of higher education),
Individuals and charities (Sity&Asmak, 2015).

Research background
　　　　Bariger (2016) developed an article entitled "Changing Financial Resources in Governmental Higher Education; Change, Diversity and Discontinuity", with the aim of identifying the conditions in US higher education. Using descriptive statistics, he analyzed the financial behavior of the US government over the years 1986-2010; results of this study showed that the state budget was directed towards different incomes and fees, and creating the relative stability in cost patterns, and the change in income and diversification of sources of resources according to the new circumstances is necessary.
　　　　Erinzovarina (2014) conducted a study entitled "University Financing System", examining the system of higher education financing considering opportunities to improve the financing model for higher education, and its results should be aligned with increasing efficiency and effectiveness of higher education institutions in order to improve the financing model of higher education system.
　　　　Boultonpoints out that international ranking systems influence the government's priorities, different businesses and students, and portray the position of excellence in universities and higher education institutions, but the real value of these systems is always questionable. Different universities have different roles that they do not seem to measure logically with the same scale, so it's better to focus on the extent to which universities have succeeded in performing their tasks rather than in rankings, and how much have done their academic activities correctly (Boulton, 2011).
　　　　Saisana et al. concluded that the statistical deductions at the regional macro level (beyond a country) were very good with the review of the Shanghai and Times rankings systems. They also acknowledge that the ranking of many of the world's top universities is dependent on ranking by rating agencies, that is, if the ranking method is changed, the position of top universities will be greatly reduced (Saisana, d'Hombres, and Saltelli, 2011).
　　　　Ingulinfer (2003) examines some of the most famous universities in the United States, Switzerland, the United Kingdom, and the Netherlands in terms of financing solutions. Despite the fact that there are significant differences in financing and resource allocation between universities (for example, in the United States where the university's private market model is active, and in place of more government-owned universities in Switzerland), all of them are recognized as successful institutions in their country's higher education system. Therefore, the relationship between the ability to earn money and academic success cannot be identified.

Development of hypotheses and conceptual model
The main hypothesis. The financing method influences the academic ranking of universities.
First sub hypothesis. Financing from the state budget section affects the academic ranking.
Second sub hypothesis. Financing from the educational services buyers (institutions) sector affects the academic ranking.
Third sub hypothesis. Financing from the tuition fee affects the academic ranking.
Fourth sub hypothesis. Financing from the endowments section affects the academic ranking.
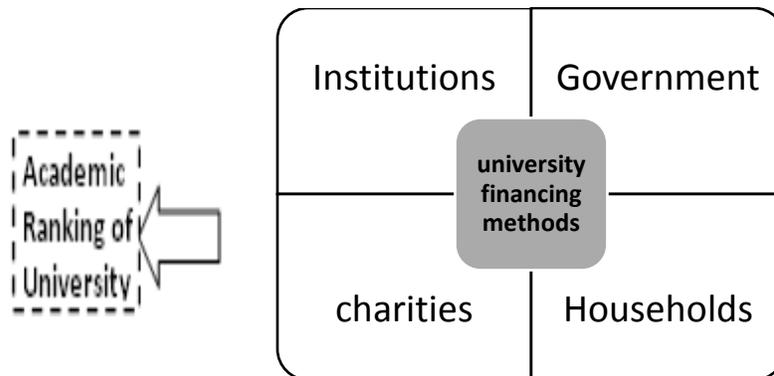

Figure 1. Conceptual model of research

RESEARCH METHODOLOGY

This study can be considered as a descriptive-survey research, because it describes the subject of research and explains it through descriptive data. Using a researcher-made questionnaire, the impact of universities financing methods on their academic rankings is studied. This research is applied in terms of purpose, because the results of the findings are used to direct managers and authorities. To determine the validity of the questionnaire, 10 of these questionnaires were distributed among experts and, after the necessary corrections, were distributed in the community. To determine the reliability of the questionnaire, Cronbach's alpha coefficient was used, which is 86.3%. The statistical population of this study consists of heads of state universities under the supervision of the Ministry of Science, Research and Technology. To analyze the data collected through analytical and inferential statistics, the significance of the relationships between variables is tested. In this study, Pearson correlation coefficient and regression were used in SPSS software.

Analysis of data and findings
Testing the main hypothesis. Pearson correlation test and regression were used to study the effect of financing methods on the academic ranking of universities in Iran.

Table 1. Results of Pearson correlation coefficient for the main hypothesis

Variables	Pearson correlation	
	r	Sig
Academic Ranking of University University financing methods	0.34	0.00

Correlation is significant at the significance level of 0.05 (two domains) N = 70.

The results of Table 1 show that the significance level associated with the Pearson correlation coefficient to examine the hypothesis H0 for the proposed main hypothesis is equal which is less than 0.05; therefore, statistical H0 hypothesis is rejected and the alternative hypothesis H1 is confirmed at the 95% confidence level. As a result, it can be said that there is a positive, but weak correlation between the financing method of the university and its academic ranking with a correlation coefficient of 0.34.
Now, we must look at what is the impact of financing method on the university's academic ranking? So we use regression analysis. The results are as follows in Table 2:

Table 2. Regression results for the main hypothesis

Criterion variable	Predictive variable	Correlation R	RS coefficient of determination	F	Regression coefficient
University Financing Method	Academic Ranking of University	0.34	0.758	F = 431.871 P = 0.05	T = 20.781 B = 0.34

The results show that the standard beta coefficient between the two variables of the method of financing and the academic ranking of the university is 0.34 and the correlation observed is significant; therefore, the financing method has a direct and weak effect on the academic ranking of the university at confidence level of 95%.

Testing the first sub-hypothesis
Pearson Correlation Test was used to study the relationship between financing from the government budget section and the academic ranking of universities.

Table 3. Results of Pearson correlation coefficients for the first sub-hypothesis

Variables	Pearson correlation	
	r	Sig
Financing from the government budget section Academic ranking of university	0.501	0.00

Correlation is significant at the significance level of 0.05 (two domains) N = 70.
The results of Table 3 indicate that the significance level associated with the Pearson correlation coefficient to examine the assumption of H0 for the proposed main hypothesis is equal which is less than 0.05; therefore, statistical H0 hypothesis is rejected and the alternative hypothesis H1 is confirmed at the 95% confidence level. As

a result, it can be said that the relationship between financing from the government budget and the academic ranking of university with a correlation coefficient of 0.501 is moderate and positive.

Testing the second sub-hypothesis
Pearson correlation test was used to study the relationship between financing from tuition and the academic ranking of the university.

Table 4. Results of Pearson correlation coefficients for the second sub-hypothesis

Variables	Pearson correlation	
	R	sig
Financing from tuition		
Academic ranking of university	0.538	0.00

Correlation is significant at the significance level of 0.05 (two domains) N = 70.

The results of Table 4 indicate that the significance level associated with the Pearson correlation coefficient to examine the assumption of H0 for the proposed main hypothesis is equal which is less than 0.05; therefore, statistical H0 hypothesis is rejected and the alternative hypothesis H1 is confirmed at the 95% confidence level. As a result, it can be said that the relationship between tuition and the academic ranking of university with a correlation coefficient of 0.538 is moderate and positive.

Testing the third sub-hypothesis
The Pearson correlation test was used to study the relationship between financing of the endowments section and the academic ranking of the university.

Table 5. Results of Pearson correlation coefficients for the third sub-hypothesis

Variables	Pearson correlation	
	R	sig
Financing from endowments section	0.31	0.00
Academic ranking of university		

Correlation is significant at the significance level of 0.05 (two domains) N = 70.

The results of Table 5 indicate that the significance level associated with the Pearson correlation coefficient to examine the assumption of H0 for the proposed main hypothesis is equal which is less than 0.05; therefore, statistical H0 hypothesis is rejected and the alternative hypothesis H1 is confirmed at the 95% confidence level. As a result, it can be said that the relationship between financing of the endowments section and the academic ranking of the university with a correlation coefficient of 0.31 is positive but weak.

Testing the fourth sub-hypothesis
Pearson correlation test was used to study the relationship between financing of the institutions and the academic ranking of the university.

Table 6. Results of Pearson correlation coefficients for the fourth sub-hypothesis

Variables	Pearson correlation	
	R	sig
Financing from institutions		
Academic ranking of university	0.37	0.00

Correlation is significant at the significance level of 0.05 (two domains) N = 70.

The results of Table 6 indicate that the significance level associated with the Pearson correlation coefficient to examine the assumption of H0 for the proposed main hypothesis is equal which is less than 0.05; therefore, statistical H0 hypothesis is rejected and the alternative hypothesis H1 is confirmed at the 95% confidence level. As a result, it can be said that the relationship between financing of the institutions section and the academic ranking of the university with a correlation coefficient of 0.37 is positive and weak.

DISCUSSION & CONCLUSION

The results of the present study indicate that there is no significant relationship between the methods of financing universities and their academic ranking in universities of the Islamic Republic of Iran. Different results have been obtained in different studies. For example, a study by Lefener (2003) found that although there are significant differences in terms of funding solutions for financing and resource allocation between universities in some of the most famous universities in the United States, Switzerland, the United Kingdom and the Netherlands, all of them are known as successful institutions in their country's higher education system. Therefore, his research results showed that the relationship between income ability and academic success cannot be identified. But Russell's (1967) study shows that the appropriate and adequate budget is a superior indicator of a higher education institution to other institutions and university that can afford the most salaries to their faculty members and buy the best college equipment are likely to be able to attract better educated instructors and students. Of course, this is true in educational systems that operate in a competitive environment. Research results of Ethib (2005) show that the quality and availability of higher education largely depends on its financing, and the funding process of universities is a reflection of the type of society. In general, it should be noted that the importance of the financial status of a higher education institution in improving the quality of providing educational services cannot be ignored.

REFERENCES

Barriger, S.N., "The Changing Finances of Public Higher Education Organizations: Diversity, Change, and Discontinuity", The University Under Pressure (Research in the Sociology of Organizations, Volume 46), 2016.

Care. D, Hanney,S. "Evaluating the UNIVERSITY Role in the Regional",Local Economy,2002.

Dynarski. S, Clayton, J.S., "Financial Aid Policy: Lessons from Research", The Future of Children1, 2013.

Entezari, Y., Qaroon, Masoumeh, "Rationality and Performance of Government in Financing Iran's Higher Education", Journal of Higher Education, New Year, Eighth, No. 29,2014.

Erins.I, Erina,J., "Assessment of Higher Financing Models in the CEE Countries: Global Conference on Contemporary Issues in Education", GLOBE-EDU 2014, Las Vegas, USA ,2014

Greer.D, Klein,M., "A new model for financing public colleges and universities", On the Horizon,VOL 18, 2010.

Johnston. D. B., "Cost-sharing and the cost-effectiveness of grants and loan subsidies to higher education", Dordrecht The Netherlands: Springer Publishing, 2005.

Molavi, Mehran, Khalandi, Hayman., "A Study and Comparison of New Financing Techniques for Companies and Universities", International Convention Center for Broadcasting and Television, 2014.

Oskaloosa. IA, "Postsecondary Education Opportunity", State Investment and Disinvestment in Higher Education Vol. 260, 2014.

Pavila. K, Webometric,G., "ranking of European universities", Procedia Social and Behavioral Sciences 3788 – 3792, 2012.

Siti. M.M, Asmak, A., "Financing universities through waqf, pious endowment: is it possible?", Humanomics, Vol. 31, 2015.