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The Influence of Rankings on the Development of Universities

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Abstract—The debatable questions of creating university rankings are considered. University rankings are shown to be at the initial stage of development and are used for advertisement purposes in actual fact. The mechanism for composing rankings of material products is objective itself, but objective criteria can hardly be found for such an ideal object as "the quality" of an education; therefore, university rankings are poor due to the subjectivity and bias of "experts."

Keywords: university rankings, quality of higher education, development of universities

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In the opinion of the independent Rater Agency, university rankings exist to foster their managers to develop, search for, and embody all that is new and useful in the educational process. There is also an opinion that this goal is realizable without rankings and that rankings are useful for strong universities. They need them for the competitive struggle in order that not only universities themselves speak about their prestige but that third parties also confirm it.

The most popular world university rankings place Russian universities very low. In 2010, the government of the Russian Federation allocated and planned a large amount of money for the development of MSU. Surely, this is related to perfecting the mechanism of financial impact on the attainment of the planned goal of entering the top ten of the world-ranked universities. When analyzing the world university rankings, the rector of MSU raised questions about the scientific validity, transparence, and comparability of these rankings, since they have turned into a mechanism of competitive struggle.

A defender of university rankings, J. Salmi, notes that "*Convincing results of the activities of the best educational institutes that consist in the high quality of the knowledge of its graduates and capability of pursuing the most modern research and taking part in the transfer of technologies can in essence be determined by three groups of factors: (a) a high concentration of talent among teachers and students; (b) considerable financial potential permitting an efficient educational medium to be created and allowing the most modern scientific research to be carried out; and (c) an optimal management model that includes decisions and the efficient performance of management activities without bureaucratic delays*" [2].

Consequently, at first sight J. Salmi's recipe is simple: there is a need for large sums of money to attract the best teachers–researchers, then much more money to purchase expensive equipment, software and databases in order to achieve the highest level of research, and, lastly, much more money to attract high-class managers. Then, the advertisement of a university must occur in the form of a ranking and the most trained entrants will be attracted. The positive experience of China in creating the university of the world level in 15 years shows that this approach works. However, money will not be enough for all universities.

The critic of university rankings Rolan Proule notes: "*The scientists of the Carnegie Foundation who published the book The Basic or 2005 Revised Version of the Carnegie Classification make increasingly greater efforts to create a university classification by comparative categories at the institutional level. Despite the large number of versions and updates of the Carnegie Classification, these categories are permanent: all universities are divided into research, medical/doctoral, general educational, basic (providing the possibility of taking a basic teaching course), and specialized universities. The Maclean system (Canada), just like many other systems for comparative analysis and ranking used anywhere, subdivides universities into three groups: medical/doctoral, general educational, and basic universities. The rational basis of this classification is that no evaluative comparison or ranking is possible until bases that are suitable for comparison are found (Teeter and Christal, 1987; Stralser, 1997)*" [3].

Consequently, university rankings are still not more than the viewpoint of some "experts" that express the trivial opinion that Harvard is an excellent university.

Even the Shanghai ranking, which is one of the best, suffers from disadvantages. In particular, I. Chang and N.K. Lu [4] note that any ranking can be called into question and that there are no absolutely objective rankings. In their opinion, the ARWU-FIELD project is an independent academic research carried out without any foreign participation. It uses

thoroughly selected but not subjective criteria and data that are comparable at the international scale and are verifiable. Despite this fact, many problems arise in rankings; therefore further perfection is necessary.

Numerous critical articles about these rankings are known that note randomness in the choice of the weights of indicators, the doubtful validity of choosing assembles of indicators and indices, and the large number of sociological and expert assessments [2].

For example, doubts are cast upon the inclusion of Nobel prize winners in indicators with a significant weight, since the criterion for selecting winners is not evident and it is not clear how this indicator affects the index of the activities of a university. A ranking must not work as an advertisement and substitute the criteria of cooperation for the criteria of competitive struggle between universities.

Impact factors and the citation index of authors, which may characterize the quality of journals and publications only implicitly, are also often criticized.

Wikipedia provides methods for calculating the impact factor (importance, prestige) of a scientific journal that are based on a 3-year period. For example, the impact factor of a journal in 2008 (I_{2008}) is calculated as follows: $I_{2008} = A/B$, where:

– A is the number of citations to articles published in a given journal in 2006–2007 that were given during 2008 in a journal monitored by the Institute of Scientific Information (USA);

– B is the number of articles published in this journal in 2006–2007.

In our opinion, the prestige of a journal must be traced at the modern stage with allowance for not only the scientific constituent but also educational and research constituents. A large number of students and persons concerned with practical research read but do not publish scientific articles. Their interest in journals and articles can be traced by the number of subscribers and queries to articles from journals, including electronic ones, on the Internet. The importance of a scientific-research journal must be characterized by the popularity of its articles, authors, and publisher, in particular, by the indices of citation, reader's references, and circulation. In this connection, the presence of scientific-research journals in libraries of scientific, research, and educational organizations is an important indicator.

Universities are complex objects; therefore, it is difficult to determine their level of development with the help of rankings, particularly if it is taken into account that the first rankings had overtones of policy and commerce, and the following rankings were based on an insufficiently studied model of universities that did not take many properties of a university as a social phenomenon into consideration. Universities are socio–cultural institutes, whose product must be assessed not only by the government and business but also by society, rather than commercial structures that produce easily accountable and competitive commodities.

The bases of the theory of rankings are considered in [5]. The theory of rankings is regarded as a section of econometrics that studies methods for measuring the comparative advantages of some objects over others. The word ranking (from the Lat. term rating) means an assessment, a relation to a class or section, or ordering from the first to the last in a list and traces back to the well-known French mathematician of the epoch of the Great French Revolution, Condorcet. He tried to build the theory of just elections on this basis, viz., the ranking of politicians, programs, and parties.

There are several international university rankings. One of these rankings, which is prepared every year by the Institute of Higher Education of Shanghai University in China, is based on four main criteria, whose importance is expressed as the percentage weight of indices: the quality of education (the results achieved by graduates),10%; the quality of teaching professors, 40%; the results of scientific research, 40%; academic progress in accordance with the number of students studying at a university, 10%. This ranking is mainly based on the research sector, 80% (results and professors, leading investigations).

The quality of professors is formed by two indices: 20% for the presence of authoritative figures and 20% for the high citation index of their publications. The quality of research results is also formed by two indices: 20% for the number of publications in two scientific journals, "Nature" and "Science," and 20% for the number of publications in journals with a high impact factor.

The developers of this ranking subjectively strengthened the research weight of indices, since the innovative economy demands that universities train not only qualified executors and designers but also researchers. This being the case, the research qualification must be not only at the level of a masters degree, but also at the level of doctors of philosophy, management, law, etc. Research qualifications and competence can be obtained only in a research institution of higher education.

History developed such that that universities and scientific organizations in the Soviet Union evolved separately. The contractual scientific and applied research at the universities of the Soviet Union were usually funded by special priority research programs. When the Soviet Union disintegrated, such research almost ceased and many researchers went away from institutions of higher education. The research and innovative activities of universities abruptly fell. Therefore, the rankings of Russian universities are very modest.

The restoration of the scientific-research constituent requires officially registered ties connecting the institutes of the Russian Academy of Sciences and

universities, at least in the field of post-graduate studies and dissertation councils, as well as strengthening of the ties between post-graduate courses and dissertation councils in itself. The restoration of the practical (innovative) constituent requires officially registered ties joining universities and corporations.

The question arises as to whether we really need these rankings? The world rankings are of no interest for many universities of Russia, since they do not enable them to objectively measure the level of their reporting indices assigned in statutory legal acts. In this connection, if Russian ranking is necessary, there is a need for a national standard for composing university rankings that can make it possible to determine the weight of a university at some scale permitting an interested persons to calculate the efficiency of financial indicators (expenses), the success of a chosen policy, the usefulness of declared purposes and to estimate the adequacy of a selected system of indices.

Two official approaches to the composition of university rankings are known in Russia (the competition between universities in innovativeness in 2007 and competition between universities in the research constituent in 2009). In addition, universities themselves, their associations, and other organizations that position themselves as independent agencies also compose the rankings of Russian universities.

The Rater Agency offers a Global Ranking of Russian universities on the basis of the following indices: teaching activities, 0.2; the scientific-research activities, 0.2; provision with resources, 0.15; the professional competence of the teaching staff, 0.2; international activities, 0.1; internet-audience, 0.15. The exposure interval (7 years) is suggested for use as an interval of assessment and the Scopus and Google Databases as well as the return of organizations are suggested as objective sources of data [1].

The data obtained from universities characterize the levels of organization of their teaching and research activities, level of provision with resources, level of the socially important activity of graduates, level of organization of the international activity, as well as reflect the opinion of the academic community about the leading universities. Unfortunately, many universities do not publish information that is interesting to analysts on their sites and the opinions of "experts" remain only subjective assessments, although they have quantitative values.

If the mechanism for the composition of rankings is considered to be international, it must have the status of an international standard and correspond to certain principles and scientifically valid requirements. The appearance of a large number of unharmonized rankings that suit the subjective preferences of their developers permit one to reveal possible viewpoints but does not provide grounds to regard them as either internationally recognized or substantiated scales of such indices as the best scientific, research, and educational organization.

In our opinion, the International Technical Standardization Committee must consensually establish international standard for composing rankings of educational organizations that would consider not only the number of students but also the specificity (scientific, research, and/or educational), specialization (universal, technical, medical, economical, etc.), situation (central or peripheral), financing, and time of functioning of these organizations.

For this purpose, it is necessary to use the well-known mechanism of handicapping that can allow strongly different organization to take part in a contest (competition). The handicap will be understood here as the system of objective weight coefficients taking into account the heterogeneity of the participants in a competition, which is determined consensually by participants, third parties, and/or agents (organizers).

The mechanism for composing the rankings of scientific, research, and educational organization seem to represent in actual fact the mechanism for determining their annual achievements in some group of states. These organizations compete for the opportunity to get into the ten or hundred top positions.

When rankings are composed, the following aspects must be taken into account for the purpose of verification: the public assembly of all indicators and indices, sources of public data of considered indicators and indices, including the Internet, and public and approved methods of calculation.

The prestige of an organization cannot be determined as simply as that of a journal. In our opinion, scientific, research, and educational constituents must be included in the balanced rankings in absolutely equal shares, which must be 33.33% each. Distinguishing only the scientific-research constituent to the detriment of practical research that includes the innovational constituent or only the educational constituent results in the unbalance and inadequacy of an object under consideration.

Owing to the fact that the resources of any country are limited, the goal of taking the leading positions in rankings is not a mission of universities. In this connection, the value of universities to society cannot be estimated only with the use of the considered rankings. The activity of universities must be critically analyzed and the evolution of rankings must go towards creating a system of indices and the mechanism of calculation that must objectively show the advantages and disadvantages of a university medium at the regional, national, and international levels. A ranking must be an instrument for self-appraisal rather than an instrument of advertisement. The case in point is that not all entrants are very rich, clever, and aspire to become presidents, directors, or multimillionaires. One can carve out a career and become a multimillionaire even without higher education. Let us remember B. Gates,

who obtained his master's degree as a multimillionaire, at the request of his mother. How many directors and governors in Russia have a certificate of the four-year education that existed in the Soviet Union?

The general body of people wish to get an education of high quality and find a worthy job, i.e., to raise the value of their competence. How is the value of professional development measured and does the rating of competence correspond to the level of the necessary aptitude of a graduate? Employers want both to have competent innovators–researchers and want to know that their money will be spent usefully and efficiently. Do rankings answer these questions? They hardly do.

Different national, regional, or other university systems have unique properties (achievements) that do not need to be leveled but, on the contrary, must be distinguished. The rector of MSU, Victor Sadovnichii, noted the fact that Russian universities had the widest spectrum of disciplines: "If all courses of fundamental sciences that are read at world universities, for example, courses in mathematics, are summed up, then two-thirds of these courses are read at MSU."

CONCLUSIONS

Owing to the complexity of a university as a sociocultural phenomenon with rich traditions, a university ranking cannot be univariate. It must reflect the properties of different national, regional, and other traditions; make allowance for different special, specific, and dimensional properties of universities; be an instrument for cooperation and competitive spirit rather than rivalry, and emphasize the advantages of the most progressive universities. At the modern stage, the most important problems are the system of indicators and indices of universities, as well as the systems of public data sources of these indicators and indices. The cultural versatility of the university community must become a basis for comparing different universities.

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