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EVALUATING UNIVERSITY ACADEMIC EFFICACY: INSTITUTIONAL APPROACH

Abstract

The aim of the article is to develop methodological approach to university academic performance evaluation on the basis of instruments of institutional economic theory. The novelty of this work is that unlike other methods authors' method of quantitative evaluation of university academic performance allows for identifying the problems of institutional support of academic activities. During the research authors employed methods of system, logical and economic analysis; empirical information was processed with the help of statistical analysis and correlation analysis methods. As a result authors identified university academic efficacy institutions and suggested efficacy indicators for these institutions. Universities of the Ural Federal area were grouped according to quality parameters of academic efficacy institutions (that is presence of effective institutions, institutional traps, institutional malfunctions).

Keywords: universities, science financing, academic performance institutions.

Introduction

Starting from the Decree of the Government of Russia of October 29, 2012 № 2006-p on the plan of activities for developing leading universities Russian universities increased their activities aimed at developing academic results. In order to ensure qualitative breakthrough in Russian universities' competitiveness level a project titled «5-100» was launched. Now we can speak of certain positive results of 5-100 project. For instance the period between 2012-2018 witnessed an increase of publications in journals listed in academic citation database Web of Science from universities participating in the project. For example, the Ural Federal University and Novosibirsk State University demonstrate 30 % increases of the number of publications in Web of Science per year, Kazan Federal University – 80 %, Tomsk and St. Petersburg State Universities – 40 %.

The research on transformation processes in higher education is based on the path dependence theory (Arthur, 1994). During the last decade, this theory was applied to the analysis of reform in the educational sphere by such foreign researchers as Paradeise C., Reale E., Goastellec G. (Paradeise at al., 2009) and Tortorella G.L., Cawley Vergara A.M., Garza-Reyes J.A., Sawhney R. (Tortorella at al., 2020). Dependence of institutions on the trajectory of their development explains many problems facing modern Russian higher education, including: imbalance in institutional interaction between regional labor markets and professional education institution and, consequently, imbalance of labor resources and real market requirements; discrepancy between personnel qualification requirements of employers and qualitative characteristics of the professional training of young specialists; high latent unemployment among young people.

Due to the complexity of this problem, many Russian research teams are busy solving problems related to the institutional transformation of the professional education system. A. Y. Smolentzeva (Smolentzeva, 2011) has conducted the analysis of higher education transformation using studying interaction mechanisms between institutions of higher learning and society in general (including state, business, regional and global community, etc.) in a comparative perspective. Abankina I. V. (Abankina, 2013) looks into the changes in conceptual approaches to education eco-nomics in the context of transition to broader resources (information, communication, intellectual, educational, symbolic, brand, etc.). The research team headed by Kuzminova Y. I. (Kuzminova, 2013) has conducted structural analysis results of which support the use of particular segment orientation and main University product characteristics as the foundation for the typology and subdivision of organization groups. The author also looks into trends and formulates aims for structural policy in the field of higher professional education.

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There is an ongoing discussion among experts concerning the ultimate result of university activities and whether the diploma and academic degree can be considered as the one. One point of view, following Flexner (Flexner, 1994), is that universities should be considered as places of research and measured by their contribution to science. Another view, following Brown (2008) and many others, argues that the primary mission of a university be education. The third mission linked to public service is considered as important in a diverse democratic society and equally important to the other missions of a University (Checkoway, 2001) and Bush, S.S., Prather, L. (Bush & Prather, 2018). Finally, there is the approach which considers every university a unique organization combining many missions (Marginson, 2007). Institutional analysis of university activities results can be based on resource dependence theory which states that on the one hand organizations depend on the environment, but the contrary can influence the environment they are functioning in (Pfeffer & Salancik, 1978). According to A. Auzan (Auzan, 2013) besides qualified personnel training and research the modern university should be actively involved in forming "right" values and behavior of students.

Lately we see a sharp increase of research activities in the field of higher education management. The interest towards such research is based on the need for well-planned decisions in the process of reforming higher education and complexity of defining optimal economic and educational strategies of achieving competitiveness. However analysis of modern economic research demonstrates insufficient number of research works devoted to the topic of financing influence on university academic activities results. That is the reason behind this research devoted to the analysis of university academic activities efficacy.

The aim of the present research is developing a methodological approach to evaluating knowledge generation efficacy at the university that, unlike other known methods, allows for identifying the problems of institutional support of academic activities.

An important factor of modern university competitiveness and successful integration into modern knowledge – based economy is the implementation of academic activities management strategies.

Academic literature presents a multitude of methodological approaches to evaluating university academic efficacy. They can generally be grouped as follows:

1. *Financial approach to evaluating university academic efficacy.* It is a methodological approach based on evaluating the principles of financing and costs for obtaining academic results. Main indicators are financial expenditures on science and existing material and technical resources
2. *Personnel approach to evaluating academic efficacy of universities*. Methodical approach based on evaluating academic and research personnel quality and quantity. The main indicators are: number and academic degree of researchers, number of administrative and supporting staff, personnel training level (including acknowledgement indicator, covering membership in academies, councils and grant performance).
3. *Innovative approach to evaluating university academic efficacy.* Methodic approach based on evaluating innovation activities (including creation of own and the use of borrowed technologies).
4. *Managerial approach to evaluating university academic performance*. Methodic approach based on evaluating university management systems quality
5. *Bibliometric approach to evaluating university academic performance*. Methodical approach based on evaluating the following bibliometric indicators: number of publications in journals; citation indicator and Hirsch index; "publication load" of scientists; patents; co-authorship with foreign scientists.

The authors believe that academic efficacy parameters in educational institutions are largely provided by acting rules regulating academic activities process that is economic institutions.

Methodology

The institute can be defined as a combination of acting rules defining who has a right to make decisions concerning which actions are possible and which are not, which common rules will be used,

which procedures should be followed, which information should be given or disclosed and how individuals will benefit from their actions.

Academic efficacy institution is an example of an economic institution.

Academic efficacy institution is a system of stable formal norms (rules) regulating interaction between two or more economic agents in an educational institution aimed at obtaining academic results and equipped with necessary executive mechanisms.

The idea of academic efficacy institution is in a stable long-term interaction between employees and organization aimed at obtaining academic results. First of all formal norms include labor agreements as well as various internal documents supporting relevant executive mechanisms.

The main types of academic results are: publications in Russian and foreign journals; monographs and publications in different non-periodicals; patents.

In order to evaluate performance of academic efficacy institutions universities use correlation analysis. Authors suggest the following ideas:

– if the meaning of correlation coefficient is less than 0, that is negative we are dealing with an institutional trap. Institutional theory sees institutional trap as an ineffective stable norm (ineffective institution) of a self-sustaining nature.

– if the meaning of correlation coefficient is from 0 to 0,6, it is an institutional malfunction – malfunction of one of economic institutions predominantly of a qualitative nature.

– if the meaning of a correlation coefficient is from 0,6 to 0,75 the institutions of academic efficacy is not working or we are dealing with institution development (creation),

– if the meaning of correlation coefficient is more than 0,75 the institute is effective.

With the aim of testing the method of evaluating university academic efficacy suggested by the author we conducted the analysis of academic efficacy institutions among the universities of the Ural Federal area.

Informational basis of the research is derived from the series of annual informational and analytical collections of works “Academic potential of universities and academic institutions of the Ministry of Education and Science of the Russian Federation”. Informational and analytical collections of works are a database of research, academic, technical and innovative activities of Russian universities for the period from 2009 to 2017. Indicators of state and development of higher education present state and potential are presented on the basis of annual reports on academic and research activities of the universities.

Results

The first stage of research discovered connections between indicators characterizing academic results and overall amount of academic activities financing of universities under analysis. Results of the correlation analysis are presented in table 1.

Table 1

The efficiency of institutes of scientific effectiveness for 2009 – 2017*

University	Correlation coefficient of the number of articles published in Russian journals and the amount of financing	Correlation coefficient of the number of articles published in foreign journals and amount of financing (WoS/Scopus)	Correlation coefficient of the number of monographs and amount of financing	Correlation coefficient of the number of teaching materials and the amount of financing	Correlation coefficient of the number of collections of works and amount of financing
1	2	3	4	5	6
Universities with developed institutional structure of institutional efficacy					

Table 1

1	2	3	4	5	6
Southern Ural State University (national research university)	0,730 *(R)*	0,802/0,779 *(E)*	0,981 *(E)*	0,18 *(D)*	0,842 *(E)*
Tyumen State Architecture and Construction University,	0,669 *(R)*	0,979/0,943 *(E)*	0,868 *(E)*	0,909 *(E)*	0,343 *(D)*
Ural State Forestry and Technology University	0,663 *(R)*	0,957/0,892 *(E)*	0,701 *(R)*	0,644 *(R)*	0,950 *(E)*
Chelyabinsk State University	0,875 *(E)*	0,844/0,847 *(E)*	0,794 *(E)*	0,756 *(E)*	0,632 *(R)*
Universities with forming academic efficacy institutions					
Ural Federal University	0,324 *(D)*	0,906/0,905 *(E)*	0,421 *(D)*	-0,109 *(L)*	0,091 *(D)*
Kurgan State University	0,144 *(D)*	0,866/0,741 *(E)*	0,788 *(E)*	-0,463 *(L)*	-0,101 *(L)*
Magnitogorsk State University named after G.I. Nosov	-0,112 *(L)*	-0,288/-0,205 *(L)*	0,886 *(E)*	0,178 *(D)*	0,583 *(D)*
Russian State Professional pedagogical University	-0,216 *(L)*	0,031/0,151 *(D)*	-0,225 *(L)*	-0,571 *(L)*	0,848 *(E)*
Chelyabinsk State Pedagogical University	-0,445 *(L)*	0,782/0,015 *(E/D)*	0,225 *(D)*	0,743 *(R)*	-0,154 *(L)*
Ugorsk State University	-0,739 *(L)*	0,538/0,435 *(D)*	0,454 *(D)*	0,986 *(E)*	-0,805 *(L)*
Nizhny Tagil State Social Pedagogical Academy	-0,79 *(L)*	0,789/ no data *(E)*	0,603 *(R)*	0,251 *(D)*	-0,803 *(L)*
Ural State Architectural Academy,	-0,532 *(L)*	no data / no data	-0,628 *(L)*	0,766 *(E)*	0,442 *(D)*
Ishim State Pedagogical Institute named after P.P. Ershov	0,985 *(E)*	no data / 0,977 *(E)*	-0,268 *(L)*	0,865 *(E)*	-0,481 *(L)*
Universities with absent (or underdeveloped) institutional structure of academic efficacy					
Magnitogorsk State University	0,354 *(D)*	no data	-0,203 *(L)*	-0,763 *(L)*	-0,027 *(L)*
Tyumen State Oil and Gas Universit,	0,295 *(D)*	-0,331/-0,298 *(L)*	-0,419 *(L)*	0,435 *(D)*	-0,228 *(L)*
Tyumen State University	0,714 *(R)*	-0,258/-0,162 *(L)*	0,562 *(D)*	-0,109 *(L)*	-0,419 *(L)*

Table 1

1	2	3	4	5	6
Ural State Mining University	-0,375 *(L)*	0,755/0,309 *(R)*	0,451 *(D)*	-0,877 *(L)*	-0,637 *(L)*
Ural State Pedagogical University	-0,617 (*L)*	0,505/0,487 *(D)*	0,327 *(D)*	-0,606 *(L)*	0,453 *(D)*
Ural State University of Economics	0,391 *(D)*	0,622/0,573 *(R)*	-0,636 *(L)*	-0,017 *(L)*	0,423 *(D)*
Tobolsk State Social Pedagogical Academy named after D.I. Mendeleev,	-0,149 *(L)*	-0,26/no data *(L)*	0,593 *(D)*	0,401 *(D)*	0,552 *(D)*
Ural State Law Academy	0,558 *(D)*	no data/0,311 *(D)*	-0,133 *(L)*	-0,114 *(L)*	-0,417 *(L)*

* Symbols: L-Institutional traps; D-Institutional Dysfunctions; R- The Developing Institutions; E - Effective Institutes

The results of the second stage allow for grouping Ural Federal area universities into the following categories:

1. *Universities with the largest number of effective and developing academic efficacy institutions.* An evident leader in terms of institution efficacy is Chelyabinsk State University. Besides it the group of leaders features Southern Ural State University (national research university), Tyumen State Architecture and Construction University, Ural State Forestry and Technology University.

2. *Universities, which combine effective and ineffective academic efficacy institutions (institutional traps and malfunctions).* Majority of universities fall under this category – 9 out of 21, including Ural Federal; University, Kurgan State University, Magnitogorsk State University named after G.I. Nosov., Russian State Professional pedagogical University, Chelyabinsk State Pedagogical University, Ugorsk State University, Nizhny Tagil State Social Pedagogical Academy, Ural State Architectural Academy, Ishim State Pedagogical Institute named after P. P. Ershov.

Authors believe that significant differences between institution efficacy of these universities are explained either by internal policy of these universities (for example, Ural Federal University pays a lot of attention to performance indicator “foreign publications” which puts other academic efficacy indicators to a disadvantage), or by an initial stage of institutional structure formation.

3. *Universities with low quality academic efficacy institutions*. According to the results of research these universities demonstrate the largest number of institutional traps and malfunctions and absence of effective institutions. This category features such universities as Magnitogorsk State University, Tyumen State Oil and Gas University, Tyumen State University, Ural State Mining University, Ural State Pedagogical University, Ural State University of Economics, Tobolsk State Social Pedagogical Academy named after D. I. Mendeleev, Ural State Law Academy.

Conclusion

Therefore during the conducted analysis the authors found out that the quality of university academic efficacy institutions should be defined using a set of performance criteria describing the correlation between the quantity and quality of academic publications and amount of financing. The use of institutional approach allows for defining narrow places in institutional support of university academic efficacy.

The research has identified 3 groups of universities: universities with the largest number of effective academic performance institutions (19 % of the total number of Ural federal area universities); universities, which combine effective and ineffective (institutional malfunctions and traps) academic efficacy institutions – 43 % of the total number of universities; and universities with

ineffective (institutional malfunctions and traps) academic performance institutions – 38 % of the total number of universities in the Ural Federal area.

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М. В. Власов

ОЦЕНКА НАУЧНОЙ ЭФФЕКТИВНОСТИ УНИВЕРСИТЕТА: ИНСТИТУЦИОНАЛЬНЫЙ ПОДХОД

Аннотация

Разработка методологического подхода к оценке научной результативности вузов на основе инструментов институциональной экономической теории. Новизна этой работы заключается в том, что, в отличие от других методов, авторский метод количественной оценки деятельности позволяет выявить проблемы институциональной поддержки научно-исследовательской деятельности. В ходе исследования автор использовал методы системного, логического и экономического анализа. Эмпирическая информация обрабатывалась с помощью статистического анализа и методов корреляционного анализа. В результате автор определил параметры эффективности для университета и предложил индикаторы эффективности. Вузы Уральского федерального округа были сгруппированы по качественным параметрам институтов научной результативности (то есть наличие эффективных институтов, институциональных ловушек, институциональных сбоев).

Ключевые слова: университеты, финансирование науки, институты научной результативности.

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TEACHER-STUDENT HUMAN CAPITAL INTERACTION: A REFLECTIVE ANALYSIS

Abstract

This paper investigates a general framework of Human Capital Interaction (HCI) between teacher and student in the education system, where educators and learners both should practice and understand the human capital. This study focuses on the importance of the understanding of teaching and learning of students and teachers, where skills, knowledge, and capabilities become prime concerning outcomes of education and training. Educators and learners can explore HCI by forming a set of inter-dependent processes between teaching, learning, and understanding while engaging in schools, colleges, universities, and training centers. HCI becomes successful when the teaching outcomes have a positive impact on the learning outputs of students and when educators able to build a human capital relationship with learners and satisfy them with the teaching style, course content, and interaction. This study executes a qualitative research methodology. This study will be helpful for teachers, students, and young researchers because of enhancing educational outcomes.

Keywords: human capital, interaction, teacher, student, reflective analysis.

1. Introduction

In this changing world, the government of any country updates the education system because of addressing the needs of individuals concerning the learning and its outcomes to fulfill the current labor market requirements. The relationship between teacher and student changes over time because of the commitment of educational institutions to provide quality education to students. The interaction between teacher and student becomes an essential key of an education system. Learning and understanding the modules offered by educational institutions become crucial for both teachers and students. Bullying and mistreating of behaviors of teachers affect job performance and communication with students. Trust each other becomes essential in the interaction process between a teacher and a student while dealing with modules in educational institutions. The learning and understanding of course materials depend on teacher and student interaction during study periods.

Some researchers have noticed maintaining the relationship between an educator and a learner becomes crucial. The interactive relationship between student and teacher affects the progress of teachers' job performance and students' employability. Mentoring relationships manifests an essential factor for success. The professional development of the students in terms of career prospects enhances because of involving in the mentoring process (Arshavskaya, 2016; Leshem, 2012; Ligadu, 2012) [2, 10, 11].

Researchers have mentioned students experience challenges because of the mentoring process. In the mentoring process, some educators unable to build a real mentoring interaction with him or her and students. Students face more difficulties when educators come up with less emotional, professional, and motivational support. Obstacles increase because of failing to create an excellent learning environment and get responses from students. Educators should support emotionally, professionally, and motivationally to create an interactive learning environment and get learning feedback from students with regards to the proper understanding of the subject matter (Akhtar, Majeed, and Murtaza, 2013) [1].

Some scholars have mentioned individuals gain knowledge and abilities through active participation in education and training. Education and professional training help an individual improves cognitive skills and become more productive. Students acquire knowledge and learning by understanding the courses offered by a school, college, and universities, and training centers (Becker, 1962 and Schultz, 1963) [4, 15]. An individual acquires human capital by engaging in education and training. The more the human capital of an individual has, the more opportunities s/he perceives for