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# PERFORMANCE AND SUSTAINABILITY OF HIGHER EDUCATION: KEY INDICATORS VERSUS ACADEMIC VALUES

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**Abstract.** Reforming higher education and science in the world is associated with the widespread introduction of the indicators aimed at promoting their sustainability, productivity, and efficiency. The introduction of new educational technologies and the development of networks in education allow us to speak about the effect of increasing returns and mostly positive feedback. The instability inherent in such processes is an important factor for institutional change. Higher education and the professions associated with it, become large-scaled, which determines the use of indicators in the management plan. Exogenously introduced target indicators of development negatively affect the existing academic freedom and values, as well as hinder their reproduction.

This paper attempts to understand the limitations of quantitative indicators and their impact on the adaptive strategies of the actors achieving them. We think that it is necessary to pay more attention to the problems of academic culture and values as important factors in both economic and social performance. It should be considered that education as a specific type of activity and institution is associated with the production of public goods and trust, and performs an important social function. We scrutinize the system of higher education through the prism of applying development target indicators as a tool of public policy. Our results seem to justify the importance of integrating institutions, values and self-governance mechanisms that promote long-term sustainable development.

**Keywords:** higher education, sustainability, institutional economics, increasing returns, academic values, regulation

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## 1. Introduction

Economists are often very busy with performance problems. For example, Adam Smith linked the increase in productivity with the division of labor and specialization (Smith 1976). Developing Smith's ideas, two hundred years later, Coase (Coase 1998) defined the subject of institutional economics, and marked the effect on institutions' performance. Later there appeared many theories, the effect of which on our understanding of the productivity phenomenon (production factors, mostly labor) is inversely proportional to their number. The task of ensuring the growth of productivity in the organizations is included in the subject field of institutional economics, and this article is based on its theoretical grounds. In today's world, the answers to questions of productivity increase depend on several relevant for our study factors: 1) increasing or decreasing returns, 2) qualitative or quantitative interpretations of performance, 3) institutional environment, academic values, incentives and motivation.

The development of higher education and science depends not only on the available and used resources and technologies, but also on the quality of the institutional environment, social values and prevailing behavioral patterns (Dalati, Al Hamwi 2016).

Behavioral patterns and social values are considered as part of the original institutional economics in the light of interdependence and consistency (Bush 1987). Due to such institutions and values inherent in academic activities the main actors get motives and incentives to effectively take into account the specifics of the academic activity as aimed at the generation and reproduction of propositional and descriptive knowledge.

## 2. Literature review: performance and increasing returns

Modern business worlds need to be considered through the prism of the dominant increasing or decreasing returns (Arthur 2015). Traditional business world of the 19th-20th century was based primarily on diminishing returns, which was reflected in the dominant economic theories. Performance problem in the world of diminishing returns was considered in line with the law of diminishing productivity of production factors (Kalyugina *et al.* 2015).

The introduction of new technologies into education creates the conditions for the forces of increasing returns. It should be noted that increasing returns are associated with positive feedback mechanisms. As Arthur noted (2015), if a system contains only negative feedbacks, it quickly converges to equilibrium and shows "dead" behavior, if it contains only positive feedbacks, it runs away and shows explosive behavior, with a mixture of both it shows "interesting" or "complex" behavior. The instability generating a positive feedback is a flip side of the evolutionary development of education and science. The network effects inherent in modern information technologies strongly influence the educational technologies and generate instability.

New training technologies are among the factors that determine the institutional changes in education. Here we face a fundamental phenomenon of asynchrony of institutional and technological changes (Volchik 2008; Lisin and Strielkowski 2014; Koudelková *et al.* 2015; Volchik and Posukhova 2016; Samašonok et al. 2016; Raudeliūnienė et al. 2016; Tvaronavičienė et al. 2015; Lace et. Al. 2015; Branten, Purju 2015).

What are the technological aspects that affect the modern educational process the most? First of all, it is explosive growth of information. Education is one of the channels of transforming information into knowledge (Mokyr, 2002), and increase in the amount of information has a significant impact on the educational process itself and the applied technologies.

The introduction of new educational technologies creates the illusion of a quick replacement of some methods of obtaining knowledge (traditional and expensive) by others - cheaper and more accessible. The development of distance learning courses improves access to education, but it is unlikely that distance education can significantly displace traditional forms of teaching in the classroom. By reducing the costs on education and science, there should be considered that it can significantly spread policy reform measures and results in time. Moreover, the activities of most of the actors in the field of education is linked to specific investment and does not allow them the flexibility to respond to market incentives on the part of the labor market, particularly in countries with low labor mobility (Čábelková and Strielkowski 2013; Strielkowski and Weyskrabova 2014; Strielkowski *et al.* 2016).

The introduction of new information technologies should reduce the bureaucratic burden on the activities of teachers and researchers. Although regarding the Russian conditions it is not always so, in fact, the new technologies can lead to an increase in the number and volume of reports (Volchik 2012).

Performance of the individual is fairly easy to assess if the work is done in the framework of a simple system. For example, if the employee produces sandals alone (and prepares bark for crafts), the performance and its change can be evaluated easily. But the situation changes if the individual's actions take place within the framework of the team (group), where the outcome depends on the contribution of each member. The situation is even more complicated if the activities inside the team involve a competition between teams within the organization

or in the inter-company cooperation on the market.

Before proceeding to the analysis of performance indicators and assessment of quality of work in various organizations, we must clearly understand what is required for such an assessment. And it is important to consider several factors: the nature of produced goods (market, public, trust (credence goods), etc.); the nature of the production process (associated or not associated with innovation); types of hierarchy and structure of management within the organization; sustainable ethical norms structuring the interaction of employees within the organization and the profession as a whole. In this paper, we will not deal with the problem of measuring productivity in the organization, but focus on the role of institutional factors that are associated with the incentives and motivation to improve performance.

The feedback effect leads to the formation of adaptive strategies. The complex adaptive system, behavioral patterns will vary depending on the signals that are influenced by actors' mutual adaptation to changing conditions (Arthur 1994). Such processes can be additive. Exogenous development indicators serve as information signals that gradually reduces the importance of the coordinating role of ethical, cultural, and academic freedom. Under such circumstances, educational organization starts to be operated on the patterns of the corporate sector, but without similar access to the markets, which could neutralize the negative factors of bureaucratic coordination.

Can the academic world be governed by the analogy of the business world? There is no clear answer to this question. The general spread of higher education has led to the fact that it covered all social strata, but the costs for it often exceeds the capabilities of public funding. Universities are forced to look for ways to earn money. The presence of universities in the education or research and innovation markets lead to the diffusion of academic and market values and governance mechanisms.

In the academic environment, contrary to the scientific search the effectiveness - associated with both the receipt of income and waste of allocated funds - is discussed more and more. Academic self-government in this context can be seen as an atavism, interfering with the organization of university life according to corporate business templates.

The bureaucratization of Russian science and education is largely determined by the type of financing and later planning and regulation. Most of the funds allocated by the state for financing science and education remain at a very low level in Russia (UNESCO 2015). The salary of a Russian professor or a researcher is so low that it cannot be compared not only with salary in the developed countries but also in the developing ones (Figure 1).

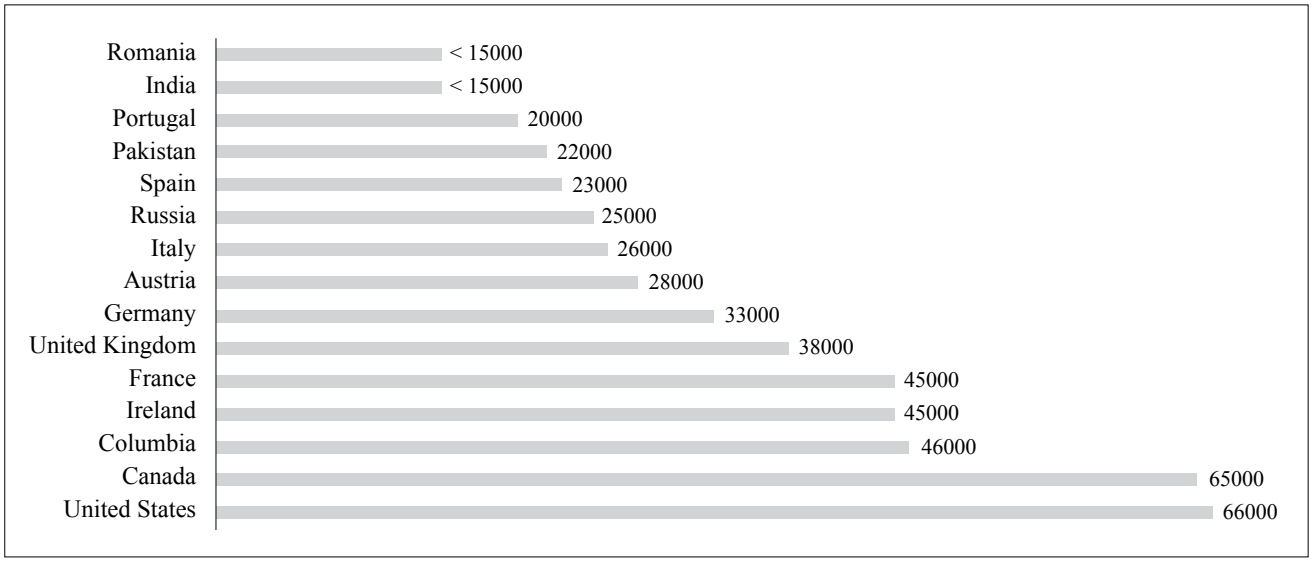


**Fig. 1.** Average Salary of a Researcher (Junior and mid-level), annual, in US$

*Source:* INOMICS Job Market Report (2014)

In 2014, Russia's average salary of teachers of higher education institutions amounted 47 188 RUB per month (144.7 % of the average salary in the economy in general), in 2015 - 50 703 RUB per month (165.2 %). The average salary of research staff in 2014 was 48 212 RUB per month (147.8 %), in 2015 - 51 780 RUB per month (168,7%) (Russian Federal Statistics 2016). The low level of funding is exacerbated by the fact that the situation with the salary of the teaching staff is observed during almost all post-Soviet period. This situation motivates major actors to create sustainable adaptive strategies that are more correlated with survival rather than development.

The logic of those who represent the Russian funding institutions is simple – the government allocates budget funds and, therefore, the government should strictly control their intended use and the result. As it is known in the scientific search, the work that leads to the successful discovery, development and technology goes side by side with the work that got negative result and led to the refutation of earlier hypotheses. From the science's point of view both positive and negative results of scientific research are equal, but in terms of the state officials, the failure to reach the goal is inefficient use of budgetary funds. This approach creates a motivation in the scientific community to work on the topics that guarantee not outstanding, but almost 100% predicted result – that can lead to a decrease in the value of innovation and research results and technologies developed on its base.

The problem of increasing impact and unpredictability of development because of the adaptability processes in complex systems. Thus, the binding development with specific indicators creates a situation of self-reinforcing process of adapting actors to target.

Can sophisticated testing system, ratings and target replace other forms of stimulation and control, based on different principles? If we give up the performance and development indicators, how will it be possible to monitor the effectiveness of spending, and how to judge the effectiveness of the organizations? Relevant answers to these questions cannot be found outside of the context, culture and institutional environment of education and science (academy).

**3. Labor productivity: quality or quantity?**

The problem of labor productivity is associated with the famous dualism of quality and quantity. And if the quantitative indicators are more or less just, for example, it is easy to estimate the number of hours worked or articles written, in the case of the quality we have to resort to indirect and subjective assessments. "Unless science becomes a mass profession, there is no need for quantitative indicators (Polyak 2013). It should be understood that the problem of quality is inseparable from the interactions within the team (community or organization), subjective (expert) estimates, as well as the tacit knowledge that is associated with one or another specific sphere of activity.

In the context of our work, we must answer the question of how to reach a compromise (balance) between the use of quantitative and qualitative indicators that assess performance in the field of education and science. Education and Science are examined together, as modern trends in the development of these areas or sectors, the progress of reforms promote the integration of scientific and educational activities of the universities and research institutes.

A sharp increase in interest in science, observed in the first half of the twentieth century, contributed to the emergence of statistical studies of the structure and dynamics of scientific activities, as well as numerous works on the study and quantifies the distribution of creative/scientific productivity.

So, in 1926, Lotka (1926) examined the scientific productivity of the frequency distribution in the chemical and physical sciences (on the basis of the publications listed in the journal 'Chemical Abstracts' in the period from 1907 till 1916, and in the Journal of Auerbach's Geschichtstafeln der Physik, since its first publication till 1900), observing the proportion between the authors and their scientific productivity. Lotka's observation

shows asymmetric distribution with concentration of articles among several authors, while the remaining articles are distributed among a large number of authors. The correlation between authors and their productivity, in the case studied by Lotka, is a straight line with a slope equal to -2. In general, the Lotka law can be represented as follows:

$$Y = \frac{C}{X^n}$$

Where X - number of publications, Y - the relative frequency of the authors with X publications, C and n - constants depending on the specific scientific field ($n \approx 2$).

Thus, Lotka (1926) proved that scientists differ by the number of published articles, and the distribution of scientific productivity is asymmetrical, uneven. There is extensive literature in which the Lotka law was subjected to empirical testing. Getting enough precise estimates for large amounts of information can attribute Lotka law to the basic scientometric laws, but the law is not accurate in the sense of mathematical statistics (Bredikhinetal 2012).

Within the recent years, the culture of performance evaluation in the university environment has been focused on the development of standard "business models" based on competition and comparing the results. However, by its very nature a Russian sphere of higher education and research is still in the public sector. Performance measurement in the public sector is associated with a response to three very important questions: what kind of performance (productivity) we measure; how we do it, and how these measurement results can be used? (Behn 2003). Managing for results in the public sector and in particular in the field of education can be regarded as a manifestation of the new managerialism, which is based on the concept of economic efficiency associated with the achievement of targets (Howells *et al* 2014).

The problem of the "quality" performance measurement indicators is a subject of intense debate. Management, based on quantitative indicators, creates demand for various ratings. grades, coefficients, "black and white lists", etc. In areas related to creative work, the introduction of ratings and rankings of quality processes and results can lead to comical situations, for example, expert estimates of nonexistent magazines (McCloskey 2016).

Indicators of an organization's activities in the field of education are needed, in particular for rationing in terms of determining the amounts of funding (grants). The simple logic is that the funding will have to depend on the results that the organization shows. For example, in the Program of activities of State Organization "Russian Foundation for Basic Research" for 2014-2020 the main criteria for the competitive selection of fundamental research projects are "relevance and scientific importance, as well as the qualification of the applicant, confirmed by the results of past projects and international publications." The report by the European University Association presented results of a study of 28 European countries, which showed that the basic mechanism for allocating funding at least partly dependent on the teaching performance (through the criteria associated with the number of outstanding undergraduate and master's degrees, or the total number of ECTS credits received by students) and partially or substantially - from the research results, when taken into account the indicators related to the publication productivity and success in attracting external funding (Estermann *et al* 2016). In higher education, depending on the varying national systems, two main types of financing can be observed: mostly state; mostly private and mixed, depending on the form of ownership. Competition for resources between universities varies depending on the type of financing. Our analysis is mainly focused on the European system of preferential state funding. In the case of the dominant state type of financing in Europe, higher education sector competition between universities - due to the cumulative processes - leads to a high concentration of resources in major universities (Vieira and Lepori 2016).

Quantitative indicators have a cumulative effect in the conditions of increasing returns. In each subsequent time period, there are intentions to improve the performance of the previous period. If we imagine a very large number of iterations of planning-execution, we will get the absurd figures, for the performance of which there is neither physically time nor the resources.

Implementation and use of development indicators for education suggests that significant quantitative indicators can be identified, and they characterize not only productivity and efficiency, but can also carry out a comparison, for example, of the efficiency of different countries' education systems. However, such a comparison must consider the fact that educational systems, in spite of the globalization processes, are still heavily dependent on the broader context of institutional factors, which can be termed as a national culture (Alexander, 2012). Comparisons can give irrelevant results because of differences in culture and economic development of countries. As part of the original institutional economics since publishing Veblen's works, education has been considered in the context of the development of culture and its integration into the "generally recognized system of public life» (Veblen 1984). Universities compete to attract scholars who have the greatest potential to increase its position in the international rankings. The universities' top management is spending more and more time for the evaluation and selection trying to find tools that simplify the assessment task. In the scientific world, the results of evaluation and comparison are presented at four different levels: individual researcher, scientific journal, university or research organization, and also countries. At each of these levels, there are different performance metrics that are expected to be used for quality assessment, in order to facilitate the assessment. However, the appearance of each new indicator initiates the development of a kind of feedback strategies of adaptation: the researchers, journals, institutions and the countries aim to increase their relative position, which is reflected in various indicator ratings, rather than to focus on the development of long-term research strategies. In this sense, there are enormous costs in terms of man-hours invested in the development of various assessment procedures and manipulation of performance indicators. The paper (Balatsky and Ekimova 2012) provides an overview of methods for manipulating the global ratings.

Widespread use of ratings makes us think over the problem of the comparability of the results of various organizations operating in specific cultural and institutional conditions. A unification problem has become increasingly relevant in the era of globalization. By focusing on the performance of organizations, politicians and managers may underestimate the impact (both positive and negative) of specific institutions. Policies that promote job for the rate may detrimentally impact on the long-term development, in this case, scientific and educational organizations in the case of non-complementary institutions and regulatory measures.

As part of the empirical research of institutional changes it is necessary to consider the problem of collective actions (Olson 1995). The collective actions, leading to simplification (cost reduction) and increasing the intensity of social exchanges, allow better use of the potential of tacit knowledge of economic agents, as institutional innovators. The agents long included in the various types of transactions, and social exchanges in the spheres of education and science have got the specific tacit knowledge and experience of interactions, which (while having self-employed and self-regulation mechanisms) create high quality social capital, contributing to productivity growth (performance).

It is important to distinguish between the quality characteristics of the organization and the agents and quantitative indicators. It is often implicitly assumed that the relevant indicators of the organization activity should be quantitative or reducible to them. It is necessary to distinguish between the use of targets for external monitoring and endogenous tools for management (Eton 2004). However, within the organization, forming and applying these management tools should be considered, and also whether they are not just a carbon copy of an instrument of external (exogenous) control.

Qualitative indicators are important as part of a self-governing community, but not very suitable for the needs of external control. In the Russian system of higher education, external control by the ministries and supervisory authorities takes the shapes that are non-complementary to the activities related to the creative search, and therefore with unpredictable results. For example, in scientific discourse, negative research result has the same value as the result associated with the confirmation of hypotheses and creating working samples. Anyone who is associated with scientific work understands that without the negative results of the experiments no progress of scientific and innovative activities is possible. But from the side of supervisory and regulatory authorities the negative results of the scientific research and innovation activity are seen as ineffective or even inappropriate spending of budget with all its consequences. Researchers are "more comfortable" to stay away

from the brand-new, long-term or risky research topics as long-term projects do not lead to a large number of articles in a short period of time. Thus, the "feedback effect" may have very negative long-term effects, to the extent that it could jeopardize the scientific community's confidence in the existing evaluation system, and could have a significant impact on the type and quality of research, as well as the integrity and credibility of the scientific community.

However, it should be borne in mind that the results of scientific and educational activities are associated with significant time lags, and cannot be reduced to an annual, three-year or five-year performance. Also, the indicators of organizational units' performance can be used for the distribution of funding that will animate the distortion associated with the achievement of targets (the battle for the index) at a lower level.

Quantitative indicators that characterize the scientific and educational activities, can be viewed through the prism of Goodhart's Law (when an indicator becomes a target, it ceases to be a good indicator). Reliable information about the quality of credence goods can be received only after a considerable time. Moreover, in the case of scientific research its very nature does not allow to articulate the quality (and quantity) characteristics that depend on scientific research and cannot be predicted by analogy with the results of the competition (Hayek 1989). Thus, managers in the sphere of education and science stand in front of a choice: to use little control mechanisms or to destroy the system, transforming it in accordance with the principles, which do not correspond to the nature of manufactured goods. Does it mean that we will find ourselves in a vicious circle where the existing institutions do not allow us to select the relevant management models? It might be so. But an output appears to us as creating conditions for the formation of new institutions and behavioral patterns within the organizations of science and education.

An important starting point in the study of new mechanisms and institutions of governance in science and education is to understand the harmfulness of gaming policies or working for the indicator: "Since the market creates the most powerful mechanisms to encourage citizens and the most powerful incentives, the production of credence goods is under their pressure on the manufacturer towards the type of activity which in English literature is called gaming, and in Russia it has long been called "the work for the indicator» (Tambovtsev 2006).

World experience shows that the instruments used to measure the performance of economic activity in the private sector are not suitable for administration in the field of education. (Elton 2004). In the conditions of underfunding a university is becoming a factory for the production of competencies and a vast number of articles. Scientific search is gradually replaced by the achievement indicators. A university turns into a business corporation, but cannot function the same effectively due to the nature of goods produced. In pursuit of efficiency there is the danger of destroying the institutional academic environment and the creation of conditions in which the formation of new equilibrium will be accompanied by a decline in the quality of human capital and increasing social tensions.

Some optimism in the development of new (and perhaps the revival of some of the well-forgotten old) regulatory institutions gives the experience of the study of the evolution of communal property management institutions (Ostrom 2015). Perhaps under the circumstances, some form of self-management and self-organization can generate new institutions that will break the cycle of management failures (one of the most important of these failures is a "work for the indicator").

## 4. Incentives and motivation in education in the context of academic values

What is the reason for the whole system of indicators? It should build strong and lasting incentives that are consistent with the internal logic of the existence and development of the organization. In the case of non-compliance, the indicators may lead to the destruction of intra-relations, culture, values and self-regulatory mechanisms that in turn can lead to a loss of individual and group identity.

Another important point is the presence or absence of market indicators and incentives for the economic agents and their work. If the traditions of the new institutional economics consider the company as a network of contracts and each actor as a party of a contract, we can apply the Coase theorem to the case of choosing the most efficient and productive use of their skills by the actors. The problem is that in many organizations, it is impossible to obtain reliable market signals about the parameters of such contracts, as well as to implement flexible pricing depending on changing conditions. In other words, the elements of market and bureaucratic management are observed in the market-oriented organizations (companies), not even mentioning the organizations that produce public and credence goods.

Focusing on the goal of increasing the efficiency of higher education institutions in practice results in imposition of the key development indicators that are defined by discretionary manner often without a broad discussion in the scientific and educational community. Formalizing and changing the key performance indicators will inevitably form strong economic incentives which alter the established behavior patterns that may not always lead to satisfactory results (Tambovtsev 2015b).

Changes in management are related to the transformation of the system of incentives, income distribution, changes in status. One reason for the discrepancy between the professional motivation and demotivation on the part of institutional university system (Wissema 2016) is that the management and control methods, which in the past were good for traditional industrial companies, are clearly inadequate for modern universities (Wissema 2016). Unlike industrial workers, results-oriented, university employees are focused on their own development and expansion of their capacity, while the results are only a means, not an aim (Wissema 2016).

Development indicators, followed by the university, should form strong incentives of both managers and teachers and students. Otherwise the result achievement would only be formal or impossible. However, we must remember that in the field of education endogenous stimuli play an important role, and they are inherent for the teachers (who are motivated by the search for scientific or calling for educational activity) and students (who also have internal incentives related to self-actualization and further career).

To illustrate the situation, we will consider the case of teachers' motivation to learn both basic skills, and higher-order thinking skills provided that the higher-order thinking skills cannot be measured. When the teaching of basic skills and higher order thinking skills complement each other as a function of the cost of private-teacher agent, a desire to be awarded with the basic skills of learning is enhanced, which accordingly makes the teacher to redistribute efforts from the teaching of higher order thinking skills. In general, when activities are interchangeable, the incentives for a particular activity can be achieved either through the promotion of these activities, or by reducing costs (by reducing the incentives for other activities) (Holmstrom and Milgrom 1991).

The performance of the economy and management is associated with the incentives and motivations of economic agents. However, the incentives are of different nature - external and internal stimuli (exogenous and endogenous), which is important to consider in the context of existing and evolving social values, institutions, and rules of conduct.

Incentives may be associated with the market and intra-information signals in response to which the agents change their behavior patterns (Volchik 2016). It is important to distinguish between the market and intra-information signals. It is also important to consider the function of information institutions, exogenous and endogenous to the organization, as well as the cognitive capabilities of the actors in the perception of information.

Ratings, citation and impact factors are the evolutionary results of the formation of coordination and motivation mechanisms. However, within the academic culture routines and institutions has been developed for centuries, and that make it possible to reproduce social capital, which can also be the means for solving the problem of coordination and motivation. In pursuit of rating performance indicators, the problems associated with the atmosphere within the institution, the formation of which requires both resources and effort on the part of university administration, often go to the wayside. However, cohesive teams with a high level of confidence achieve higher scientific and pedagogical results (Jonasson *et al.* 2014).

In the case of indicators of development, we face a situation where ordinary tools meant to simplify the process of managing, gradually replace goals and begin to form specific senses for the development of the academic sphere. For example, the goal of getting five Russian universities in the first hundred of international rating becomes a kind of fetish that overshadows the problem of formation of sustainable financing mechanisms for the leading universities. Developed under the influence of government and scientific authorities the indicative factors are used frequently to measure what cannot be measured. Mania to measure everything turns into the way that a formal evaluation is even used for the process of transferring tacit knowledge. The problem is that reputational mechanisms and such institutions as the review work within the academic community (peer-review) are also displaced by figures. Improvement of the ratings and all the attempts to make them more sophisticated and complex leads only to the fact that the field of intervention into higher education is getting wider (Sidhu 2008).

To understand the action of external stimuli, defined by development targets, on the behavior of agents, the explanation of economic behavior in the institutional context must be taken into account (within the framework of institutional economics theory). If we consider academic freedoms through the prism of downward transformative causation (Hodgson 2003), they form the behavioral patterns which should be seen as a correction factor to external stimuli. However, informal institutions are not something which exists by default, and which can immediately be perceived by a new member of the team. To make implicit institutions (which include academic freedom) to be relevant for economic agents there must be a process of discussion and reproduction of these institutions inside the team (organization). There should be specific sessions, meetings, joint activities, etc., in which economic agents perceive and use informal institutions.

Does the target system destroy the performance of the basic institutions, which are based on academic freedom? The answer does not lie on the surface. Achievements of clear quantitative indicators in theory should encourage competition between and within organizations. There is nothing wrong with competition, but we must go further and consider how competition affects the processes of cooperation and mutual help within groups and academic organizations. Is it possible to sacrifice cooperation and mutual support for efficiency, which increase is the aim of competition? And then there is another question - how competition can coexist and contribute to the development of academic freedom and cooperation within academic organizations?

Performance can also be viewed through the prism of the horizon of planning results achievement. Work for the indicator does not take into account the long-term patterns of development of organizations and the institutional environment. The achievement of the chosen indicators, within a year or five years, does not create sufficient incentives to take into account such “trifles” as academic freedom, self-government, intra-routine, informal institutions, culture and ethics. All of the above listed can prevent the achievement of indicators, especially those, imposed for the organization from outside. Creative forms of labor in this case are transformed into simulacra, in good correlation with the indicators – as it cannot be written in a monthly report of work on the scientific theme, what were the thoughts of the scientist. In such cases, the article is not written to reflect the results of scientific research, but for the report to meet or exceed performance publication activity.

Destruction of autonomy of universities is a process that didn’t begin yesterday and its impact on modern civilization is not clear, moreover, that, together with the universities there is a radical transformation of the whole sphere of education and science. The attack on academic freedoms is not unique for the Russian reality; unfortunately, it can be seen as a trend in the development of science and education in the modern practices and policies of both developed and developing countries. One of the important factors that destroy academic

freedom is the formation of black markets of dissertation and other qualified works. Such markets were widespread in the 2000s. On the one hand, it was an adaptive response to the decline in income of teachers and researchers. However, these processes have become a catalyst for not only the development of the black market, but also for the formation of specific institutions that are non-complementary to the academic self-government and freedoms (Volchik *et al* 2015).

Under such conditions, academic freedoms in the Russian conditions are not available to most low-paid teachers, becoming the exception for the elite and not an institutionalized norm for everybody. There is a high probability that the Russian tradition of academic freedom will lose its continuity. Of course, the best and privileged universities are more likely to create the conditions for free scientific creativity, but they are included into the system, which provides for the implementation of specific quantitative indicators that determine the allocation of funding.

## 5. Conclusions and final remarks

In the scientific and educational environment, many governing rules are formed as a result of agreements. Such conventional norms emerge, taking into account the specifics of culture, particularities of scientific and educational processes. But the most important conventional rules are based on tacit knowledge. By analogy with Hayek's understanding the role of tacit knowledge in the economy, we can say that the formation of regulatory standards by the scientific community is a spontaneous process which takes into account the tacit knowledge of the academic community members. Exogenous imposing of regulations and key development indicators leads to primitive imitation of activities aimed at formal achievement of the parameter. Ignoring the problem of tacit knowledge leads to imbalances and dysfunctions in coordinating communication within the scientific community. In areas where there are no reliable price signals the coordinating role of academic values is crucial, as a reflection of the collective knowledge and relevant behavioral patterns.

The organization focused on providing credence goods and creative activity, application of development targets can lead to the opposite of the planned results. The use of development indicators to spur productivity associated with attempts to "objectify" the results of functioning of the organization. Excessive use of targets in the field of higher education and science for stimulation of productivity leads to spending resources on imitation or even falsification of indicators. What is possible to do in this case? Is there any alternative? As an alternative, there can be the development of self-management, improving institutions and domestic routines, and links with markets. Efficiency and productivity in this case can be evaluated through the prism of following the rules and social assessment. Attempts to control the sphere of the Russian education and science by quasi-market of quasi-economic methods will only lead to the destruction of the academic community and continuity of "brain drain".

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