NATIONAL RESEARCH UNIVERSITY
HIGHER SCHOOL OF ECONOMICS

Oleg Leshukov, Mikhail Lisyutkin

MODERN APPROACHES TO THE REGIONALIZATION OF FEDERAL POLICY IN RUSSIAN HIGHER EDUCATION

BASIC RESEARCH PROGRAM

WORKING PAPERS

SERIES: PUBLIC ADMINISTRATION
WP BRP 21/PA/2014

Oleg Leshukov[1]*, Mikhail Lisyutkin*[2]

MODERN APPROACHES TO THE REGIONALIZATION OF FEDERAL POLICY IN RUSSIAN HIGHER EDUCATION[3]

The significant differentiation and heterogeneity of Russian regional higher education systems requires a thoughtful federal policy which takes into account the peculiarities and unique features of the regional socio-economic situations. The research presented in the paper elaborates the rationale and basis for the "regionalization" of public policy in Russian higher education. Different approaches to the development of the regional higher education systems in Russia are explored in the paper. The analysis is based on the presupposition that the governance of the higher education systems should take into account regional socio-economic development priorities. The typology of regional higher education systems in Russia is presented in the paper. The consideration of the types in the context of the regional socio-economic situations allows authors to offer public policy mechanisms for the development of regional higher education systems in the context of the compliance with the objectives of regional development.

JEL Classification: I23, I28.

Keywords: regional higher education system, federal policy, development, typology, Russia.

[1] National Research University Higher School of Economics (Moscow, Russia). Institute of Education. Junior research fellow; E-mail: oleshukov@hse.ru

[2] National Research University Higher School of Economics (Moscow, Russia). Institute of Education. Junior research fellow; E-mail: mlisyutkin@hse.ru

[3] The authors are grateful to I. Froumin, D. Semyonov, D. Kozlov, D. Platonova (Higher School of Economics) for useful and challenging discussions, A. Sobolev (Ministry of Education and Science of Russian) for stating the problem.

Introduction

The regions were one of the most important objects of Soviet policy in higher education. Financial and human resource planning was implemented in the context of regional development. The main reason for that lay in the fact that the higher education system performed a staffing function for the basic socio-economic infrastructure distributed across the regions during the time of the USSR. A large proportion of higher education institutions (HEI) were created according to the territorial-production basis (Froumin, et al., 2014).

Since the collapse of the Soviet Union the higher education system has received significant freedom (Johnson, 2008). At the same time, the focus of public policy shifted from federal and regional systems level to the individual institutions. The government had to regulate the operation of the individual institutions in the emerging market where new clients (families and business) started to play key role. It led to dramatic regional differentiation in higher education. This is most vividly illustrated by the fact that while some regions are characterized by a single local branch of an education institution, others have more than 200 universities.

The current public higher education policy continues to have an institutional focus also. The monitoring of the efficiency of HEI organized by the Ministry of Education and Science, support programs for leading universities and colleges, initiatives to establish national research universities all show the government's focus on individual universities or particular groups of HEI. At the same time, a growing body of national and international research and the practice highlight that institutional development is hardly possible in isolation from the system level development. Moreover recent international research stresses the increasing role of universities in regional socio-economic development (Bluestone, 1993; Brown, et al.,1992; Etzkowitz H., 2008; OECD, 2011, 2012). This means that to achieve the objectives on the institutional level, the higher education policy in any country should take into account the territorial distribution of universities and their role within the regional higher education subsystems. It is especially true for the Russian case, which is characterized by the large scale of the system (about 578 public universities), its qualitative heterogeneity, and enormous territorial distribution, where the majority of students stay in "their" regions to get higher education (Andruschak, Novikov, Pavlyutkin, 2010). Therefore the "regionalization" of public policy in Russian higher education is needed. By the "regionalization" we mean a public policy which considers different development scenarios for different regional higher education systems which reflect regional priorities in social and economic development and peculiar features of the regional systems of higher education.

This study suggests the main vectors of a federal higher education policy, which take into the account the regional heterogeneity of the higher education system, different types and developmental possibilities for the regional higher education systems requiring different policy instruments.

To achieve this goal our research solves three tasks:

- to develop a typology of the regional higher education systems (described in the first part of the paper)
- to consider these types of the regional higher education systems within the context of the regional socio-economic situations (in second part of the paper).
- to suggest possible scenarios of the development of different types of the regional higher education systems and the national public policy mechanisms to be used while developing a heterogeneous federal higher education system in the context of the regional social and economic development (concluding part of the paper)

The research goal and specific tasks define the research as the development of specific policy recommendations.

Principles of the classification of the regional education systems

The first principle that can be drawn from the international literature (Teichler, 2004; Neave, 1989, Kyvik, 2004) says that it is necessary for the classification of regional education systems to take into account main features of the internal structure of the system. The basic instrument for identifying such characteristics is the elaboration of typology of HEI.

The topic of institutional diversity in the Russian higher education is represented by a body of research including papers of Knyazev and Drantusova, Titova, Kouzminov and Froumin. For the purpose of the paper the typology of Russian HEI have been derived from the concept offered by Froumin, et al., (2014) because this classification is based on HEI main functional activities in the markets where they work. It distinguishes different internal segments of higher education in the regions.

The researchers identify four main types of HEI: *research universities, infrastructural HEI (HEI), specialized HEI, mass HEI.*

Following this classification we use criteria below to determine which category particular institution belongs to:

The Unified State Exam (USE) average: HEIs with the USE average lower that 55[4] form *mass HEI* segment;

Institution specialization: each of the remaining HEI has been given its own specialization score, based on the Herfindahl–Hirschman Index (HHI):

$$HHI = \sum_{i=1}^{n} N_i^2 ,$$

where N is the share of students (the normalized number of students[5]) pursuing a certain specialization *i* (from 1 to *n*) among the total number of students at the university. The next step was to determine the median value; HEIs with a score lower than the median have been grouped into the *infrastructural HEI* category. These institutions are marked by a high diversity of study areas and programs, supplying the regional job market with professionals in a vast range of areas. Institutions with a HHI index higher than the median focus on a small number of subjects and are thus considered *specialized HEI*. Their main characteristic is a specialized education profile; these institutions tend to satisfy the needs of certain industries (e.g. railway engineering universities) or the public sector (e.g. medical or teacher training universities).

Another separate HEI group comprises *research universities* with a special national status and universities that take part in the international competitiveness program implemented by the Ministry of Education and Science. These institutions are characterized by the highest research intensity figures, including R&D volume (money) per faculty member and the number of research grants (Froumin et al., 2014).

Each regional university or college has been classified as a certain HEI type, following the principles suggested above. The next stage was to calculate the share of students attending institutions of every type among the total number of university students in the region. This figure evaluates the distribution of students and the share of four higher education segments in the region. This principle is called the segmentation of regional higher education system.

Another principle which is also taken into account while classifying systems of higher education is the degree of competitiveness in the regional higher education market. The notion that market forces are more influential than direct control in educational development has been gaining more and more popularity lately (Teixeira, Rocha, Biscaia, Cardoso, 2014). A significant number of

[4] This threshold has been selected in compliance with the methods used in a project entitled Social Monitoring of the University Admission Procedures as a Way of Ensuring Equal Access to Higher Education, a joint effort undertaken by RIA Novosti and the Higher School of Economics (NRU HSE) in 2012

[5] Normalized number of students ("privedennii kontingent") is measured as overall number of full-time students, 25% of evening courses' students and 10% of part-time students.

experts evaluate the higher education sector in terms of 'corporate–market' relations (Middlehurst, Teixeira, 2012). The development of such quasi-market mechanisms in higher education is the result of New Public Management ideologies (Pollitt and Bouckaert, 2009). This phenomenon is taken into account, as education markets with a higher level of competition are distinguished by a greater efficiency of universities, including public ones (Pollitt and Bouckaert, 2011).

The level of competitiveness is also determined using the HHI, based on the share of students at universities and regional university branches, as above.

Data analysis (see appendix 1) shows that most regions are characterized by low competitiveness in higher education, which is a defining feature of Russian education. Only 20% of regional higher education systems have a low concentration level, which reflects a substantial number of players in the education market. 22% of regions possess higher education systems with a moderate concentration level. However, 58% of regional higher education systems are highly monopolized by one or few major public institutions.

In the following section we use these principles to suggest a typology of the regional higher education systems.

Typology of regional higher education systems in Russia

According to the principles outlined above, regional higher education systems can be grouped by type using the cluster analysis method. This method is the most suitable for dividing objects into relatively uniform classes, based on pair comparison with the use of predefined criteria (Nasledov, 2008).

This paper relies on the empirical data, including the 2012/2013 figures of higher education systems in various Russian regions and the results of HEI monitoring conducted by the Ministry of Education and Science.

In order to verify the data, we have predefined a separate type of regional education system which stands apart because it includes research universities with national status and universities that are taking part in the international competitiveness program (Decree 599, 2012). These regional higher education systems include no less than one major HEI (table 1), serving as the defining feature of the macro-regional or global status of the education system (Froumin, et al., 2014).

Tab.1. Regions with globally oriented HEIs

Belgorod region	Primorsky Krai
Moscow	The Republic of Mordovia
Saint Petersburg	The Republic of Tatarstan
Irkutsk region	Samara region
Moscow region	Saratov region
Nizhny Novgorod region	Sverdlovsk region
Novosibirsk region	Tomsk region
Perm Krai	Chelyabinsk region

Having excluded the regions with leading educational institutions, we proceeded to carry out the classification of the remaining regional higher education systems. Cluster analysis identified four regional groups. The average parameter values per cluster are shown in Table 2.

Tab.2. Average parameter values in defined clusters (excluding regions with global HEIs)

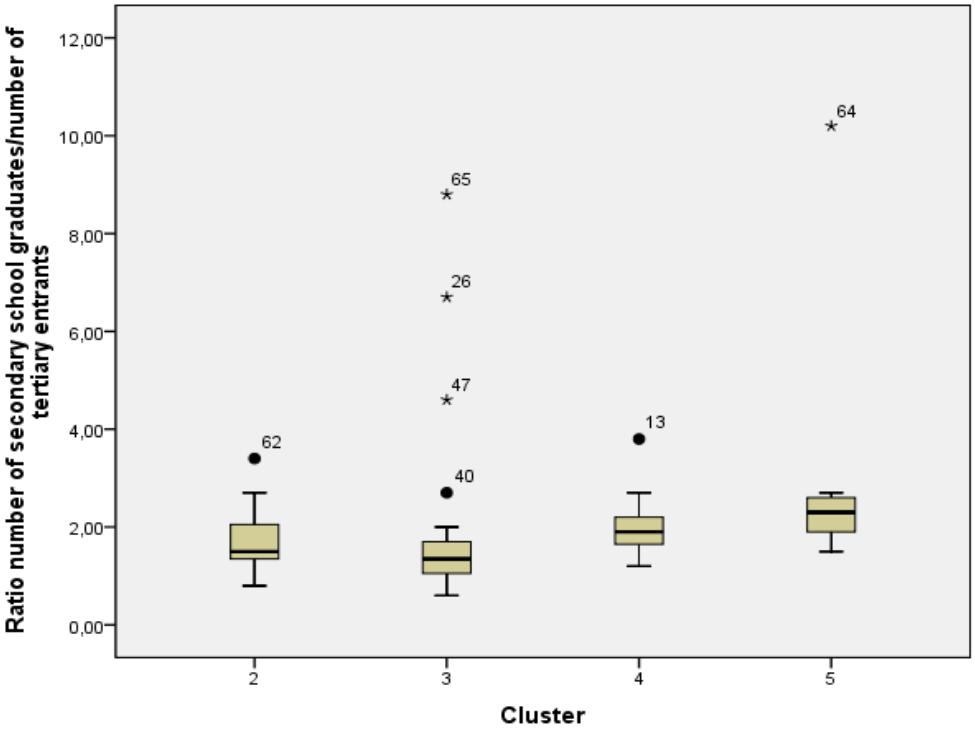
Cluster number	Share of students attending infrastructural HEIs	Share of students attending specialized HEIs	Share of students attending mass HEIs	Herfindahl–Hirschman Index
2	.5734	.2005	.2262	.2644
3	.2337	.5614	.2049	.1994
4	.8560	.0866	.0574	.5203
5	.1334	.0347	.8319	.3713
Total	.4025	.3364	.2612	.2885

International practice shows that HEIs can actively influencing their region's social and economic development (Mauer, Dmitriev, 2009; Caffry, Isaacs, 1971; Bluestone, 1993; Gaffikin, Morrissey, 2008). It often happens that the extent of this influence is reflected by the attractiveness of regional higher education systems for students, teachers, the business community (in terms of research). This is why it is very important to evaluate the attractiveness of the determined regional higher education system types while interpreting the results of the clustering. Since statistical monitoring of educational institutions is fairly limited, Russian regional higher education systems almost entirely lack the data that could reflect their attractiveness. Most research papers in this area (Chudinovskikh, Denisenko, 2003; CSP, 2004) date back to the early 2000s, which makes them

out-dated in the current context. As a result, the evaluation of their attractiveness is based on the regional ratio of the number of high school graduates that passed the USE to the number of those who entered HEI. These figures may be viewed as relevant because of the mass proliferation of higher education in Russia—the ratio of students studying in HEI to 17-to-22-year-olds is 84% (Nikolaev, Chugunov, 2012), which is reflected in the intentions of secondary school graduates to enter HEI. Data analysis shows that no more than 13% of Russian Federation regions attract students from other regions, having a surplus of university freshmen over the number of high school graduates.

After comparing the levels of attractiveness with the list of regional education system clusters, it was found that the level of variation within each type is minimal (with a few exceptions, such as Chukotka Autonomous Area, Yamalo-Nenets Autonomous Area), see figure 1. This means that level of attractiveness may be used to interpret the clusters with a high degree of accuracy.

Fig.1. Extent of attractiveness variation within the regional higher education system clusters



Types determined:

Based on the previous analyses, five types of regional higher education systems have been determined:

1. Regions with attractive globally oriented HEIs;

These regions are characterized by a number of globally oriented or leading specialized universities, which attract students from other regions; and higher education markets display a great level of competitiveness (the average HHI reaches 0.13). This group includes Moscow, Saint-Petersburg, Tomsk Oblast, and Tatarstan.

2. Regions with a balanced regional higher education system of the infrastructural type;

This cluster is characterized by the infrastructural HEI segment which has the most prevalent and balanced distribution of other higher education segments (average HEI distribution: specialized HEIs 0.21; infrastructural HEIs 0.56; comprehensive HEIs 0.23). Other specific features include an average level of competition in the regional higher education market and a sustainable number of students (no students go to/come from other regions to study).

3. Regions with a balanced regional higher education system of the specialized type;

Such regions are characterized by the prevalence of narrowly specialized programs and a balanced distribution of other higher education segments (average HEI distribution: specialized HEIs 0.53; infrastructural HEIs 0.23; comprehensive HEIs 0.2). Other specific features include a high level of competition in the regional higher education market and a moderately sustainable number of students (no students go to/come from other regions to study).

4. Regions with dominant infrastructural HEIs;

This type is dominated by the infrastructural higher education sector; the market is highly monopolized and the brightest students are steadily leaving to study in other regions.

5. Regional higher education system with the lowest level of development (underdeveloped);

This type is marked by a striking prevalence of comprehensive HEIs and infrastructural HEIs, many of which belong to the poor-quality education segment, according to the HEI monitoring data. Regions belonging to this cluster experience an extreme level of higher education market monopolization, and the number of students leaving to study elsewhere is the largest.

The classification of socio-economic conditions in Russian regions

As mentioned above, the national higher education policy should also take into account the regional socio-economics development. There are many different typologies and classifications of regional economic development conditions, for example: typology of the Independent Institute for Social Policy, 2010; Ministry of Regional Development, 2007; RA Expert rating agency, 2007; Grigoriev-Urozhaeva, 2010.

Most of these typologies are hierarchical and describe the regions in terms of the level of economic development. For the purpose of the research we applied the RA Expert rating agency typology (RA Expert, 2007) because it takes into account the rate of investment potential, considering the main internal characteristics of the economic development. RA Expert rating divides regions into the following types:

- Driver regions;
- Support regions;
- Growth poles;
- Growth points;
- "Special attention" regions;
- Regions with an "undefined perspective";
- Problematic regions.

According to this classification, "driver regions", "support regions", and "growth poles" have significant investment potential and sizable domestic development resources and may be largely independent from the federal centre.

"Growth points" are characterized by a small population, modest economic potential and, at the same time, low investment risks.

"Problem regions" possess resources that are not being used to their full extent because of a stagnant investment climate.

"Regions with an undefined perspective" have low investment potential, but may possibly join one of the other groups.

Finally, the "special attention" group comprises regions with the highest investment risk and modest potential, which at present do not have any tangible economic or political reasons to shift to another category.

Analysis of the typology of the regional higher education systems in the context of the classification of regional economic conditions

The next stage of the research involves comparing the classification of regional higher education systems, which were compiled above, with the current features of the regional social and economic development. It identifies how the development of regional systems of higher education corresponds to the socio-economic development of regions. The imbalances in this comparison can be considered as a signal for intervention.

We have compared the classification of regional higher education systems with the regional economic conditions (see Table 3). This analysis revealed a high degree of dependence. Higher education systems with the lowest level of development appear in “problem” regions and “special attention” regions only (see Figure 2). Whereas systems with global HEI are an essential feature of regions with the highest investment attractiveness (driver regions, support regions, growth poles, growth points). For other types of higher education systems their correspondence with economic conditions is more complicated. It also means a high heterogeneity of regional higher education systems in terms of their relationship with socio-economic development of the region.

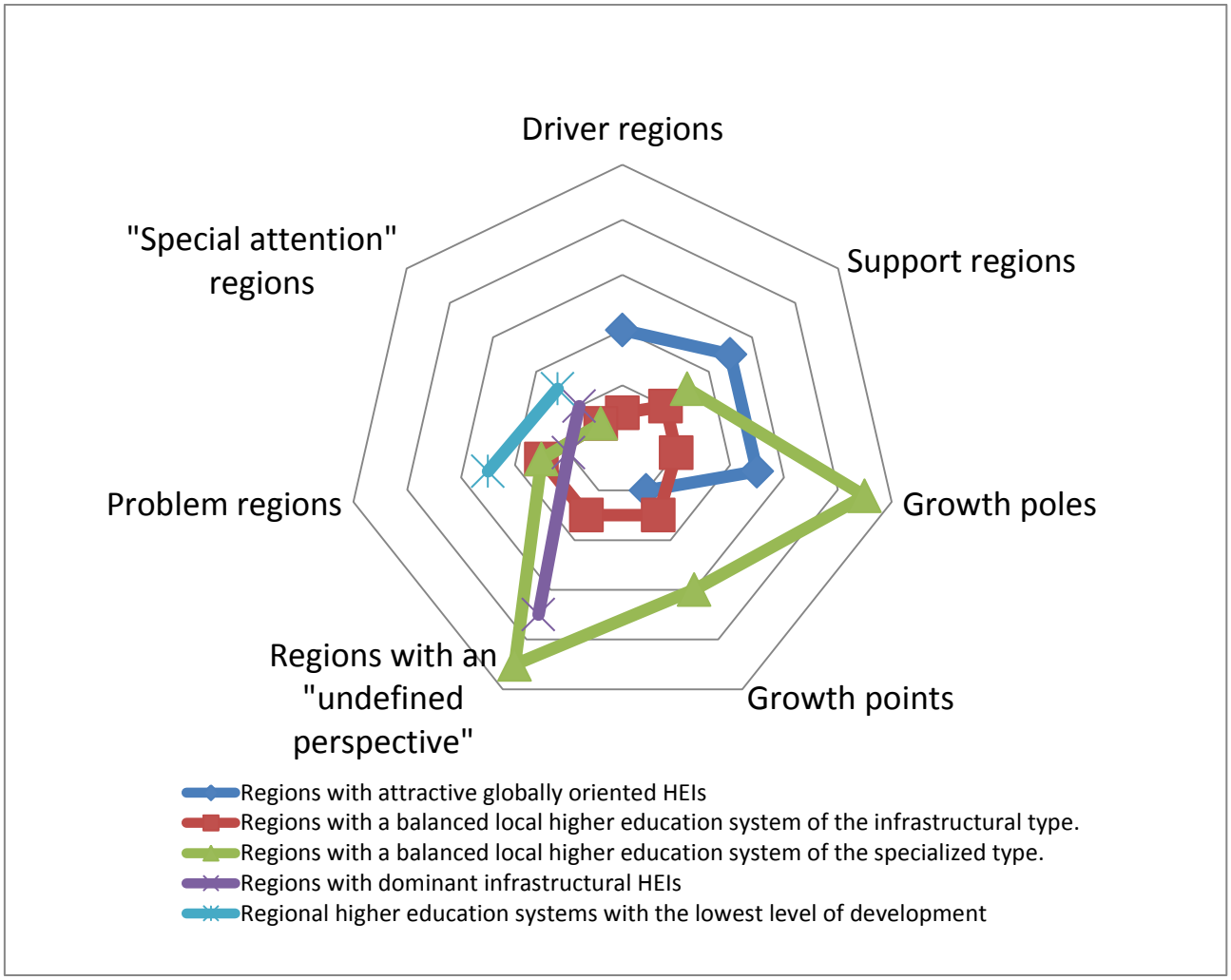
Tab.3. Comparison of the classification of regional higher education systems with regional economic conditions

		Types of regional economic conditions (RA Expert)						
		Driver regions	Support regions	Growth poles	Growth points	Regions with an "undefined perspective"	Problem regions	"Special attention" regions
Types of regional higher education systems	**1) Regions with attractive globally oriented HEIs**	Sverdlovsk Region	Perm Territory	Primorye Territory	Republic of Mordovia			
		Moscow	Republic of Tatarstan	Belgorod Region	Tomsk Region			
		Saint-Petersburg	Chelyabinsk Region	Novosibirsk Region				
		Moscow Region	Nizhny Novgorod Region	Irkutsk Region				
			Samara Region	Saratov Region				
	2) Regions with a balanced local higher education system of the infrastructural type	Khanti-Mansi Autonomous Area	Kemerovo Region	Tula Region	Kaliningrad Region	Kirov Region	Republic of North Ossetia-Alania	Chechen Republic
			Krasnoyarsk Territory	Republic Sakha (Yakutia)	Vologda Region	Murmansk Region	Kurgan Region	
					Orel Region	Republic of Adgea	Republic of Mari El	
	3) Regions with a balanced local higher education system of the specialized type		Krasnodar Territory	Altai Territory	Chuvash Republic	Smolensk Region	Republic of Dagestan	Republic of Tuva
			Republic of Bashkortostan	Voronezh Region	Yaroslavl Region	Tver Region	Trans-Baikal Territory	
			Rostov Region	Yamal-Nenets Autonomous Area	Kaluga Region	Udmurtian Republic	Bryansk Region	

			Volgograd Region	Lipetsk Region	Ivanovo Region		
			Khabarovsk Territory	Novgorod Region	Astrakhan Region		
			Leningrad Region	Tyumen Region	Kursk Region		
			Omsk Region		Ulyanovsk Region		
			Orenburg Region		Pskov Region		
			Stavropol Territory		Republic of Buryatia		
					Ryazan Region		
4) Regions with dominant infrastructural HEIs					Vladimir Region	Republic of Kalmykia	Kabardino-Balkarian Republic
					Penza Region	Republic of Altai	Republic of Ingushetia
					Tambov Region		
					Arkhangelsk Region		
					Kostroma Region		
					Republic of Karelia		
					Republic of Khakasia		
5) Regional higher education systems with the lowest level						Amur Region	Kamchatka Territory
						Jewish	Karachayevo-

of development						Autonomous Region	Circassian Republic
						Republic of Komi	Magadan Region
						Sakhalin Region	
						Chukotka Autonomous Area	

Fig.2. Correlation between the classification of regional higher education systems and regional economic conditions



The analytical table given above may serve as a basis for setting governance goals in terms of developing heterogeneous regional higher education systems so that they correspond to each region's economic needs. The identification of this connection provides the basis for defining several directions for the development of various regional higher education system types, based on the goal of ensuring their compliance with the region's economic conditions. We discuss these directions in the next section.

Possible approaches and scenarios to the development of regional higher education systems in the context of socio-economic regional development in Russia

We proceed from the assumption that the development of advanced types of regional higher education systems with corresponding to socio-economic conditions implies significant interference

by the state. This is stipulated by the fact that HEI develop very slowly under natural conditions. Further, it has been shown that higher education systems are often characterized by institutional isomorphism (DiMaggio, Powell, 1983). Many HEI try to copy the model of a research university, which consequently causes unconstructive competition within the system. At the same time, the advanced typology of the regional higher education systems provides the possibility for clear mission differentiation of the HEI.

International experience of managing regional systems (OECD, 2011, 2012) shows that there are certain needs, the fulfilment of which is possible only with the interference of the state:

1. The permanent need to bring the structure of university education in line with the structure of demand of the labour market.
2. The need to consolidate HEI into a single integral system.
3. The differentiation of the functions of higher education system segments, and the separation of their management system.

The following actions could be implemented to satisfy these needs:

1. Changing the structure of the management of the higher education system. This includes a wide range of management decisions—from direct state control over the higher education system (which was characteristic of socialistic countries) to the creation of conditions for competition and/or self-regulation of the higher education market (the most illustrative examples are Canada and USA where the competitive federalist model is fully embodied in the higher education sphere (Brenton, 1996; Kasper, 1996)), the regions compete both among themselves horizontally (to attract the best students) and vertically for additional support from the national authorities.
2. Stimulating university activities aimed at social and economic development of the region.
3. Strengthening public accountability and transparency of universities.

To a varying degree, these needs are common for each regional higher education system in Russia. However, despite the commonalities in these systems there is great specificity in their current development capabilities. Particular public management tools vary depending on regional potential.

An analysis of the regional educational situations in Russia shows that today higher education systems are very much differentiated from the point of view of internal structure, the universities' potential and their possible contribution to development of specific regions. On that basis the transformation of the university system requires important strategic choices. Depending on the current state of the higher education system, regional or federal authorities may set different

priorities: the creation of leading universities, the shaping of strong specialized or infrastructure HEI. At the same time, the higher education system is a structure that can simultaneously perform various functions: from global positioning to supplying the local labour market.

Based on the current state of the regional higher education systems, key strategic choices in their transformation and the proposed advanced typology, the following scenarios for the development of these systems are suggested:

1. **Regions with attractive globally oriented HEI**

In this case there is a university seeking to implement the model of a global research university (HEI participating in the program of international competitiveness improvement or the leading sectorial university) in the territory of the region, it seems necessary to achieve a balance in, and the quality of the remaining system.

Russian and foreign practice shows that currently the way to improve the quality and efficiency of weak universities from the perspective of public management is their consolidation with stronger universities (Goedegebuure, 2012; Froumin, Povalko, 2014). At the same time, the issue of actual effectiveness of this idea is pending. There is research demonstrating that the quality of education or scientific productivity in the universities reorganized by means of consolidation, decreases (Ursin et al, 2010). Governments need to explore new forms of management that could be more effective within a new context of mass higher education (Amaral et al., 2002). On that basis in the process of shaping a well-balanced regional higher education system by consolidating weak institutions with the leading universities should not be the only solution. It does not guarantee improvement of the quality of weak universities but overloads the leading universities, limiting their development.

The key task in the development of regions with globally oriented HEIs is to establish intersystem differentiation. As the whole range of universities is presented in the regions, from the global research universities to mass HEI, it is necessary to shape a new higher education landscape. Different tasks should be assigned to different university segments; the tasks should be oriented at the demands of specific segments of the global, national or regional labour markets (Leshukov, Lisyutkin, 2013). In this case a change in the model of the higher education system management becomes logical. The new model should include competition mechanisms within the university groups providing conditions for the self-development of the system.

2. **Regions with the balanced local higher education systems (2.1.) of the infrastructural type, (2.2.) of the specialized type.**

Regions that already have a relatively balanced higher education system but at the same time are characterized by an outflow of the best students can provide incentives to maintain the inflow of high quality student population. On the other hand in the case where there are no universities acting as potential attractors in the region, the higher education system can be refocused toward the regional labour market. Specialized universities should be reoriented to correspond to the structure of the regional economy.

In order to improve the quality of performance of the weak regional HEI (infrastructural and specialized) it is necessary to provide the conditions for them to focus on the appropriate educational segments.

3. **Regions with dominant infrastructural HEIs**

These regional higher education systems are characterized by the fact that the best school graduates leave the region to enter stronger or more prestigious universities. At the same time, there are universities in the region able to provide the proper quality of training by specialties relevant for the regional labour market.

For the efficient functioning and development of such higher education systems the regions should develop the relations system based on the "triple helix" model (Etzkowitz, 2008), which assumes close cooperation of university–business–state.

4. **Regions with underdeveloped higher education systems**

Mass higher education prevails in the regions with underdeveloped higher education systems, often with segments of inadequate quality. There is practically no competition for prospective students and financial resources among the HEI. Many school graduates including even "B" students go to study in the universities located in other regions.

The most suitable version for the development of such a regional system is its gradual transformation into the well-balanced system of infrastructural universities and mass HEI. It is possible by supporting existing universities to fulfil the tasks of the infrastructural and mass higher education. In such cases the universities needs to be reoriented to the requirements of the regional labour market with further improvement of the quality of educational programs.

The mechanisms of public management for the transformation of regional higher education systems

In this section we discuss how to implement these policies and what public administration tools and mechanisms are appropriate to manage the transformation of regional higher education systems. The selection of one or another strategic transformational path of the regional higher education systems supposes significant state interference. It is important to understand how public management mechanisms will influence the highly heterogeneous regional higher education systems. The use of a mix of governance mechanisms for the development of higher education systems is an important characteristic of foreign experience. For example, in OECD countries new approaches to the governance of higher education based on the authority of the state and providing the power of markets appear (OECD, 2003).

The transformation of higher education systems in regions with globally oriented HEIs, with balanced local higher education systems of the infrastructural type, or of the specialized type, and regions with dominant infrastructural HEIs require indirect new public management tools. In such regions universities could act as drivers of regional development. The transformation of the regions with underdeveloped higher education system requires the use of direct management tools to support the enhancement of the quality of education.

Taking into consideration the New Public Management basis (Hood 1991; Ferlie et al 1996; Bleiklie 1998; Stech 2011), promoting a market oriented mechanism in education as a public sphere can lead to the segmentation of the higher education sector and improve the quality of education. Establishing competition between universities should be considered one the main goals of the government policy in the higher education sector (Teixeira. et al, 2014; Lisyutkin, Froumin, 2014). Moreover, such a model assumes that government must take a position of "steering from the distance" (Marginson, 2011, Braun, 1999). Among the state management tools that can be used for the artificial transition of the regional higher education systems from the current state to the desired one, characterized by competition model and "steering from the distance", the following mechanisms are important:

1. the creation of a permanent collective body responsible for the analysis of the network of universities, and coordinating measures of bringing it in accordance with the priorities of the regional policy;
2. the creation of an updatable data base of the HEI in the region, and on the demand structure of the regional labour market and its development perspectives;

3. the resource stimulation of the network development in required areas (allocation of land lots, co-financing or financing of projects and programs, allocation of municipal property (including buildings));
4. the development of mechanisms and incentives including financial ones for the transition of universities from one focus to another;
5. the engagement of the universities and federal authorities in the elaboration of the regional development strategy which includes the university network development strategy;
6. the engagement of university communication with industry and organizations of culture and science to strengthen their interaction;
7. inter-university communication for the creation of general projects for the development of the network and the region;
8. the engagement of university communication with the institutions of secondary vocational education to create a complex multilevel policy in the higher education sphere;
9. lobbying for the inclusion of administrative, resource and regulatory levers at the national level for development of the network in the required areas.

The development of regional higher education systems with the lowest level of development cannot be characterized only by the above mentioned list of tools. For particular higher education systems it is possible to use a policy of direct management and regulation. One of the most meaningful policy instruments which can be used in respect to such systems is closure (or reorganization) of subordinate universities with the transfer of municipal students order for personnel training to federal and non-state universities.

The merger or reorganization of universities as a tool for increasing the effectiveness of their work and the optimization of available financial and human resources can be used only when there is a weak university not satisfying the labour market needs in the region. If such a university degrades (Lisyutkin, Froumin, 2014) and is not able to provide conditions for its own survival, it is recommended to gradually close it with the transfer of property to other universities in the region. In no other cases the merger or reorganization tool can be used without a special analysis – otherwise it can lead to serious losses in human and reputational capital. However, a merger cannot be a universal optimization tool for them because the regions are too dissimilar, first of all in their geographic and cultural characteristics (for instance, Republic of Sakha and Jewish Autonomous Region, which are in the same cluster of regional educational situations).

The use of the reviewed legislative, financial and regulatory tools of public management with regard to the universities related to different regional higher education systems taken as a

whole, will allow the efficient solving of problems and minimizing the gaps characterizing the current state of the regional education systems.

Nevertheless, since the transition of the regional higher education systems from the current state to the desired one supposes significant artificial influence it is necessary to adequately evaluate associated risks and problems. The risks associated with artificial optimization of the regional higher education systems include:

- high resistance from the university management and academic elite;
- an escalation of social strain and further economic decline in the regions with a stagnating economy;
- a possible lack of specialists (i.e. employees that are against reforming) that will lead to impairment of the educational, scientific and research activities;
- reputational risks;
- a decline in the human capital index (if the optimization result will be a decrease in the population coverage by the higher education system);
- a breakdown of social and economic connections of the universities;
- a deformation of the graduates supply structure.

It can be concluded that when shifting some regional systems from the current state to the advanced one the tools and mechanisms of public management should be used, which will reach the goal minimizing associated risks.

Conclusion

This analysis shows that regional higher education systems in Russia are highly heterogeneous. At the same time part of the regional higher education systems are characterized by a discrepancy between their functional activities and socio-economics development of regional. First of all, this is related to the absence of external formal control over activities of the universities by the regions (Kouzminov, 2009), and the absence of a focus in the educational and research work in the majority of HEI (Froumin, Kouzminov, Semyonov, 2014). If the regional systems continue developing at a natural pace under the influence of such external factors as demography and population demand the potential of the single network of universities might remain unrealized (Leshukov, Lisyutkin, 2013).

The analysis considers that identification the different types of regional higher education systems within the context of the regional conditions must be the basis for approaches to their

development. To make universities a fully-fledged resource for development of the regions, an advanced typology of the regional higher education systems has been shaped.

There is always an important strategic choice in this case. On the one hand, the higher education system meets different federal-level challenges such as international competitiveness, for instance, which requires a uniform policy. On the other hand, regions demand contribution to the development of higher education systems from the "Federation" which assigns the task of differentiated policy-making: from indirect new public management tools to direct state intervention.

References

1. Amaral, A., Jones, G., Karseth, B. (eds.) (2002) Governing Higher Education: National Perspectives on Institutional Governance. Series: Higher Education Dynamics, Vol. 2. Springer., 299 p.
2. Andruschak G. V., Novikov A. V., Pavlyutkin I. V., Regionalny atlas ekonomiki vysshego obrazovaniya (pokazately rynka) [Regional atlas of higher education economy (market data)]: atlas / G. V. Andruschak et al. – M.-Yoshkar-Ola: Poligraficheskoye Predpriyatiye Centr Print (Center Print Printing Enterprise) OJSC, 2010. – 80 p.
3. Bleiklie, I. (1988). Justifying the Evaluative State: New Public Management Ideals in Higher Education. European Journal of Education, 33 (3), 299-316.
4. Bluestone, B. (1993), UMASS/Boston: An Economic Impact Analysis / B. Bluestone. – Boston: John W. McCormack Institute of Public Affairs; The University of Massachusetts.
5. Braun, D., (1999) Changing governance models in higher education : the case of the new managerialism, Swiss Political Science Review, Volume 5, Issue 3., 1-24
6. Breton A. (1996). Competitive Governments: An Economic Theory of Politics and Public Finance. Cambridge, 385 p.
7. Brown, Douglas M, Pierre Cazalis, and Gilles Jasmin. (1992). Higher Education in Federal Systems: Proceedings of an International Colloquium Held at Queen's University, May 1991. Kingston, Ont: Institute of Intergovernmental Relations, Queen's University., 250 p.

8. Caffry, J., Isaacs, H. (1971), Estimating the Impact of a College or University on the Local Economy / J. Caffry, H. Isaacs. – Washington: DC: American Council of Higher Education, H.H., 82-155
9. Clark. B. (1983). The Higher Education System. Academic Organization in Cross-National Perspective. / C. C. Burton. — Berkeley, CA:University of California Press.pp. 107-181
10. Centr social'nogo prognozirovanija (CSP), Prognoznyi analiz demograficheskoi situacii do 2018 goda v svjazi s formirovaniem kontingenta potencial'nyh studentov, (2004), 1-17 /
11. Chudinovskikh O., M. Denisenko, (2003), Gde hotjat zhit' vypuskniki rossijskih vuzov? Demoskop, electronic journal, № 119 – 120
12. Decree 599, 7 May 2012 by President of the Russian Federation
13. DiMaggio P., Powell W., "The iron cage revisited" institutional isomorphism and collective rationality in organizational fields", American Sociological Review, 48 (1983), 147-160.
14. Etzkowitz H. (2008). The Triple Helix: University-Industry-Government Innovation In Action London: Routledge.
15. Ferlie, E., Ashburner, L., Fitzgerald, L., & Pettigrew, A. (1996). New Public Management in Action. Oxford: Oxford University Press.
16. Froumin, I., Kouzminov, Y. & Semyonov, D. (2014). Institutional Diversity in Russian higher education: revolutions and evolution, European Journal of Higher Education, Vol. 4, Issue 3, 209-234.
17. Froumin, I., Povalko, A. (2014). Top Down Push for Excellence: Lesson from Russia. How World-Class Universities Affect Global Higher Education. Vol. 30, 47-65.
18. Gaffikin, F, M. Morrissey, (2008), M. A new synergy for universities: Redefining academy as an 'engaged institution. Education / F. Gaffikin, M. Morrissey // Citizenship and Social Justice. - 2008. - №1. - Vol.3. - P. 97-116
19. Goedegebuure, L. (2012). 'Mergers and More: The Changing Tertiary Education Landscape in the 21st Century'. Higher Education: Institutional Dynamics and Knowledge Cultures (HEIK), Working Paper 2012/01, University of Oslo
20. Hood, C. (1991). A Public Management for All Seasons?. Public Administration, 69, 3-19.
21. Johnson, M. 2008. "Historical Legacies of Soviet Higher Education and the Transformation of Higher Education Systems in Post-Soviet Russia and Eurasia." In The Worldwide Transformation of Higher Education, edited by D. P. Baker and A. W. Wiseman, 159–176. Oxford: Emerald Group.

22. Kasper W. (1996). Federations: Competing Jurisdictions.

23. Kyvik, S. (2004). 'Structural Changes in Higher Education Systems in Western Europe', Higher Education in Europe, Vol. 24, No. 3, pp. 393–409.

24. Leshukov O., Lisyutkin M. (2013). Tendencii razvitija sistemy vysshego obrazovanija v Moskve (Development trends in Moscow higher education system). Higher education today. № 10. 6-17.

25. Lisyutkin M., Froumin I. (forthcoming). Kak degradirujut universitety: k postanovke problemy (How Universities Degrade). University Management: practice and analysis.

26. Marginson, S. (2011). Higher Education in East Asia and Singapore: Rise of the Confucian Model, Higher Education, 61 (5), pp. 587-611.

27. Mauer T., Dmitriev A. (Eds.) (2009). University and City in Russia at the Beginning of the XX Century Universitet i gorod v Rossii v nachale XX veka. M.: Novoe literaturnoe obozrenie, 2009. – 783 p.

28. Middlehurst, R. and Teixeira, P. (2012) Governance within the EHEA: dynamic trends, common challenges, and national particularities. In P. Scott, A. Curaj, L. Vlasceanu, L. Wilson (eds.) European Higher Education at the Crossroads: Between the Bologna Process and National Reforms, vol. 2, pp. 527–551. Springer

29. Nasledov A. D. (2008). Matematicheskiye metody psikhologicheskogo issledovaniya. Analiz i interpretatsiya dannykh. (Mathematical methods of psychological research. Data analysis and interpretation. Textbook. 3rd edition, – S-Pb.: Rech, 2008. – 392 p

30. Neave, G. 1989. Foundation or Roof? The Quantitative, Structural and Institutional Dimensions of Higher Education. European Journal of Education, Vol. 24, No. 3, pp. 211–222.

31. Nikolaev D., Chugunov D., (2012) The Education System in the Russian Federation Education Brief, The World Bank study, 86 p.

32. OECD Report, Education Policy Analysis 2003 - Changing Patterns of Governance in Higher Education, 2003

33. Organization for Economic Co-operation and Development Report Series: Higher Education in Regional and City Development, 2011-2012. http://www.oecd.org/edu/imhe/highereducationinregionalandcitydevelopment.htm, Accessed 14 October 2014.

34. Pollitt, C. and Bouckaert, C. (2009) Continuity and Change in Public Policy and Management, Cheltenham: Edward Elgar.
35. Pollitt, C. and Bouckaert, G. (2011) Public Management Reform. Oxford: Oxford University Press.
36. RA Expert, reiting investicionnoi privlekatel'nosti regionov, (2007).
37. Report by Y. Kouzminov. (2009). Resursy obrazovanija (po rezul'tatam monitoringa jekonomiki obrazovanija). (Resources of the education (based on the results of the monitoring of the economics of the education)). http://www.hse.ru/data/2009/11/11/1226989334/Prezent_Kouzminov_20-10-2009_f.pdf. Accessed 19 October 2014.
38. Stech, S. (2011). The Bologna Process as a New Public Management Tool in Higher Education. Journal of Pedagogy. Vol. 2 Issue 2, 263-282.
39. Teichler U. (2004) Changing Structures of the Higher Education Systems: The Increasing Complexity of Underlying Forces, UNESCO Forum Occasional Paper Series Paper No. 6, p. 3-16
40. Teixeira, P., Rocha, V., Biscaia, R., Cardoso, M. F. (2014), Policy changes, marketization trends and spatial dispersion in European Higher Education: Comparing public and private sectors, Cambridge Journal of Regions, Economy and Society, special issue "Universities in Crisis", 7(2), 271-288.
41. Ursin, J., Aittola, H., Henderson C., & Valimaa, J. (2010). Is Education Getting Lost in University Mergers? Tertiary Education and Management, Vol. 16, Issue 4, 327-240.

Annex 1. The degree of regional higher education systems concentration

Low concentration		**Moderate concentration**		**High concentration**	
Region	**HHI**	**Region**	**HHI**	**Region**	**HHI**
Moscow	1,70%	Leningrad Region	11,00%	Vologda Region	18,10%
Moscow Region	3,60%	Voronezh Region	11,00%	Tomsk Region	18,88%
Saint-Petersburg	3,61%	Irkutsk Region	11,20%	Chuvash Republic	19,20%
Samara Region	6,33%	Smolensk Region	11,50%	Ulyanovsk Region	19,50%
Rostov Region	7,30%	Saratov Region	11,80%	Krasnoyarsk Territory	19,50%
Novosibirsk Region	7,90%	Altai Territory	11,90%	Kursk Region	19,50%
Republic of Bashkortostan	8,00%	Sverdlovsk Region	11,96%	Kirov Region	19,90%
Krasnodar Territory	8,30%	Chelyabinsk Region	12,11%	Ryazan Region	20,30%
Volgograd Region	8,50%	Khanti-Mansi Autonomous Area	13,10%	Republic of Komi	20,90%
Kemerovo Region	8,50%	Ivanovo Region	13,20%	Republic of North Ossetia-Alania	21,10%
Republic of Tatarstan	9,09%	Kaluga Region	13,20%	Udmurtian Republic	21,40%
Republic of Dagestan	9,20%	Perm Territory	13,23%	Primorye Territory	21,70%
Yamal-Nenets Autonomous Area	9,30%	Yaroslavl Region	13,70%	Orel Region	22,20%
Nizhny Novgorod Region	9,42%	Khabarovsk Territory	15,20%	Murmansk Region	22,20%
Stavropol Territory	9,80%	Tyumen Region	16,40%	Astrakhan Region	22,80%
Omsk Region	9,90%	Orenburg Region	17,10%	Amur Region	23,40%
		Lipetsk Region	17,70%	Belgorod Region	23,65%
		Bryansk Region	17,70%	Tver Region	24,00%
				Kamchatka Territory	24,10%
				Republic of Buryatia	26,90%
				Kaliningrad Region	27,20%
				Karachayevo-Circassian Republic	27,50%
				Kurgan Region	27,80%
				Tambov Region	31,00%
				Pskov Region	32,00%
				Penza Region	32,30%
				Kostroma Region	32,30%
				Tula Region	33,10%
				Trans-Baikal Territory	37,30%
				Republic of Adygeya	37,80%
				Kabardino-Balkarian Republic	39,80%
				Arkhangelsk Region	40,30%
				Republic of Sakha (Yakutia)	40,90%
				Chechen Republic	41,30%
				Sakhalin Region	43,50%
				Vladimir Region	43,60%
				Republic of Mari El	43,90%
				Republic of Karelia	45,40%
				Republic of Mordovia	46,10%

				Republic of Khakassia	50,60%
				Jewish Autonomous Region	51,40%
				Magadan Region	54,80%
				Novgorod Region	59,40%
				Republic of Kalmykia	64,20%
				Republic of Ingushetia	94,50%
				Republic of Tuva	96,00%
				Republic of Altai	98,30%

Oleg Leshukov
National Research University Higher School of Economics (Moscow, Russia). Institute of Education. Junior research fellow; E-mail: oleshukov@hse.ru

Mikhail Lisyutkin

National Research University Higher School of Economics (Moscow, Russia). Institute of Education. Junior research fellow; E-mail: mlisyutkin@hse.ru