



Regional Strategies for the Development of Higher Education and Human Capital Upbuilding

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Abstract

The article analyzes ways of overcoming the negative trends towards the human capital degradation in Russian regions and other Eastern European countries. It has been shown that technical universities located in small towns of the region should play an important role in the processes of solving the problem. The development of universities should be carried out in accordance with a specific strategy, the purpose of which is to train qualified specialists and students who will live and work in their own region in the future. Also presented is a set of requirements for such strategies, which are based on the idea of the institutional design of the University Technopolis. The purpose of the article is the formation of strategies for the development of universities and other higher education institutions, which should ensure the social needs. Information obtained as a result of research should be used to improve the theory and practice of strategic development of educational institutions of the regions. The research's tasks are the analysis of the employees' educational level at enterprises and business groups in the region; the analysis of the social role played by the technical university in the region; the application of the institutional approach to the development strategy of a technical university; the consideration of the technical university as part of the regional innovation system and the formation of its development strategy. It has been established that in order to overcome the unfavorable tendency, universities and other higher educational institutions should follow a special development strategy, the purpose of which is to train qualified specialists from local young people. This strategy should be based on the institutional design of the University Technopolis - the socio-economic system of the meso-level, in which students participate in the processes of generating new knowledge, and which is based on the principles of public-private partnership and the ideas of the triple helix concept. Such a technical university - Technopolis is part of the national innovation system and is integrated into the global educational space.

Keywords: *Higher education, human capital, institutional designing, regional development, technopolis.*

1. Introduction

After the Soviet system collapse, the countries of the Eastern Europe and Russia in the last two decades show the tendencies to decreasing a quality level of the human capital. The numerous researches analysed the different aspects of the problem, such as the demographic setting [1]; investment in the human resources [19]; role of the human capital and level of the management quality, as a reason for the appearance of the gap in production level indexes between the Eastern and Western Europe [18]. All of them agree, that the main reasons for the mentioned problems are the features of the transition from the totalitarian society to the societies, based on the mechanisms of the market economy (that differ in one country from another), and the influence of the worldwide globalization processes.

In the regions of Russian provinces, the basic reasons for the degradation of the human capital are the following:

- a considerable decreasing of the professional activities' creativity of the substantial percent of the population, the reasons for which are the laying of the numerous high-technology production enterprises and people's leaving a creative sphere for the primitive commerce, government service, office work and other activities with a low level of the intellectual and creative component;
- decreasing of the efficiency and effectiveness level of the universal secondary education and substitution of the educational values by the pupils' preparation for the primitive Concluding State Attestation procedure as a goal;
- decreasing of the effectiveness level of higher and secondary professional education: the reason for such tendency is the job shortage in the high-technology sphere and disbelief of the substantial



percent of students in the prospects of getting a job, which would answer the student's special subject [11].

Besides the aforesaid, in the last decades in Russia increases the level of the inequality in a property status as a key social stratification, and a gap between the life quality and development prospects level between the people of the capital and the cities, and the people from provinces (small towns and villages), also increased the people's outflow level (first of all – the most educated part of them) from the provinces to the cities, and the flight of the human capital. The reason is the dislocation of the majority of the higher professional education institutions in the capital and the cities, as the hands-on experience in the Soviet period [7].

2. Methods

The major research methods adopted by the author's scientific work are the descriptive method, typical for social and economic sciences, the method of analysis and synthesis. Author also use a human capital theory [4], theory of the firm [5], [20], the triple helix theory [16] and the institutional designing methodology [9]. For the empirical studies, author used common statistical methods.

3. Education of employees from South Russian enterprises (status for 2018)

We investigated some of the significant features of the professionals' educations. All of the investigation participants are the employees at the enterprises of the Southern Federal District of Russia. The numerous enterprises are situated in the Rostov region, Volgograd region, Krasnodar region, and Adygeya Republic. There was examined the education of 2138 professionals of 137 enterprise. This number of the participants and enterprises means that the results of the research are representative.

There were investigated the big enterprises and business groups with more than 950 employees. The exception was made for the finance organizations (the most of them are the regional branches of the commercial banks and finance companies with the All-Russian volume of activity), and also for some small trade enterprises. The "Mechanical engineering" group of the enterprises includes also the enterprises of the metallurgy and metal working industry, the "Chemical industry group" includes the cement production and production of the building materials. More than a half of the enterprises, which employees took part in the investigation, are situated in the small towns of the Southern Federal District of Russia.

A special attention is paid to the professionals, which are the graduates of the higher education institution of the Southern Federal District of Russia. We also demonstrate the difference between the graduates, who studied in the higher education institutions of the cities (regions' centres) and ones who studied in the towns of middle and small size. As the regions' centres of the Southern Federal District of Russia we assigned Rostov-on-Don, Krasnodar and Volgograd. The most of the regions' universities and other higher education institutions are situated in these three cities.

In the table 1, we present a structure of the enterprises' employees, based on the location of the institution, where they got their professional education. In the table 2, there is information about how the employees' professional activity conforms to their graduates' chief subject. The data given in table 1 and 2, obtained as a result of a study conducted by the authors in 2018. According to the information in the tables, we can make a conclusion, that the most of the regional enterprises' employees are also the graduates of the higher education institutions of the same region. The number of the Moscow and Saint Petersburg universities' graduates at the enterprises of the region is very small. It's the prove for the above said idea that the students of these universities don't see any reasons for getting jobs in provinces (even if the provinces is their birthplace).

The table 2 shows, that a significant amount of the specialists at the enterprises got the jobs, which greatly differ from the special subject that they studied in the higher education institution. One of the reasons of that is the people's inability to get a job that was coinciding with their special subject, in their home region, and changing a place of living to get a job is not typical for Russians' national traditions [10]. In other hand, a meaningful number of these specialists later got a postgraduate education, some of them – in the educational institutions of the foreign countries.

Table 1. Description of the employees of the enterprises in the Southern Federal District of Russia as of the Higher Education Institutions graduates in 2018



Sector of the national economy	Number of the examined enterprises	Percent of the employees, which are the graduates of:				
		The institutions of higher education in Moscow and Saint-Petersburg	The institutions of higher education in the cities of the Southern Federal District	The institutions of higher education in the towns of the Southern Federal District	The institutions of higher education in the other regions of Russia	The institutions of higher education in the foreign countries
Engineering and production departments						
Mechanical engineering	13	1,1	33,5	39,6	22,4	3,7
Chemical industry	9	1,9	20,1	37,7	23,5	11,2
Food industry	11	0,3	18,6	39,0	12,0	8,1
Agriculture	13	0,4	13,9	59,7	15,2	11,6
Building	8	0,5	22,2	54,8	14,1	10,1
Transportation	7	0,4	20,9	57,2	11,6	8,1
Trading	12	0,5	25,0	49,3	13,0	11,3
Finance organizations	11	1,1	35,5	33,1	20,8	8,1
Economic and marketing departments						
Mechanical engineering	13	0,8	24,5	31,9	18,4	2,2
Chemical industry	9	1,0	26,2	32,5	19,2	20,2
Food industry	11	0,5	21,7	33,1	16,3	28,4
Agriculture	13	0,1	19,5	40,9	13,4	27,0
Building	8	0,3	19,1	41,8	22,3	16,9
Transportation	7	0,6	18,9	45,2	26,1	10,3
Trading	12	0,6	20,2	48,1	20,1	10,6
Finance organizations	11	1,0	19,9	30,8	19,1	9,6

Table 2. Description of the employees of the enterprises in the Southern Federal District of Russia: how the graduates' chief subject answers the purpose of their professional activity in 2018

Sector of the national economy	Percent of the employees, and how their chief subject answers the purpose of the professional activity			
	Completely answers	Partially answers	Doesn't answer	Answers because of the post-graduate education
Mechanical engineering	30	27	21	22
Chemical industry	33	24	13	30
Food industry	20	26	40	13
Agriculture	16	28	46	10
Building	20	23	34	23
Transportation	19	26	31	24
Trading	8	25	45	22
Finance organizations	22	24	9	45

4. Development Strategy of the professional education in the region: the specific role of Technical University

The University, if it is placed in the provinces, is the best-fit educational institution for kind of development of human capital in the region, because of its key competences and other features of the activities. First, we speak about the "classical" University, which's curriculum is based on the ideas of



natural science, technical University, and other institutions of the higher professional education. The graduates of these institutions then become the employees in the real sector of the economy.

Therefore, the development of regional strategies for the development of higher vocational education should be closely linked to the development of strategies for the development of universities located in the region. Working out a development strategy for the technical University should be based on the understanding of their major task: generating a new knowledge; and the universities themselves should be regarded as an important part of the national and regional innovation systems. The efficient generating of the new knowledge in general, and especially in the technical University, requires the appropriate institutional environment. This environment is to be developed in conformity with the strategic goals and tasks. Following the ideas, presented in the well-known work [14], [3], [8].

Working out a development strategy of the technical University is a particular case of the institutional designing – a special kind of activity, which's goal is creating or transformation of the institutional environment.

Organization of the education processes, which's goals list include the salvation of the aforesaid problems, should take in account the universally recognized features of the efficient learning process, typical for the education of the 21st century [6]. The set of these features includes the cooperative work of the students, cooperation in the workgroups instead of the competition between them. The practical utility of the knowledge that students get is also very important. The subject that the students of the new generation are trying to pursue is getting the information, which practical utility is evident.

Technical University, which is situated in a region, and has a number of the described above features, is one of the full-fledged parts of the region's innovation system. The University Technopolis is the most efficient as a part of the innovation system.

The concept of the University Technopolis enables the realization of the most successful models of state-private partnership [15]. To realize this model, the participants should achieve a consistency of the agent's interests; taking in account that each of the agents may act in a different economic environment (with different traditions of the institutional organization). That is why in the last years the projects with a state-private partnership have been often presented in a context of the development of the triple helix model (University-industry-government) [16].

Analysing of the conditions of the Southern Federal District of Russia gives us a possibility to draw a conclusion that the South-Russian State Polytechnic University (situated in Novocherkassk) meets all the requirements to do its best during the creating of the University Technopolis. Now the administration is making an attempt to create the University Technopolis on the base of this University. The efforts of creating the University Technopolis were undertaken during the working out of the SRSPU (NPI) strategic development program. The idea was to solve three basic problems that exist during the University's scientific project development. First problem is the lack of the stable relations to the corporative sector of the real economy. The second is the insufficient development of the research and development departments and poor infrastructure for the commercialization of the technologies. The third – a loss of the scientific authorities (in the universities, in comparison with the institutions of the Russian Academy of Sciences).

5. Conclusion

Most of the countries of the Eastern Europe (including Russia) in the last two decades show the tendencies to decreasing a quality level of the human capital. This tendency is very brightly appeared in the provinces.

To overcome the unfavourable tendency the universities and other higher education institutions, which are situated in the provinces, should follow a specific development strategy that's goal is training of the qualified specialists, and to take as the students the local young people, which are going to live and get a job in the region in future.

The strategy should be based on the institutional projecting of the University Technopolis – a social and economic system of mesolevel, in which the students take part in the processes of generating the new knowledge, and that is based on the principles of the state-private partnership and the ideas of triple helix concept.

References

- [1] Anderson, B.A. "Russia faces depopulation? Dynamics of population decline", *Popul Environ*, Vol. 23, No. 5, 2002, p.437–464.
- [2] Araki, K. "Policy Implications of the Concept of Technopole and Japan's Technopolis Programme for Developing Countries", Kousuke, NBK, 2000, 136 p.



- [3] Barras, R. "Interactive Innovation in Financial and Business Services: The Vanguard of the Service Revolution", *Research Policy*, Vol. 19, No 3, 1990, p. 215-239.
- [4] Becker, G. "Assortative Mating in Marriage Markets", *A Treatise on the Family* Cambridge, London, Harvard University Press, ch.4, 1991, pp. 108—134.
- [5] Coase, R. "The Institutional Structure of Production" *The American Economic Review*, Vol.82, No°4, 1992, p. 713-719.
- [6] Coates, J. "Generational Learning Stiles", NY, LERN, 2007, 212 p.
- [7] Gerrber, T., Hout, M. "Educational Stratification in Russia during the Soviet Period", *The American Journal of Sociology*, Vol. 101, No. 3, 1995, p. 611-660.
- [8] Gomulka, S. "The Theory of Technical Change and Economic Growth", London, Routledge, 1990, 238 p.
- [9] Gooding, R. "The Theory of Institutional Design. Cambridge", Cambridge University Press, Vol. 36, 1996, p.225-287.
- [10] Heleniak, T. "International Comparisons of Population Mobility in Russia", College Park, University of Maryland, 2012, 98 p.
- [11] Kolbachev, E. "Social Efficiency of Organizational and Economic Decisions, which Affect the Development of Higher Education in Russia's Regions", *Vestnik of South-Russian State Technical University, NPI*, No. 1, 2012, p. 118-124.
- [12] Matkovskyy, R. "A meso-level representation of economic systems: a theoretical approach", Munich, MPRA Paper, 2012, 124 p.
- [13] Nizhegorodtsev, R. "The role of universities in the formation of regional clusters and mechanisms of state-private partnership", *Innovative prospects of Russia and the World theory and modelling*, Novocherkassk, NPI, 2014, p. 4-10.
- [14] Reichert, S. "Research Strategy Development and Management at European Universities", Brussels: European University Association, 2006, 48 p.
- [15] Sakata, T. "Chihou Toshi, 21-Seiki e no Kousou", *Local cities: Vision for the 21st. Century*, Tokyo, NHK Books, 1991, 96 p.
- [16] Shinn, T. "The Triple Helix and New Production of Knowledge: Prepackaged Thinking in Science and Technology", *Social Studies of Science*, No. 32 (4), 2002, p. 599-614.
- [17] Shmatkov, V. "University as a Technopolis: A Model of SRSTU Strategic Development for Its Current State", *Vestnik of South-Russian State Technical University (NPI)*, No. 4, 2011, p. 7-13.
- [18] Steffen, W., Stephan, J. "The Role of Human Capital and Managerial Skills in Explaining Productivity Gaps Between East and West", *Eastern European Economics*, Vol. 46, No 6, 2008, p. 5-24.
- [19] Tondl, G., Vuksic G. "What makes regions in Eastern Europe catching up? The role of foreign investment, human resources and geography". Bonn, Rheinische Friedrich-Wilhelms-Universität Bonn, 2003, 35 p.
- [20] Williamson, O. "Corporate Control and Business Behavior: An Inquiry into the Effects of Organization Form on Enterprise Behavior", NY, ABC, 1970, 135 p.
- [21] Yamasaki, A. "Network-Gata Haichi to Bunsan Seisaku", *Industrial Distribution Network and Spatial Dispersal Policy*, Tokyo, Taihou-do, 1992, 196 p.