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# **UNIVERSITY REVENUE WITHIN A NEW STRUCTURE OF RESOURCES**

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## **UNIVERSITY REVENUE WITHIN A NEW STRUCTURE OF RESOURCES<sup>3</sup>**

Market reform in Russia has had a positive impact on economic sectors and has generally led to higher production quality. However, the education sector (especially professional training) has been an exception. Although education reform was undertaken with the goal of modernization, the general level of value added in the education sector has not grown in the past four years. This article examines changes in higher education under the new configuration of resources based on the income structure of universities located in the Central Federal District (CFD). The results evidence a change in financial support from different income sources and in cost structures at university level. These are the result of higher education reform and university support programs aimed at enhancing the academic and research capacity of the leading Russian universities and developing a competitive national education system.

This paper reveals trends in the financing of higher education institutions using statistical and economic analysis, comparing the income structures of different groups of universities and their cost structures. Analysing the dynamics of the aggregate indicators, we study cost structures considering university priorities to increase teaching staff salaries and income from their research and development projects. The study assesses the implications of increasing regional university differentiation in terms of funding and income sources, which lead, considering the commitment to increase the faculty's salaries, to a shortage of funds for the maintenance of property. These circumstances force the universities to make considerable efforts to find extra-budgetary funding sources in a situation of shrinking effective demand, which jeopardises the development opportunities for a large proportion of regional universities<sup>4</sup>.

**Keywords:** higher education resources, number of employees with higher education, value added in education, income structure.

**JEL Codes:** H52, I22, I23.

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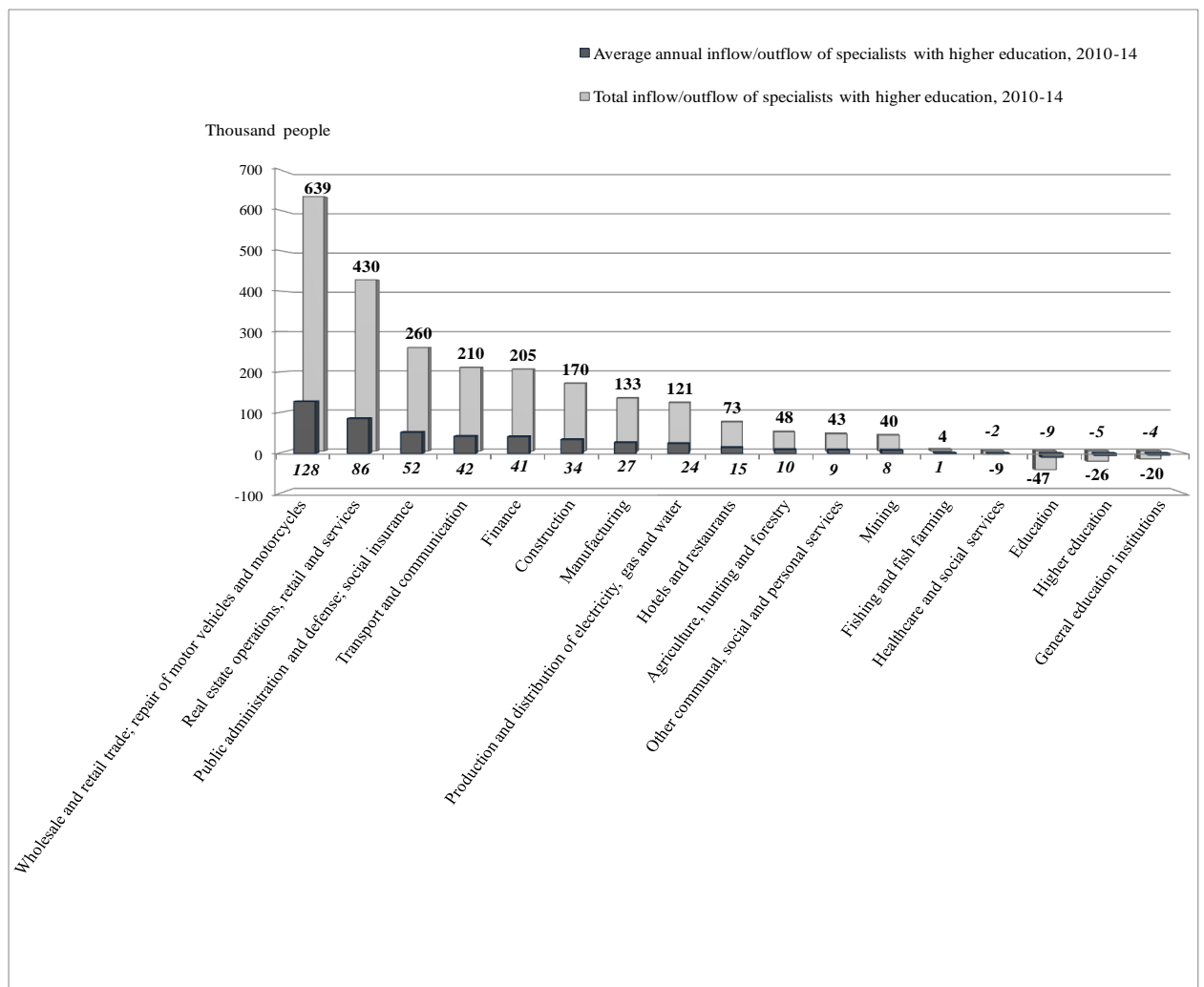
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## Introduction

Universities are seen as key institutions in social change; their main activity is producing qualified personnel and conducting research to meet the expected economic needs.

The need for graduates in all sectors of the Russian economy is almost completely filled by the higher education system. The share of employees with university degrees in all sectors of the Russian economy was 32.2% as of the end of 2014. That year 1.2 million people graduated from higher education institutions. The average annual inflow of employees with university degrees in all professional spheres was 470,000 in 2010-14. This was particularly notable in the segments of wholesale and retail, and motor vehicle repair (14.5% of total inflow). These were followed by real estate (13.9%) and manufacturing (11.8%). In the education system, the share of employees with university degree decreases annually and in 2014 it was 13.3%.

However, unlike other sectors of the economy, the number of graduates in the education system has fallen by an average of 9,000 annually in the past five years (5,000 in higher professional education institutions; 4,000 in general education institutions (Figure 1).



*Author's calculation: based on data on the distribution of employment by economic activity by education level in 2010-14 (Russian Statistical Yearbook, 2015).*

**Figure 1. Inflow (outflow) of specialists with university degrees by type of economic activity in 2010-14, thousand people**

Graduates in entirely new types of activity related to real estate, the service economy and new technology management, including in manufacturing, come mainly from the Russian higher education system and not from abroad. Meanwhile, the index of gross value added in education<sup>5</sup> has not grown in the last five years, and in 2014 it was 99.3% compared to 2013 (Table A1 in the Annex).

The higher education system, which defines the requirements for professional qualifications, can impact structural changes in employment and foster dynamic economic development and increased competition. It was one of the first sectors to be exposed to market failure. This is more characteristic of a crisis in the sector compounded by the decrease in the gross value added index in higher education. The higher education system services other sectors, and does not develop new markets or distribute intellectual products to create additional value (Abankina et al. 2012a).

The reforms of the higher education system were an attempt to overcome this situation. Established universities are striving to get funds not only from their educational activities but also through expanding their research and development. However, in most cases, universities receive income from their educational activities (not from research and development) and this may be a factor slowing down the development of the higher education sector.

This research reveals the main trends of the structural changes in public funding of higher education in Russia as a whole, and the regional peculiarities of financial support in the universities of the Central Federal District (CFD). A particular research focus are the changes in the structure of higher education public financing considering the explicit priorities of increasing salaries for teaching staff and promoting research. The study also estimates the regional differentiation of the financial resources for the maintenance of university property and the accumulation of funds from extra-budgetary sources.

**A new configuration of university income in the CFD**

The financial stability of universities still depends largely on increasing the volume of funds received from various sources (Belyakov et al., 2008). This income should allow

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<sup>5</sup> Gross value added in a particular sector is estimated as a difference between the implementation of services and intermediate consumption. Value added indicator is used for calculating gross domestic product. It is defined as the cost of implementation of works and services in the industry minus the cost of materials used. The increase in value added evidences, as a rule, the growth of gross domestic product.

universities to provide educational programs and still have money left over to invest in further development. A balanced revenue structure makes it possible to diversify and attract additional income from new and existing sources. Questions about the structure of revenue universities receive and their diversification have been analysed at various times in reports from global organizations and communities dealing with issues in higher education (Deininger, Squire, 1996; Fan et al., 2001), and in the works of educational experts (Tilak, 1989; Winegarden, 1979).

Estermann and Pruvot (2011) analysed the behaviour of stakeholders and the current income diversification of European universities and the barriers preventing an increase in income from additional sources. The prospective financial sustainability of the universities, in their opinion, depends on secure and adequate public financing but also on the status and autonomy of a university.

Tilak (1989), and Johnstone and Marcucci (2010) argue that higher education includes high expenses revenues requiring increasing private contributions to cover the costs for higher education, and they show how different countries developed countries face similar challenges.

In Russia, Shenderova (2011) considers the issue of university profitability. In her opinion, it is necessary to increase the profitability of Russian universities through increasing the transparency and openness of their financial indicators, and enhancing their managerial expertise. According to Gamukin (2012), the further development of the universities depends on the diversification of income sources with a focus on innovation.

Financial difficulties are unlikely to subside for universities: government funding is being reduced, income from tuition is unstable, and service costs are rising, including teaching staff salaries. This means every institution of higher learning must look for new sources of financing. Before they can attract additional funds, they must evaluate the current situation, analyse the institutional potential, their own features and capabilities, and by comparing this with indicators from the external environment get an understanding of the university as a part of the regional economy.

This analysis of the revenue structure of universities in the CFD is based on data from the State Statistics Service on the economic development potential of these regions from 2011 to 2014. The example of this district makes it possible to identify the main trends in higher education financing and reforms, to demonstrate the differentiation of the state policy in relation to university financing, the concentration of support for the leading universities in the 5top100 program, and the accumulation of funds from non-budgetary sources.

The CFD, which includes Moscow, is an administrative formation which is 3.8% of the territory of Russia. It is home to nearly 27% of the country's population (as of January 1, 2013). There are 17 regions in the district, plus Moscow as a separate political entity of the Federation.

According to the Education and Science Ministry (ESM), there were 99 institutions under its jurisdiction in the CFD in 2011 (in 2014—89 universities), or 33.9% (in 2014—31.3%) of the ESM universities in Russia. The share of Moscow universities in the CFD university structure was 50.6% in 2014. The processes of demographic decline has resulted in decreasing university enrolment in 2014 in the CFD, the number of students was 3.3% lower than in 2013. In Moscow universities the decline in number of students was 5.5%. However, even under such conditions, the share of Moscow students was over half the total number of students enrolled in the CFD: 56.8% in 2014. In 2014 52.7% of students enrolled in CFD universities paid for their tuition (other students are awarded scholarships based on school results).

Universities derive their revenue from educational activities, research activities and some other sources, such as rent of premises, bank interests, etc. (Table 1 and Figure 2).

**Table 1. Revenue structure of universities in the Central Federal District, %**

	Revenue from educational activities		Revenue from research activities		Other revenue	
	2011	2014	2011	2014	2011	2014
Moscow	62.5	62.7	20.1	23.3	17.4	14.0
Moscow Region	47.8	46.7	26.1	29.7	26.0	23.7
Bryansk Region	84.9	89.8	3.0	4.2	12.1	6.0
Vladimir Region	77.9	83.7	10.9	9.6	11.2	6.7
Ivanovo Region	84.0	77.4	8.9	12.0	7.1	10.6
Tver Region	73.7	73.9	9.2	10.9	17.1	15.2
Kaluga Region	97.1	60.8	2.9	5.2	0.0	34.0
Kostroma Region	94.3	90.2	3.8	6.2	1.9	3.6
Orlov Region	85.4	83.1	4.6	7.9	10.0	9.0
Ryazan Region	74.0	72.9	14.5	15.4	11.5	11.7
Smolensk Region	92.9	84.7	2.5	7.4	4.6	7.9
Tula Region	82.9	81.3	6.8	7.5	10.3	11.1
Yaroslavl Region	76.4	64.9	17.9	32.0	5.7	3.1
Belgorod Region	64.2	58.7	16.9	27.3	18.9	14.0
Voronezh Region	83.8	75.4	12.3	11.3	4.0	13.3
Kursk Region	84.6	74.4	13.3	17.5	2.1	8.2
Lipetsk Region	94.9	88.6	3.5	4.8	1.6	6.6
Tambov Region	86.5	84.9	8.9	10.6	4.6	4.5
Central Federal District	66.8	65.2	17.7	21.3	15.4	13.5
Central Federal District, excl. Moscow	76.1	70.8	12.7	16.8	11.2	12.4

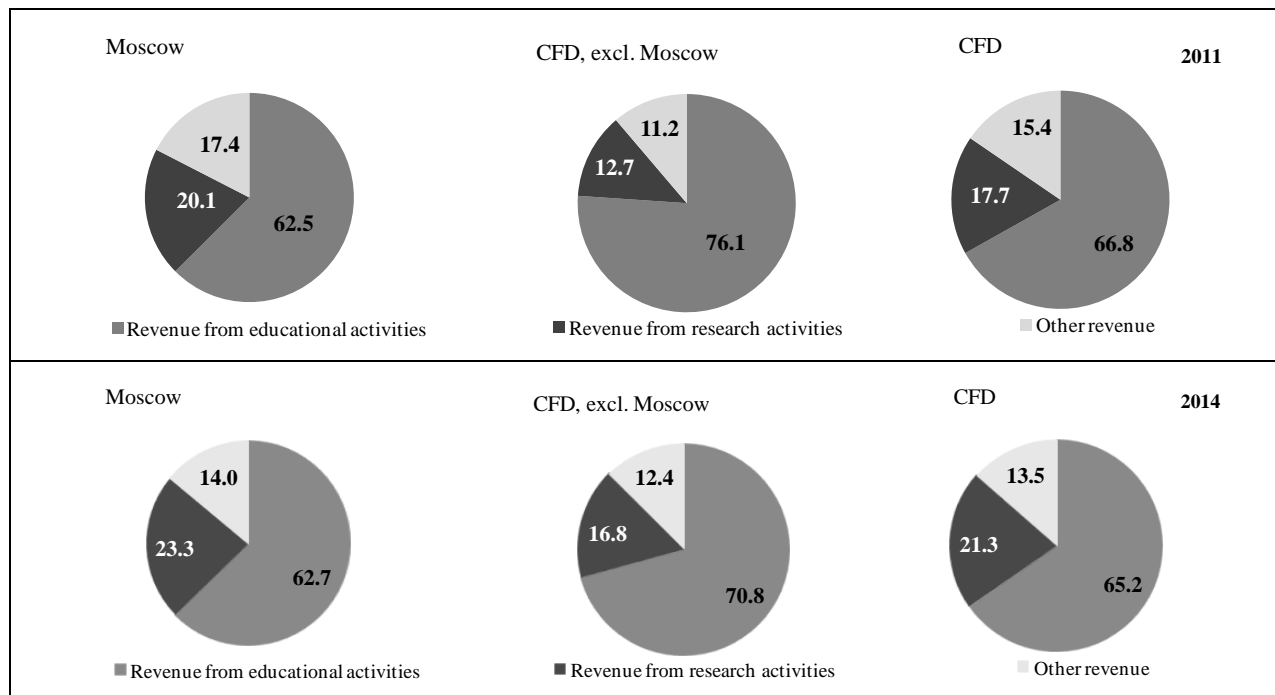
CFD universities are focused mainly on educational activities, and this is where they derive most of their revenue—more than 66% of total revenue in 2011, and 65% in 2014.

Moscow universities derived a smaller share of revenue from educational activities (63%). In Moscow Region, the share was 47.8% in 2011 and 46.7% in 2014; this is likely to be because universities in Moscow region are closely associated with the city of Moscow. The share of revenue from educational activities at universities in Belgorod, Ryazan and Yaroslavl regions was lower than in other regions in the CFD, but they differ in their sources of the remaining revenue. In Belgorod Region, most of the remaining revenue is miscellaneous income (e.g. rent payment), while in Ryazan and Yaroslavl Regions, it comes from research activities. For four years, the revenue from educational activities of the universities in these regions has decreased, mainly due to the intensification of their research activities. The reduction in 2014 in the share of revenue from educational activities in the only ESM university in Kaluga Region was related to a sharp increase in other income sources. In the remaining regions, universities are engaged solely in educational activities, training staff for other industries. In other words, the economic development in these regions, including the growth of new industries, is directly related to the universities' focus on education, including training graduates for new programs. That said, we cannot accurately determine the number of graduates who remain in the region to work. However, the period saw a trend of increasing CFD universities' revenues from the research activities and the reduction of miscellaneous income sources.

Moscow universities have a high share of revenue from research activities in the CFD (20%), though the share of revenue from this is higher in the Moscow Region (over 26%). This is thanks largely to Pushchino State Institute of Natural Sciences and the Moscow Institute of Physics and Technology. It can be argued that this offers new potential for the region's economic development. Universities in Yaroslavl Region derive significant revenue from scientific research (18%), as do those in Belgorod Region (17%). The share of revenue from other activities among institutions of higher learning in the CFD was 15%, while it was 17% in Moscow and 11% in other regions. In 2014, the situation with the revenues from the research activities in CFD universities improved; the universities began to receive more money from their research and development. Nevertheless, the share of revenue from research activities is still significantly lower than it would need to be to qualify for international university rankings.

The leading global private universities derive around 20% of their revenue from tuition, and this share is lower at state universities. The educational activities of the world's leading university are undeniable, but the share of funds that they receive from research is from 30% (Stanford Facts, 2013) to 60% (University of Copenhagen, 2012), and the government funds a significant share of this.

Other revenue includes services provided with the use of the educational institution's resources; non-operating income, and other earnings. But this revenue is minimal compared to that of the world's leading universities and cannot be a driver of regional development.



**Figure 2. University revenue structure in the Central Federal District, %**

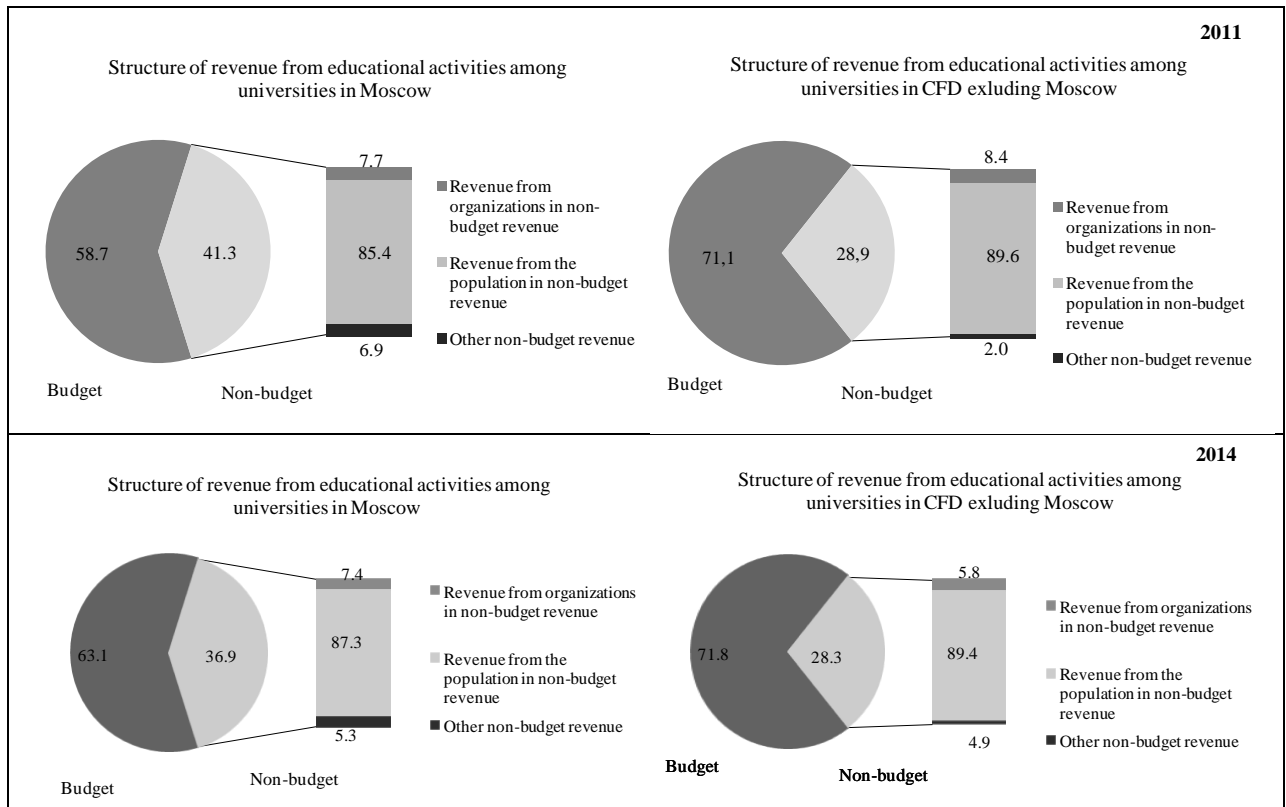
The proportion of CFD university revenue from educational activities is about the same throughout the period (Table 2). In all universities, more than half of revenue comes from the government. In 2014 and 2011, the major share of non-budget revenue was funds received by the universities from individuals (80%-99%). However, in Kaluga Region in 2011, 55% of non-budget revenue from educational activities comes from organizations. Universities in Moscow Region get 28% of their non-budget revenue from organizations, and the largest share is Moscow Institute of Physics and Technology (28.9%). In Orel and Smolensk regions, organizations account for nearly 20% of universities' non-budget revenue. In 2014, the universities of Bryansk region nearly tripled their share of funds received from organizations, to 11.4% compared to 2011, and for the universities of Lipetsk region it doubled to 15.5%. The Tambov Region universities in 2014 started to receive funds from organizations. However, the total share of these revenues in all CFD universities decreased by almost 1%. But overall, this revenue is simply an inorganic accumulation of funds that supplement a university's budget.



**Table 2. Revenue structure from educational activities of universities in the Central Federal District, %**

	Budget		Non-budget		Share of non-budget revenue from organizations		Share of non-budget revenue from the population		Share of non-budget revenue from other sources	
	2011	2014	2011	2014	2011	2014	2011	2014	2011	2014
Moscow	58.7	63.1	41.3	36.9	7.7	7.4	85.4	87.3	6.9	5.3
Moscow Region	76.0	81.8	24.0	18.2	27.9	7.0	72.1	81.8	0.0	11.2
Bryansk Region	65.9	70.2	34.1	29.8	3.8	11.4	94.3	88.3	1.9	0.3
Vladimir Region	69.4	74.9	30.6	25.1	17.0	6.9	61.2	86.9	21.9	6.2
Ivanovo Region	77.4	79.4	22.6	20.6	5.2	8.0	93.1	91.8	1.8	0.2
Tver Region	64.2	65.6	35.8	34.4	2.9	5.5	97.1	90.9	0.0	3.6
Kaluga Region	72.6	62.6	27.4	37.4	55.1	5.7	44.9	94.3	0.0	0.0
Kostroma Region	76.8	77.2	23.2	22.8	0.2	8.5	99.8	91.1	0.0	0.4
Orlov Region	80.7	79.8	19.3	20.2	19.9	10.7	80.1	81.1	0.0	8.2
Ryazan Region	62.9	66.8	37.1	33.2	2.4	1.2	97.6	97.3	0.0	1.6
Smolensk Region	88.5	79.8	11.5	20.2	19.0	5.1	81.0	94.9	0.0	0.0
Tula Region	70.6	69.8	29.4	30.2	8.8	5.4	91.2	90.4	0.0	4.2
Yaroslavl Region	75.8	78.2	24.2	21.8	4.4	3.8	93.5	94.3	2.1	1.9
Belgorod Region	60.1	61.4	39.9	38.6	2.0	3.5	98.0	90.7	0.0	5.8
Voronezh Region	64.1	66.0	35.9	34.0	6.3	5.0	93.7	93.8	0.0	1.2
Kursk Region	64.3	58.3	35.7	41.7	5.1	0.8	94.9	96.0	0.0	3.2
Lipetsk Region	83.5	86.2	16.5	13.8	8.4	15.5	91.6	82.7	0.0	1.9
Tambov Region	73.5	66.4	26.5	33.6	0.0	7.8	92.9	70.4	7.1	21.8
Central Federal District	63.2	66.1	36.8	33.9	7.9	7.0	86.6	87.9	5.5	5.2

Figure 3 shows the revenue structure from universities' educational activities in the CFD in 2011 and 2014, although the share of budget funds for educational activities in Moscow is lower than in other regions, the difference in the structure of non-budget revenue is insignificant. In Moscow up to 87%, and in the CFD excluding Moscow, around 90%, of non-budget revenue comes from the individuals. All universities in the region follow the same strategy for attracting supplemental revenue for educational programs—money from individuals for paid services accounts for 85–90% of non-budget revenue, roughly 6–8% comes from organizations.

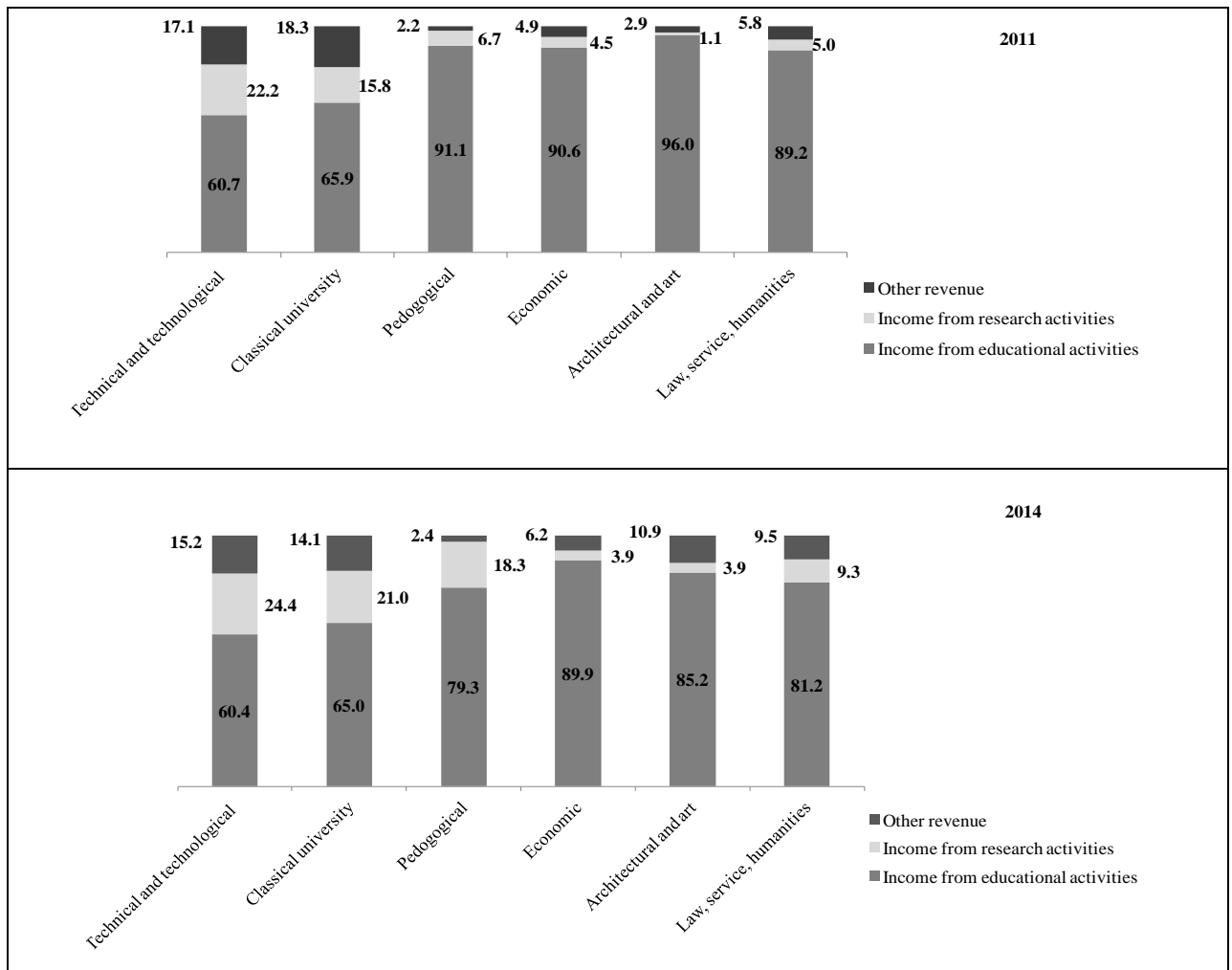


**Figure 3. Revenue structure of universities' educational activities in the Central Federal District, %**

In Moscow, non-budget revenue accounts for over 40% of revenue from educational activities in 2011 (36.9% in 2014). In the regions in 2011 it was 28.9% (28.3% in 2014), while 85% of non-budget revenue comes from research activities in Moscow and 56% in the regions. In other words, there is much less support for research than for education. The wealthier the region, the less the authorities allocate resources to universities to develop research activities. Other CFD university revenue is almost evenly split between budget and non-budget income. While universities generate resources from educational activities, they cannot count on budget funds to finance their research activities (Abankina et al., 2012b).

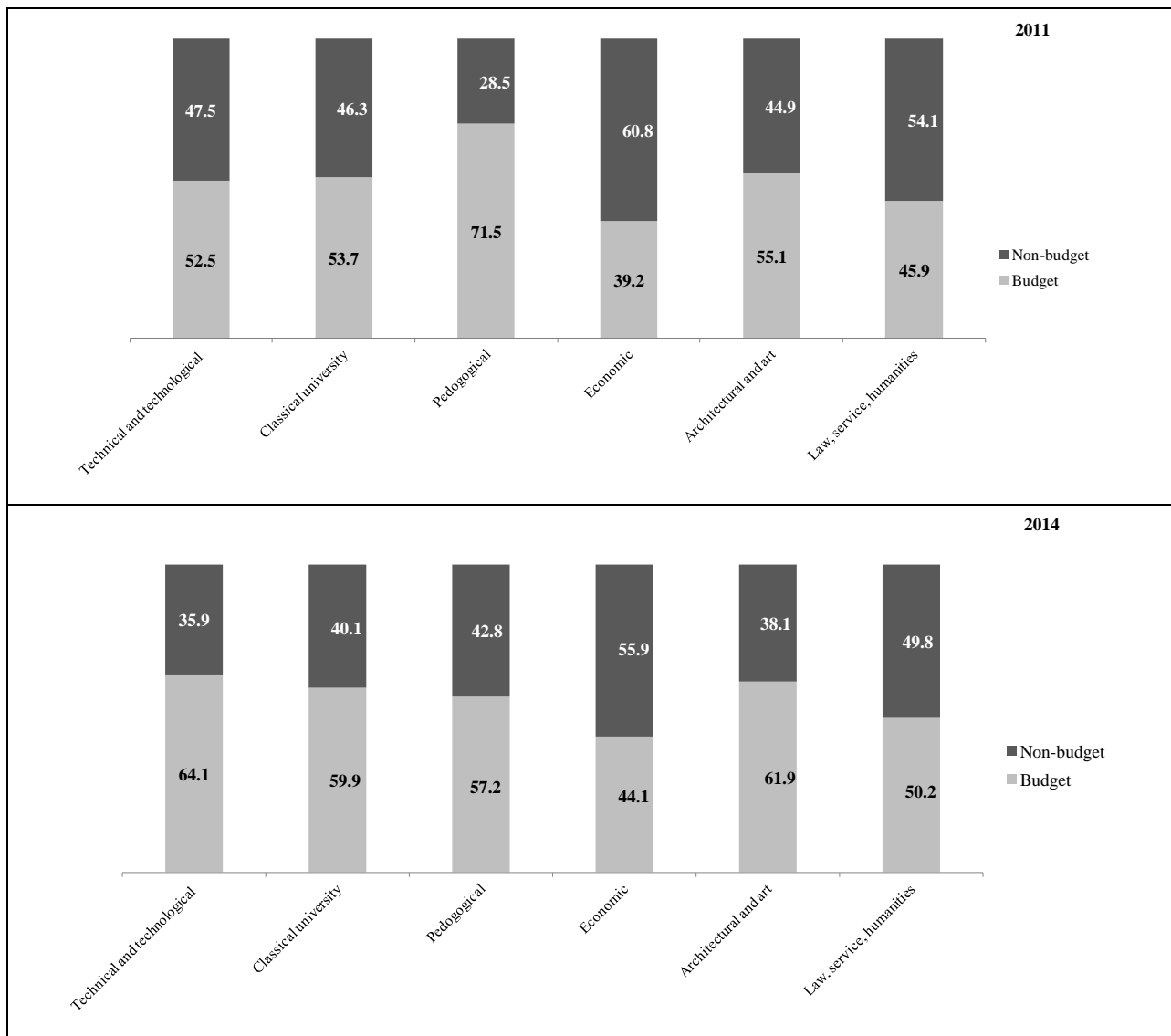
If we group the institutions by the programs they offer, we find that revenue comes predominantly from educational activities for all types (Figure 4)—technical and technological, classical university (offering a wide range of educational programs), pedagogical, economic, architecture and art, humanities, law and service. The largest share of income from research activities is at technical and technological universities (22% in 2011 and 24% in 2014), regardless of their location, and most of this is from non-budget funds. Classical universities come in second place on this metric, their revenue from research activities and other revenue are significant, as revenue from educational activities account for 60% and 66%, respectively. All

other types of universities are positioned as purely educational institutions that get most of their income from education (80% or more).



**Figure 4. Revenue structure of universities in the CFD by type of institution, %**

Economic universities earn the most non-budget funds largely from tuition, as most paying students study at these institutions. Technical and technological universities also receive a significant share of revenue from non-budget sources. In 2011 pedagogical universities and in 2014 architectural and art universities had the lowest share of revenue from non-budget sources (Figure 5).

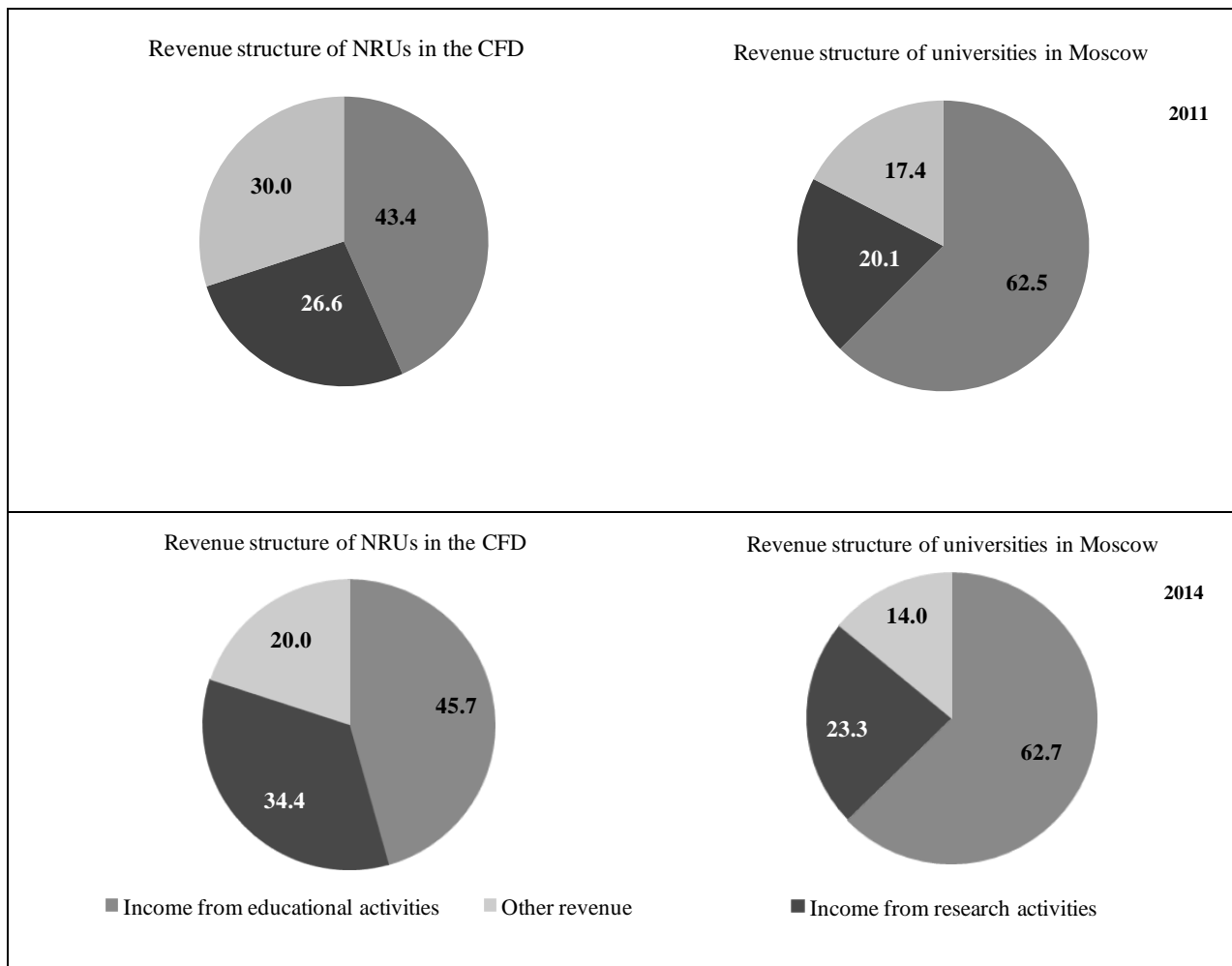


**Figure 5. Structure of budget and non-budget revenues of universities in the Central Federal District, by type of universities, %**

Technical and technological universities in the CFD generated 84% of non-budget revenue from research. At other types of institutions, budget funds account for around one third of revenue from research activities, except for architectural and art universities, where the revenue structure from research activities is the exact opposite of that at technical and technological universities as these institutions do much less research.

The revenue structure for national research universities (NRU) in the Central Federal District is different than that at other universities in the district (of 28 NRUs in Russia, 10 are located in the CFD, and only Belgorod State University is located outside of Moscow). Their share of revenue from educational activities in 2011 and 2014 was 20 percentage points less than the average for all universities in the CFD, while the share of revenue from research activities was 6 percentage points higher in 2011 and 11 percentage points higher in 2014.

The significantly higher share of other revenue at NRUs is related to the greater volume of work performed using the educational institution's resources, including consulting services for making certain products (Figure 6).



**Figure 6. Revenue structure of NRUs and universities in the Central Federal District, 2011, %**

The structure of revenue from educational activities among NRUs also differs from that of other universities in the CFD. NRUs are among the largest and most prestigious universities in Russia and most tuition is paid by the government. The share of budget funds in the educational income of the NRUs was 10% higher than in the other universities in Moscow; and 16% in 2014.

Although the share of funds from individuals for educational income in non-budget revenue is still high at NRUs, its overall share in the structure is lower (73% versus 85% in 2011, and 74% versus 87% in 2014). Businesses and organizations more actively invest in education at NRUs. The share of other revenue from educational activities is still nearly twice the average for all universities in the CFD (such as professional development, paid university prep courses, foreign language classes, Russian as a foreign language courses).

For a university to become a global leader, it has to have strong research capabilities and sufficient funds to conduct fundamental research. In Russia, only a few universities have serious financing for research and this is only 10% of their budget. At foreign research universities, 50% is spent on research.

### **Endowment funds**

Endowment is an efficient tool to ensure universities' financial stability. An endowment is an investment asset in the form of money, securities, real estate or other properties donated to non-profit organizations. In many countries this type of donation to a non-profit organization is regarded as a charitable donation, so the income from the endowment is not subject to tax on profit.

Endowment funds allow educational organizations to accumulate financial resources from various donors, and to create a long-term stable income source. To provide stable support for their research activities, universities often use the resources generated through endowment revenues.

For example, at Harvard University revenues from tuition fees in 2011–2012 were around 20% of the total income, revenues from the endowment was 32%, government grants and contracts 18%, non-government grants and contracts 4%, other income 26% (Harvard University, 2012). At Stanford University in 2013-2014, the share of income from research and development was 28.1%, with 83% of the research supported by the federal government, 21% of the university's revenues came from the endowment funds, and 16% from tuition fees (Stanford Facts, 2013). At the University of Heidelberg, in 2012 government funding was 61% of total revenues, 14.6% came from the German Research Foundation, and 5.7% from German industry (Universität Heidelberg, 2012). The Technical University of Munich receives 53.5% of its total revenue in the form of government subsidies, 4.2% from the tuition fees. The university's own earnings were 8.5%, and 32.4% of funds come from third parties. The University receives 10.7% of its total revenues for the research and development from the German Research Foundation, and 6.4% from German private industrialists (Technische Universität München, 2012).

Funds from endowments in Russian public higher education institutions are less than 1% of the total funds from all revenue sources.

The lack of systematic approaches determining income from the endowment, reduces the regularity of donations which are important for the planning of expenditure. This indicates the low quality of financial management in Russian universities and the lack of modern endowment management methods, which are widely used in other countries and based on such factors as expenditure rate, adjustment for inflation, average assets value (Dyachkova, 2016). The share of

university costs covered by income from endowments in most state higher education institutions much less than 1%; only the Moscow State Institute of International Relations has it around 3% (Table 3).

**Table 3. Financial indicators of the endowment funds in 2014 (the examples of some universities), thous. Rub.**

Revenue recipient	Net asset value (end of the year)	Revenue	Donations	Revenue payment	University budget	Share of revenue from the endowment in the university budget, %
Moscow State Institute of International Relations	1 262 000	47 000	118 000	80 000	2 850 133	2.8
Saint-Petersburg State University	1 040 361	8 829	14 856	35 086	12 846 125	0.3
National Research University Higher School of Economics	92 700	2 250	55 000	6 130	14 962 023	0.04
National University of Science and Technology	68 098	1 827	32 904	956	6 188 513	0.02
Tomsk Polytechnic University	16 856	527	4 926	485	6 633 059	0.01
Tomsk State University	10 116	485	3 798	295	5 034 804	0.01
North-Eastern Federal University (Yakutsk)	152 340	4 161	51 057	4 582	5 573 687	0.1
Ural Federal University	49 889	834	18 756	1 278	8 640 200	0.01
Southern Federal University	14 566	903	1 690	0	5 920 778	0
Saint-Petersburg Polytechnic University	8 990	268	358	185	7 755 290	0.002

Universities spend their endowment income mainly on maintenance costs (especially, sports facilities and dormitories) and on students support programs (such as scholarships, students projects, mobility programs). However, even the leading universities, which have larger incomes from endowments, do not have sufficient income to support their research projects. Income diversification and attracting non-public funds is developing extremely slowly in Russia and increasing student fees is still main way to increase university income. The factors impacted by the increasing level of tuition fees include effective demand and the economic health of families which varies considerably across the regions of Russia.

It is necessary to facilitate the dissemination of endowment management practices although they do not yet have a significant effect on universities' financial sustainability as the

size of endowment funds is extremely small. Currency fluctuations affected the accumulation of endowment funds by reducing the value of assets and income. The winners were those universities which spent endowment income on the development of their institutions rather than for endowment accumulation.

### **Cost dynamics in Russian higher education: distinctive features of CFD universities**

#### *Assessment of state higher education institutions in Russia*

Increasing salaries of the teaching staff in accordance with the Presidential Decree № 597 through revenue diversification strongly depends on the development the local business environment and household solvency. The concentration of leading universities with a significant proportion of the faculty staff with a high level of salaries in the regions requires a considerable additional inflow of funds to the higher education system, but their sources are limited. This creates new challenges for the universities to develop economic activities and initiatives.

The redistribution of university spending in 2014 so that the gross payroll could be increased resulted in the reduction of spending on the development and maintenance of the property: equipment (80.2%), computer hardware (80.6%), library acquisitions (96.4%), and material inventories (95.3%) (Table 4). But in 2014, the costs of maintaining property, given the growing fixed assets value of the state higher education institutions in Moscow, increased by 10-fold compared to 2013. Moscow has 16% of state higher education institutions, in 2014 these universities spent 111 billion rubles to maintain property or 70.8% of the total cost of the increase in value of fixed assets; the rest of 84% state higher education institutions spent 21 billion rubles or 13.2% of the total cost of the increase in value of fixed assets.



**Table 4. Costs of the state (municipal) higher education institutions in 2013 and 2014, billion rub\***

	Russian Federation			Higher education institutions, excluding Moscow			Moscow		
	2013	2014	<i>Growth rate, %</i>	2013	2014	<i>Growth rate, %</i>	2013	2014	<i>Growth rate, %</i>
Total costs	574	616	107.3	420	444	105.8	154	172	111.5
Labor costs and charges	366	399	109.1	265	282	106.6	101	117	115.8
Works, services payments	118	122	103.3	82	87	106.5	36	35	96.1
Social security	5	5	110.2	4	5	111.9	0.6	0.6	98.5
Other expenses	85	89	105.0	69	70	101.6	16	19	119.3
Increase in value of fixed assets	67	157	233.5	48	39	80.2	19	119	623.4
Including: machinery and equipment	30	24	80.2	23	17	75.0	7	7	96.5
of which computer equipment	5	4	80.6	4	3	72.2	0.9	1	118.9
Library acquisitions	1	1	96.4	1	0.9	96.0	0.2	0.2	98.1
Other types of fixed assets	36	132	366.5	25	21	84.4	12	111	966.8
Increase in value of material inventory	30	29	95.3	24	23	93.7	6	6	101.9
Maintenance of students dormitories	17	19	112.5	13	14	109.4	4	5	123.5

\* *Source*: Integrated information system of the Education and Science Ministry of Russia (<http://eis.mon.gov.ru>).

These facts confirm a change in the structure of state higher education financing to maintain and develop the property of higher education institutions in the most promising regions and to develop local potential for the leading group of universities.

The decreasing growth of the revenues from the budget in 2012 down to 104.8% (114.7% in 2011) did not affect the labour costs (with charges) in state higher education institutions (Table 5).

In 2014, the increase in total costs was 11.1% compared to 2013 when growth rates were slightly higher 12.3% compared to 2012. At the same time, in 2014, the total volume of labour costs of the state higher education institutions amounted to 399 billion rubles, which is comparable to the volume of the total budget expenditure 396 billion rubles. Therefore, regardless of the redistribution scheme for the funds received from different sources allocated for the main activities of higher education institutions, the total amount of the budget funds only allow the universities to cover labour costs, including teaching staff.

**Table 5. Labour costs in the state higher education institutions of Russian Federation in 2010–2014.**

	2010	2011	2012	2013	2014
Billion rub					
Total cost	463	529	537	574	616
Labor costs (with charges) of total costs	279	310	336	366	399
<i>Budget costs/funds</i>	<i>270</i>	<i>310</i>	<i>325</i>	<i>357</i>	<i>396</i>
<i>Labor costs (with charges) from budget funds</i>	<i>160</i>	<i>174</i>	<i>196</i>	<i>220</i>	<i>244</i>
Rate of growth compared to previous year, %					
Total cost	100.0	114.1	101.5	106.9	107.3
Labor costs (with charges) of total costs	102.6	111.1	108.1	109.1	109.1
<i>Budget costs/funds</i>	<i>101.8</i>	<i>114.7</i>	<i>104.8</i>	<i>110.0</i>	<i>110.8</i>
<i>Labor costs (with charges) from budget funds</i>	<i>104.0</i>	<i>108.4</i>	<i>112.5</i>	<i>112.3</i>	<i>111.1</i>

*CFD university expenditure*

In the cost structure of the CFD, the share of the universities of Moscow is 75%, considering all funding sources, the share of the other universities is 25%. In 2014–2015, the basic budget spending policy of Moscow universities (in particular, the subsidies for public contract implementation) was focused on the development of fixed assets and material inventory: up to 35% in 2015 compared to 15% in 2014, and on increasing funds to maintain the higher education property—up to 49% in 2015 as compared to 23% in 2014 (Table A2 in the Annex). At the same time the share of budget funds covering labour costs remained unchanged; but the universities actively used funds from income-generating activities: for salaries 47%, for research and development projects 73%, and for research grants and state scientific awards (see other expenses) 9%. Moscow university budget and non-budget revenue management is different, to a large extent, from that of the NRUs and 5top100 participating universities which mainly rely on the state support program (Table A3 in the Annex). In 2015, the labour costs covered by the funds from income-generating activities in NRUs was 36%, research and development projects, 63%, and research grants and state scientific awards, 8%. According to the 5top100 project state support program an important condition for providing subsidies to the leading Russian universities is their increasing competitiveness, implementation of the road maps, including entry into the world university rankings. In 2015, labour costs covered by the non-budget funds (from income-generating activities) in the 5top100 participating universities was 33%, research and development projects, 45% and research grants and state scientific awards, 7%.

Thus, high quality financial management and use of modern tools and technologies to manage revenues from income-generating activities distinguish the universities of Moscow from other CFD universities. In 2015 Moscow universities maintained the share of the wage fund (teaching and other staff) in their institutions at the level of 61% (Table A4 in the Annex), which is significantly higher than for other CFD universities (in 2015 it was 56% of total costs), NRUs (55%), and the 5top100 program universities (48%).

This data is more evidence of the state support provided for the leading universities which have long-term development strategies for their educational and research activities, and are able to use modern management technologies to maximize their competitive position in the education market.

## **Conclusions**

In the course of studying the transformation of the economics of education, we found that education, including higher education, is the only type of economic activity for which the indexes of the physical volume of gross value added did not recover after the crisis in 2008. Moreover, the share of people with higher education within the education sector itself (general and higher) has declined over the last five years, unlike in other economic sectors.

New sources of financial support for higher education institutions have not yet had a significant effect: student loans are still not very popular, the income from endowment funds with the current exchange rate volatility has also been insufficient to improve the economic situation of the universities. In these circumstances, public funds remain the most stable revenue source, and the processes of restructuring and optimization of all types of resources since 2011 in higher education has required a diversification of funding sources, consolidating educational institutions of different levels and changing management systems.

The results of this research on universities in the CFD point to inertia in the economics of universities in the regions, and problems transitioning to new business models. Groups of universities in the region often lobby for the “previous rules of the game”. But the rules have changed. Universities are not always able to develop in the regions. Previously, a strong region produced a strong university, but now this logic does not always work. Many regions need a kind of “reset”.

Today, while introducing the principles of efficient employment contracts, the government is focusing on stimulating innovations through the commitment of educational institutions to secure and continuously improve their quality and competitiveness, to expand the students’ educational choice through increased institutional autonomy and the optimization of budgets. The optimization of budget management implies a transition from the budgetary allocations for the universities’ general operations to financing their activities, educational programs and research and development projects on the basis of the state assignment. The assignment links performance indicators, the volume and quality of the services provided to the amount of budget funds allocated for these purposes.

However, the optimization of the costs in favour of the given priorities, such as increasing faculty salaries, resulted in less development and maintenance of their property. This policy leads to a polarization of the universities and reduced development opportunities for a significant proportion of regional universities. In order to maintain their property, they have to actively seek non-budget funding sources while the effective demand of the population is decreasing.

The financial position of Moscow households is more stable than the national average, so universities in Moscow, unlike the other CFD universities, have more funds from income-generating activities to cover their labour costs and research and development.

An analysis of universities' non-budget revenues showed that they generate more than 85% of their revenue from individuals, largely from providing educational activities. Research activities bring in revenue only for technical and technological universities. This research highlights the problem with commercializing the results of universities' research projects—difficulties that are largely linked to an undeveloped legal environment for intellectual property.

It is becoming increasingly important for higher education institutions to develop a strategy for expanding revenue sources. This expansion is a recognized priority in funding national higher education systems in many countries (Hübner, 2012; Bruckmeier & Wigger, 2014). It could be beneficial to use such practices, common in the commercial sector, such as risk management, research and portfolio management. Here, the adaptation of these practices to the specific activities and academic values of educational institutions should be considered.

The expansion of university funding sources should take into account the changes in the structural dynamics in higher education which are related to demographic declines, changing university admission rules (the introduction of a single nationwide compulsory university entrance exam), trends in the effective demand of the population, and strengthening the competition between universities, including for the financial resources in the context of the budget optimization.

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## ANNEX

**Table A1. Index of gross value added by type of economic activity (% of the previous year's result)**

<b>Economic activity</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Agriculture, hunting and forestry	100.3	102.7	101.3	106.4	101.5	87.9	114.7	96.4	104.3	101.5
Fishing and fish farming	89.1	104	99.1	94.2	105.6	90.9	104.1	102.2	102.6	95.9
Mining	101.5	97.1	97.8	101	97.6	106.6	103.4	101.6	96.2	100.7
Manufacturing	104.4	106.6	107.5	97.9	85.4	108.6	106.3	102.8	103.9	102.5
Production and distribution of electricity, gas and water	100.9	104.5	96.6	100.7	95.3	104	100	101.2	97.8	99.9
Construction	110.2	112.8	113	111.1	85.3	104.4	107.6	102.6	98.6	94.9
Wholesale and retail trade; repair of motor vehicles and motorcycles, household goods and personal items	109.1	114.1	111.7	109.9	94.2	105.8	103.2	103.4	100.5	100.6
Hotels and restaurants	109.3	107.9	113.6	110.1	85.1	106.5	106.6	104.4	103.3	98
Transport and communication	105.9	109.7	104.8	105.2	91.4	105.5	106.5	104.1	103	100.3
Finance	129.2	125.4	129.1	113.5	101.5	100.3	103.5	118.9	112.3	108.8
Real estate operations, retail and services	112	110	120.8	110.9	95.5	106	102.2	107	102.9	100.7
Public administration and defense; social insurance	94.6	102.5	103.9	103	99.9	99.7	96.8	100.8	99.6	99.7
<i>Education</i>	<i>100.3</i>	<i>100.5</i>	<i>101.1</i>	<i>99.9</i>	<i>98.6</i>	<i>98.2</i>	<i>99.2</i>	<i>98.9</i>	<i>100.1</i>	<i>99.3</i>
<i>Higher education *</i>	<i>102.6</i>	<i>103.5</i>	<i>102.1</i>	<i>100.7</i>	<i>98.7</i>	<i>95.3</i>	<i>93.2</i>	<i>94.3</i>	<i>92.6</i>	<i>92.5</i>
Healthcare and social services	101.7	101.4	101.1	100.9	99.8	100.3	101.1	102	100.7	101
Other communal, social and personal services	102.9	107.5	108.6	101.4	80	102.2	99.6	102.5	99.4	97.3
Household activities							109	114.5	112.2	102.7
Total gross value added at basic prices	106	107.9	108.4	105.2	93.3	104.1	103.8	103.5	101.4	100.7

\**Author's calculation*: in accordance with the State Statistics Service's methodology for calculating indexes.



**Table A2. Cost structure of the CFD universities with regard to funding sources, % of the performance line**

	CFD				Moscow				CFD, excluding Moscow			
	Subsidies to implement government assignments		Funds from income-generating activities		Subsidies to implement government assignments		Funds from income-generating activities		Subsidies to implement government assignments		Funds from income-generating activities	
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Total costs, including:	41	43	45	44	39	43	48	45	47	45	36	38
Labor costs and charges, including:	52	52	45	45	49	49	48	47	64	62	36	38
Salaries	52	52	45	45	49	49	48	47	64	62	36	38
Other payments	12	12	72	71	10	9	71	70	19	21	74	76
Charges on payroll	53	53	44	44	50	50	47	47	65	63	35	37
Works, services, including:	29	35	64	59	25	35	66	58	40	35	58	62
Communications	5	9	94	91	4	9	95	90	8	6	92	94
Transport	20	19	71	71	16	16	72	70	30	27	67	72
Public utilities	57	60	43	40	52	59	47	41	68	62	32	38
Rent payment for property use	9	7	91	93	11	8	89	92	1	5	99	95
Works, services for property maintenance	26	46	64	41	23	49	65	38	38	30	59	62
Miscellaneous works. services	19	21	71	73	17	20	72	73	28	25	70	73
Social security	4	14	95	85	2	14	98	86	15	15	81	83
Miscellaneous expenses	22	24	8	8	26	28	10	9	15	16	4	5
Costs to acquire non-financial assets, including:	18	31	55	52	15	35	53	47	24	19	60	64
Fixed assets	20	39	37	34	15	41	36	34	31	26	40	34
Material assets	15	18	80	78	15	21	79	74	16	13	83	86

**Table A3. Cost structure of the NRUs and 5top100 project participating universities with regard to funding sources, % of the performance line**

	<b>National Research Universities</b>				<b>5top100 participating universities</b>			
	Subsidies to implement government assignments		Funds from income-generating activities		Subsidies to implement government assignments		Funds from income-generating activities	
	2014	2015	2014	2015	2014	2015	2014	2015
Total costs, including:	40	45	40	38	45	47	32	30
Labor costs and charges, including:	54	55	37	36	52	50	34	33
Salaries	54	54	37	36	52	50	34	34
Other payments	8	10	55	53	11	9	39	35
Charges on payroll	56	56	36	36	54	52	33	33
Works, services, including:	28	40	58	47	44	50	39	31
Communications	16	17	81	73	12	7	84	81
Transport	15	17	57	54	20	16	47	44
Public utilities	66	67	34	33	67	63	32	35
Rent payment for property use	6	14	92	84	18	17	77	73
Works, services for property maintenance	36	67	41	19	65	78	22	13
Miscellaneous works, services	17	21	68	63	28	24	48	45
Social security	9	18	88	77	6	2	91	91
Miscellaneous expenses	21	20	8	8	31	29	6	7
Costs to acquire non-financial assets, including:	13	32	50	49	33	45	34	28
Fixed assets	12	43	33	30	43	54	20	15
Material assets	14	16	78	78	15	23	61	61

**Table A4. Cost structure of the CFD universities, NRUs, and 5top100 participating universities with regard to all financing sources, % of total costs**

	CFD		Moscow		CFD, excluding Moscow		National Research Universities		5top100 participating universities	
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Labor costs and charges, including:	61	59	63	61	55	56	57	55	53	48
Salaries	48	47	50	48	43	43	46	43	42	38
Other payments	0.2	0.2	0.2	0.2	0.2	0.1	0.3	0.3	0.3	0.3
Charges on payroll	12	13	12	13	12	12	12	12	11	10
Works, services, including:	18	19	18	20	17	17	20	21	22	27
Communications	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.3
Transport	0.4	0.4	0.3	0.3	0.4	0.4	0.6	0.7	0.8	0.8
Public utilities	4	4	4	4	5	5	3	3	4	3
Rent payment for property use	0.6	0.4	0.7	0.5	0.3	0.3	0.2	0.2	0.2	0.1
Works, services for property maintenance	3	5	3	6	3	3	3	6	6	11
Miscellaneous works. services	9	9	10	10	8	8	12	11	11	12
Social security	0.04	0.03	0.04	0.04	0.02	0.02	0.02	0.02	0.01	0.01
Miscellaneous expenses	13	12	11	10	18	18	10	10	11	9
Costs to acquire non-financial assets, including:	8	9	8	9	10	9	13	14	14	16
Fixed assets	5	5	5	6	5	4	8	8	9	11
Material assets	3	3	3	3	4	5	5	5	5	5