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*Anastasia A. Byvaltseva, Anna A. Panova*

# **WAYS TO SUCCEED AT DIFFERENT TYPES OF UNIVERSITIES**

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*Anastasia A. Byvaltseva,<sup>1</sup> Anna A. Panova<sup>2</sup>*

## **WAYS TO SUCCEED AT DIFFERENT TYPES OF UNIVERSITIES<sup>3,4</sup>**

The Russian academic sector can be characterized by university differentiation, which leads to differentiation of their goals and priorities. Governmental policies have stimulated the formation of a group of leading research universities. Different aims of universities mean there are different incentives for faculty. This paper estimates the “success” of Russian faculty in contemporary conditions. We measure success as the difference between an individual’s wage and the average university wage. We find that research-oriented universities pay great attention to the top journals, while for teaching-oriented universities journal rankings are of less importance – they need journals to be foreign. Time spent on teaching is not significant in teaching-oriented universities, while in research-oriented universities it is. Comparing the success of faculty in case they changed university shows that people from research-oriented universities could be more successful at teaching-oriented universities than their colleagues, while faculty of teaching-oriented universities would not be attractive employees for research-oriented universities.

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<sup>1</sup> Research assistant at the Center for Institutional Studies, HSE University, Moscow, Russia; master’s student of the faculty of economic sciences, HSE, Moscow, Russia; corresponding author, [abyvaltseva@hse.ru](mailto:abyvaltseva@hse.ru)

<sup>2</sup> PhD; research fellow at the Center for Institutional Studies, HSE, Moscow, Russia, [apanova@hse.ru](mailto:apanova@hse.ru)

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## Introduction

Working life in universities today is very different from the situation in higher education a few decades ago. The academic profession now faces enormous challenges (Altbach et al., 2012). One of the reasons for this is the reconsideration of the functions of education in modern society. Changing relationships between the state, society and institutions; increasing demand for higher education and research; growing expectations regarding the performance of higher education institutions (HEIs); and an awareness of their importance and inseparability from the modern society have stimulated the revision of the role and function of universities (Leisyte et al., 2009). The integration of research, administration and teaching are new realities for modern faculty. The massification of higher education and research and the growing pressure for accountability have led to a situation where faculty are also required to undertake administrative work. Research integration into faculty work has been stimulated by the emergence and popularization of international university rankings and academic excellence initiatives aimed at strengthening the academic research. This leads to a different distribution of roles among faculty and sometimes to a lack of time for performing the initial function of education – teaching (Tian and Lu, 2017). Another reason for the changes is the quality management system being implemented in many spheres including higher education. This global trend contributes to raise expectations regarding faculty performance (Hoecht, 2006).

There is a large literature analyzing the way university heads motivate faculty to allocate their time between teaching, research, and administrative duties, and several studies indicate monetary incentives to be the key factor. In most cases the quantity and quality of teaching or research are the key factors determining a faculty member's financial success (Boyer, 1990; Katz, 1973; Serow, 2000), however, administrative work is also a factor influencing promotion and salary decisions (Hamermesh et al., 1982; Katz, 1973; Siegfried and White, 1973).

The number of Russian studies is limited, although the situation might have some peculiarities, which requires a more nuanced analysis. For example, Russia lacks an academic market and faculty members do not compete with each other outside universities. One of the reasons for this is the high level of inbreeding, which means that most faculty members work at the university where they studied (Bekova and Dzhafarova, 2019; Roschina and Yudkevich, 2009; Sivak and Yudkevich, 2017). Without a market, the salary of an individual is not a good indicator as a supply or demand parameter as it does not reflect competition.

In 2012, the Russian government implemented a policy requiring universities to pay faculty salaries not less than double the average regional salary. Universities are required to report on the average salary of faculty members each year. This information is presented in the Monitoring of University Efficiency. Alongside remuneration policies, there was a set of actions

that stimulated the emergence of leading research universities. First, Federal Universities emerged, then National Research University status was awarded to some HEIs on a competitive basis. Finally, in 2012 the Russian University Excellence Initiative (RUEI) was launched to boost international competitiveness of select Russian universities. This created a group of leading universities that are actively involved in research in accordance with state policies. To achieve the goal of having 5 Russian universities in the top 100 according to world rankings, the government set rules for universities, and they competed for additional funding. The universities then set the policies for faculty to get bonuses. Publication activity started to be considered in recruitment and promotion decisions. Thus, to take into account the peculiarities of the Russian academic sector, we used the difference between an individual's salary and the average salary in their university. This difference would reflect whether an individual works "better" or "worse" than the average university faculty member.

We consider teaching- and research-oriented universities. The latter group is represented by leading universities, while the former group consists of other HEIs. In the study, we used Academic Profession in Knowledge-based Society (APIKS) data where leading universities were represented only by those participating in RUEI. The current study focuses on factors determining the success of faculty members at different types of universities. The results show that seniority plays a role in financial success, especially in teaching-oriented universities, where faculty members participating in administrative duties are more successful than those who do not participate. Both types of universities require publishing activity from their faculty. Research-oriented universities pay attention to journals rankings, while for teaching-oriented universities journal rankings are of less importance – they only require articles to be published in foreign peer-reviewed journals. Surprisingly, the time spent on teaching does not appear significant in teaching-oriented universities, while in research-oriented universities it does. In general, features of the earlier tariff pay-scale remain, such as the importance of experience and an academic degree, although incentive contract features such as the quantity and quality of publishing activity are also being implemented. Faculty from research-oriented universities in case they changed their university would succeed at teaching-oriented universities more with respect to their colleagues, while the opposite is not true.

## **Framework**

### **Teaching, Research, and Administrative Activities**

Previous studies show that academic publications are the main determinant of a faculty member's salary and that teaching and research activities have different systems of remuneration. In some universities salaries and career advancement depend entirely on the

research results, while unsuccessful teaching is not penalized in any way (Boyer, 1990; Serow, 2000). Based on several studies and examples of university activities, a model of a divergent reward system has been formulated (Hattie, 1996): teaching has no significant impact on salaries, while publication activity entails significant rewards. A similar result is obtained by Katz (1973), who concludes that research success, not teaching success, contributes to remuneration. Fairweather (2005) conducts a regression analysis and finds that publication activity is the strongest predictor of salary, while teaching can have a negative effect on remuneration at some universities: time spent on teaching is negatively correlated with salary. The positive effects of research and publishing activity on wages are also mentioned in many other works (Claypool et al., 2007; Hamermesh et al., 1982; Tuckman and Leahey, 1975). In contrast to some of studies mentioned above, Siegfried and White (1973) found a positive influence of teaching on faculty wages. However, they conclude that research and administrative experience are the main determinants of wages. Some other works consider administrative duties as well. They indicate that administrative work may significantly boost wages (Katz, 1973; Siegfried and White, 1973).

All the works indicated above are focused on the US education system, and the results may not apply to other education systems, especially considering the presence of a strong academic market. Kwiek (2017, p. 11) also suggests “rethinking the potential over-reliance on American research findings in discussing academic salaries in non-American contexts” as his findings are different from those obtained from US data. The author finds no correlation between research or teaching and high incomes. Therefore, results based on Russian data may also differ from US findings.

There are several works analyzing Russian higher education. For example, Prakhov (2019) finds positive wage effects for all three components of an academic’s work – teaching, research, and administration. Prakhov and Rudakov (2021) get similar results, but according to their estimations teaching does not have a significant impact on salaries, while administrative position and research do. The importance of publishing activity is also mentioned by Roshchina and Yudkevich (2009).

The main argument in favor of the research component being a significant determinant of a salary is that, in comparison to teaching, the research activity can be evaluated more easily, for example, by the number of publications, the number of citations, and by the rating of the journal in which the article is published (Katz, 1973; Prakhov, 2019; Prakhov and Rudakov, 2021). However, it can be argued teaching can be evaluated as well, for example, by using student evaluations (Brew, 1999). This type of evaluation consists of students scoring the teacher on various teaching criteria during and after the course. A rating based on the student evaluations is created to determine how successful the teacher is in fulfilling their responsibilities. The

advantage of this kind of evaluation is that it can be considered reliable, since the evaluation is given by all students on the course. What is more, the rating is not given by an external commission, which has the opportunity to see only one class and make conclusions based on that, which cannot be compared to conclusions students make over a half year or even longer.

Since not all universities have this assessment system and often administrators do not rely on such feedback, it is still easier to evaluate faculty members' performance based on their research output (Prakhov, 2019). Faculty are often in a position where they need to be active in research, because the number and quality of publications are the main means of evaluation. What is more, often teaching requires an academic degree, which includes research and often publications. Therefore, those academics who have the necessary qualification for teaching are already involved in research, which creates a certain trade-off between teaching and research.

Administrative positions and duties are also visible and easy to measure. An administrative position is more visible than administrative duties, especially in Russia. Administrative work is becoming more and more important for universities due to the popularization of higher education and increasing numbers of students.

Another point worth mentioning here is the prestige that is becoming an integral part of academia. Competition among faculty arises from competition between universities, which is caused by government policies (Kwiek, 2017). Prestige is highly correlated with faculty salary because by maximizing their own prestige faculty members help their university to become more prestigious in national and international markets. This process and competition for resources is a great stimulus for academics to improve their performance and a way of increasing the efficiency of recruitment and career advancement (Abramo, 2015).

## **The Case of Russia**

When analyzing the role of Russian universities in stimulating publication activity, it is worth noting the Russian context in the development of research. Russia inherited its higher educational system from the USSR, where there was a clear division between teaching and research institutes. It was not until 2006 that the government made its first attempt to stimulate research in the teaching sector of higher education and federal universities appeared (Prakhov, 2019). In 2008, the government continued to actively promote research activities and some universities were awarded the status of national research universities (NRUs). They received additional funding for staff development, the purchase of new equipment, and the improvement of research systems (Dezhina, 2011; Prakhov and Rudakov, 2021). Unlike federal universities, NRUs received their status on a competitive basis (Prakhov, 2019). The status of a NRU is awarded for 10 years if the higher education institution meets the criteria: staff potential, a

technical base that allows it to combine the educational process with research, participating in international exchange projects, and having a development program.

In 2012, RUEI was launched. This project selected the best universities in Russia with the intention to increase their research and teaching to a level that can compete with the world leaders. As a part of this program, a list of assessment criteria was formulated, so that the government could monitor whether the universities are making progress toward achieving the goal. One of the most important criteria was research productivity, which motivated faculty members to publish more (Prakhov, 2019).

There have been several studies that show that different types of universities have different faculty remuneration systems. For example, Prakhov (2019) finds that in universities without any special status, any kind of publication is significant, while in NRUs only academic articles are a determinant of salaries. This is explained by the fact that publications in academic books and journals are one of the main criteria in international rankings. Similarly, Prakhov and Rudakov (2021) state that publications in journals from Scopus or Web of Science have a stronger effect on salaries in RUEI universities or NRU in comparison to universities without special status.

Along with the organizational changes, several modifications in calculating faculty wages were made in new employment contracts. Now faculty members have an incentive contract which links their salary to a list of indicators related to academic productivity (Prakhov and Rudakov, 2021). As stated above, research and administrative output are the easiest to measure and evaluate, therefore, faculty have a strong incentive to increase their publishing performance and take up administrative duties to get higher remuneration. In addition to this, the Monitoring of University Efficiency has been introduced (Prakhov and Rudakov, 2021). As a part of this project, the minimum criteria concerning publishing activity of faculty members were determined for all categories of universities, not just research-oriented ones.

## **Methods**

We assume that research universities are more interested in increasing the publication activity of their employees than universities without this status. We divided universities into two categories and the criterion for classifying educational institutions is their participation in RUEI, according to which the universities included in this program are actively engaged in research activities and, consequently, strive to improve their publication output. Taking into account the ideas expressed in the literature and the situation in Russia, the following hypotheses have been formulated:

H1: The relative financial success of faculty at a university has a positive dependence on the explanatory factors associated with research and administrative activities.

H2: The relative financial success of faculty from RUEI universities depends on factors associated with research activities to a greater extent than financial success of faculty from non-RUEI universities.

The dataset used for this research is based on the APIKS<sup>5</sup> study conducted in 2017–2018. Although 1,512 Russian faculty members took part in the study, only 1,060 observations remained after those with missing values were deleted. The sample was constructed as follows: first, universities were randomly selected from two lists – no-status universities and RUEI universities. Next, faculty members were randomly chosen from each university. It is important to note that only Russian faculty members without foreign affiliations were selected. Since RUEI was aimed at boosting university performance and one of the main criteria was research performance, we assume that RUEI universities and their faculty members are more interested in research than their colleagues from no-status universities. Thus, in our research, RUEI universities are treated as research-oriented, while non-RUEI universities are treated as teaching-oriented.

To avoid the no-market problem and focus on the success inside a university, rather than outside a university, the data on the average salaries of university faculty members are used in the research. These data allow to focus on the relative position and prestige of faculty members inside their universities which is an important factor in any professional organization. The data on average salaries are reported annually by the Monitoring of University Efficiency.<sup>6</sup>

Table 1 provides information on the variables included in different model specifications.

**Tab. 1. Variable definitions**

<i>post &amp; duties</i>	
<b>senior teaching/research post</b>	= 1 if a person has at least one of these positions: professor, associate professor, leading researcher, chief researcher, or senior researcher
<b>senior administrative post</b>	= 1 if a person has at least one of these positions: rector, vice-rector, dean, deputy dean, department head, deputy department head, laboratory head, deputy laboratory head, or head of another structural department
<b>administrative post</b>	= 1 if a person is an administrative staff member (dean's office, methodology department, etc.)
<b>administrative duties</b>	= 1 if a person's workload included time spent on administrative duties
<b>extra-paid teaching</b>	= 1 if a person is a teacher at some extra courses for which he/she gets additional payments (like courses for those who are planning to enter a university or are getting additional professional

<sup>5</sup> Academic Profession in Knowledge-based Society, <https://apiks.hse.ru/>

<sup>6</sup> Monitoring of University Efficiency run by Ministry of Education, <https://monitoring.miccedu.ru>



	qualifications)
<i>work characteristics</i>	
<b>hard disciplines</b>	= 1 if an individual's unit has one of these profiles: biology, mathematics, chemistry, computer science, engineering, and transportation
<b>full-time employment</b>	= 1 if a person's contract is for full-time employment
<b>teaching load</b>	teaching hours / (teaching + scientific hours)
<b>internal experience</b>	years of experience in this particular university
<i>academic degree</i>	
<b>Doctor of Sciences</b>	= 1 if a person's highest academic degree is the Doctor of Sciences
<b>Candidate of Sciences</b>	= 1 if a person's highest academic degree is the Candidate of Sciences <sup>7</sup>
<i>publications</i>	
<b>in Russian journals</b>	number of publications in Russian peer-reviewed journals over the last three years (categories used: 0, 1-4, 5+)
<b>in foreign journals</b>	number of publications in foreign peer-reviewed journals over the last three years (categories used: 0, 1-2, 3+)
<b>in Scopus/WoS journals</b>	= 1 if there is at least one publication in Scopus and/or Web of Science indexed journals over the last three years
<b>without co-authors</b>	= 1 if there is at least one publication written without co-authors over the last three years
<i>research funding</i>	
<b>university internal sources</b>	share of research sponsored by the university
<b>external sources</b>	share of research sponsored by external sources (scientific foundations, commercial enterprises, non-profit organizations, government contracts)
<i>individual characteristics</i>	
<b>gender</b>	= 1 if male
<b>house obligation</b>	= 1 if a person has a family member that requires attention and care
<b>marital status</b>	= 1 if a person has a spouse or girlfriend/boyfriend
<i>regional factors</i>	
<b>Moscow/St-Petersburg dummy</b>	= 1 if a university is in Moscow or Saint Petersburg

Table 2 provides descriptive statistics for the two sub-samples: RUEI participants and no-status universities. This table includes different average wages – one from the Monitoring of University Efficiency (Monitoring average), the second calculated based on the wages reported by individuals while answering the APIKS questionnaire. We include both wages for comparison because we check whether the results are robust to the use of different averages.

<sup>7</sup> Such degree division is common for the Russian educational system with the Doctor of Sciences being higher in rank than the Candidate of Sciences. In international framework both Candidate and Doctor of Sciences are combined by the Doctor of Philosophy (PhD)

**Tab. 2. Descriptive statistics**

	teaching-oriented universities (N = 676)				research-oriented universities (RUEI participants) (N = 384)			
	mean	sd	min	max	mean	sd	min	max
<b>wages</b>								
individual wage	36,408	20,946	1,417	200,000	43,706	28,258	3,500	200,000
Monitoring average	68,483	14,575	49,770	101,600	71,740	22,004	49,700	128,290
APIKS average	35,916	9,816	22,319	55,286	42,885	15,333	29,362	82,392
<b>post &amp; duties</b>								
senior teaching/ research post	0.74	0.44	0	1	0.70	0.46	0	1
senior administrative post	0.17	0.37	0	1	0.22	0.41	0	1
administrative post	0.01	0.09	0	1	0.04	0.19	0	1
administrative duties	0.79	0.41	0	1	0.85	0.35	0	1
extra-paid teaching	0.25	0.43	0	1	0.23	0.42	0	1
<b>work characteristics</b>								
hard disciplines	0.44	0.50	0	1	0.65	0.48	0	1
full-time employment	0.80	0.40	0	1	0.76	0.43	0	1
teaching load	0.72	0.19	0	1	0.67	0.20	0	1
internal experience	18.10	12.14	1	59	20.98	14.28	1	56
<b>academic degree</b>								
Doctor of Sciences	0.13	0.34	0	1	0.18	0.38	0	1
Candidate of Sciences	0.63	0.48	0	1	0.60	0.49	0	1
<b>publications</b>								
in Russian journals	5.82	7.94	0	66	5.39	8.22	0	67
in foreign journals	0.74	1.68	0	16	3.84	7.51	0	80
in Scopus/WoS journals	0.31	0.46	0	1	0.68	0.47	0	1
without co-authors	0.63	0.48	0	1	0.50	0.50	0	1
<b>research funding</b>								
university internal sources	0.18	0.36	0	1	0.28	0.40	0	1
external sources	0.17	0.35	0	1	0.34	0.43	0	1
<b>individual characteristics</b>								
gender	0.40	0.49	0	1	0.59	0.49	0	1
house obligation	0.40	0.49	0	1	0.39	0.49	0	1
marital status	0.71	0.45	0	1	0.77	0.42	0	1
<b>regional factors</b>								
Moscow/St- Petersburg dummy	0.36	0.48	0	1	0.21	0.41	0	1

Table 2 shows that all wages are higher for research-oriented universities. For teaching-oriented universities the share of time spent on teaching is higher than for research-oriented universities. As for the publications, there are more Russian and solo publications in no-status universities, although there are more foreign and top publications in RUEI universities. This may imply that research-oriented universities are focused more on international rankings, and therefore, motivate their faculty to publish in international journals.

## Results

The first step of the research is the estimation of a linear regression. The response variable is the difference between an individual's salary and the average salary at that university. Here we use the Monitoring average.

Table 3 shows the estimation results for teaching-oriented universities and research-oriented universities.

**Tab. 3. Simple linear regression estimations for two types of universities**

Dependent variable: delta (individual wage – Monitoring average wage)		
	teaching-oriented universities	research-oriented universities
<i>post &amp; duties</i>		
senior teaching/research post	4.38** (2.14)	0.97 (3.28)
senior administrative post	11.81*** (1.77)	13.31*** (2.78)
administrative post	-3.14 (6.71)	1.43 (5.8)
administrative duties	3.28** (1.6)	3.07 (3.08)
extra-paid teaching	1.23 (1.48)	1.02 (2.49)
<i>work characteristics</i>		
hard disciplines	-0.64 (1.4)	-1.09 (2.75)
full-time employment	12.05*** (1.63)	10.06*** (2.7)
teaching load	2.13 (3.68)	10.49* (5.63)
<i>academic degree</i>		
Doctor of Sciences	19.54*** (3.01)	13.97*** (4.66)

Candidate of Sciences	7.70*** (2.28)	1.01 (3.72)
<i>internal experience</i>		
experience	0.02 (0.18)	0.94*** (0.33)
experience <sup>2</sup>	-0.002 (0.004)	-0.02*** (0.01)
<i>publications in Russian journals</i>		
1-4 publications	-2.78 (1.99)	-2.85 (3.17)
5 or more publications	-2.6 (2.11)	-2.43 (-3.61)
<i>publications in foreign journals</i>		
1-2 publications	2.66 (1.93)	-3.1 (3.55)
3 or more publications	5.36** (2.46)	4.2 (3.41)
<i>other publications</i>		
in Scopus/WoS journals	-0.11 (1.84)	7.50** (3.34)
without co-authors	-0.31 (1.55)	1.68 (2.35)
<i>research funding</i>		
university internal sources	2.93 (1.82)	0.62 (3.08)
external sources	-0.29 (1.97)	8.35*** (3.2)
<i>individual characteristics</i>		
gender	3.47** (1.41)	5.92** (2.42)
house obligation	3.11** (1.37)	3.5 (2.41)
marital status	0.45 (1.44)	-1.19 (2.7)
<i>regional factors</i>		
Moscow/St-Petersburg dummy	-11.74*** (1.38)	-21.91*** (2.78)
<i>Constant</i>	-55.87*** (4.08)	-67.47*** (6.48)
Observations	676	384
R <sup>2</sup>	0.38	0.41

Adjusted R <sup>2</sup>	0.36	0.37
Residual Std. Error	16.16 (df = 651)	20.21 (df = 359)
F Statistic	16.74*** (df = 24; 651)	10.41*** (df = 24; 359)

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Although in some cases they are similar, the impact of various factors on the difference between an individual's salary and the average university salary significantly differs for the two groups. Starting from the factors reflecting administrative posts, the administrative post held positively affects the financial success of faculty members only for senior positions, that is, the head or vice-head of the university or a structural division. If a person has a regular administrative post, for example the manager of a structural division, this does not lead to any financial bonuses. This is true for both types of universities. However, in teaching-oriented universities faculty members benefit if they perform administrative duties along with their main non-administrative post. This may be the result of the fact that these universities have fewer formal administrative posts (1% of faculty from teaching-oriented universities and 4% of faculty from research-oriented universities have a formal administrative post) and therefore, any administrative work is rewarded, while in research-oriented universities additional administrative work done by researchers or teachers does not lead to any significant financial bonuses.

For other duties and posts, additional paid teaching does not have any significant impact on the wage difference in either university type. A senior research or teaching post is important for financial success only in teaching-oriented universities, in research-oriented universities the posts of a professor, associate professor, leading researcher, chief researcher or senior researcher do not influence financial success.

Another characteristic that was considered is the discipline where a person works – hard or soft disciplines. This has no influence in the wage difference in either type of university. Another result is that full-time employment positively affects the financial success of a faculty member in both university types, which is a reasonable result since the more a person works, the greater the financial rewards they receive. Next, the share of time devoted to teaching, in comparison to teaching and research time in total, has a positive impact on the wage difference only in research-oriented universities. This result is unexpected since it was assumed that this factor would be significant only for teaching-oriented universities. The regional location of a university has a negative impact on the wage difference for both university types. This is reasonable because the average monthly wage for Moscow or Saint-Petersburg universities is much higher than for other regions (91,268 rubles for Moscow or Saint-Petersburg universities and 60,278 rubles for universities from other regions). Therefore, a higher reported average wage

leads to a lower, or even negative wage difference since this average is subtracted from an individual's wage.

Considering academic degrees, the results are different for two university types: while any degree is important in teaching-oriented universities, for research-oriented universities only a doctoral degree is significant for financial success. This may reflect the higher demands for research qualifications in research-oriented universities in comparison to teaching-oriented ones. Internal experience has a significant impact on the wage difference only in research-oriented universities. 23.5 years of experience ( $-0.94 / (-0.02 \cdot 2)$ ) give the maximum wage difference, below this threshold the impact of experience increases the wage difference and after 23.5 years of experience every additional year decreases the financial rewards of faculty members. Different models have been estimated with different sets of factors including those connected with experience, for example overall academic experience or the presence of any external experience (i.e., outside current university) throughout a career. None of these variables were significant, while internal experience always remained significant.

Next, the assumption considering publishing activity appears to be true – publications matter. However, this cannot be said in relation to Russian or solo publications since they have no significant impact on the wage difference. Foreign publications have a positive influence on the difference, but only if a faculty member has three or more articles published in foreign peer-reviewed journals and only in teaching-oriented universities. For faculty of research-oriented universities, foreign journals are not enough, faculty members need to publish in the journals indexed by Scopus or Web of Science, in other words, these journals must be highly rated. Research funding is significant only in research-oriented universities. The faculty of these universities have a higher wage difference when a higher share of their research is financed by external sources.

Some individual characteristics also have an impact on the wage difference. For example, the difference is higher for males in both university types, and it is also higher for those from teaching-oriented universities who have family members requiring special care and attention. The second result may reflect a person's level of responsibility that is applied both to home and work responsibilities.

Universities of different types introduce different incentives for their faculty, faculty members react to these incentives and as a result, different factors are significant for financial success. Another question to ask here is whether faculty members should change the type of university they work at if they want to be more financially successful and receive higher than average wages. Switching estimation results and predicting wage differences for faculty members if they change the university type leads to the following results: it is financially

beneficial to change the type of university only for faculty members working in research-oriented universities. The average real wage difference for faculty members from research-oriented universities is -28,034 rubles, while the average predicted wage difference if they move to a teaching-oriented university is -27,562 rubles. The real wage difference is expected to grow slightly, which means that faculty members will still perform worse on average than the mean university level, but the difference between these wages will become smaller. For those faculty members who are now working at teaching-oriented universities and want to switch to research-oriented universities, this change is financially disadvantageous. Their average real wage difference while working at teaching-oriented universities is -32,075 rubles, while the average predicted wage difference is -37,606 rubles, which is less than they earn now working at teaching-oriented universities.

These results, supported by the linear regression estimations, might lead to the following conclusions. First, faculty members from research-oriented universities would probably be more successful if they changed their university type in comparison to those who already work at teaching-oriented universities. On the contrary, members of teaching-oriented universities would perform worse if they went to research-oriented universities with respect to those who already work there. Thus, teaching-oriented universities might be interested with faculty from research-oriented universities, while the opposite is unlikely. Secondly, teaching-oriented universities are ready to give bonuses to their faculty for a greater range of work-related factors, while research-oriented universities reward their faculty members for a smaller number of factors.

## **Robustness check**

As stated above, our estimations are based on the average wage reported annually by universities as a part of the Monitoring of University Efficiency. However, this reported average differs considerably from the average we calculated based on our sample (Table 2). The t-test showed that the difference between these two averages – APIKS and the Monitoring average – is statistically significant. Therefore, it was decided to check whether the results changed using the APIKS average instead of the Monitoring average.

First, we estimated the same model using the other average. The results are presented in the *Appendix 1*. For simplicity of comparison, *Appendix 2* shows the results of the two different averages in one table. The significance of the coefficients and their values are extremely close to each other while comparing the results obtained with the different average wages. The main notable difference is in the constant of the models.

Next, we tested the equality of coefficients across independent areas – whether we use the APIKS average or the Monitoring average. The test showed that there is no statistically

significant difference between the coefficients of the models with the APIKS average and with the Monitoring average. This result is true for teaching-oriented and research-oriented universities. Therefore, regardless which average wage we use in our analysis, we obtain similar results and our conclusions do not change.

The same results were obtained while predicting the wage difference for a change of university while using the APIKS average. The average real wage difference for faculty members from research-oriented universities is 821 rubles, while the average predicted wage difference if these people go to teaching-oriented universities is 3,377 rubles. The real wage difference is expected to grow slightly, which means that faculty members will still earn less on average than the university mean, but the difference between these wages will become smaller. For those faculty members who are now working at teaching-oriented universities and want to switch to research-oriented universities this university type change is financially disadvantageous. Their average real wage difference while working at teaching-oriented universities is 492 rubles, while the average predicted wage difference is -5,992 rubles, which is worse than they have now working at teaching-oriented universities.

## **Discussion**

Our model illustrates the incentives Russian universities create and the way they are transformed into faculty performance. These results are true for teaching or research universities.

Discussing the impact of duties and position on faculty success, our results suggest that seniority plays a role in both types of universities for administration, and in teaching-oriented universities for teaching or research. A similar result was obtained by Prakhov and Rudakov (2021), who also based their research on Russian data. They claim that seniority and wages have a strong positive correlation for the entire sample (all university types) and in universities with no special status (the analogous of teaching-oriented universities in our case). According to another Russian paper (Prakhov, 2019), salaries rise with seniority as well. The same conclusion was also reached for European countries (Kwiek, 2017).

Contrary to other Russian research, we also estimated the role of administrative duties alongside administrative positions. Administrative duties are a significant determinant of financial success for the members of teaching-oriented universities. This may be the result of the fact that these universities have fewer formal administrative posts and therefore, any administrative work is rewarded, while in research-oriented universities additional administrative work done by researchers or teachers does not lead to any significant financial bonuses. The increasing number of administrative positions in research universities can be observed in the US, the UK, and the EU (Panova, 2015). Kwiek (2017) found that high salaries are associated with



longer hours spent on administrative work, which is similar to our results. A positive correlation between administrative duties and prestige is also found by Hamermesh et al. (1982). Generally, our results concerning administrative work coincide with the literature (Katz, 1973; Siegfried and White, 1973). However, other research on Russian data does not consider administrative duties, focusing only on administrative position, which can also lead to bonuses (Prakhov and Rudakov, 2021).

The results concerning teaching time might seem surprising since we found that it has a positive impact on the wage difference only in research-oriented universities. However, Prakhov (2019) had a similar result. He used the maximum hours of teaching as one of the factors (in our case we use the share of hours of teaching in comparison to the total teaching and research time) and this variable was significant only for the entire sample (all university types) and for NRU (the analogous of research-oriented universities in our case). These results might reflect the sample structure: in our data the average teaching time share is higher for the faculty from teaching-oriented universities (0.72 in teaching-oriented universities and 0.67 in research-oriented universities). This might imply that people from research-oriented universities are not willing to teach as much, and therefore, the administration tries to motivate them by paying bonuses. Another reason might be the non-linear dependence of the difference in teaching time. Thus, our results concerning teaching partly coincide with the conclusions made by other authors. It is not negatively correlated with monetary rewards, as obtained by Fairweather (2005), but it might have no effect on financial success (Hattie, 1996), as for teaching-oriented universities in our research, and it can be positively connected to bonuses (Siegfried and White, 1973) as for research-oriented universities in our case.

We found that publication activity matters, which is similar to findings from other studies (Claypool et al., 2007; Hamermesh et al., 1982; Hattie, 1996; Katz, 1973; Siegfried and White, 1973; Tuckman and Leahey, 1975), but not all articles have a significant impact on financial success. For example, publications in Russian journals do not contribute to bonuses, while Prakhov and Rudakov (2019) found these articles have a positive influence on remuneration in some model specifications. Our results show that foreign publications are important for teaching-oriented universities, while research-oriented universities consider only those journals that are indexed by Scopus or Web of Science. Prakhov and Rudakov (2019) showed that universities with a special status (the analogous of research-oriented universities in our case) also paid attention to Scopus/WoS journals, possibly because research-oriented universities are determined by RUEI participation which was aimed at increasing the competitiveness of universities in the world rankings. All university rankings include publishing activity as a criterion and the more articles in the top journals a university has, the higher the ranking.

We also found that discipline is insignificant for financial success. This is a feature inherited from the Soviet times when there was no difference between salaries for different fields of study.

Comparing our results to our hypotheses, the first hypothesis – the dependence of financial success on research and administrative activities – was supported. Publishing activity expressed by the quantity and quality of papers is a significant determinant of financial success, although the effect is different for teaching-oriented and research-oriented universities. Our second hypothesis is that the financial success of faculty members from RUEI universities depends on research activities to a greater extent than financial success of faculty from non-RUEI universities. This is partly true. Research-oriented universities pay attention to the quality of papers since only Scopus or WoS journals are important for them, while teaching-oriented universities are not so concerned with the quality. An administrative post is insignificant for both sub-samples, although administrative duties are important only for teaching universities.

## **Conclusions**

During the last twenty years the situation in the Russian academic sector has changed significantly due to government policies and global trends in higher education. This led to the formation of a group of leading universities actively involved in research activities. Their ambitions significantly differ from the goals of other universities and research is central. Therefore, there is a large differentiation in the goals of different HEIs and, accordingly, in the requirements and incentives for faculty.

The research shows that in order to succeed at different types of universities, people have to act differently. Teaching-oriented universities give bonuses to their faculty for a greater range of work-related factors, while research-oriented universities reward their faculty members for a smaller number of factors. For teaching-oriented universities, research quality is of less importance, while research-oriented universities pay closer attention to the research component as they pay bonuses only for top publications. However, there is a similarity between two university types – a senior administrative post is significant no matter what type of institution we consider. Administrative duties are also important for financial success in teaching-oriented universities. Such results may signal that research and teaching talent are becoming under-rewarded, so faculty members take on administrative duties to boost their financial success.

Although universities have adopted incentive contracts, there remain some signs of the former tariff system. For example, years of experience are still significant, although they have no direct relation to the incentives a faculty member gets through the contract. An important note here is that only internal experience plays a role, while external or general academic experience

does not. Senior posts and educational degrees also matter, especially in teaching-oriented universities. This may lead to the conclusion that teaching-oriented universities have changed their faculty remuneration schemes to a lesser degree than research-oriented universities, which now focus mostly on publication activities.

Comparing the possible success of faculty members if they changed their university type shows that those from research-oriented universities could succeed at teaching-oriented universities more with respect to their colleagues, while members of teaching-oriented universities would not be attractive employees for research-oriented universities.

The results can suggest the revision of university missions. According to the current situation, leading universities, aiming to boost research, create corresponding motivations for their faculty, while other universities try to sustain a position close to leading HEIs, and therefore, they adopt some of the leading universities' incentives. Since there is already a pool of universities involved in research, other HEIs should focus more on the teaching component. This would prevent the Russian higher education sector from becoming only research-oriented because it is still necessary to pay attention to the volume and quality of education. Apart from this, research orientation does not mean high research quality, which is especially important to understand for non-leading university heads who do not pay much attention to this aspect in terms of incentives.

Our study has some limitations. This work is based on the results of the APIKS, where academics self-reported their individual and work-related characteristics themselves, which might have caused some bias. Overall, survey data give subjective estimates depending on people's perception of their position. What is more, it was shown that average wages taken from different sources have significant differences, although their use produced the same estimation results. We still consider the use of monitoring data reported by universities important because this is the only information that is available to faculty if they want to compare their position with the average.

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**Appendix 1. Linear regression estimations for two university types with the APIKS average**

Dependent variable: delta (individual wage – APIKS average wage)		
	teaching-oriented universities	research-oriented universities
<i>post &amp; duties</i>		
senior teaching/research post	4.31** (2.00)	0.54 (3.12)
senior administrative post	11.19*** (1.66)	10.81*** (2.65)
administrative post	-6.11 (6.29)	4.10 (5.52)
administrative duties	1.97 (1.50)	4.30 (2.93)
extra-paid teaching	0.15 (1.39)	2.15 (2.37)
<i>work characteristics</i>		
hard disciplines	-0.72 (1.32)	-2.00 (2.62)
full-time employment	11.02*** (1.53)	10.04*** (2.58)
teaching load	4.89 (3.44)	1.84 (5.36)
<i>academic degree</i>		
Doctor of Sciences	17.76*** (2.82)	14.54*** (4.43)
Candidate of Sciences	7.07*** (2.13)	2.77 (3.54)
<i>internal experience</i>		
experience	0.15 (0.17)	1.09*** (0.32)
experience <sup>2</sup>	-0.004 (0.003)	-0.02*** (0.01)
<i>publications in Russian journals</i>		
1-4 publications	-3.46* (1.86)	-2.98 (3.02)
5 or more publications	-2.45 (1.98)	-3.24 (3.44)
<i>publications in foreign journals</i>		
1-2 publications	2.25 (1.81)	-2.27 (3.38)
3 or more publications	5.72**	3.48

	(2.30)	(3.25)
<i>other publications</i>		
in Scopus/WoS journals	0.38 (1.73)	6.62** (3.18)
without co-authors	0.53 (1.46)	1.41 (2.24)
<i>research funding</i>		
university internal sources	3.91** (1.71)	0.39 (2.93)
external sources	0.23 (1.84)	7.28** (3.05)
<i>individual characteristics</i>		
gender	3.06** (1.32)	6.20*** (2.30)
house obligation	2.73** (1.28)	3.38 (2.30)
marital status	0.77 (1.35)	-1.36 (2.57)
<i>regional factors</i>		
Moscow/St-Petersburg dummy	-1.55 (1.29)	-4.30 (2.65)
<i>Constant</i>	-27.74*** (3.82)	-38.14*** (6.17)
Observations	676	384
R <sup>2</sup>	0.35	0.37
Adjusted R <sup>2</sup>	0.33	0.32
Residual Std. Error	15.14 (df = 651)	19.24 (df = 359)
F Statistic	14.87*** (df = 24; 651)	8.66*** (df = 24; 359)

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

## Appendix 2. Comparison of the models with different average wages

Dependent variable: delta (individual wage – average wage)				
	Monitoring average		APIKS average	
	teaching-oriented	research-oriented	teaching-oriented	research-oriented
<i>post &amp; duties</i>				
senior teaching/research post	4.38** (2.14)	0.97 (3.28)	4.31** (2.00)	0.54 (3.12)
senior administrative post	11.81*** (1.77)	13.31*** (2.78)	11.19*** (1.66)	10.81*** (2.65)
administrative post	-3.14 (6.71)	1.43 (5.8)	-6.11 (6.29)	4.10 (5.52)
administrative duties	3.28** (1.6)	3.07 (3.08)	1.97 (1.50)	4.30 (2.93)
extra-paid teaching	1.23 (1.48)	1.02 (2.49)	0.15 (1.39)	2.15 (2.37)
<i>work characteristics</i>				
hard disciplines	-0.64 (1.4)	-1.09 (2.75)	-0.72 (1.32)	-2.00 (2.62)
full-time employment	12.05*** (1.63)	10.06*** (2.7)	11.02*** (1.53)	10.04*** (2.58)
teaching load	2.13 (3.68)	10.49* (5.63)	4.89 (3.44)	1.84 (5.36)
<i>academic degree</i>				
Doctor of Sciences	19.54*** (3.01)	13.97*** (4.66)	17.76*** (2.82)	14.54*** (4.43)
Candidate of Sciences	7.70*** (2.28)	1.01 (3.72)	7.07*** (2.13)	2.77 (3.54)
<i>internal experience</i>				
experience	0.02 (0.18)	0.94*** (0.33)	0.15 (0.17)	1.09*** (0.32)
experience <sup>2</sup>	-0.002 (0.004)	-0.02*** (0.01)	-0.004 (0.003)	-0.02*** (0.01)
<i>publications in Russian journals</i>				
1-4 publications	-2.78 (1.99)	-2.85 (3.17)	-3.46* (1.86)	-2.98 (3.02)
5 or more publications	-2.6 (2.11)	-2.43 (-3.61)	-2.45 (1.98)	-3.24 (3.44)
<i>publications in foreign journals</i>				
1-2 publications	2.66	-3.1	2.25	-2.27



	(1.93)	(3.55)	(1.81)	(3.38)
3 or more publications	5.36**	4.2	5.72**	3.48
	(2.46)	(3.41)	(2.30)	(3.25)
<i>other publications</i>				
in Scopus/WoS journals	-0.11	7.50**	0.38	6.62**
	(1.84)	(3.34)	(1.73)	(3.18)
without co-authors	-0.31	1.68	0.53	1.41
	(1.55)	(2.35)	(1.46)	(2.24)
<i>research funding</i>				
university internal sources	2.93	0.62	3.91**	0.39
	(1.82)	(3.08)	(1.71)	(2.93)
external sources	-0.29	8.35***	0.23	7.28**
	(1.97)	(3.2)	(1.84)	(3.05)
<i>individual characteristics</i>				
gender	3.47**	5.92**	3.06**	6.20***
	(1.41)	(2.42)	(1.32)	(2.30)
house obligation	3.11**	3.5	2.73**	3.38
	(1.37)	(2.41)	(1.28)	(2.30)
marital status	0.45	-1.19	0.77	-1.36
	(1.44)	(2.7)	(1.35)	(2.57)
<i>regional factors</i>				
Moscow/St-Petersburg dummy	-11.74***	-21.91***	-1.55	-4.30
	(1.38)	(2.78)	(1.29)	(2.65)
<i>Constant</i>				
	-55.87***	-67.47***	-27.74***	-38.14***
	(4.08)	(6.48)	(3.82)	(6.17)
Observations	676	384	676	384
R <sup>2</sup>	0.38	0.41	0.35	0.37
Adjusted R <sup>2</sup>	0.36	0.37	0.33	0.32
Residual Std. Error	16.16	20.21	15.14	19.24
	(df = 651)	(df = 359)	(df = 651)	(df = 359)
F Statistic	16.74***	10.41***	14.87***	8.66***
	(df = 24; 651)	(df = 24; 359)	(df = 24; 651)	(df = 24; 359)

Note: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

**Corresponding author:**

Anastasia A. Byvaltseva

National Research University Higher School of Economics (Moscow, Russia). Center for Institutional Studies. Research assistant.

E-mail: [abyvaltseva@hse.ru](mailto:abyvaltseva@hse.ru)

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