

Optimization of university teachers' remuneration as a tool for sustainable development of higher education

Irina Bogatyreva^{1*}, Larisa Ilyukhina¹, and Alexey Bogatyrev¹

¹Samara State University of Economics, Sovetskoi Armii str., 141, 443090, Samara, Russia

Abstract. The article is devoted to the study of problems and ways of their solution in the field of remuneration of scientific-pedagogical workers of higher education institutions. In modern pandemic realities the process of education is organized in a new format with the use of information and innovation technologies, which requires from a teacher additional labor inputs for mastering special tools and practices of teaching. That is why development of new approaches to labor remuneration for university teachers that meet modern requirements of economics acquires special significance at the present time. Therefore, the purpose of the study is to analyze the organization of teaching staff labor remuneration on the example of one of the universities in Samara region (Russian Federation) and to develop recommendations for its improvement. The results of the study are based on the study of domestic and foreign scientific literature on the remuneration of higher education teachers, the authors' own materials. The authors of the article systematized the stages of decision making on the problems of increasing the level of higher education institution personnel wages in Russia, performed a comparative analysis of average wages of university lecturers and hired employees of organizations in some subjects of RF in 2014 - 2019, presented an algorithm of building the scale of official salaries of the teaching staff, and proposed and justified specific recommendations for improving the basic part of the wages of the teaching staff.

1 Introduction

Higher education in the conditions of digital transformation of the Russian economy plays an increasingly important role in the economic growth of the country. Competitiveness and long-term development of companies depend on the quality of specialists and their competence level. The responsibility for graduating qualified specialists lies with the teaching staff of the educational institution. Use of specific professional knowledge, skills, a special culture and individual style of activity of the higher school teacher have a significant impact on improving the quality of the workforce, allows you to create a basis for training qualified specialists who are in demand in today's labor market.

* Corresponding author: scorpion70@mail.ru

The activity of teaching staff as the main higher school teaching staff is multifunctional and has its own specific character, which consists of its orientation and degree of work effectiveness. There is a great variety of labor functions, which are imposed on teachers in educational establishments: tutorial, educational, organizational, methodical and research work. But the change of key reference points in education has led to complication and transformation of the content of teaching work. The work of teaching staff today includes a complex of different activities: formation of necessary competences in students; development and placement of educational, methodological and scientific resources in the information and educational environment; creation of new ways of communication with students; performance of research work on demanded in Russia and in the world scientific topics [1]. In today's pandemic realities the learning process is organized in a new format using information and innovative technologies, which requires additional labor input from the teacher to master special tools and teaching practices. In this situation to successfully implement the educational process and to train highly-qualified specialists a teacher of a new type with a high level of mobility, creativity, adaptability and information literacy is needed. Unfortunately, there is a tendency of increase of average age of pedagogical staff and a problem of young teachers' influx. There are three reasons for this situation: low level of salaries, a long professional growth [2] and lack of stability (many universities practice short-term employment contracts).

The choice of the theme of research is caused by existing problems of remuneration of labor in the sphere of providing educational services.

The purpose of the research conducted by the authors of the article is to study the problems of organization of teachers' salaries in one of the leading universities of Samara region, as well as to develop specific recommendations for their elimination. In this connection the following problems were solved: the stages of decision making on the problems of increasing salaries of the personnel of higher education institutions in the Russian Federation; a comparative analysis of average salaries of the teachers of universities and salaried employees of organizations in some subjects of RF in 2014 - 2019 was carried out; the level and dynamics of the salary size of the teaching staff of the studied Samara higher education institution was analyzed, the recommendations for improving the basic salary of research and teaching staff of higher education institutions were developed.

2 Materials and methods

In the budgetary sector of the economy, issues of remuneration of labor are the responsibility of the state as the main employer, whose functions include the development of conditions and procedures for payment, the establishment of professional qualification groups and their respective basic salaries for employees of state and municipal institutions. But in fact the state shifted the solution of these issues to the heads of budgetary organizations. There is no doubt that setting salaries for specific positions and qualification groups is the responsibility of the head of the institution. But the question is, what standards should he be guided by? The basis for determining the official salaries can be recommendations that have not yet been developed, which should be scientifically substantiated quantitative correlation in the remuneration of workers of different professional qualification groups and qualification levels. As a consequence, the size of official salaries of workers performing similar functions in related institutions are different. Thereby the principle of organization of labor payment is violated: equal payment for equal work, no unified principles and approaches to organization of labor payment for employees of state and municipal institutions of different branches.

The state hopes that the introduction of a new system of labor payment instead of a unified wage scale would help solve the problem of low salaries in the budgetary sphere,

including higher education teachers, were justified partially. The RF Government took some steps at the legislative level to address the issue of improving the salaries of state employees. But they concerned mainly the problem of increasing the level of wages of the personnel of budget-funded organizations (see Fig. 1).

3 Results

3.1 The results of a comparative analysis of the average salaries of university teachers and salaried employees of organizations in some subjects of the Russian Federation in 2014 - 2019

Along with the introduction of sectoral systems of remuneration of employees of budgetary organizations and the development of performance indicators of institutions and employees, the state pays special attention to the indexation of wages. According to the results of our calculations, we can see that the average salary of teachers for the period from 2014 to 2019 has a positive dynamic with characteristic wave-like growth lines (Table 1).

Table 1. Comparative analysis of average salaries of teachers of universities and hired workers of organizations in some subjects of the Russian Federation.

Subjects of the Russian Federation	Index	Year						
		2014	2015	2016	2017	2018	2019	2019 to 2014
Russian Federation	The average salary:							
	- teachers	116.7	107.4	108.5	116.0	129.2	108.9	187.2
	- salaried employees	109.1	104.7	107.9	108.2	110.1	109.5	160.8
	advance ratio, %	107.0	102.6	100.6	107.2	117.3	99.4	138.0
Samara Oblast	The average salary:							
	- teachers	114.2	107.6	104.5	115.6	124.6	108.3	200.3
	- salaried employees	110.1	103.9	105.4	107.8	110.7	107.9	155.2
	advance ratio, %	103.7	103.6	99.1	107.2	112.6	100.3	128.9
Saratov Oblast	The average salary:							
	- teachers	115.3	106.3	104.1	114.9	125.8	104.9	193.5
	- salaried employees	106.5	102.3	104.5	105.0	108.4	114.5	148.4
	advance ratio, %	108.3	103.9	99.6	109.4	116.0	91.6	130.3
Ulyanovsk Oblast	The average salary:							
	- teachers	112.5	107.2	105.9	119.7	123.2	108.3	204.0
	- salaried employees	110.8	107.4	106.8	107.6	108.0	108.2	159.8
	advance ratio, %	101.5	99.8	99.2	111.2	114.0	100.1	127.5
Nizhny Novgorod Oblast	The average salary:							
	- teachers	123.0	102.0	106.8	117.2	122.7	112.6	217.0
	- salaried employees	108.2	103.8	107.2	107.0	108.4	106.9	149.3
	advance ratio, %	113.7	98.3	99.6	112.7	113.2	105.3	149.5
Orenburg	The average	103.4	105.1	108.5	118.6	129.9	104.5	189.8

Oblast	salary: - teachers - salaried employees	108.7	104.8	106.6	104.7	110.7	108.3	152.4
	advance ratio, %	95.1	100.3	101.8	113.8	117.3	96.5	125.1

Source: authors.

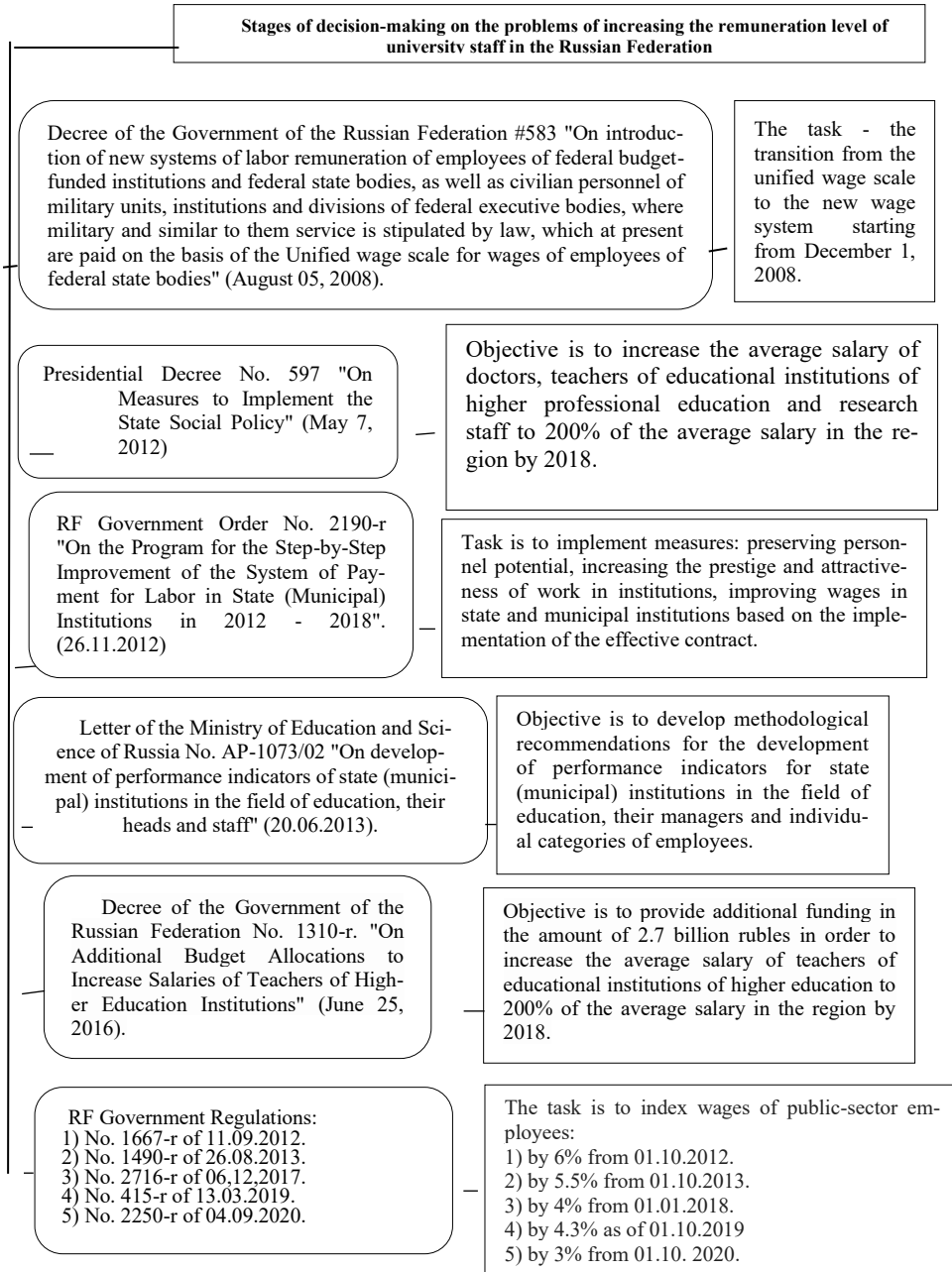


Fig. 1. Stages of decision-making on the problems of increasing the salaries of teaching staff in higher education in the Russian Federation. Source: authors.

The comparative analysis of the average salary of lecturers of higher educational institutions and hired employees in the Russian Federation and some regions of the Volga Federal District shows the outstripping growth rate of this indicator for the teaching staff has been performed by the authors.

But the task of increasing the average salary of teachers of educational institutions of higher professional education and scientific staff up to 200% of the average salary in the corresponding region has not yet been completely solved (see Fig. 2). Only in Nizhny Novgorod Oblast the average salary of teaching staff reaches twice the level of the average salary in the region.

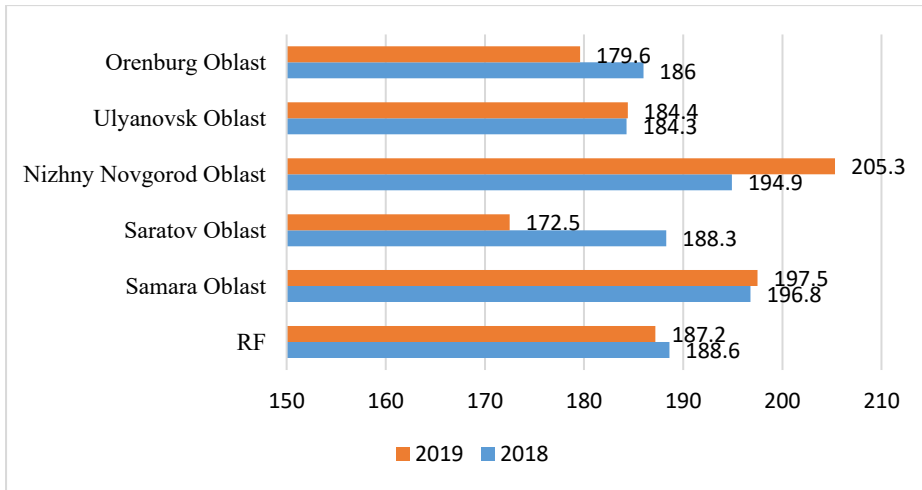


Fig. 2. Ratio of average wages in some constituent entities of the Russian Federation, %. Source: compiled by the authors according to the official website of the Federal State Statistics Service [3].

The study of the structure of the average salary of the teaching staff is important for the purposes of analysis. The average salary of scientific and pedagogical employees includes the basic part of the salary (salary), incentive and compensation payments. The calculation of the average salary of the teaching staff includes one-time payments related to the participation of teachers in grants, contests, research works. Their share in the total salary of teachers can be quite significant. Besides, many scientific-pedagogical workers work on more than one rate, which is also reflected on the size of average earnings of higher education institution. All this, as well as the diversity and variety of payments, taken into account when calculating the average salary, significantly distorts the real situation. That is why, in our opinion, in order to objectively estimate the ratio of average wages of PPS and hired workers of organizations in some subjects of the Russian Federation, it is necessary to leave only basic part of wages (tariff wages) as a part of average wages.

3.2 The main directions of improvement of the basic part of the salary of university teachers

The basis of the basic part of the salary of the teaching staff of higher education is an official salary, which performs the function of ensuring the normal reproduction of the labor force. This is the main and guaranteed part of the salary. Official salary is set by professional qualification groups (PQG) and qualification levels, and its size depends on the scientific degree (candidate, doctor of science) and title (associate professor, professor). The results of research conducted by foreign scientists show that in most countries the basic

part of salary allows scientific-pedagogical workers to maintain a standard of living corresponding to the middle class [4], which is not typical for Russian universities.

The study of the basic part of the salary of scientific-pedagogical employees of Samara University allows the authors of the article to make the following conclusions:

1. In spite of adequate differentiation in teachers' remuneration (ratio of post salary of institute director, having Ph.D. degree, and non-graduated teacher is 1:3,5) and correspondence of salary size of young employees, holding position of assistant and teacher, to the established minimal wage rate in Russian Federation, basic part of salary of this category of teaching staff remains rather low.

Analysis of the level and dynamics of growth of the salary size of the teaching staff of the investigated Samara university without taking into account academic degrees and titles for 2012 - 2020 shows a positive trend, but the gap between the salary sizes of assistants (teachers) and professors is increasing every year (see Fig. 3).

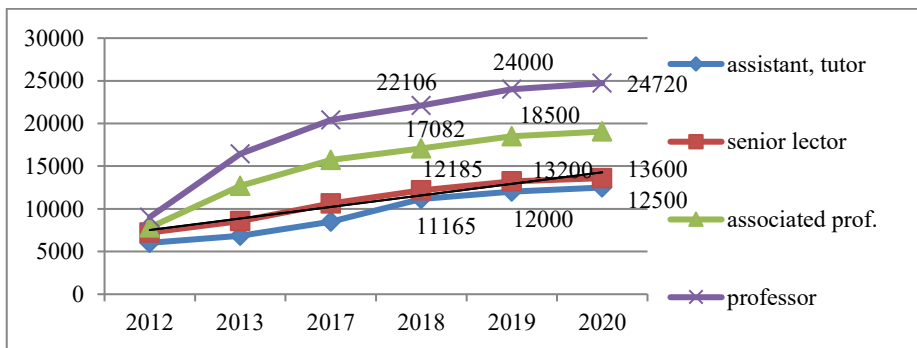


Fig. 3. Dynamics of change in the value of salaries of non-staffed teaching staff of Samara University for 2012-2020. Source: authors.

On the one hand, the difference in salaries of full-time and part-time teachers is objectively justified by the time of preparation (post-graduate and doctoral studies) by the experience in teaching, the level of necessary competencies and deep knowledge of the scientific field (defense of candidate and doctoral dissertations). On the other hand, the position of assistant is mostly held by young teachers, who are enrolled in graduate school and are just preparing to defend their master's thesis. The size of the base part of the young teachers does not correspond to the expenses, providing the level of normal life activity.

Thus, the current organization of remuneration in higher education institutions is not conducive to the retention and development of young teachers.

Unreasonable differentiation of teachers' salaries.

Salaries of higher-education teaching staff are set with increasing coefficients both between and within the professional groups. Establishment of multipliers is the responsibility of the head of the educational institution within the financial resources allocated for remuneration of labor. Unfortunately, very often raises coefficients are set without taking into account many factors: staffing the required qualifications, the need to promote the growth of qualifications of scientific and pedagogical workers, the growth of intensity and intensity of work of teaching staff and others. It can lead to understating or overstating of increasing coefficients, and as a consequence either to occurrence of equalization in labor remuneration or unjustified increase of the gap in the level of payment of retired and non-tenured teachers.

Lack of Regulation of Higher Education Teachers Salary Structure

The analysis of salary structure of teachers at one of Samara higher education institutions has shown that the share of compensatory and stimulating payments in the total

salaries of teachers is about 54%. Thus, this ratio does not meet the requirements for optimization of salary structure in higher education institutions.

When developing a remuneration strategy at a higher education institution, it is necessary to interest faculty members in high academic achievement and to support their creativity in doing their work. Not the least important factor in creating an effective remuneration system for higher education faculty is the quality of educational services. Often low salaries lead to deterioration of education quality, because it provokes high turnover of highly-qualified personnel, which in its turn leads to increase of professional training costs, as well as inefficiency as a result of low qualification and experience levels [5].

In order to realize these goals in the course of the analysis the authors developed and described the main directions of the improvement of the basic part of the remuneration of the teaching staff.

One of the important directions is an adjustment of a base part of a teaching staff salary. The increase of the university teaching staff salaries is connected to the growth of the teaching load (in 2010 the maximum teaching load was 790 hours, and since 2013 it has increased to 900 hours), the need to improve the quality of their work, on the one hand, and the implementation of the reproductive function of salaries, on the other hand.

Currently, some norms of time for academic work do not meet the requirements of FSES. So, for supervision, consulting, reviewing and accepting the defense of coursework is given 3 hours. But, given the new requirements for reviewing and accepting the defense of term papers, which involve students passing the system of plagiarism, posting work on the university website, checking it and writing reviews in the information and education system of the university, this time is not enough for quality performance of this type of activity. So the use of outdated standards of time, the emergence of new requirements for teaching and teaching staff, the expansion of the range of their job functions has led to increased intensity of work of university workers and as a consequence, the need to increase the basic part of the wage. And the first step in this direction should be to increase the minimum official salary of non-tenured teachers.

The second direction of improving the basic part of remuneration of labor is associated with the justification of differentiation of remuneration of teachers, taking into account academic degrees and titles. For this purpose, the authors have developed measures to build a reasonable scale of official salaries of teaching staff of higher education institution, presented in Fig. 4.

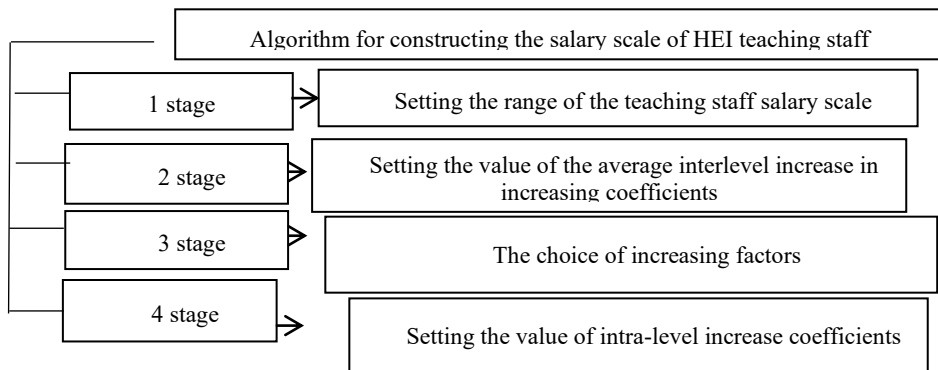


Fig. 4. Algorithm of construction of the salary scale of teaching staff. Source: authors.

The calculation of the salary scale range for the teaching staff was based on the time interval for training the highest qualified teachers (professor and doctoral degree as professor) and the lowest qualified (non-graduated teacher as an assistant). In order to

establish an objective range of salary scale and increasing coefficients we have studied a number of documents, which present requirements to the posts of teaching staff of higher education institution and domestic experience of Russian higher education institutions. Thus, having analyzed the training time and experience of Russian HEIs, we calculated the optimum ratio of increasing coefficients of lower and higher qualification level within the 8th SQG - 1:2.8.

Domestic and foreign practice of payment for work indicates the need to use the progressive nature of the increase in tariff (raise) coefficients. This principle also applies to remuneration of scientific and pedagogical workers of higher school. The progressive variant of increase of coefficients between qualification levels and inside levels is the base for construction of optimum scale of base salaries of teaching staff of higher education institution. It has a number of advantages in comparison with other variants of scales construction: close interrelation between the degree of labor input and the level of qualification, stimulation in qualification improvement, considerable economy of salary fund.

Specialists calculated and justified the minimum level of feeling of material interest growth for qualification advancement: the average value of relative increase of raise coefficients must be more than 10%. In order to determine the new inter-level coefficients, we calculated the value of the average inter-level relative increase in the increasing coefficients, which was 22%. Within the qualification levels we proposed to establish the value of the absolute increasing coefficients from 10% - 20% depending on the presence of a degree and a rank. This allows us to take into account the inter-qualification difference in wages.

The third direction of perfection of the base part of the salary is optimization of the salary structure of scientific and pedagogical workers.

The Ministry of Science and Higher Education of the Russian Federation has on its agenda a question about regulation of the salary structure of educators. So, it is planned to bring the size of a base part of a salary to 70 % and the size of stimulating payments is established at level of 30 % from a total size of earnings of PPS and scientific employees [6]. In our opinion, it is an optimum ratio of the base and variable parts of a salary, allowing to reach a compromise between interests of employees and interests of the employer.

4 Discussion

It is a well-known fact that salary level, character of its differentiation, state of labor remuneration organization largely determine social climate, degree of tension and labor motivation of teaching staff of higher educational institutions. That is why problem solving of educational process quality, young specialists' retention and attraction lies in creation of favorable labor conditions and effective system of remuneration which allows to strike the balance between short-term and long-term, personal and public interests. [7]. Both Russian scientists [8] and foreign researchers [9] pay much attention to the teacher labor remuneration issues. That is why the development of new approaches to labor remuneration of university teachers, which meet modern requirements of the economy, is of particular relevance today. The development of effective model of teacher labor remuneration, which is aimed at improving the quality of teaching activity, includes several directions: wage level increase taking into account actual labor intensity of teachers, substantiation of quantitative correlation in labor remuneration of teachers of different qualification levels within professional qualification groups, optimization of wage structure, establishment of clearly formulated criteria of teacher labor efficiency, expansion of budget financing of the teaching staff [10].

5 Conclusion

As a result of our research it was revealed that the current system of remuneration in higher education institutions has a number of drawbacks: there is no focus on improving the quality of teachers' work, does not provide a normal standard of living, which leads to the departure of professionals from the field of education, contributes to a decrease in the quality of educational services. Consequently, it is necessary to create an effective system of incentives for higher education teachers, both at the state level and at the level of individual institutions of higher education. In addition to well-known principles the following conditions should be observed when developing effective organization of teachers' labor payment: correspondence of labor payment to the university development strategy and to the principles of personnel policy accepted in the university; full informing of teachers about the salary system applied in the university, indicators and conditions of bonus payment; systems of labor payment and bonus payment should be aimed at achieving results, and teachers should have an opportunity to influence the indicators of work, on which the results of their work should be achieved. Introduction of effective contract into the practice of payment of labor of scientific-pedagogical workers is an effective instrument of increasing the indicators of labor productivity of teachers when they perform their duties. In addition, the use of an effective contract allows an objective assessment of the labor potential of teaching staff and contributes to its improvement and enhancement [11].

Thus, the effective contract stimulates employees to activity and forces the staff to perform their duties more effectively at the psychological level.

References

1. Teaching Labor in Modern Russia: Transformation of Content and Evaluation: Monograph (Yekaterinburg: Ural University Publishing House, 2016)
2. K.L. Cropsey, S.W. Masho, R. Shiang, et al., *Journal of Women's Health*, **17(7)**, 1111-1118 (2008). DOI:10.1089/jwh.2007.0582
3. Labor market, employment and wages, URL: https://rosstat.gov.ru/labor_market_employment_salaries
4. F. Altbach, L. Reisberg, M. Yudkevich, G. Andruschak, I. Pacheco, How are professors paid? Global Comparisons of Remuneration and Contract Systems (Higher School of Economics, Moscow, 2012)
5. N.N. Lomovtseva, *Russian Entrepreneurship* **17(4)**, 491-504 (2016). DOI: 10.18334/rp.17.4.34928
6. E.V. Balatsky, *Science. Innovations. Education* **3(25)**, 35-60 (2017)
7. J. Zhang, S. Gao, J. Jiang, H. Xing, *Proceedings - 2014 6th International Conference on Measuring Technology and Mechatronics Automation, ICMTMA 2014* **6802655**, 144-150 (2014) DOI: 10.1109/ICMTMA.2014.39
8. A.A. Shibanova, I.D. Kochanzhi, *Labor Economics* **7(7)**, 609-616 (2020). DOI: 10.18334/et.7.7.110707
9. S.B. Clery, L.Ch. Barry, *Faculty salary: 2006-2007. NEA 2008 Almanac of higher education* (Nat. Education Assoc., Wash., 2008)
10. I.V. Bogatyreva, G.Yu. Ovcharenko, *Human and production potential of the Russian economy before global and local challenges: materials of the All-Russian scientific and practical conference* (Publishing house "KUBiK", Saratov, 2018)
11. S.Yu. Ryasov, *Labor economics* **7(9)**, 819-832 (2020). DOI: 10.18334/et.7.9.110803