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Analyzing Employment of HEI Graduates According to the Enlarged Groups of Specialties

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Abstract

The article analyses indicators of Saint Petersburg HEIs graduates' employment according to the enlarged groups of specialties. The research allows determining groups of specialties with highest graduates' employment rate, as well as to allocate HEIs according to their graduates' employment rate within each enlarged group of specialties.

Key words: HEI graduates, employment rate, average salary, enlarged groups of specialties.

Methods for analysis of HEI graduates' employment

The analysis of young specialists' – HEI graduates' employment is topical and particularly essential both for HEIs and for the whole country. Today, the most complete and trustworthy source for HEI graduates' employment evaluation in Russian Federation is the Portal for monitoring graduates' employment (based on the statistics of the Pension Fund of the Russian Federation) [1]. The key indicators for evaluating young specialists' employment on the Portal are the percent of employed graduates and their average salary. Portal's navigation system allows analyzing data by the constituent entities of the Russian Federation, by educational organizations, by specialties and majors.

The data for this monitoring is provided by the Pension Fund of the Russian Federation, the Federal Service for Supervision in Education and Science and educational organizations. The result of the third monitoring of graduates' employment is the processed data on more than 1.267.000 graduates of the year 2015 determined by their employment data from 2016 [2]. Thus, the information on graduates' employment is provided with free access with a 2-year lag: the first year is dedicated to the monitoring

itself – the data on pension contributions from graduates' salaries is analyzed; the second year is for data processing and presentation on the Portal.

Based on the data from the Portal for monitoring of graduates' employment Saint Petersburg Electrotechnical University "LETI" has initiated a comparative research on the employment of young specialists of Saint Petersburg on a number of the most widespread enlarged groups of specialties. In light of this, the research group has studied data on the employment of graduates of 15 groups of specialties from 21 university of Saint Petersburg. Criteria for choosing the most widespread enlarged groups of specialties of Saint Petersburg to be included in the study were the following: at least 5 universities provide majors in this enlarged group of specialties, and each HEI provides at least 25 graduates within this group.

Table 1 provides information on the enlarged groups of specialties included in the study: codes and titles of the enlarged groups, number of Saint Petersburg HEIs that had at least 25 graduates of these groups of specialties in 2015.

Codes listed in the table correspond to the approved list of specialties and majors of the higher education [3].



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Table 1. Enlarged groups of specialties analyzed in the study

Group code	Enlarged group of specialties	Number of HEIs
08	Methods and Technology of Construction Industry	5
09	Computer Science and Computer Facilities	14
10	Information Security	5
11	Electronics, Radiocommunication systems	6
12	Photonics, Instrumentation, Optical and Biotechnical Systems and Technologies	6
13	Electro and Heat-Power Engineering	9
15	Mechanical Engineering	6
18	Chemical Engineering	5
20	Technosphere Safety and Environmental Engineering	10
23	Engineering and Technology of Land Transport	8
27	Control in Technical Systems	10
38	Economics and Management	20
40	Law	9
42	Mass-Media and Library and Information Activities	11
45	Linguistics and Literary Studies	7

Employment indicators according to the enlarged groups of specialties

The Map of graduates' employment according to the enlarged groups of specialties is divided by the reference lines into 4 sections:

Section 1 – "Successful employment" – high percent of employed graduates with salary higher than the average for Saint-Petersburg HEIs' graduates: 7 enlarged groups out of the 15 groups analyzed.

Section 2 – "Priority on salary when being employed" – lower percent of employed graduates with salary higher than the average for Saint-Petersburg HEIs' graduates: no enlarged groups in this section.

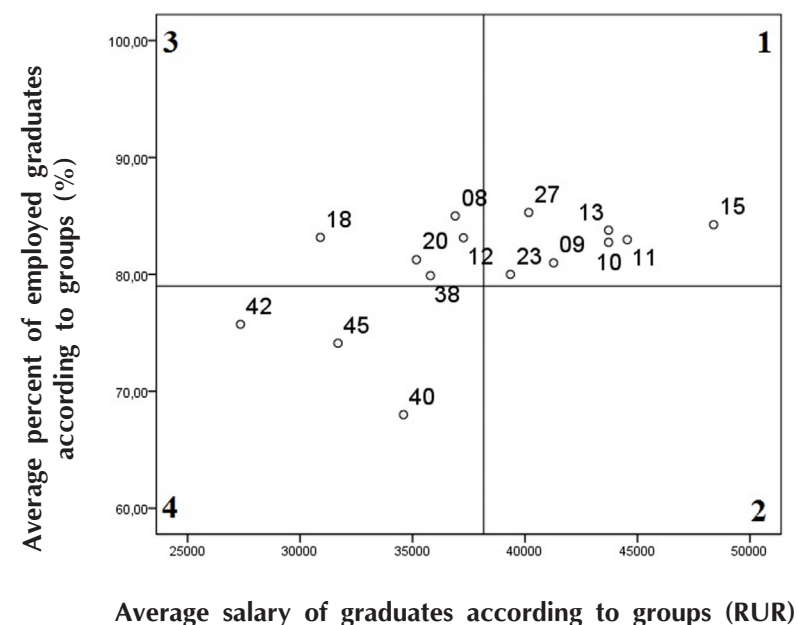
Section 3 – "Priority on employment" – high percent of employed graduates with salary lower than the average for Saint-Petersburg HEIs' graduates: 5 enlarged groups out of the 15 groups analyzed.

Section 4 – "Decreased employment indicators" – decreased percent of employed graduates, as well as decreased salary comparing to the average numbers of Saint-Petersburg HEIs' graduates: 3 enlarged groups out of the 15 groups analyzed.

It should be noted that enlarged groups of specialties with decreased employment indicators refer to the humanitarian specialties (Law, Linguistics and Literary Studies, Mass-Media and Library and Information Activities). As a result, engineering specialties excel humanitarian ones both in the share of employed graduates, and in their salary indicators.

It should also be brought to notice that among the analyzed enlarged groups of specialties the most prioritized group from the point of salary levels is "Mechanical Engineering". The salary in this group is 27% higher than the average numbers for

Fig. 1. Map of graduates' employment according to the enlarged groups of specialties



Saint-Petersburg and is equal to 48 384 RUR. At the same time, the least paid group is "Mass-Media and Library and Information Activities" – graduates' salary is 28% lower than the average in Saint-Petersburg and is equal to 27 348 RUR.

When speaking of the percent of employed young specialists, the most prospective groups of specialties are: "Methods and Technology of Construction Industry" and "Control in Technical Systems" – the percent of employed graduates in these groups is 6% higher than the average for Saint-Petersburg and is equal to 85%. The least demanded specialists are the ones from the "Law" group – its graduates get employed 11% less than the average indicator for Saint-Petersburg HEIs.

Allocation of HEIs according to their graduates' employment success

Allocation of HEIs according to their graduates' employment within the enlarged groups of specialties is of a particular interest. Specifically, for each enlarged group of specialties a leading HEI has been chosen with a significantly high number of either

salary level, or percent of employed graduates comparing to the average numbers of the enlarged group. The criterion for choosing a leader is the indicators' (salary, percent of employment) increase for more than 10% comparing to the average numbers within an enlarged group of specialties.

Leading HEIs have been selected according to each of the two indicators – percent of graduates' employment and average salary. It should be emphasized that according to the indicator "Average salary" the leading HEIs have been selected for all of the analyzed groups of specialties, whereas according to the indicator "Percent of employment" leading universities have been chosen only for 4 enlarged groups.

Table 2 presents leading HEIs according to the indicator "Average salary" and states the discrepancy of salary comparing to the average numbers for a group.

It should be noted that at the moment of the research (August – September of 2017) the Portal for monitoring graduates' employment had no data on the employment rates of 2015 graduates of St. Petersburg State University of

Telecommunications and Saint Petersburg State University of Economics (UNECON). The indicated HEIs may also be leading in various enlarged groups, particularly, the economic university (UNECON) may lead in the "Economics and Management" enlarged group.

In order to illustrate the discrepancy in employment of graduates from different HEIs within a certain enlarged group of specialties, the data on salary allocation within a certain group is presented on the example of two groups – with the lowest and the highest discrepancy between leading HEIs and the average.

The group with the highest discrepancy of the average salary is the "Law" group. Fig. 2 shows that SPbU is one of the absolute leaders on salary level within this group and

exceeds the average numbers for the group for 101%.

The group with the lowest discrepancy between HEIs according to the indicator "Average Salary" is the "Photonics, Instrumentation, Optical and Biotechnical Systems and Technologies" group (Fig. 3).

This group has an exceeding salary indicator for graduates of BSTU "VOENMEH"; however the discrepancy from the average salary of the enlarged group is less than 20%.

Thus, the leading HEIs on the "Average salary" indicator have been analyzed. At the same time, for some groups there also are leading HEIs for the indicator "Percent of employed graduates" (Table 3). It should be taken into account that there are a lot less groups with leading HEIs here and the discrepancy between the leading HEIs and

Table 2. Leading HEIs according to the average salary

Enlarged group of specialties	No. of HEIs in group	Leading HEIs	Discrepancy of salary from the average
Photonics, Instrumentation, Optical and Biotechnical Systems and Technologies	6	Baltic State Technical University "VOENMEH", BSTU "VOENMEH"	18%
Mechanical Engineering	6	Saint Petersburg State Forest Technical University, SPbSFTU	60%
Mass-Media and Library and Information Activities	11	State University of Aerospace Instrumentation, SUAI	72%
		Saint Petersburg State University, SPbU	11%
Chemical Engineering	5	Saint Petersburg Mining University, Mining University	27%
Technosphere Safety and Environmental Engineering	10	BSTU "VOENMEH"	28%
		Admiral Makarov State University of Maritime and Inland Shipping, Admiral Makarov SUMIS	22%

Enlarged group of specialties	No. of HEIs in group	Leading HEIs	Discrepancy of salary from the average
Methods and Technology of Construction Industry	5	Emperor Alexander I St. Petersburg State Transport University, PSTU	20%
Economics and Management	20	SPbU	78%
		Saint-Petersburg University of Management Technologies and Economics, UMTE	43%
		Saint Petersburg Electrotechnical University "LETI", ETU "LETI"	28%
		State Marine Technical University of St. Petersburg, SMTU	19%
Computer Science and Computer Facilities	14	ITMO University	38%
		Peter the Great St. Petersburg Polytechnic University, SPbPolyTechU	27%
		ETU "LETI"	21%
Electro and Heat-Power Engineering	9	PSTU	87%
		Mining University	15%
Law	9	SPbU	101%
		Saint-Petersburg State University of Architecture and Civil Engineering, SPSUACE	29%
Engineering and Technology of Land Transport	8	PSTU	36%
		SPbSFTU	13%
Linguistics and Literary Studies	7	BSTU "VOENMEH"	21%
		SPbU	15%
Control in Technical Systems	10	ITMO University	30%
		Mining University	13%
		ETU "LETI"	12%
Electronics, Radiocommunication systems	6	Mining University	20%
		ITMO University	11%
Information Security	5	SPbPolyTechU	33%
		ITMO University	14%

the averages of the groups does not exceed 20% (compared to the discrepancy on the "Average salary" indicator).

Conclusion

As a result, the analysis of Saint-Petersburg HEIs graduates' employment according to

the enlarged groups of specialties allowed determining groups of specialties with the most successful indicators of graduates' employment: "Computer Science and Computer Facilities", "Information Security", "Electronics, Radiocommunication systems",

Fig. 2. Enlarged group of specialties with the highest gap between leading HEIs and average numbers

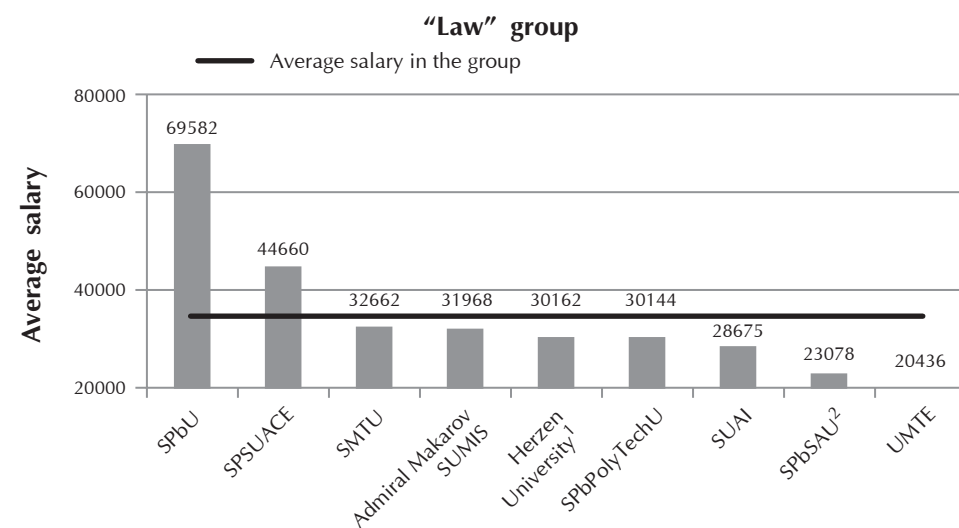
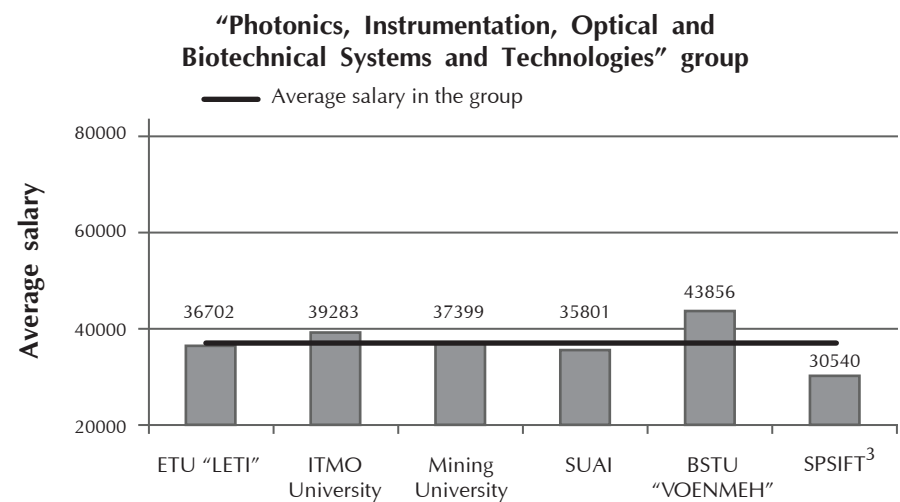


Fig. 3. Enlarged group of specialties with the lowest gap between leading HEIs and average numbers



¹Herzen State Pedagogical University of Russia

²Saint-Petersburg State Agrarian University

³Saint Petersburg State University of Film and Television

Table 3. Leading HEIs according to the employment percent

Enlarged group of specialties	No. of HEIs in group	Leading HEIs	Discrepancy of employment from the average
Computer Science and Computer Facilities	14	BSTU "VOENMEH"	12%
Law	9	SPbU	19%
Engineering and Technology of Land Transport	8	PSTU	12%
Technosphere Safety and Environmental Engineering	10	Mining University	10%
		Admiral Makarov SUMIS	10%

"Electro and Heat-Power Engineering", "Mechanical Engineering", "Engineering and Technology of Land Transport", "Control in Technical Systems". It is worth emphasising that success of graduates' employment according to the enlarged groups of specialties has been determined only for the most widespread groups of specialties, the ones that have graduates (over 25 people) in at least 5 HEIs in Saint-Petersburg.

Besides, data analysis permitted determination of leading HEIs for each group of specialties. For some groups there is a

small number of leading HEIs, and, normally, indicators for these HEIs are slightly different from the groups' average (this is true for such groups as "Photonics, Instrumentation, Optical and Biotechnical Systems and Technologies", "Methods and Technology of Construction Industry", etc.). However a number of enlarged groups has outstanding leading HEIs, whose indicators are sufficiently higher than averages in these groups ("Law", "Electro and Heat-Power Engineering", "Economics and Management").

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