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## **ECONOMIC MOTIVATIONS FOR MASTER'S STUDENTS' CHOICE OF EDUCATIONAL, SCIENTIFIC AND PROFESSIONAL TRAJECTORIES**

*The article examines the motivations for Master's students' choice of individual trajectories. In the course of their studies, the students' trajectories have educational, scientific and professional aspects. These trajectories determine the system of interaction between students and other participants in the educational process within the university framework (academic staff and other students) and outside it (employers, Russian and foreign researchers). Individual trajectories of Master's students can be studied from the theoretical point of view, by following the formation and development of these trajectories, and from the practical point of view, focusing on how investments in Master's students can enhance professional competencies of specialists on the regional labour market. The authors have analyzed the master's students' individual trajectories on the basis of monitoring data obtained from the survey carried out in February and December 2014. The students were asked to describe their expectations, including economic ones, and experience of pursuing their Master's degrees. The research results have shown that the biggest discrepancy between the expectations and the actual experience of Master's students lay in the sphere of their research trajectories and their participation in internationalization processes. The analysis of students' expectations is important since it allows us to improve Master's programs, to provide the labour market with highly qualified specialists, and to increase the efficiency of state investments into the human capital.*

**Keywords:** system of higher education, individual trajectories, educational trajectories, professional trajectories, research trajectories, motivation, expectations of Master's education, students' experience, competitiveness on the labour market, human capital

### **Introduction**

The Russian state policy in the sphere of higher education seeks to enhance its competitiveness on the international market of educational services through structural changes in universities. This goal is particularly important due to the increasing competition in the Russian and international market of education services. Therefore, Russian universities need to establish a sustainable system of interaction with stakeholders and to incentivize outstanding researchers and talented students to participate in Master's programs. Russian universities have a lack experience in the realization of Master's programs because Master's education has appeared in Russia comparatively recently (after the country joined the Bologna process and adopted the two-tier system of education). Therefore, on the one hand, we need to develop a new type of higher educational institutions – those specializing in Master's programs and, on the other hand, it is important to gain a better insight into the motivation of students interested in pursuing Master's degrees.

This article focuses on the reasons why students decide to pursue Master's education and on how this decision affects the development of their human capital. This approach allows us to study the needs of Master's students and the development of their educational, research and professional trajectories during their Master's studies. This gives us not only practical understanding of how to attract students to Master's programs and how to improve the level of education but also, on a more theoretical level, find out about students' motivations behind their decision to pursue a Master's degree. All of the aforesaid shows how important it is that experts in the sphere of the economics of higher education and marketing of educational services studied the educational trajectories of Master's students.

### **Theoretical Framework**

Our understanding of educational trajectories is based on the definition of Pierre Bourdieu, who saw a trajectory as a sequence of positions occupied by an individual throughout their life when they act in different social fields. (Cit.ex [1, p. 61–62]).

To research students' motivations we shall use the terms 'educational trajectory' and 'professional trajectory'. 'Educational trajectory' implies that an individual 'acquires formal qualifications,

institutionally confirmed competences and informally gained experience in the form of knowledge and skills' [1, p.47]. This means that students develop their educational trajectories as investments in their professional trajectories. 'Professional trajectory' means the process of an individual 'moving from one position on the labour market to another, with different levels of wages, prestige, social status and so on, and that this movement is being evaluated from the point of view of professional success/failure' [1, p.48].

In this article, the formation and development of students' educational trajectories are discussed within the framework of neoclassical economics, which states that an individual performs an action in order to accumulate human capital. As Gary S. Becker, one of the fathers of the human capital theory, pointed out, education and training are the most important investments in human capital [2, p.9]. The sources of human capital are higher educational institutions, where students gain professional knowledge and skills<sup>1</sup>.

The human capital theory 'puts a great emphasis on the paradigm of continuous or 'life-long' education model and, therefore, becomes a key methodological tool to study educational and professional trajectories of young people. The recursive connection between the labour market and the educational system makes these trajectories closely connected too.' [1, p.47]. Master's students also follow their research trajectories, which can turn into professional trajectories in the course of their studies and afterwards. Therefore, it is important to consider the range of ways available for university students to realize their research trajectories.

Involvement of students and university graduates into the system of continuous education enables them to update their professional knowledge and enhance their professional efficiency. According to the human capital theory, people who have professional knowledge and skills work more productively and, as a result, provide their employers with sufficient return on their investments into their staff's training [3, p.79]. The staff's efficiency, in its turn, depends not only on individual qualities and the funds spent on training but also on employees motivation to develop professionally [2, p.30]. The students' motivation to develop their professional, educational and research trajectories is mostly economic (being more competitive on the labour market and having a higher salary). It is also connected to the students' need to improve and realize their potential, for example, professional skills and talents.

### Data and Methodology

The 2016–2020 educational state policy prioritizes 'the promotion of new postgraduate programs and the technologies of their realization'<sup>2</sup>. It is planned to implement this policy by changing the structure of specialist training and the corresponding professional educational programs. For example, the percentage of Master's graduates should be increased from 1.8 % in 2012 to 10.0 % by 2020<sup>3</sup>. The subprogram 'Development of Professional Education' seeks to 'increase the contribution of professional education to the social, economic and cultural modernization of the Russian Federation and to enhance its international competitiveness'<sup>4</sup>. Therefore, it can be assumed that the main pool of universities offering Master's programs will primarily include the participants of the 'Project 5–100', aimed at increasing international competitiveness of Russian universities. The roadmaps of these universities include plans for increasing the percentage of Master's degree students and, as a result, these universities are expected to be more orientated towards training research staff. For example, in accordance with the roadmap of the Ural Federal University's (UrFU) international competitiveness enhancement program, it is planned to 'increase the percentage of Master's and Candidate's degree students to 30 %'<sup>5</sup>

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<sup>1</sup> European Competitiveness Report 2003. (2003). P. 137.

<sup>2</sup> Federalnaya tselevaya programma razvitiya obrazovaniyana 2016–2020 gody [Federal Special Purpose Program for the Development of Education for 2016–2020]. P. 6.

<sup>3</sup> Gosudarstvennyaya programma Rossiyskoy Federatsii "Razvitie obrazovaniya" na 2013–2020 gody [State Program of the Russian Federation 'Development of Education' for 2013–2020]. P. 9.

<sup>4</sup> Gosudarstvennyaya programma Rossiyskoy Federatsii "Razvitie obrazovaniya" na 2013–2020 gody [State Program of the Russian Federation 'Development of Education' for 2013–2020]. P. 8.

<sup>5</sup> Dorozhnaya karta Uralskogo Federalnogo Universiteta na 2013–2020 gody [Roadmap of the Ural Federal University for 2013–2020 (second stage, 2015–2016)]. (2015). P. 17.

**Percentage of Master's students in the total number of Bachelor's, Specialist's and Master's degree students in the universities of the 'Project 5–100'**

University	Indicator, %		
	2013	2014	2015
Moscow Institute of Physics and Technology (MIPT)	30,45	29,44	29,30
Saint-Petersburg State University of Information Technologies, Mechanics and Optics (ITMO)	18,91	24,34	27,87
National Research University "The Higher School of Economics" (HSE)	21,44	22,18	23,86
National Research Tomsk Polytechnic University (TPU)	14,82	15,59	18,81
Saint-Petersburg State Electrotechnical University (LETI)	21,27	19,61	18,76
Peter the Great Saint-Petersburg Polytechnic University (SPbPU)	13,93	12,91	14,37
Novosibirsk National Research State University (NSU)	14,97	14,97	14,09
National Research Nuclear University (Moscow Engineering Physics Institute) (MEPhI)	4,80	7,75	11,56
National Research Tomsk State University (TSU)	8,87	9,77	11,26
Ural Federal University (UrFU)	8,77	10,02	11,14
Far Eastern Federal University (FEFU)	6,64	9,50	11,06
National University of Science and Technology (Moscow Institute of Steel and Alloys) (NUST MISIS)	13,72	15,43	9,79
Nizhny Novgorod State University (UNN)	7,03	7,17	8,08
Kazan Federal University (KFU)	5,13	5,68	6,34
Samara State Aerospace University (SSAU)	6,85	6,87	6,15

\* The table shows the data for the first wave of participants in the 'Project 5–100'.

According to Table 1,<sup>6</sup> on the one hand, in the period between 2013 and 2015, the majority of the 'Project 5–100' universities increased their percentage of Master's students. On the other hand, according to the data of 2015, Master's students account for 14.8 % of the total number of students. Therefore, we can divide the universities into three groups according to their percentage of Master's students:

1) Universities which rank high according to this indicator (their results are 5 % higher than the average value): Moscow Institute of Physics and Technology; Saint-Petersburg State University of Information Technologies, Mechanics and Optics; National Research University "The Higher School of Economics"; National Research Tomsk Polytechnic University; Saint-Petersburg State Electrotechnical University;

2) Middle ranking universities: Peter the Great Saint-Petersburg Polytechnic University; Novosibirsk National Research State University; Moscow Engineering Physics Institute; National Research Tomsk State University; Ural Federal University; Far Eastern Federal University;

3) Low ranking universities (their results are 5 % below the average value): National University of Science and Technology (Moscow Institute of Steel and Alloys); Nizhny Novgorod State University; Samara State Aerospace University; Kazan Federal University.

To involve more students into the system of Master's education, it is essential to understand their motivation for continuing their education. Therefore, we analyzed educational and other trajectories of Master's students of the Ural Federal University, which, as it can be seen from Table 1, is in the middle of the ranking.

There are two important aspects which should be considered here. Firstly, it is necessary to study students' motivation for continuing their education, including their economic expectations (for example, they expect to raise their income level). Economists study students' expectations concerning their future salary levels [4, c. 162] by comparing these expectations with the real income attainable after completing higher education [5, p.483] and with employers' ideas about the level of salaries

<sup>6</sup> Информационно-аналитические материалы по результатам проведения мониторинга эффективности образовательных организаций высшего образования [Materials of the Monitoring of Efficiency of Higher Education Institutions]. Retrieved from: <http://indicators.miccedu.ru/monitoring/> (date of access: 20.10.2015).

expected by their potential employees [6, p. 157]. The research shows that out of the whole range of economic factors, 'determining the formation of optimal educational trajectories', the most significant one is 'students' expectations of higher income after they complete their education' [7, p. 245]. Firstly, it is necessary to evaluate the experience of Master's studies, 'which allows students to meet their educational targets, that is, obtain competencies which are in demand on the labour market' [8, p. 164].

Economists Keane and Wolpin have put forward an expanded model of human capital accumulation, which enables them to analyze the choice of education and profession and also includes additional criteria such as student class attendance and students' expectations concerning their future jobs and salary levels [9, p.473].

Trying to estimate their job prospects after completing their Master's degree, students normally expect to enhance their competitiveness on the labour market and to raise their salary level. The Russian labour market, however, does not always offer Master's graduates salaries which are higher than those of Specialist's degree holders because employers are often not fully aware of the value which a Master's degree diploma might have. Furthermore, students also hope to gain the skills and knowledge which are most sought after by employers. The results of our study have shown that, unfortunately, a Master's degree does not always guarantee that students have managed to obtain the necessary professional skills and knowledge [10, p.301] or that they will be provided with enhanced employment opportunities [11, p.179], which makes it crucial to study not only their actual experience of Master's studies but also their experience gained outside the university walls.

### **Methodology**

To analyze students' educational, professional and research trajectories [4, p. 164; 10, p. 302–305] we applied the questionnaire method, which is widely used in the field of education economics. We conducted a survey among the Master's students of the Ural Federal University in 2014, in February (649 students) and in December (505 students). Comparing the results of the surveys conducted in different periods, we have not found any significant statistical discrepancies. Therefore, we have decided to focus on the results of the first monitoring (February 2014), since it provided the largest sample. To compare the students' expectations about salaries and the real level of salaries we used materials of 'Graduate Employability Monitoring'<sup>7</sup> for universities of the 'Project 5–100'. We have also tried to find correlations between the salary levels and the categories of graduates (Bachelor's or Master's).

### **Model**

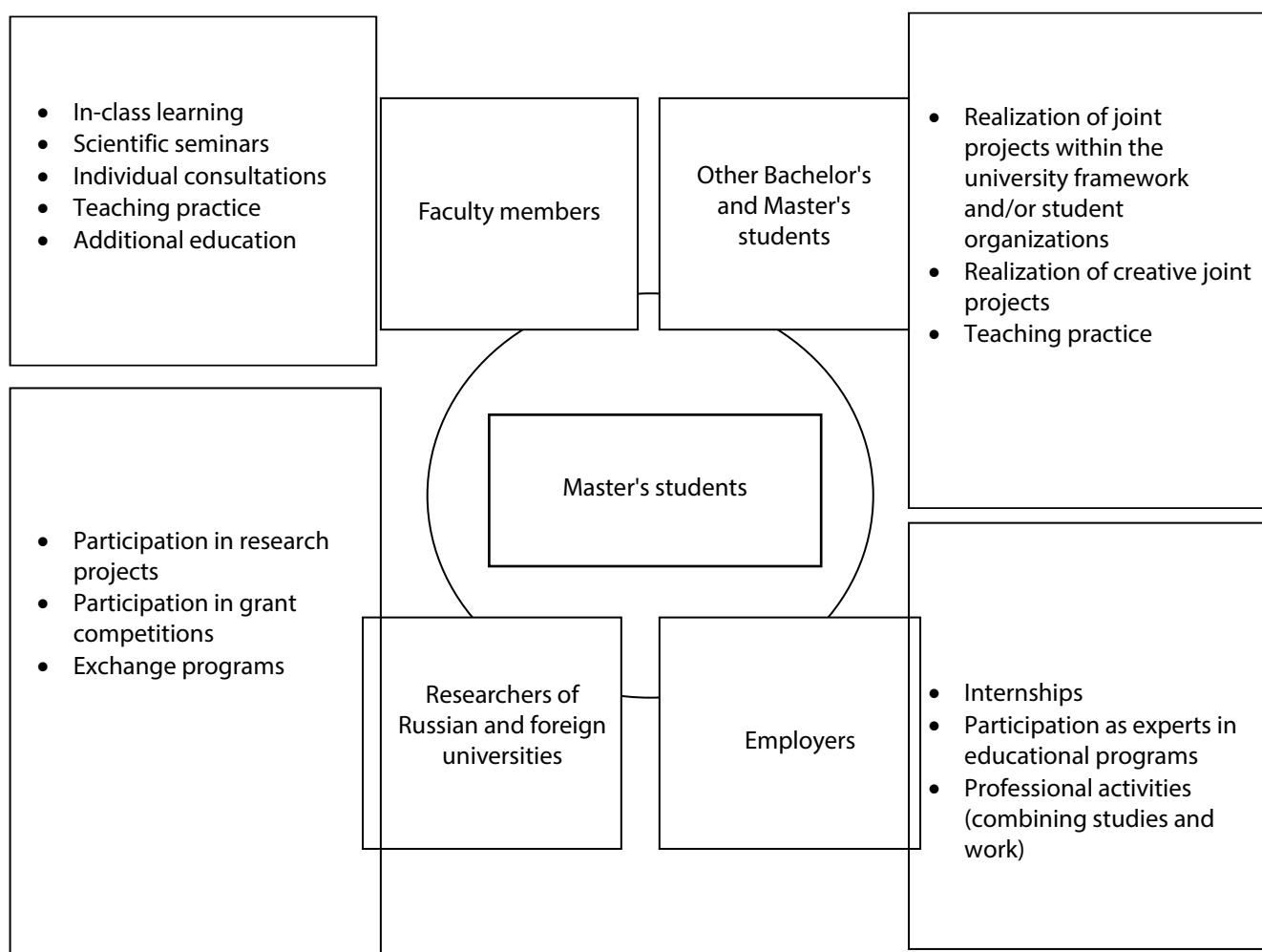
'The relationships between students and the university faculty' affect students' trajectories and their professional development [12, p.165]. In contrast to Bachelor's students, Master's degree students have a more complex scheme of interaction with the participants of the educational process since they are more actively involved in various educational, scientific and professional spheres.

Such approach takes into consideration the differences in the level of students' education and implies that Master's students, if compared to Bachelor's students, have more opportunities for gaining experience outside the university. As a result, they are more actively involved in the interaction not only with the participants of the educational process inside the university but also outside it. The people who interact with Master's students most often are their peers, the members of the faculty, the researchers of Russian and foreign universities, and employers (Fig.1). Our research of Master's students' expectations and experience intended to find if there is a lack of certain professional skills and/or knowledge which these students might need in their future professions. The process of trajectory development includes some key 'growth points', which Master's programs should focus on in order to provide students with the skills and knowledge they feel they might be lacking. This will allow the education system to enhance the number of competent professionals on the regional and national labour markets.

Master's education should focus on enhancing the importance of self-education, which means that there should be less in-class learning but more interaction with potential employers through internships and also more contacts with researchers from universities and other research organizations. It also means that Master's students should be more actively involved in research projects and scientific

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<sup>7</sup> Monitoring trudoustroystva vypusnikov [Graduate Employability Monitoring]. Retrieved from: <http://graduate.edu.ru/> (date of access: 23.09.2015).



**Fig. 1.** Strategies applied by students to realize their educational, research and professional trajectories depending on their experience of interaction with other participants of the educational process inside and outside the university

events and that they should be encouraged to cooperate with Bachelor's students for joint research and creative projects and for their teaching practice.

Although Master's students have more chances to gain various professional skills in comparison to Bachelor's students, employers are often unaware of the advantages of hiring Master's graduates since the history of the two-tier higher education in Russia is comparatively short. Our research has shown that in 2012–2013, the majority of employers in the Ural region still believed that university graduates should be studying for five years, which corresponds to the Specialist's degree programs (49 % employers). However, our research of employers' preferences concerning the categories of graduates (Bachelor's, Specialist's or Master's) found that employers are becoming less willing to hire holders of Specialist's degrees (in 2012, 70 % of employers while in 2013, 49 %). According to employers, 'Bachelor's graduates are less ambitious in terms of their salaries', therefore, they were preferred by 27 % of employers in 2013 (in contrast to 5 % in 2012). Although the demand for Master's graduates grew by 5 % in 2013 in comparison to 2012, only 17 % of Ural employers said that they would prefer a candidate with a Master's degree. Interestingly enough, employers believe that Master's graduates 'have more professional expertise', which is their competitive advantage.

Therefore, it is particularly interesting to study the students' motivation for obtaining a Master's degree, more specifically, their economic expectations. The research in the sphere of Master's students' motivations and orientations towards pursuing the academic careers will allow us to find out whether investment into the development of Master's programs actually contributes to the realization of state priorities in the sphere of higher education and what resources can be applied to improve students' interaction with other participants of the educational process.

We analyzed a set of the key criteria of Master students' trajectories, which provided us with the information about the experience which students gain inside and outside the university. Firstly, in our research, we tried to identify students' expectations about the skills and knowledge they will

acquire by pursuing a Master's degree. Secondly, we studied Master's students' research trajectories associated with participation in conferences and research projects. Thirdly, we sought to determine Master's students' involvement into the internationalization process by analyzing the data about their participation in exchange programs and about the factors preventing them from doing so. Fourthly, we studied Master's students' employment experience, especially the experience they gained by combining their work and studies. And, finally, we analyzed their experience of additional education, which they pursued simultaneously with their major.

### Discussion of Results

Our research analyzes the data on students' motivation to continue their educational trajectories, which, as we have found, is linked to their economic expectations: 56 % of students expect to gain a competitive edge on the labour market by obtaining a Master's degree diploma and 27 % expect to increase their salary levels. Furthermore, students also seek to realize their talents and aptitudes (46 %), in particular by developing their research trajectories (combining studies with research work, 30 %). Another crucial factor which determines their choice to pursue a Master's degree is an opportunity to obtain a state-funded scholarship (86 % respondents).

Another important aspect of our research was whether students' actual experience met their expectations. According to Table 2, students expected to gain knowledge and skills related to their personal growth: for example, to become more independent, to acquire time-management and self-education skills, and to improve their communicative skills. They were also hoping to obtain skills of processing and presenting information, to become more flexible and adaptive and to learn to use creative approaches to problem-solving. The biggest discrepancy between students' expectations and their actual experience was found in the areas related to their professional trajectories (to gain professional expertise in specific fields); research trajectories (to participate in research projects) and internationalization (to participate in exchange programs and to study foreign languages).

To find out why students' expectations were not met, we analyzed their relevant ideas and experience: for example, they believe that university research activities should include participation in scientific conferences (60 %) and research projects (59 %); publications in Russian and foreign journals (58 %). At the same time, the actual involvement of Master's students in these spheres is quite low: firstly, 86 % of the respondents do not take part in scientific events (field trips, workshops and foreign

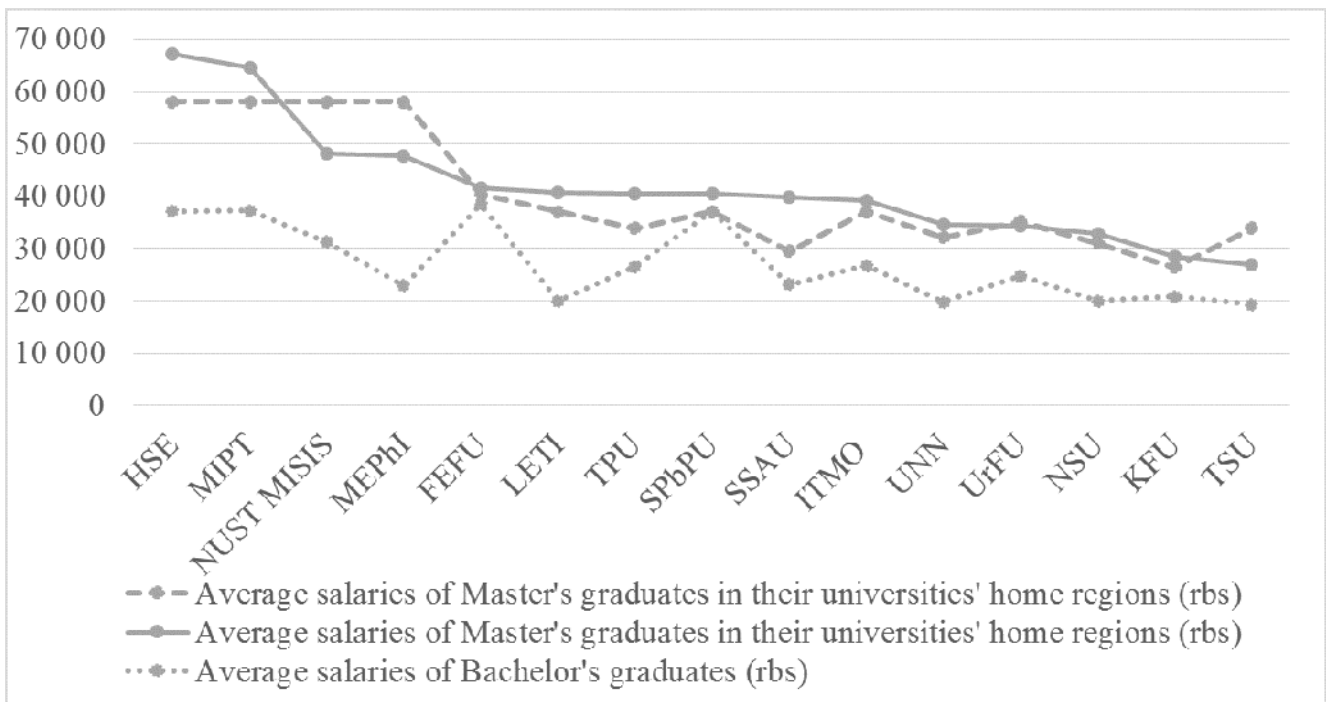
Table 2

**Master's students' expectations concerning acquisition of knowledge and skills and their estimated results**

Knowledge and skills	Expected results*, %	Estimated results*, %
Gain knowledge in the field of specialization	53	44
Be capable of adapting to diverse situations; use creative approaches to problem-solving	34	44
Learn to process information in the real time	34	53
Gain self-education skills	30	41
Acquire experience of doing research projects	30	21
Gain practical work experience	29	24
Establish stable social relationships; do networking	27	20
Learn a foreign language (languages)	24	11
Participate in exchange programs	24	5
Acquire independent decision-making skills	23	35
Acquire public speaking skills	18	35
Be able to communicate in a foreign language for professional and personal purposes	16	15
Complete educational courses or educational program in English	10	4

\* The table provides students' answers to the question 'What knowledge and skills would you like to acquire while pursuing your Master's degree?' This question was asked to all Master's students because it was essential to find out about their education.

\*\* The table also shows answers to the question 'What knowledge and skills have you acquired while pursuing your Master's degree?' This question was asked only to second-year Master's students because they already had some experience of Master's studies and could assess the level of the competencies they had acquired.



**Fig. 2.** Differences in salaries of Bachelor's and Master's graduates of the universities participating in the 'Project 5-100' (according to the data of 'Graduate Employability Monitoring (Monitoring trudoustroystva vypusnikov [Graduate Employability Monitoring]). Retrieved from: <http://graduate.edu.ru/> (date of access: 23.09.2015))

conferences); secondly, about 70 % do not participate in any research projects, except for class projects; and, finally, 47 % of Master's students do not have any experience of publishing scientific papers.

Our research has found an interesting fact that students' expectations are not associated with gaining international experience (see Table 2). However, our data have also shown that 75 % of the respondents would like to complete an internship abroad but only 5 % of the respondents actually have experience of participating in exchange programs. This discrepancy in students' expectations can be explained by the impact of the factors which determine the low degree of students' involvement in internationalization processes: firstly, most students are not orientated towards studying abroad ('Russian education will be enough for me', 42 %); secondly, students are not orientated towards personal mobility ('I don't want to leave my family and friends', 42 %); and, finally, students evaluate their proficiency in foreign languages as insufficient (40 %).

Thus, it will be productive for universities to focus on developing different forms of interaction between Master's students and other participants of the educational process (university faculty, researchers and students). The development of educational interaction forms (individual consultations and tutoring, in-class learning, for example, research seminars) and scientific interaction forms (involvement of students into research projects and grant competitions) will allow Master's students to gain more benefits from the realization of their educational, research and professional trajectories. In those cases when students' expectations are not fully met at the university, they tend to seek professional experience elsewhere.

The most popular students' strategy of gaining professional experience outside the educational process is to combine work and studies, which is done mainly to develop their professional skills and enhance their employment opportunities [13, p.156]. According to our research data, 40 % of Master's students have been employed since their first year of Master's studies; 67 % of Master's students combine their studies with work, and about a half of them have found work within their field of specialization. It means that their educational and professional trajectories are inextricably connected, which determines the peculiar characteristics of their research trajectory: for many students, it coincides with their professional trajectory (27 % of Master's students work in educational or research institutions).

It is interesting to study the way Master's students are planning their professional trajectories and their corresponding economic and career expectations: for example, their hopes that a Master's degree will give them a competitive edge on the labour market. Firstly, 42 % of students expect to be offered a salary of 41,000 roubles and higher after their graduation, which exceeds the average salary

in the region (30,026.2 roubles).<sup>8</sup> It also exceeds the average salary of Master's graduates in the region (Fig.2). 26 % of students expect a salary of 31,000–40,000 roubles. We have conducted an additional analysis of salary levels of those who have graduated from the 'Project 5–100' universities and found that their salaries are generally either lower than the average salary of Master's graduates in the region or slightly higher than average (see Fig.2). According to Figure 2, in comparison to Bachelor's degrees, Master's degrees really help university graduates raise their salary levels. Nevertheless, the data on UrFU graduates' salaries show that Master's students' expectations about their future salaries often turn out to be unreasonably high. Secondly, 44 % of Master's students would like to work as entrepreneurs; 38 %, as researchers; and 35 %, as employees of commercial companies. According to students, the key stimuli for choosing a professional trajectory in the academic environment include a high salary (64 %); career opportunities (40 %); and opportunities to obtain grants for realizing their own projects (34 %). This evidence supports our hypothesis that economic motivation has a considerable impact on students' choice of their professional trajectories.

To increase the percentage of students interested in pursuing academic careers, it is important to take into consideration not only the expected salary level but also the discrepancies between students' expectations about participating in the university's research projects. Therefore, the main focus of investment must be on establishing closer cooperation ties between Master's students and researchers from Russian and foreign universities.

Another trend is that Master's students seek to gain a competitive advantage in the labour market and to compensate for their lack of professional skills through additional training. For instance, '33 % of Master's students have experience of taking additional training courses and 50 % of Master students would like to do so. Their main motivations are that this 'helps them gain more employment opportunities' (28 %), 'expand their outlook' (22 %), and 'develop their professional skills' (18 %) [14, p. 118]. Involvement of students into the system of further education, including paid programs of advanced training, will allow Master's students to gain specific professional knowledge and skills and to continue their educational trajectories after their graduation. Economically, universities will also benefit from developing their systems of further education since it will attract additional funds.

Thus, students' expectations about the knowledge, skills and experience they would like to gain stimulate them to combine their educational, research and professional trajectories. This makes it more productive to research students' educational trajectories together with their research and professional trajectories. If we consider the students' educational and professional trajectories as the sequences of positions in different social areas, it becomes obvious that their educational trajectories are not limited to their university experience but are often influenced by their professional and research trajectories.

## Conclusion

On the one hand, it is important to 'form a new type of specialists who are able to work in the conditions of continuous innovation and to change the system of education for this end' [15, p.95]. On the other hand, even the leading Russian universities are currently unable to fully meet students' expectations, for example, concerning the establishment of sustainable social contacts and gaining professional experience during their studies. Therefore, the educational and professional trajectories of students go beyond the university boundaries.

These disappointed expectations are compensated by students' combining work and studies or their majors and additional education. Therefore, it is important to study Master's students' experience outside the university: if we do not limit ourselves to the educational process alone, we might find alternative ways of students' investments into their human capital. Thus, to enable students to build optimal educational trajectories, we should develop an effective model combining educational, professional and research trajectories.

Further research of Master's students' trajectories should, firstly, include a large-scale comparative analysis of Russian and foreign universities in order to develop the above-described model and, secondly, a search for optimal ways of combining educational, professional and research trajectories depending on the requirements and characteristics of students' majors. Research in this sphere will enable universities to develop and improve their Master's programs to make them more attractive

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<sup>8</sup> Informatsiya o srednemesychnoy zarabotnoy plate v verdlovskoy oblasti v yanvare-maye 2–15 goda [Data on the average monthly salary in Sverdlovsk region in January — May 2015]. Retrieved from: <http://economy.midural.ru/content/informatsiya-o-srednemesychnoy-zarabotnoy-plate-v-sverdlovskoy-oblasti-v-yanvare-mae-2015> (date of access: 01.08.2015).

for students by meeting their expectations and needs and thus to increase the number of qualified specialists in the regional and national labour markets.

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