INTERNAL TRAINING OF RUSSIAN WORKERS: COVERAGE AND EFFECTIVENESS[1]

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Abstract

The article considers the issues of training of workers at Russian enterprises on the basis of official statistics and the data of the Russia Longitudinal Monitoring Survey (RLMS). The authors present the descriptive statistics that characterize the coverage of employees by education, its volume, compliance with the profession of the employee and sources of funding over the last ten years. On the basis of econometric analysis there was estimated the probability of training and its return depending on the characteristics of the worker (gender, age, level of education, work experience), characteristics of the organization (ownership, size, type of economic activity) and characteristics of the training program (compliance of the program with the existing profession of the employee, sources of funding). Based on the analysis of econometric models, the authors conclude that the coverage of workers' education is uneven, and the return on internal training is significantly differentiated by types of economic activity. Low returns on education allow authors to suggest that the decisions about personnel training are based on the requirements of the Russian legislation, but not the needs of the personnel competence development in order to meet the organization's objectives.

Key words: training of workers, human capital, return on investments in training.

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Introduction

The development of additional professional training in Russia has been transformed dramatically over the past quarter of century. The weakening of state regulatory institutions of internal training was

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accompanied by the formation of a variety of specific institutional arrangements for staff development at the organizational level.

The investments of Russian firms in training of personnel, according to some experts, are insufficient. Thus, the state program "Development of education" for 2013 - 2020 states that "currently all developed nations of the world have programmes of formation of continuous education system (learning throughout life - life-long learning). Leading EU countries have provided massive participation of adult population in training programs and sustainable positive dynamics in this area. The share of economically active population of the developed European countries participating in additional professional education, is equal to 60-70%. In the Russian Federation "the share of economically active population involved in lifelong learning, at the present time does not exceed 22.4%" [The state program "Development of education", 2013]. Thus, according to the BEEPS survey results (small and medium enterprises), extent of staff training in Russia is comparable with the majority of countries with economies in transition [Gimpelson, Kapelushnikov, 2011].

1 Literature review

The involvement of employers in training is traditionally associated, firstly, with the existence of specific human capital, which is only necessary in a particular organization, secondly, with the need to generate and update the aging of knowledge, and, thirdly, with high transaction costs of finding the employee with the necessary qualification on the external labour market [Bassanini, Booth, Brunello, de Paulo, Leuven, 2005; Acemoglu, Pischke, 1998; Goux, Maurin, 2000; Pischke, 2001; Almeida, Carneirob, 2009]. Despite the fact that the subject of additional professional education in the domestic labour economics does not belong to the category of popular, we can distinguish a number of studies, making a substantial contribution to the understanding of the problems of additional professional training in Russia. The attention of researchers is concentrated generally on the evaluation of monetary effects of education using various modifications of J. Mincer's equation [Mincer, 1962].

One of the first works devoted to the analysis of the additional training programs impact, was the work of M. Berger, J. Earl and K. Sabirianova performed on data from the RLMS HSE for 90-ies of the last century, which showed that the impact of training depends on the type (duration) of programs. The beneficial impact of additional professional education in the form of wage growth was recorded only for the case of professional retraining [Berger, Earle, Sabirianova, 2001].

The work of S. Tsukhlo, I. Denisova and O. Lazareva, performed on data from a survey of organizations' heads, examines the coverage of Russian workers by training and the dependence of

training on the economic and institutional characteristics of the organization and characteristics of workers, and assesses the effectiveness of various forms of personnel training [Tsukhlo, Denisova, Lazareva, 2006].

The recent work of P. Travkin contains an assessment of the increase in wages of workers after professional training. According to the results obtained with the use of "double difference-in-differences" method, the returns from additional training is equal to 8.3% of increase in wages, and it is differentiated according to the sex and education of the worker, as well as his affiliation to the budget sector of the economy [Travkin, 2014].

The authors much less analyze non-monetary impact or additional professional training, which is associated with career moves. One of such works is the publication of E. Alexandrova and A. Aistov, based on the one of the organizations of the Sverdlovsk region [Aistov, Alexandrova, 2014].

2 Information base of research

In this article the authors examine the factors that determine the probability of additional professional training of the Russian workers on the one hand, and non-monetary effects of such training on the other hand.

Information base of the research is the annual panel data of the Russia Longitudinal Monitoring Survey (RLMS-HSE)[2] for the period of 2001-2013. The survey contains questions that identify the fact of passing the additional training. It also includes questions about the duration of training, its relevance to the current profession and sources of funding. On the basis of positive responses to questions about the training and its financing (co-financing) by employer we determined the respondents who participated in additional professional training.

This article discusses the formal training of employees, because its results allow to evaluate the interest of an employer in financing the training of employees.

In order to analyse the development of additional professional education we used data for employees in the period 2001-2003 and in the period 2011-2013. In our opinion, the selected 10-year time interval is sufficient to detect the changes in the additional professional education that could take place in

[2] "Russia Longitudinal Monitoring survey, RLMS-HSE", conducted by National Research University "Higher School of Economics" and ZAO "Demoscope" together with Carolina Population Center, University of North Carolina at Chapel Hill and the Institute of Sociology RAS. (RLMS-HSE web sites: http://www.cpc.unc.edu/projects/rlms-hse, http://www.hse.ru/org/hse/rlms)

the Russian economy. The sample consisted of 25936 respondents for the period of 2011-2013 and 13505 respondents for the period of 2001-2003.

The program of RLMS-HSE survey has changed for a specified period of time, so a number of questions relating to professional education became incompatible. For example, there are some questions in the later rounds, that were previously missing. For example, the questions about average daily duration of training and industry of employment. Therefore, these characteristics of additional professional training may slightly differ in further analysis.

3 Analysis

According to available data, the coverage of workers with additional professional education was consistently low and ranged from 4.8 to 5.7% depending on the year of observation.

The evaluation of coverage of Russian employees by training obtained according to the RLMS-HSE is considerably lower than similar estimates of official statistics (13.8% in 2012 [7]) This is determined by the fact that official statistics unlike the RLMS is based on reporting of large and medium organizations. It does not include employed in small businesses and in the informal sector of the economy.

Analysis of descriptive statistics shows the presence of certain factors that may affect the probability of an employee to undergo additional professional training. There are such factors as the employee's gender, managerial position, young age (under 25 years old), higher education and the membership of an organization in the public sector. A certain influence on the coverage of additional professional education in different periods of time has the size of organization and type of settlement. The size of the organization and the type of settlement in different time periods have a definite impact on the coverage by additional professional education.

For a more accurate assessment, it is necessary to turn to the econometric models of estimation the probability of training. Table 1 presents 4 models. The first two models are built on a common set of variables for each period separately. Since the data for 2011-2013 allow to consider additionally the branch of the organization activity, there was built another model for that period (model 3). The fourth model combines both reporting periods on comparable set of variables.

Tab. 1: The estimated probability of passing additional professional training (probit, dependent variable – the fact of passing the additional professional training financed by the employer within 12 months preceding the survey)

Variables	The values of coefficients			
	2001-2003	2011-2013	2011-2013	entire sample
	Model 1	Model 2	Model 3	Model 4
Gender (0 - female)				
male	0,159**	-0,035	0,006	0,009
Form of ownership of the organization (0-non-state)				
state	0,017	0,011	0,002	
Place of residence (0 – rural and urban-type settlement)				
regional center	0,06	-0,027	0,009	-0,013
city	0,146*	0,081**	0,115***	0,093**
Professional group (0 - skilled and unskilled workers)				
legislators, high officials, senior and middle managers	0,776***	0,695***	0,671***	0,714***
specialists of higher qualification	0,704***	0,769***	0,683***	0,752***
specialists of medium qualification	0,533***	0,456***	0,421***	0,467***
office workers and customer service	0,269*	0,214***	0,237***	0,22***
service industry workers	-0,042	0,028	0,017	0,021
Age (0 - from 25 to 45 years old)				
under 25 years old	0,224**	0,066	0,083	0,108**
over 46 years old	-0,163**	-0,186***	-0,194***	-0,176***
Work experience in the organization (0 – over 3 years)				
up to 1 year	-0,048	-0,046	-0,01	-0,044
from 1 to 3 years	0,001	-0,186***	-0,162***	-0,139***
Size of organization (0- from 100 to 500 employees)				
under 100 employees	-0,146**	-0,076	-0,073	-0,104***
over 500 employees	-0,143*	-0,012	-0,004	-0,05
Institutional features of the organization (0 –other activities)				
Activities with high demands on safety			0,118**	

The activities that require periodic refresher training			0,336***	
Period of analysis				
2011-2013				-0,062*
Constant	-1,929***	-1,849***	-2,054***	-1,801***
Number of observations	4690	17964	17964	22654

*** p<0,01, ** p<0,05, * p<0,1

Source: own calculations

The analysis of obtained results allows to draw some conclusions. Most of the regressors in all the considered models retained both the direction of impact and the level of statistical significance.

Thus, the highest probability of passing the additional training is observed in positions of managers and specialists (compared to workers). The explanation of this fact seems obvious and is associated with active updating of knowledge and new technologies in office work. On the other hand, the low rate of new jobs creation in manufacturing and the existence of a significant number of obsolete jobs can reduce the demand for formal training of workers, replacing it with an informal (mentoring, etc.).

Less obvious is that employees of companies located in relatively small cities compared to regional centers have an advantage in additional professional training. This difference was recorded in all models. This fact requires further study. This may be due to the fact that in large regional centers the labor market and market of educational services are more developed, whereby the employer can select the candidates on the external labour market, and workers can acquire additional skills and increase their competitiveness. Indeed, data from the RLMS fixed that the residents of the regional centers are 25% more likely to indicate personal and other funds, but not the funds of the employer as the source of funding.

Despite the fact that according to the descriptive statistics it is obvious that there is an influence of the state (municipal) ownership on the coverage of workers by training, the regression analysis did not reveal that correlation. This can be explained by the fact that the structure of such organizations has a significant proportion of employees with high qualification – the coverage by training of this group is statistically significantly differs from workers (models 1-4), who are much more common in other, non-state organizations. In addition, among the state and municipal organizations there are a significant part of the bodies of state and municipal management, organizations of education and health, power structures, where there are mandatory requirements for the frequency of personnel training. For example, according to the RLMS, enrolment in the sphere of education is equal to 12%, in health care – 10,3% and the total contribution of these types of economic activity in total coverage by training of Russian workers is almost

equal to 44%. The results of model 4 confirmed that this group of organizations has a higher enrolment in additional professional training.

In model 4, the positive significant coefficient on the binary variable "activities with high demands on safety" can be partially explained by the presence of mandatory requirements of personnel training. This variable includes membership of organizations in such sectors as industry, agriculture, construction and transport, where there are high requirements to safety and, as a consequence, the requirements for periodic training of employees associated with obtaining permits for certain type of work.

In addition, there are some changes that have occurred over a given period of time.

1. As can be seen from model 4, ceteris paribus now Russian employers train personnel less than 10 years ago.

Amid the numerous testimonies about the shortage of personnel competencies faced by employers, this fact may seem paradoxical. For example, according to the World Bank, the shortage of competent personnel is a major barrier hindering the development of Russian business [The World Bank, 2013]. Probably, in this case in the context of high staff turnover on the Russian labour market, employers prefer not to invest in training of employees, but to shift the training costs to employees. If, on average, according to the RLMS in 2011-2103, 11,5% of respondents changed jobs, in some areas, this value is much higher. For example, in trade, real estate, sports, entertainment and tourism the staff turnover by measurements of the RLMS varies from 18 to 19,5%. Thus obtained data are likely underestimated, as the respondent answers the question only about the fact of changing the job in the past year. The number of such facts is not specified. In these sectors, the coverage of employees by training were 1,5-2 times lower than the average. Perhaps the high staff turnover can be a factor leading to the fact that regression coefficients for the work experience in the organization up to 3 years were negative and statistically significant (models 2-4), and a positive coefficient on the binary variable "workers under 25 years old" (model 1), in contrast, has lost its relevance for 2011-2013 (models 2 and 3).

2. It is necessary to consider the results of the analysis of the coverage by additional training in the context of gender. According to descriptive statistics, the gap between coverage of men and women has increased considerably in favor of women. Regression analysis showed that the difference in the probability of training men and women was statistically insignificant, although in the beginning of the period (model 1), the corresponding variable for men were statistically significant at the 95% level. In other words, ceteris paribus, today's employers are equally willing to finance the training of men and women.

In addition to monetary effects of additional professional training, which was discussed in the

beginning of the article, it is important to assess the non-monetary effects. We estimated two sets of models on the RLMS data for the period of 2011-2013:

1. Models of the probability of promotion after training, passed the year before the survey.
2. Models of the probability of continuation of work in the organization after the training, passed the year before the survey.

In each case there were estimated three specifications of probit models. The set of regressors from table 1 was used as the base, and it was complemented with variables depending on model specifications.

1.1. Adding a variable, reflecting the fact of passing the additional training in the previous period.

In the model of the probability of promotion the regression coefficient for this variable was estimated at 0.174 ***. At the same time, adding to the basic regressors another variable - the fact of passing of additional professional training, the volume of which corresponds to the training programmes or professional training (72 hours and above), led to the fact that this variable proved insignificant, as the number of enrolled in programs with such duration was about 40% of the total number of trained, and the average duration of training programs in 2011-2013 amounted to 25,4 hours.

As for the impact of additional professional training on the stability of the personnel, in this specification of the model this variable is not statistically significant.

1.2. Adding variables that shows the impact of individual characteristics of trained employees (binary variables of gender, age, education level, work experience in the organization, as well as the multiplication of these variables on a binary variable of additional training). In this case, the receipt of additional professional education for workers with higher and secondary vocational education was statistically significant (multiplications of binary variables on primary and secondary education are equal to 0,314*** and 0,455** respectively). In addition, at the level of $p<0,15$ the fact of passing the additional training has an impact on the careers of men (0,162). In all other cases, the relationship between additional training, individual characteristics of the worker and his career was not detected.

When assessing the impact of these variables on the stability of work, the fact of training the employees older than 45 years (-0,287*) was negatively significant, what requires further explanation in view of the age discrimination existing in the Russian labour market.

1.3. Adding variables that shows the impact of job characteristics (binary variables of position, size of organization, location and sector of activity of the organization, form of ownership, as well as the multiplication of these variables on a dummy variable of training). For the model of promotion the estimates of the parameters corresponding to the training and work in enterprises employing more than 500 people (0,351**) and less than 100 people (0,240*) were statistically significant. The significance of the negative regression coefficient for multiplication of binary variables of additional professional education on industries, instituting requirements for periodic training (health care, education, public

administration, power structures) means that there are other mechanisms for career growth in these sectors of activity.

Regressors reflecting the completion of additional professional education, also affect the probability that a worker will change the job after training. The probability to remain in the organization increases for employees in public sector (0,374**). In contrast, workers with higher education after passing additional programs become more mobile (-0,542**).

Conclusion

Thus, the coverage of Russian workers by additional professional training is characterized by significant differentiation depending on the employee's position, age and work experience, location of the organization and its specialization. In many respects the investments of the employer in additional training of employees are not so much determined by economic expediency as the requirements of government agencies and are not directly connected with the objectives of improving productivity and efficiency.

Despite the fact that the works done on the Russian material, record the fact of the impact of additional professional training in the form of wage growth, serious attention is required for analysis of the impact of additional training on labour mobility, which in some cases can lead to economic losses for the employer.

References

Acemoglu, D., Pischke, J. S. (1998). Why do firms train? Theory and evidence. The Quarterly Journal of Economics, 113(1), 79-119.

Bassanini A., Booth A., Brunello G., de Paulo M., Leuven E (2005). Workplace Training in Europe. IZA Discussion Paper. No. 1640.

Berger M.C., Earle J.S., Sabirianova K.Z (2001). Worker Training in a Restructuring Economy: Evidence from the Russian Transition. IZA Discussion Paper. No. 361/

Goux, D. and Maurin E. (2000), Returns to Firm Provided Training: Evidence from French Worker-Firm Matched Data, Labor Economics, 7, pp. 1-19.

Developing Skills for Innovative Growth in the Russian Federation. (2013). Retrieved from https://openknowledge.worldbank.org/bitstream/handle/10986/16100/ACS1549.pdf?sequence=1

Mincer, J. (1962) On-the-Job Training: Costs, Returns, and Some Implications, The Journal of Political Economy 70, (5).

Pischke, J. (2001), Continuous training in Germany, Journal of Population Economics, 14:523548.

Rita Almeida, Pedro Carneirob (2009), The return to firm investments in human capital, Labour Economics, Volume 16, Issue 1, January 2009, Pages 97–106

Travkin, P. (2014). The Returns to Training in Russia: A Difference-in-Differences Analysis. *Working Papers by NRU Higher School of Economics. Series WP BRP "Economics/EC", 56*, 1-31.

Аистов, А.В., Александрова, Е.А. (2014). Оценки индивидуальной отдачи от дополнительного профессионального обучения — пример промышленного предприятия. *Прикладная эконометрика, 34(2)*, 56-79.

Государственная программа Российской Федерации "Развитие образования" на 2013 - 2020 годы: Утв. распоряжением Правительства Российской Федерации от 15 мая 2013 г. № 792-р.

Дополнительное профессиональное образование работников в организациях в 2013 г. (2013). Retrieved from URL: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/bbd2da8043f81ba38a78cbd92111eac8.

Лазарева, О.Вю, Денисова, И.А., Цухло, С.В. (2006). Наем или переобучение: опыт российских предприятий. *Препринт WP3,* 1-48.

Гимпельсон, В.Е., Капелюшников, Р.И (2011). Российский работник: образование, профессия, квалификация, 1-542.

Травкин, П.В. (2014). Оценка отдачи от дополнительного профессионального обучения российских работников: подход с учетом влияния способностей на заработную плату. *Прикладная эконометрика, 33*, 51-70.

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