

IMPACT OF JOB MISMATCHES ON JOB SATISFACTION AND TURNOVER INTENTION: CASE OF RUSSIA

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Goal: to analyze the impact of different job mismatches (education, skill and horizontal), considered both individually and in various combinations with each other, on the job satisfaction and the turnover intention regarding the Russian case. **Methodology:** the research method is based on the identification of eight mutually exclusive groups, that differ in the combination of three types of job matches — from the full matched ones to the triple mismatched. **Findings:** all types of mismatches had a negative impact on satisfaction with non-monetary labor characteristics. The most obvious negative relationship was found with professional satisfaction and moral satisfaction. Pay satisfaction is not influenced by overeducation and by the horizontal mismatch but it has been reduced by overskilling, separately or jointly with the two other types of mismatches. All kinds of mismatches (with the exception of a horizontal one) increase the probability of finding a job. **Originality and contribution of the authors:** the paper focuses on the combination of the three forms of mismatches and a multidimensional measure of job satisfaction. Such an approach made it possible to distinguish more effectively what facets of job satisfaction have been more influenced by mismatches. Furthermore, the paper increases understanding of the impact of job mismatches on non-monetary labor market outcomes. The results suggest that the focus of the HR firm policy should be placed on employees, who feel their skills are underutilized.

Keywords: overeducation, overskilling, horizontal mismatch, job satisfaction, turnover intention, Russia.

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INTRODUCTION

The growing involvement of the population, young people in particular, in higher education, as well as the imbalance of supply and demand in the labor markets of developed and developing countries makes the job (mis)match a more visible phenomenon, that attracts the attention of politicians and scientists. The job (mis)match is a multifaceted phenomenon and a broad umbrella concept. Initially, the studies of researchers, starting with the pioneer works of [Freeman, 1976; Duncan, Hoffman, 1981], were devoted to the problem of the education mismatch, that is understood as a discrepancy between the education acquired by a worker and the education required then by his/her current job.

During the past two decades, the concept of job mismatch has been broadened to include the field of education and skills as a source of this mismatch¹. The horizontal (referred to the field of study) mismatch is concerned with the level of the match between the individual's principal field of study and his/her contents of the job. The skill mismatch arises, when workers have higher or lower skills proficiency than those required to perform their current job. Despite the growing interest of researchers in the issues of horizontal and skill mismatch-

es, the majority of empirical studies have focused on the education mismatch, predominantly on over-education [Leuven, Oosterbeek, 2011; McGuinness, Bergin, Whelan, 2018; Quintini, 2011]. This is largely due to the lack of relevant data and the complexity of measuring skills.

The purpose of this paper is to examine the impacts of the three forms of job mismatches (education, skill and horizontal), considered in various combinations with each other, on the job satisfaction and the turnover intention for the Russian case. The research contributes to the previous sources by the three major features.

First, our study analyzes the impact of the three types of the job mismatch (education, skills and horizontal) in their various combinations on the job satisfaction and on the job search. Previous research focused mostly on the influence of several types of mismatches on non-monetary labor market outcomes. Most often, in the focus of researchers were the effects of overeducation. The analysis of the joint influence of different types of mismatches is usually limited by two types (as a rule, this is a combination of education mismatch and either skill, or horizontal mismatches). The studies, where the effects of the three types of mismatches are taken into account have been lacking [Allen, Weert, 2007; Allen, Van der Velden, 2001; Beduwe, Giret, 2011]. We single out eight mutually exclusive groups that differ in the combination of the three types of job matching — from the full matched (i.e. the individual is matched in education, skills and the field of study) to the triple one (i.e. overskilled, overeducated and horizontally mismatched). This categorization proves to be quite illuminating, when the effects on job satisfaction and job mobility need to be compared. Thus, such a three-criteria grouping has not been used in the scientific investigations before.

Second, unlike other research, we have analyzed the impact of the job mismatch on individual aspects of job satisfaction, and not on the overall job satisfaction. The da-

¹ In 1980–1990s most researchers did not analyze the skill mismatch as a special phenomenon, in fact considering skill and education job mismatches as perfect equivalents. However, the level of formal education is an imperfect proxy of overall skills. Skills can be obtained both in the process of formal education and through on-the-job learning and labour market experience. In addition, skills may decrease with the time as an effect of aging or as a result of being unemployed. Since the early 2000s, the number of publications that convincingly prove the heterogeneity in skills among workers with the same level of schooling and, as a result, the relevance of treating skill mismatch and education mismatch as two different labor market issues, has been growing [Allen, Van der Velden, 2001; Chevalier, 2003; Di Pietro, Urwin, 2006; Green, McIntosh, 2007].

ta contains detailed information about the degree of satisfaction regarding seven facets of employment, namely, pay, job security, work responsibilities, work schedule, working conditions, the scope for using an initiative, sense of the usefulness of the work (moral satisfaction). Such multidimensional measure of job satisfaction allowed us to distinguish, what exact facets of job satisfaction are more affected by the job mismatch.

Third, the current research is the first empirical study that evaluates the impact of job mismatches on non-monetary labor market outcomes in the Russian labour market². Most Russian research is devoted to the analysis of the scale and consequences of the mismatch between education and work outside the specialty [Varshavskaya, 2016; Gimpelson, Kapeliushnikov, Lukyanova, 2010; Gimpelson et al., 2009]. Russia represents an interesting case for the analysis of the job mismatches. Since the late 1990s, there has been a remarkable rise in the enrollment rate in higher education in Russia (the so-called educational boom). The share of higher education graduates within the 25–64 age group rose from 20.6% in 2002 to 31.6% in 2019, and in the age group of 25–34 years old for the same period — from 21.3 to 39.5%. However, the rapid expansion of higher education during the last two decades has not been accompanied by a substantial growth in high-skilled jobs. A significant segment

² We know only two research works using the Russian data that address these issues. A. Shevchuk and coauthors studied the effect of the horizontal mismatch on job satisfaction and job search [Shevchuk, Strebkov, Davis, 2015]; A. Kolosova, V. Rudakov and S. Roshchin also analyzed the effects of non-specialty work. However, the object of analysis in both papers was specific groups: freelancers in the first case and recent university graduates in the second [Kolosova, Rudakov, Roshchin, 2020]. Our analysis has been focused on employees with higher education. Non-monetary labor market outcomes of educational and qualification mismatches have not yet been analyzed on the Russian data.

of low-skilled jobs has still remained in Russia. The massification of higher education has led to a strong differentiation between universities' educational standards, in terms of their quality of education and reputation, and, accordingly, to the increase in the heterogeneity of skills among employees, who have, formally, the same level of education. The problem of the imbalance between the structure of graduate training and the demand for them has become very acute. As a result, significant job mismatches may be observed now in Russia [De Bustillo et al., 2018].

This paper is structured as follows. Section 1 reviews the related literature. Section 2 describes the data set, variables used in the empirical analysis, the methods and total statistics. Section 3 provides results on the relationship between the mismatches and the facets of job satisfaction and job search, respectively. Finally, the paper presents the results and conclusions.

LITERATURE REVIEW

Effects of job mismatches on job satisfaction

Job satisfaction is the most popular indicator of overall job quality, based on workers' perceptions of the overall goodness of their jobs and their judgments about the quality of their employment situation [Kalleberg, 2011]. In addition to economic rewards, people increasingly expect intrinsic rewards from their jobs, looking for a meaningful and challenging work that meets their education, skills and abilities. There have been several theoretical approaches explaining the effects of job mismatches on job satisfaction. In the line relative deprivation theory [Crosby, 1976; 1984; Martin, 1981], if the differences between actual and required qualifications emerge (i.e., in case of mismatches), expectations are unrealized, and job dissatisfaction is more likely. Other theoretical explanations come from the

psychological literature. The explanations for a positive relationship between the skills use and satisfaction are based on the self-determination theory [Deci, Ryan, 2000], emphasizing the role of using skills in fulfilling the psychological needs of competence, and on the person-environment fit theory [Kristof-Brown, Zimmerman, Johnson, 2005], that highlights the importance of the match between individual characteristics and the work environment.

Most studies report that even after controlling income and job quality indicators, mismatches have a strong negative effect on the overall job satisfaction. The results of studies showed that overeducated workers had lower levels of job satisfaction [Verhaest, Omey, 2006; Fleming, Kler, 2008; Peiro, Agut, Grau, 2010; Diem, 2015; Congregado et al., 2016]. A negative effect was obtained for the horizontal mismatch [Bender, Heywood, 2009; Beduwe, Giret, 2011; Wolniak, Pascarella, 2005] and for overskilling [Green, Zhu, 2010; Mavromaras, Sloane, Wei, 2012; Sloane, 2014; Congregado et al., 2016]. However, these studies focus on analyzing the impact of individual types of mismatches.

The results are becoming more complex and mixed, when several (usually two) types of mismatches are taken into account simultaneously. For Australian graduates, [Mavromaras et al., 2013] the results show that job satisfaction is not influenced by overeducation, but it is clearly reduced by overskilling, either on its own, or jointly with overeducation. For Spain, L. Badillo-Amador, L. Vila, L. Mateos-Romero, M. Salinas-Jiménez find that skill mismatches appear as key determinants of workers' job satisfaction, while education mismatches have much weaker impacts on workers' job satisfaction [Badillo-Amador, Vila, 2013; Mateos-Romero, Salinas-Jiménez, 2018]. Similar results about the weak or neutral influence of overeducation on job satisfaction, when both education and skill mismatch variables are analyzed together, were obtained by [Allen, Van der Velden, 2001;

Green, Zhu, 2010; McGuinness, Sloane, 2011; Sánchez-Sánchez, McGuinness, 2015]. For university graduates in Cambodia, V. Sam claimed, that the education and horizontal mismatch affected job satisfaction approximately equally [Sam, 2020]. However, G. Montt showed that in many cases, mismatched by field-of-study workers do not, as a result of the field mismatch itself, experience lower job satisfaction; it may be the result of accompanying overeducation [Montt, 2015]. Also, C. Beduwe, J. Giret found that the horizontal mismatch coefficient reduced in size, when including the indicator of skill utilization [Beduwe, Giret, 2011].

It should be noted that in most research the influence of job mismatches on overall job satisfaction is analyzed. In some research a multidimensional measure of job satisfaction is used, where several (usually two or three) facets are allocated [Badillo-Amador, Vila, 2013; Johnson, Johnson, 2000; Mavromaras et al., 2013; Peiro, Agut, Grau, 2010]. J. Piero and coauthors found that overeducation had a negative impact on the extrinsic, intrinsic, and social facets of job satisfaction, at the same time, the strongest negative link was found in relation to salary satisfaction [Peiro, Agut, Grau, 2010]. On the contrary, L. Badillo-Amador and L. Vila found that overeducation appeared to reduce overall job satisfaction and satisfaction with the type of a job, but it did not have significant effects on satisfaction with pay. The skill mismatch reduces workers' overall job satisfaction, satisfaction with the type of a job and satisfaction with pay, where the satisfaction with the type of a job is the most influenced by this kind of job mismatch [Badillo-Amador, Vila, 2013]. Useful results were obtained by [McGuinness, Sloane, 2011], who showed that the influence of overeducation and overskill on the satisfaction with various aspects of the work depended on the employee's value system.

The impact of job mismatches on turnover intention

One possible response to job mismatches is an increased likelihood of mobility. M. Wolbers views changing a job as an “adjustment strategy,” seeking to improve education-occupation fit [Wolbers, 2003]. In matching theories of job search [Jovanovic, 1979], turnover is a process of optimal reassignment. According to this view, overeducation is an indication of a poor job match and workers continue to change jobs until an optimal match between their education and job requirements has been achieved.

Most studies of the impact of mismatch on on-the-job-search show that mismatched workers are more likely to be looking for a new job. S. Wald, D. Maynard, T. Joseph, A. Maynard, N. Parfyonova found that overeducated workers were more likely to be engaged in job search [Wald, 2005; Maynard, Joseph, Maynard, 2006; Maynard, Parfyonova, 2013]. S. McGuinness and M. Wooden showed that overskilled were much more job mobile, than other workers, who are in jobs that provide a better skills match [McGuinness, Wooden, 2009]. The probability to look for another job appeared to be larger for employees, who were horizontally mismatched, than for well-matched workers [Beduwe, Giret, 2011; Malamud, 2010; Wolbers, 2003]. But some studies found no relation between the horizontal mismatch and on-the-job search [Allen, Van der Velden, 2001; Shevchuk, Strebkov, Davis, 2015].

The research that simultaneously analyzed the impact of several types of mismatches on on-the-job-search have been single and represent different results. J. Allen and M. Van der Velden found that skill mismatches did have a strong effect on on-the-job search, after controlling the job quality, whereas the educational mismatch lacks any effect [Allen, Van der Velden, 2001]. But K. Mavromaras and coauthors showed that only overeducation on its own or jointly with overskilling increased the probability

of quitting as a consequence of job mismatching [Mavromaras et al., 2013]. In addition to this, C. Beduwe and J. Giret proved that horizontal mismatch had a stronger effect on the desire to find another job, especially when the horizontal mismatch was accompanied by overeducation [Beduwe, Giret, 2011].

DATA AND METHOD

Data

In this paper, we use the data of the Comprehensive Monitoring of Living Conditions 2018 (CMLC 2018). CMLC is a nationally representative sample of 60 000 Russian households. It is held once every two years. CMLC data represent the entire population of the Russian Federation and its individual socio-demographic groups (by gender, age, type of settlement, education, employment status). The survey includes information related to a wide range of themes, such as personal and employment characteristics, education, job satisfaction, etc.³ CMLC is the only Russian survey that allows to evaluate the three types of job mismatches — educational, qualification and horizontal. For the purposes of our study, we restrict the sample to employed individuals between 16 and 64 years old, who has higher education and provide complete information on the key variables. The resulting sample size is 20 276 observations.

Measuring mismatches and other variables

To measure qualification matching, the self-assessment method (a subjective approach) was used, based on the worker’s perception⁴.

³ For a detailed description of CMLC see: Federal State Statistics Service. [Electronic resource]. URL: https://gks.ru/free_doc/new_site/KOUZ18/index.html (accessed: 09.12.2022).

⁴ Three methods are used for measuring job mismatches: job analysis, realized matches and

According to [Flisi et al., 2017; McGuinness, Bergin, Whelan, 2018], in most studies, the measurement of qualification compliance is based on the use of subjective assessments of respondents. Commonly used measurement instruments capture the degree to which employees feel that their qualifications exceed their job demands [Flisi et al., 2017].

CMLC survey contains a question: “Do you feel that you have skills or qualifications to do a more demanding job than the one you now have?” Respondents could choose one of three answer options: “Yes”, “No”, “I find it difficult to answer”. Respondents, who answered “yes”, are classified as over-skilled and those selecting “no” as skill well-matched. Respondents, who chose the option “I find it difficult to answer”, made up 1.6% and were excluded from the analysis. The CMLC question we used to examine the skill mismatching does not allow us to define under-skilling, due to the delimitation regarding the existing skills utilizing, therefore, ignoring the extent to which additional skills may be required to perform the job adequately. Thus, respondents, who answered “no”, may include unobserved under-skilled employees, to make the term “well-matched” be more accurately described as “not over-skilled”. However, where suitable data exists, the under-skilled constitute a small share among the working — no more than 5–7% [McGuinness, Bergin, Whelan, 2018] and, most likely, underskilling does not have a significant impact on satisfaction and potential turnover. Therefore, we use the term “well-matched” as a

worker’s self-assessment (subjective). Each method has its advantages and disadvantages (see, e.g. [Flisi et al., 2017; Hartog, 2000; McGuinness, Bergin, Whelan, 2018] for a complete overview). The choice of the method is determined by the objectives of the study and the availability of data. Subjective measures are stronger, more proximal predictors of organizational behaviour [Bischof, 2021; Erdogan, Bauer, 2021; Wald, 2005]. Therefore, in the analysis of job satisfaction and job search behavior, self-possessed perceptions of the job match any appropriate method.

short-hand comparator to the other categories.

The self-assessment method was also used to evaluate horizontal matching. Working respondents were asked the question: “Is your main job related to your specialty?” Respondents, who answered “yes” and “rather, yes”, were classified as horizontally matched, and those, who answered “no” and “rather, no”, were classified as horizontally mismatched.

Unlike the case of the skill and horizontal match, CMLC does not contain any questions on the education match. To evaluate educational matching, we used the normative (job analysis) method. In the normative approach, the mismatch is estimated by using a classification elaborated ex ante by a professional job analyst, in which the minimum level of educational attainment is specified for each occupation or group of occupations. A person is considered to be overeducated or undereducated if their attained level of education is above or below the requirements for their occupation or group of occupations (one-, two- or three-digit level of ISCO). In our case, the respondents working in the groups “Managers” and “Specialists of a high level of qualification” (ISCO-1 and ISCO-2), were classified as education matched. Respondents employed in other groups (ISCO-3-9) were classified as overeducated. Because the analysis is limited to employees with higher education, undereducation is not possible, as this group has the highest recorded level of education in the sample.

Developing the approach of [Mavromaras et al., 2013], we observe the following eight mutually exclusive groups, distinguished by a combination of the three types of job matches:

- 1) matched — the individual is matched in education, skills and the field of study (*match*)⁵;

⁵ Here and further in brackets are the short names of the groups that will be used in the tables below.

- 2) overeducated only — the individual is overeducated but is matched in skills and the field of study (*overedu only*);
- 3) overskilled only — the individual is overskilled but is matched in education and the field of study (*overskill only*);
- 4) horizontally mismatched only — the individual is horizontally mismatched but is matched in education and skills (*hor mis only*);
- 5) overeducated and overskilled — the individual is overeducated and overskilled but matched in field of study (*overedu and overskill*);
- 6) overeducated and horizontally mismatched — the individual is overeducated and horizontally mismatched but matched in skills (*overedu and hor mis*);
- 7) overskilled and horizontally mismatched — the individual is overskilled and horizontally mismatched but matched in education (*overskill and hor mis*);
- 8) triple mismatched — the individual is mismatched in education, skills and field of study (i.e. overskilled, overeducated and horizontally mismatched) (*triple mis*).

The CMLC survey contains a question on how are satisfied or dissatisfied individuals with different aspects of their job, namely pay, job security, work responsibilities, the working schedule, the conditions of work, professional satisfaction (the scope for using your own initiative, opportunities for professional growth), moral satisfaction (the sense of the usefulness of the work). Response options ranged from 1 (very dissatisfied) to 5 (very satisfied).

In terms of the on-the-job search, CMLC provides the following question: “Are you looking for a new job (more suitable compared to the current one)?” with the answer options “yes” and “no”. We identified the search engines of those, who gave an affirmative answer. Note that this dependent variable registers the process of finding a new job, not its result (for example, quitting smoking, promotions, etc.). However, the

job search process is a significant predictor of mobility and is also important in itself as a signal of employee interest.

Method

In each of the analyses on the effects of job mismatches on job satisfaction and on-the-job search, we will use similar models. The model specification is:

$$Y = a_0 + a_1X + a_2MATCHGROUP + e,$$

where Y — the dependent variable under consideration (i.e. job satisfaction or looking for another job); a_n — the coefficient of regression; X — the vector of control variables, $MATCHGROUP$ — the set of dummies indicating groups that differ in the set (combination) of mismatches, e — the error term.

The set of control variables includes individual characteristics (gender, marital status, age, type of settlement) and employment characteristics (employment sector, type of contract, assessment of working conditions, working week duration). The dummies represent groups, that differ in the combination of the three types of job matches (the matched group as a reference category). The results are controlled by the field of education and the federal district. Means and standard deviations or percentages of control variables are presented in the Appendix.

To examine the job-satisfaction consequences of mismatches we used ordered discrete choice models (ordered logit) as the corresponding levels of satisfaction are assessed by workers in a Likert scale ranging. Binary discrete choice models (logit) were used to assess the impact of job mismatches on the turnover intention, since the dependent variable is dichotomous (i.e. searched for job or not).

The likelihood of job mismatch is affected by a number of unobservable parameters (e.g. human ability, quality of education, etc.). This can cause problems with selection bias and lead to an overestimation

Table 1

Satisfaction with various aspects of work and job search by type of job match

Variable	Match	Overedu only	Overskill only	Hor mis only	Overedu and overskill	Overedu and hor mis	Overskill and hor mis	Triple mis	Total
Group share, %	26.4	3.9	35.9	2.7	8.2	3.8	6.1	13.1	100.0
<i>Looking for a job*</i>									
Share, %	4.4	7.6	8.0	4.0	12.8	12.0	13.5	25.8	10.1
<i>Satisfied with...**</i>									
Salary	51.4	53.2	46.7	53.4	44.2	45.0	44.8	34.3	46.4
Job security	86.0	80.1	81.5	78.0	73.3	70.1	72.1	62.2	78.3
Work responsibilities	88.0	84.9	84.0	85.4	74.0	78.3	77.6	65.1	81.2
Working schedule	91.4	84.7	89.2	88.9	81.9	81.3	85.3	77.9	87.0
Working conditions	90.6	83.1	87.7	87.5	76.9	74.4	84.4	70.1	84.4
Professional satisfaction	85.7	77.6	79.2	75.7	65.3	59.0	68.6	44.2	73.7
Moral satisfaction	86.9	78.7	81.7	80.7	71.5	68.3	70.3	55.8	77.5

Notes: * — the percentage (%) who answered “yes” to the question about finding a new job; ** — the percentage (%) who chose the answers “very satisfied” and “rather satisfied”.

of job mismatch in terms of job satisfaction and potential turnover. Unfortunately, CM-LC does not contain the information needed to monitor results for these parameters. Besides, sample selection bias may arise because of the fact that job mismatch appears first of all in the form of a higher probability of non-employment and only at a later stage it takes the form of a penalty on individual outcomes in the labor market [Caroleo, Pastore, 2018]. In general, this imposes certain limitations on the conclusions of our work. However, these problems are fairly standard and, despite various attempts to solve them, are characteristic of most of the papers published on this topic. In addition, studies in which the nature of the data allowed attempts to solve the selection bias problem have produced results similar to ours [Mavromaras et al., 2013; Sam, 2020].

Descriptive analysis

Our results indicate that 28.8% and 25.7% of graduates are overeducated and horizontally mismatched, respectively. The size of the excess qualifications is significantly larger — 63.2% of Russian workers with higher education believe that they have the skills to perform a more complex work compared to the current one. The significant scale of overqualification in Russia corresponds to the indicators of post-socialist countries (Hungary, Poland, Slovakia, Slovenia, Croatia), also measured by a subjective method [McGuinness, Bergin, Whelan, 2018].

Only 26.4% of graduates work in a matched job to their education, skills and field of study, while the rest face at least one type of mismatch (Table 1). The largest group is overskilled only (35.9%). Overskill-

ing is not combined with other types of mismatch, and significantly more often, than the overeducation and horizontal mismatch (more than a half of the cases compared to 10–13% for education and field-of-study mismatches). Importantly, 18.1% of graduates face a double mismatch and 13.1% of employees are triple mismatched. The detailed statistics on the groups of mismatch are presented in the Appendix.

The percentages of dependent variables by the type of a job match are presented in Table 1. The level of satisfaction with various aspects of the work is quite high, with the exception of pay satisfaction. Based on the descriptive statistics, we observe that graduates working in a matched job tend to be much more satisfied, than other graduates. Well matched workers have the highest score in most aspects of job satisfaction. Triple mismatched workers have the lowest level of job satisfaction among all groups.

On average, 10% of employees are looking for a job. However, this indicator varies significantly, when the data was broken down by each group of mismatch (Table 1). The incidence of on-the-job search was substantially higher among workers, who were mismatched, than among those, who were well matched (with the exception of horizontally mismatched only). Triple mismatched individuals — almost six-fold, and double mismatched — were three times more likely to talk about finding a job compared to the matched ones.

RESULTS AND DISCUSSION

Job satisfaction

Table 2 presents the difference (in coefficients) in different aspects of job satisfaction between the well-matched and those belonging to one of seven other groups of mismatch. Overeducation has a negative impact on such non-monetary aspects of job satisfaction as job security, working conditions, working schedule, professional satisfaction

and moral satisfaction. However, the education mismatch itself does not lower the level of satisfaction with wages and work responsibilities. The estimates of over-educated only suggest that the mismatch attributable to being overeducated only has no discernible effect on the satisfaction with wages and work responsibilities. Our results are consistent with estimates L. Badillo-Amador, L. Vila and S. McGuinness, P. Sloane founded that overeducation did not have significant effects on satisfaction with pay [Badillo-Amador, Vila, 2013; McGuinness, Sloane, 2011].

The horizontal mismatch itself reduces satisfaction with all non-monetary aspects of work. The estimates on horizontally mismatched only suggest that the mismatch in the field of study has a much larger relative impact on satisfaction with non-monetary aspects of work (compared to overeducation and overkilling). However, the horizontal mismatch does not have significant effects on satisfaction with wages. On the whole, our results agree with the estimates [Bender, Heywood, 2009; Beduwe, Giret, 2011; Kolosova, Rudakov, Roshchin, 2020; Wolniak, Pascarella, 2005] about the negative impact of horizontal mismatch on job satisfaction.

Overskilling is the only type of mismatch that reduces satisfaction with all aspects of the job, including wages. This “pervasive” negative impact of overskilling on various aspects of job satisfaction can be seen as indirect evidence that these kinds of mismatches are a key determinant of workers’ job satisfaction. This finding is essentially in line with previous studies [Badillo-Amador, Vila, 2013; Green, Zhu, 2010; Mateos-Romero et al., 2018].

All types of job mismatches considered separately and, in their combinations, most strongly reduce the professional satisfaction and moral satisfaction. A weaker relationship was found with regard to wages, as well as such non-monetary aspects of work as the regime and working conditions. In sum, the results indicate that intrinsic com-

Table 2

Impact of job mismatches on different aspects of job satisfaction

Variable	Salary	Job security	Work responsibility	Working condition	Working schedule	Professional satisfaction	Moral satisfaction
Men (ref — women)	0.428*** (0.031)	0.011 (0.039)	0.080 (0.041)	-0.062 (0.045)	0.082 (0.048)	0.115** (0.037)	0.152*** (0.039)
Age	0.006*** (0.001)	0.006*** (0.002)	0.012*** (0.002)	0.003*** (0.002)	0.016*** (0.002)	0.011*** (0.002)	0.013*** (0.002)
Married (ref — unmarried)	0.036 (0.030)	0.085* (0.039)	0.046 (0.041)	0.001 (0.046)	0.00 (0.049)	0.062 (0.037)	0.109** (0.038)
Urban (ref — rural)	-0.051 (0.037)	-0.165*** (0.050)	0.042 (0.050)	0.123* (0.054)	-0.064 (0.061)	-0.105* (0.046)	-0.097* (0.048)
Employed in the formal sector (ref — informal)	-0.150* (0.059)	0.649*** (0.065)	0.043 (0.073)	0.344*** (0.076)	0.352*** (0.081)	0.232*** (0.064)	0.211** (0.067)
Permanent contract (ref — temporary)	0.059 (0.054)	0.605*** (0.060)	0.308*** (0.066)	0.274*** (0.072)	0.164* (0.078)	0.459*** (0.059)	0.342*** (0.062)
Working week duration	0.005** (0.002)	-0.005* (0.003)	-0.011*** (0.003)	-0.017 (0.003)	-0.058*** (0.004)	-0.009*** (0.003)	-0.007* (0.003)
<i>Working conditions (ref — good)</i>							
Bad	-0.530*** (0.068)	-0.837*** (0.078)	-1.106*** (0.079)	-2.199*** (0.082)	-1.553*** (0.087)	-0.460*** (0.077)	-0.638*** (0.079)
Satisfactory	-0.264*** (0.030)	-0.378*** (0.040)	-0.576*** (0.042)	-1.178*** (0.052)	-0.810*** (0.053)	-0.315*** (0.037)	-0.419*** (0.039)
<i>Type of job match (ref — match)</i>							
Overedu only	0.066 (0.781)	-0.300** (0.102)	-0.108 (0.112)	-0.327** (0.114)	-0.355** (0.117)	-0.464*** (0.097)	-0.504*** (0.099)
Overskill only	-0.225*** (0.036)	-0.296*** (0.052)	-0.275*** (0.054)	-0.204** (0.061)	-0.149* (0.065)	-0.419*** (0.050)	-0.352*** (0.052)
Hor mis only	-0.143 (0.096)	-0.645*** (0.120)	-0.432** (0.134)	-0.559*** (0.148)	-0.407* (0.158)	-0.817*** (0.114)	-0.610*** (0.124)
Overedu and overskill	-0.291*** (0.057)	-0.596*** (0.072)	-0.709*** (0.074)	-0.647*** (0.081)	-0.436*** (0.087)	-1.016*** (0.067)	-0.810*** (0.071)
Overedu and hor mis	-0.314*** (0.079)	-0.720*** (0.095)	-0.556*** (0.103)	-0.968*** (0.103)	-0.630*** (0.113)	-1.333*** (0.087)	-1.013*** (0.093)
Overskill and hor mis	-0.514*** (0.066)	-0.801*** (0.081)	-0.806*** (0.085)	-0.516*** (0.100)	-0.469*** (0.104)	-1.047*** (0.077)	-1.074*** (0.079)
Triple mis	-0.828*** (0.050)	-1.072*** (0.061)	-1.269*** (0.062)	-1.120*** (0.070)	-0.781*** (0.075)	-2.031*** (0.058)	-1.621*** (0.060)
R ²	0.038	0.079	0.083	0.144	0.105	0.140	0.101
Observations	20 244	20 248	20 262	20 257	20 261	20 171	20 129

Notes: robust standard errors are in brackets; * — $p < 0.05$, ** — $p < 0.01$, *** — $p < 0.001$.

ponents of job satisfaction mostly suffer from job mismatches, to a lesser extent — extrinsic factors.

Our results differ from those gained by [Peiro, Agut, Grau, 2010]. However, it should be noted that they were obtained with respect to overeducation only.

The combination of the two types of mismatches increases the impact on dissatisfaction. The accumulative effect is vividly illustrated by the overeducation and horizontal mismatch estimates. These types of mismatches, considered separately, do not have a statistically significant effect on salary satisfaction, but their combination reduces salary satisfaction. Not surprisingly, the combination of the three types of mismatches has the maximum negative impact on the satisfaction with all aspects of work.

How can the results be interpreted? As claimed by [Mavromaras et al., 2013], there might be different reasons, why individuals become mismatched, and this mismatch would be a source of dissatisfaction, or would not depend on the individual's expectations. Some individuals may accept the job for which they are overeducated or overskilled, if, in turn, it offers them some compensating advantages. The compensating advantages can be both monetary and non-monetary (for example, lesser stress or commuting time). Where a mismatch does not appear to reduce job satisfaction, it is more likely that this mismatch reflects a voluntary choice of the employee or, if not voluntary, an option associated with a certain benefit (compensation). If the job mismatch is involuntary (for example, as a result of the lack of highly qualified jobs or jobs in the received specialty), then it would be a source of individual dissatisfaction, since it would reflect a discrepancy between aspirations and actual job opportunities [Ferrante, 2009; Artés, Salinas-Jiménez, Salinas-Jiménez, 2014]. Based on the estimates obtained, we can assume that the work not in accordance with the specialty or in the workplaces requiring a lower level of formal education in the Russian conditions often involves the

work with a good and/or acceptable salary as it is viewed by the employee, but with limited opportunities for self-actualization, professional development and training, and a lower social value of the work. The satisfactory or at least not dissatisfying level of pay compensates for overeducated and horizontally mismatched workers the unsatisfactory substantive aspects of the work. In addition to wages, work responsibilities are, to some extent, compensating the job attribute for overeducated workers. Our results are consistent and partly explain the results of [McGuinness, Sloane, 2011; Baddillo-Amador, Vila, 2013; Sánchez-Sánchez, McGuinness, 2015] about a weaker or neutral effect of overeducation on overall job satisfaction compared to overskilling. However, these findings require more detailed empirical studies.

Job search

Our results (Table 3) show that mismatches do have real consequences, in terms of on-the-job search behavior. Overeducated and overskilled workers are more likely to be engaged in job search. The same results were obtained [Wald, 2005; Maynard, Joseph, Maynard, 2006; McGuinness, Wooden, 2009; Maynard, Parfyonova, 2013]. But horizontally mismatched individuals are exception. The work outside the specialty does not affect the job search. J. Allen, R. Van der Velden and A. Shevchuk with coauthors didn't find a relation between the horizontal mismatch and on-the-job search [Allen, Van der Velden, 2001; Shevchuk, Strebkov, Davis, 2015]. The relative impact of education and skill mismatches on job search has approximately the same effect. Our results do not match the estimates [Allen, Van der Velden, 2001; Mavromaras et al., 2013]. Nevertheless, J. Allen, R. Van der Velden [Allen, Van der Velden, 2001] showed that skill mismatches did have a stronger effect on on-the-job search, but K. Mavromaras with coauthors found a stronger influence on overeducation [Mavromaras et al., 2013].

Table 3

Impact of job mismatches on job search

Variable	B (s. e.)
Men (<i>ref</i> — <i>women</i>)	0.080 (0.054)
Age	0.004 (0.018)
Age squared	-0.001*** (0.000)
Married (<i>ref</i> — <i>unmarried</i>)	-0.290*** (0.052)
Urban (<i>ref</i> — <i>rural</i>)	0.081 (0.069)
Employed in the formal sector (<i>ref</i> — <i>informal</i>)	-0.583*** (0.080)
Permanent contract (<i>ref</i> — <i>temporary</i>)	-0.733*** (0.077)
Working week duration	-0.004 (0.003)
<i>Working conditions (ref — good)</i>	
Bad	0.326** (0.106)
Satisfactory	0.199*** (0.054)
<i>Type of job match (ref — match)</i>	
Overedu only	0.425** (0.155)
Overskill only	0.566*** (0.082)
Hor mis only	0.031 (0.241)
Overedu and overskill	0.861*** (0.105)
Overedu and hor mis	0.832*** (0.141)
Overskill and hor mis	1.217*** (0.113)
Triple mis	1.797*** (0.086)
R^2	0.153
Observations	20 226

Notes: robust standard errors are in brackets; * — $p < 0.05$, ** — $p < 0.01$, *** — $p < 0.001$.

Obviously, such conflicting results require further empirical research and analysis. The combination of the two types of mismatches increases the likelihood of finding a job, especially when overskilling is accompanied by the horizontal mismatch. Employees with a triple mismatch on education, skills and the field of study are most likely to look for alternative employment.

CONCLUSION

The study of job mismatches has attracted much interest in the last decades. The focus on this issue is explained by the massification of higher education, the growing proportion of the population with higher education, especially at young ages. As a result, there is growing concern about potential overinvestment in education, the problem of absorption by the labor market of the growing supply of qualified workers.

The study shows that the job mismatches are a vital problem for the Russian labor market. Almost three-quarters of employees with higher education face at least one type of mismatch. Only 26.4% of them work in a matched job to their education, skills and the field of study. The most significant scale of the skill mismatch is when 63.2% of employees are overqualified, and for 57% of them overqualification is the only type of the job mismatches. Hence, focusing on overeducation and the horizontal mismatch may neglect other relevant sources of mismatches.

We have found that all types of mismatches analyzed separately or in combination with each other reduce the likelihood of satisfaction with non-monetary labor characteristics. The strongest negative relationship was seen regarding professional and moral satisfaction, the weakest — concerning the satisfaction with the working regime and working conditions. To conclude, the results indicate that intrinsic components of job satisfaction mostly suffer from job mismatches, to a lesser extent — extrinsic factors.

Another key fact is that pay satisfaction is not influenced by overeducation only and by the horizontal mismatch only, but it is clearly reduced by overskilling, either on its own, or jointly with the two other types of mismatches. Thus, skill mismatch is much better predictor of job satisfaction than educational and horizontal mismatches. This allows us to assume that to some extent a job not in the specialty or a job requiring a lower formal level of education (i.e., non graduate job), may prove to be voluntary or, if not voluntary, but considered to be not harmful (from the employee's point of view). In this case, for overeducated and horizontal mismatched workers, the salary acts as a compensation for the substantive aspects of labor. For overeducated workers, another compensating characteristic of labor is work responsibilities. In the case of overskilling, which increases the likelihood of dissatisfaction by all aspects of the job,

compensating job attributes are missing. As a result, skill mismatches appear to reduce severely workers' overall job satisfaction.

Our study found that employees, who mismatched (with the exception of the mismatched in the field of study only), were more likely to be searching for a new job, especially among those, who were double and triple mismatched.

The results obtained in this study have certain practical implications. At the macro level, solving the problem of job mismatches involves the growth of general levels of job quality within the Russian economies, the reduction of the share of low-skilled jobs, modernization of labor relations. At the organizational level, the HR policy of firms should be focused on employees, who feel their skills are underutilized. This is due to the significant scale of overskilling, which significantly exceeds the size of overeducation and the horizontal mismatch in the Russian firms. In addition, it is in the case of skill mismatching that satisfaction with all aspects of work (both monetary and non-monetary) decreases. Since there have been no compensating job attributes, the skill mismatch is perceived by workers as a more relevant problem than education and horizontal mismatches⁶. Supervisors and HR managers face the task of identification of overskilled workers and then consider the ways to empower the employees through the increased involvement in decision-making, offering more advanced job assignments. The improvement of job mismatches would raise workers' satisfaction and reduce the turnover intention, and could be translated into the enhanced productivity at the organizational level, for the whole economy as well.

⁶ This conclusion is confirmed by the results of the research in the field of organizational psychology that employees, who are under-using their skills, have greater psychological costs in terms of job dissatisfaction compared to overeducated workers [Erdogan, Bauer, 2021; Harari, Manapragada, Viswesvaran, 2017].

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Влияние образовательного и квалификационного несоответствия на удовлетворенность трудом и потенциальную текучесть российских работников

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Цель исследования: проанализировать влияние различных видов несоответствий (вертикального, горизонтального, квалификационного) на российском рынке труда, рассматриваемых отдельно и в разных сочетаниях друг с другом, на удовлетворенность работой и намерение ее поменять. **Методология исследования:** метод исследования основан на выделении восьми взаимоисключающих групп, отличающихся сочетанием трех типов соответствий, — от полностью совпадающих до тройного несовпадения. **Результаты исследования:** все виды несоответствия, анализируемые отдельно или в сочетании друг с другом, снижают вероятность удовлетворенности неденежными характеристиками труда. Наиболее сильная негативная связь обнаружена в отношении профессиональной и моральной удовлетворенности, наиболее слабая — касается удовлетворенности режимом и условиями труда. Удовлетворенность заработной платой не зависит от избыточного уровня образования и горизонтального несоответствия, но ее снижает чрезмерная квалификация, рассматриваемая отдельно или наряду с двумя другими типами несоответствия. Всевозможные несовпадения (за исключением горизонтального) повышают вероятность намерения поменять работу. **Оригинальность и вклад авторов:** в исследовании основное внимание уделяется сочетанию трех видов несоответствия и многомерному показателю удовлетворенности работой. Такой подход позволил более эффективно выявить, на какие аспекты удовлетворенности работой больше всего повлияли несоответствия. Кроме того, статья расширяет понимание влияния несоответствия должностей на немонетарные результаты рынка труда. Согласно полученным результатам, при управлении человеческими ресурсами компаниям следует уделять основное внимание сотрудникам, которые считают, что их навыки используются недостаточно.

Ключевые слова: избыточный уровень образования, избыточная квалификация, горизонтальное несоответствие, удовлетворенность работой, намерение покинуть организацию, Россия.

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Appendix

**Groups of mismatches: personal and employment characteristics
(means and standard deviations or percentages)**

Variable	Total	Match	Overedu only	Overskill only	Hor mis only	Overedu and overskill	Overedu and hor mis	Overskill and hor mis	Triple mis
<i>Personal characteristics</i>									
Male	40.9	33.1	47.1	40.3	44.0	50.8	45.7	45.3	46.0
Age	41.4 (11.61)	42.9 (11.46)	40.0 (10.99)	41.2 (10.62)	43.7 (11.30)	38.4 (10.32)	42.2 (12.59)	41.1 (10.52)	40.1 (11.76)
Married	66.4	66.1	68.8	66.2	71.1	67.2	65.7	69.4	64.1
Urban	82.6	82.4	80.9	83.2	83.3	83.9	79.5	84.3	80.8
Work experience	18.1 (11.0)	19.5 (11.39)	16.8 (10.52)	18.0 (10.57)	20.3 (11.41)	15.4 (10.06)	18.8 (12.32)	18.0 (10.46)	16.7 (11.24)
<i>Employment characteristics</i>									
Employed in the formal sector	87.6	93.2	89.4	92.5	79.1	87.5	75.0	78.5	72.1
Permanent contract	91.8	93.3	90.2	94.2	90.7	90.3	84.9	90.3	85.6
Working week duration	39.4 (7.79)	38.6 (7.54)	40.8 (7.07)	39.2 (7.04)	39.5 (8.65)	40.2 (7.98)	39.7 (9.08)	40.4 (8.24)	39.8 (9.21)
Physically hard work	10.1	6.6	18.8	7.9	4.8	18	18.1	5.9	16.4
Dangerous job	20.2	12.8	32.0	16.0	12.0	37.6	36.2	14.7	32.6
Harmful work	9.6	6.8	15.1	7.9	4.2	15.5	14.6	8.0	15.1
Observations	20 276	5349	781	7275	550	1661	776	1236	2648

Note: standard deviations are in brackets.