Determinants of Job Satisfaction in Young Russian Workers

by Francesco Bartolucci[*], Aleksandra Bashina[°], Giovanni S. F. Bruno[**]

Olga Demidova[°] and Marcello Signorelli[*]

Abstract

A growing economic literature regards the analysis of job satisfaction; however, as for young people the investigations are still scarce. In this paper we analyse job satisfaction among Russian young workers by using the data collected for four items, the first of which concerns the general satisfaction about the job; the other three items concern specific aspects of job satisfaction with respect to work condition, earning, and opportunity for professional growth. The corresponding response variables are categorical with five ordered categories, from "absolutely unsatisfied" to "absolutely satisfied". The longitudinal dataset also contains personal information about the respondents (gender, age, marital status, number of children, educational level, etc.). We estimate ordered logit models of job satisfaction with individual fixed effects for a panel data of Russian young workers, carrying out separate analyses for the general job satisfaction variable and three variables on specific aspects of job satisfaction. If wages adjusted to fully compensate workplace disamenities, we would expect that differences in job satisfaction across individuals would not be systematically related to wage differentials, ceteris paribus. But this is not the case for our panel: for all but one of the samples considered there is at least one job satisfaction variable with a significantly positive wage effect. We, therefore, interpret this result as a failure of the theory of compensating wage differentials in the Russian youth labour market. There is the interesting exception, though, that compensating wage differentials do seem at work among the older subjects in the panel. Our estimates also show strong gender and location effects.

JEL codes: J28, J81

Key words: job satisfaction, young people, Russia

[*] Department of Economics, University of Perugia.
[°] National Research University Higher School of Economics, Moscow.
[**] Bocconi University, Milan.

1. Introduction

The economic literature shows a growing analysis of determinants and features of job satisfaction, but as for young people the investigations are still scarce and mainly focussed on developed countries (Bruno et al. 2013 studies the job-satisfaction of Italian young workers on survey data). In this paper we analyse job satisfaction among Russian young workers.

The job satisfaction of Russian workers has been studied in papers such as Linz (2003) and Linz and Semykina (2012), both based on cross-sectional data, and Senik (2004) based on panel data. Frijters et al. (2006), focused on life satisfaction in Russia. All the above studies pool workers of any age in the data, maintaining constant marginal effects across young and adult workers.

The data used in this paper have been collected for four items, the first of which concerns the general satisfaction about the job; the other three items concern specific aspects of job satisfaction with respect to work condition, earning, and opportunity for professional growth. The corresponding response variables are categorical with five ordered categories, from "absolutely unsatisfied" to "absolutely satisfied". The longitudinal dataset (2006-2010/2011) also contains personal information about the respondents that we deal with as covariates: gender, age, marital status, number of children, educational level, and working leave. In order to analyse the above data, we employed a fixed-effect ordered logit estimator (Das and Van Soest 1999, Ferrer-i-Carbonell and Frijter 2004; Baetschmann et al. 2011).

The paper structure is the following. The next section surveys the existing estimation strategies in the job satisfaction literature. Section 3 presents the theoretical framework, while the dataset is described in Section 4 and the following section is dedicated at highlighting the key research question and to discuss the factors (potentially) affecting job satisfaction. Section 6 contains the econometric model and the results are summarized in Section 7. Final remarks are presented in the last Section.

2. Existing Estimation Methods

A non-structural approach to the analysis of job satisfaction may be based on linear projections of the declared satisfaction scores. For example, Hanglberger (2011) to assess the short- and long-term well-being effects of changes in working conditions uses the Least Squares Dummy Variables estimator (LSDV) on the BHPS data set. Chadi and Hetschko (2013) applies OLS methods, checked for robustness by propensity score matching estimators, to German survey data (GSOEP).

We choose to follow a structural approach, which recognizes that underlying the declared satisfaction scores there is a family of possibly heterogeneous individual utility functions and, as such, is more suitable for a causal analysis. This brings into play non-linear panel data methods for the estimation of latent regression models, along with the well-known incidental parameter problem, which warns from using individual indicators to accommodate latent heterogeneity in

panel data models with small clusters of individuals. The following is a list of the most common solutions to the incidental parameter problem in the panel-data literature. One may estimate the latent regression model by a random effect (RE) ordered probit with the individual components modelled à la Mundlak, through a linear combination of regressors taken in group means (Wooldridge 2010). Senik (2004) applies this method to the 1994-2000 waves of the RLMS data to investigate the impact of income distribution on the job satisfaction of Russian workers. The same method is applied by Salvatori (2010) to the ECHP data to estimate the impact of labour market policies on the well-being of European permanent and temporary workers. A convenient estimation strategy, related to the RE ordered probit à la Mundlak, is based on a fixed effect (FE) extension of the linear approach to ordered response models described in Van Praag et al. (2004) and (2006), also known as probit OLS (POLS). Papers using FE POLS as the main estimator are Green and Leeves (2011) on Australian data; Bruno et al (2013) on Italian survey data of young workers and Pagán (2013) on the SHARE data for 11 European countries. RE POLS can always be implemented as an alternative to FE POLS. Indeed, Van Praag et al. (2004) advocate the use of the former for two reasons: 1) if valid, it is more efficient and 2) it can identify effects of time-constant variables, such as gender. It must be considered, however, that RE POLS is less robust than FE POLS to correlated individual effects. In addition, if the time constant variable of interest is qualitative with a few categories, such as gender, its impact can be assessed at the most general level, that is on the whole set of coefficients, carrying out separate FE estimators on the subsamples corresponding to each category (see Bruno et al. 2013). Van Praag et al. (2006) show that ordered probit and POLS estimates are almost identical up to a proportionality coefficient. Bruno et al. (2013) demonstrate that the probit analogous of the FE POLS is the RE Ordered Probit à la Mundlak. All the foregoing methods share the disadvantage of modelling the unobserved individual heterogeneity through group means, which is restrictive in non-linear models. Two popular panel-data methods that obviate this problem are both based on the Chamberlain conditional logit estimator, where the individual effects are conditioned out in the log-likelihood function: the fixed-effect ordered logit minimum distance estimator by Das and Van Soest (1999), and its popular variant by Ferrer-i-Carbonell and Frijter (2004). Recent applications of the latter estimator are Bockerman et al. (2011) on linked-employer-employee Finnish data and de Graaf Zijl (2012) on Dutch data. Baetschmann et al. (2011), though, prove that the various ways through which the Ferrer-i-Carbonell and Frijter's method has been implemented leads to inconsistent estimators. They, therefore, rectify the method to make it consistent and computationally simpler. For all these reasons we base our econometric strategy on the estimator by Baetschmann et al. (2011). Among a few studies applying this estimator, Buddelmeyer et al. (2013) applied it to Australian data.

3. The Theoretical Model

Job disamenities are important factors of job satisfaction. In this section we focus on what effects can be identified in a job satisfaction model incorporating job disamenities as latent variables.

Let $u = U(w, D, Z, \tilde{}_u)$ denote the utility function of an employee, where w, D and Z are, respectively, the wage, the $k_D \times 1$ vector of job disamenities and the $k_Z \times 1$ vector of employee's observed characteristics, $\tilde{}_u = r + v$ is a latent variable comprising a zero-mean, uncorrelated, idiosyncratic component, v, and a possibly correlated latent heterogeneity component, r. The utility function is increasing in the wage and decreasing in the job disamenities, that is $\partial_w U > 0$ and $\partial_D U < 0$.

The theory of compensating wage differentials predicts that higher job disamenities are compensated by higher wages and so postulates the existence of a relationship between the market wages and the job disamenities, the so called hedonic wage equation, $w = w(D, X, \tilde{}_w)$, where $\partial_D w > 0$, X, is a vector of wage determinants that may partly overlap with z and $\tilde{}_W$ is a latent heterogeneity component. The hedonic wage equation represents the combinations of job disamenities and wages offered by the firms to the workers. In competitive markets it is an envelope of zero profit conditions. Given the hedonic wage equation, workers maximize their utility functions sorting into the jobs with the desired amount of disamenities. More formally, plugging the wage equation into the utility function gives

$$u = U\left[w(D, X, \tilde{}_w), D, Z, \tilde{}_u \right]$$

and if job disamenities are optimally chosen by the workers, we have the system of k_D equations equations

$$\partial_w U \cdot \partial_D w + \partial_D U > 0 \tag{1}$$

Bockerman et al. (2011) show that, with a linear utility function and a linear wage equation, the constraints implied by the foregoing system make D disappear from the reduced form utility function incorporating $w(D, X, \tilde{}_w)$:

$$U\left[w(D, X, \tilde{}_w), D, Z, \tilde{}_u \right] \equiv U^*(D, X, Z, \tilde{}_w, \tilde{}_u).$$

In fact, if $u = s_0 + s_w w + s_Z' Z + s_D' D + \tilde{}_u$ and $w = \}_0 + \}_X' X + \}_D' D + \tilde{}_W$, then

$$\begin{aligned} u &= s_0 + (s_w \}_D' + s_D') D + s_w \}_X' X + s_Z' Z + s_W \tilde{}_W + \tilde{}_u \\ &= s_0 + s_w \}_X' X + s_Z' Z + s_W \tilde{}_W + \tilde{}_u, \end{aligned} \tag{2}$$

where the second equality follows from System (1). Based on Equation (2), Bockerman et al. (2011) argue that if compensating wage differentials are at work and job disamenities are observed, the D variables are redundant in a satisfaction regression excluding the wage and including X and Z. Their approach does not require that the wage variable be included into the regression and as such dispenses with accommodating the endogeneity of wages, stemming from the correlation of w

and $\sim_w$. We cannot replicate the test by Bockerman et al. (2011) since job disamenities are latent in our specification. Nonetheless, a test dual to Bockerman et al.'s can be applied in our case. To elaborate, Equation (2) has the strong implication that u and (w,D) are mean independent conditional on X, Z and $\sim_w$, which is operational in a panel framework if we further assume that $\sim_w$ is time-constant. Indeed, Equation (2) establishes that in the presence of compensating wage differentials the wage is redundant in a job satisfaction regression excluding the job disamenities and including X, Z along with fixed effects absorbing Γ and $s_w \sim_w$, which can be easily tested within a job satisfaction model including the wage as an explanatory variable. If wage differentials, instead, are not related to job disamenities, we expect to estimate a significantly positive wage effect, $Ð_w U$. If wage differentials only partially compensate for job disamenities, then the estimated wage effect can be affected by an attenuation bias due to the positive correlation between w and D and $Ð_D U < 0$ (for a similar approach see also Lalive 2002 and Clark 2003).

4. Characteristics of the Database and Descriptive Statistics

Our analysis is based on results of the Russian Longitudinal Monitoring Survey (the RLMS) – the household-based survey designed for measurement of individual and household economic wellbeing. The survey is conducted by the National Research University Higher School of Economics and ZAO "Demoscope" together with Carlina Population Center (University of North Carolina) and the Institut of Sociology RAS. The questionnaire contains different modules of questions regarding individual and household characteristics. Also it should be mentioned, that the sets of questions differ from wave to wave. However, in this paper we use only information collected in every round of the survey. We use individual data about young people from 15th, 16th, 17th, 18th and 19th waves of the survey. These waves were conducted in 2006, 2007, 2008, 2009 and in the end of 2010 – beginning of 2011 years, respectively[1]. Although the target number of respondents is constant for every wave, the set of respondents differ from wave to wave: some of them move to another address or refuse to participate in further rounds and vanishes from the set of respondents. By young people we mean persons whose age was between 16 and 26 years during the 19th wave of the survey. We fix the age at the time of last wave for keeping respondents "young" till the end of the examined time period. Obviously, it limits the number of observation, which can be used for analysis (Table A1 in Appendix). However such kind of limitation is inevitable if we want to keep the data homogeneous.

The sample size is 1938 observations after removing observations with missing data. We use four types of variables as characteristics of job satisfaction: satisfaction about the job as a whole, about work conditions, about earnings and about opportunity for professional growth. These variables are categorical and change their values from "absolutely unsatisfied" to "absolutely

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[1] We do not use data collected during earlier waves of the survey due to problem of sample exhaustion.

satisfied", respectively corresponding to the lowest and highest value of the dependent variable. We use as covariates respondent's personal characteristics: age, gender, marital status, number of children, educational level and working leave (as for their distributions, see table A2 in Appendix). As additional descriptive statistics we present the conditional score for each item given covariate (Table 1). We highlight that one of the most relevant factor affecting all items is related to wages (expressed in ppp). If we distinguish individuals with a wages inferior or superior with respect to the median threshold (near 10,000 in ppp) we find significant higher values of the conditional scores for those with higher wages. In addition, we should note that the lowest satisfaction is with respect to earnings (item 3) and (even if better) opportunity for professional growth (item 4). As for most of the other covariates, the conditional scores of job satisfaction (for each item) are quite similar (with slightly higher values for "single", "male", persons not "on leave", with a "higher educational level" and living in "capitals"), while the values are highest in absence of children and they decline with the number of children (especially with a number of children higher than 1).

Table 1 - Conditional score for each item given the covariates

covariate	modality	item 1	2	3	4
marital status	single	2.583	2.581	1.878	2.075
	together	2.567	2.514	1.740	2.001
children	0	2.606	2.604	1.860	2.084
	1	2.519	2.446	1.711	1.935
	>1	2.373	2.190	1.532	1.889
educational level	lower	2.512	2.397	1.833	2.010
	base	2.557	2.512	1.781	2.002
	high	2.665	2.743	1.877	2.156
gender	male	2.601	2.534	1.875	2.083
	female	2.551	2.560	1.750	1.995
age age.high	<=23	2.528	2.524	1.775	2.025
	>23	2.632	2.577	1.851	2.053
working status	on leave	2.437	2.408	1.751	1.953
	working	2.586	2.559	1.814	2.044
hours	<=40	2.614	2.631	1.777	2.100
	>40	2.523	2.437	1.851	1.954
wages(ppp)	<=10,000	2.408	2.416	1.495	1.832
	>10,000	2.751	2.687	2.141	2.254
living	capital	2.615	2.613	1.882	2.058
	city	2.571	2.570	1.740	2.065
	other	2.501	2.396	1.743	1.967
year	2006	2.459	2.433	1.607	1.889
	2007	2.537	2.447	1.791	2.021
	2008	2.529	2.529	1.885	1.967
	2009	2.557	2.607	1.798	2.074
	2010	2.633	2.576	1.826	2.081
Overall		**2.575**	**2.548**	**1.809**	**2.037**

Legend: item 1 = general job satisfaction; item 2 = satisfaction concerning work condition; item 3 = satisfaction concerning earnings; item 4 = satisfaction concerning opportunity for professional growth.

Note: all items range from 0 (absolutely unsatisfied) to 4 (absolutely satisfied). The score is the weighted average of the numbers from 0 to 4 with weights equal to the conditional frequencies given each covariate configuration.

5. Key Research Question and Factors Affecting Job Satisfaction

As anticipated by the theoretical model presented in Section 3, our key research question is to test the validity or not of the theory of compensating wage differentials and, more generally, to investigate the role of wage levels in determining job satisfaction.

We distinguish three types of factors influencing the job satisfaction level: job characteristics, personal characteristics of the respondent and external factors including family characteristics and place of residence type. Let us discuss assumptions about the role of these factors starting from most important - in our point of view - job characteristics. The main idea here is that better working conditions lead to higher satisfaction level. As mentioned above, wage level is most important factor in this situation and the higher wage leads to higher satisfaction level in case of rejection of our main hypothesis stated in Section 3. For length of the working week we expect negative influence: people are happier when they work less, especially young people, who need more time for education and socialisation. However, taking into account the fact that usually the length of working week is fixed for an employee, we can receive insignificant influence on satisfaction level due to low variability of this characteristics in our sample. It is also useful to take into account the working status of the respondent (i.e. whether respondent works or is on leave) in order to verify potential different effects on satisfaction.

Another group of characteristics influencing the job satisfaction includes personal characteristics of the respondent. We think that the same job can lead to different satisfaction levels for different people. We discuss three types of personal characteristics in this paper: age of the respondent, his/her education and gender. For age, the proposition about nonlinear dependence is usual. In our research, we can come to the conclusion that influence is linear because of the fact, that all respondents are young in our sample – maximal difference in age between the respondents is 11 years. In this situation linear approximation can give reliable results and help to avoid the problem of multicollinearity and reduce the number of estimated parameters. Another important respondent characteristic is educational level of the respondent. We think that on the one hand, expectations from the work are lower for respondents with lower education, on the other hand, their dissatisfaction with life in general and work can be higher due to lesser number of opportunities to change their work. However, we should also consider that young people with higher education could be less satisfied due to overeducation (or bad matching). We distinguish three groups of respondents: people with graduate and postgraduate education, people with secondary and secondary professional education and people with lower educational level. Also, we should take

into account possible influence of respondent's gender. We think that the same factors can influence on the satisfaction level for women and men in the different ways. This proposition is common for majority of papers about job.

The third group of factors includes external characteristics of the respondent's life. The first part of this set of factors consists of family characteristics of the respondent including his/her marital status and the presence of children in the family. We think that married people with children have higher level of needs and as a result wait more from their work; consequently, job satisfaction level for these respondents would be lower. However, the presence of (a higher number of) children could increase job satisfaction in terms of a higher perceived utility of having a job (and an income to use also for children) with respect to be unemployed (a condition that can be dramatic especially in presence of children)[2]. The last factor employed in our analysis is type of the respondent's residence place. We expect that people living in big cities will be more satisfied with their job because they have more opportunities for finding the suitable work than people living in villages.

6. The Econometric Model

We consider an econometric model in which each observed ordinal response is seen a discretized version of a certain type of satisfaction conceived as continuous a latent variable depending on fixed effects (for the unobserved heterogeneity) and the covariates. In particular, for each response variable $j = 1, ..., J$, the latent variable for subject $i = 1, ..., n$ at occasion $t = 1, ..., T$ satisfies the model:

$$y_{ijt}^* = \alpha_{ij} + x_{it}'\beta_j + \varepsilon_{ijt}, \qquad i = 1, ..., n, \qquad j = 1, ..., J, \qquad t = 1, ..., T,$$

where ε_{ijt} are independent random error terms with standard logistic distribution. Then the ordinal observed variables y_{ijt} are obtained by discretizing the latent variables according to a series of cutpoints $\tau_0, ..., \tau_{c-1}$ where c is the number of ordered response categories, from 0 to $c - 1$; we have that:

$$y_{ijt} = f(x) = \begin{cases} 0, & -\infty < y_{ijt}^* \leq \tau_1, \\ \vdots \\ c - 1, & \tau_{c-1} \leq y_{ijt}^* < \infty. \end{cases}$$

In order to estimate the model we adopt the method described in Baetschmann et al. (2011) based on maximizing a log-likelihood function based on all the possible dichotomizations of the response variables. In particular, for dichotomization d, with $d = 1, ..., c - 1$, we transform the

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[2] Obviously, also country specific conditions could play a key role. Here we just recall few information about few "rules" and the Russian system of support for families with children: (i) every healthy men aged 18-27 years should pass military service; men with two children are exempt from military service; (ii) Russian woman caring for a newborn baby (up to three years) can not be fired; after the birth of her second child family receives a so-called "maternity capital", which can be used, for example, to improve housing conditions. Some of the above mentioned conditions could explain a positive effect of the number of children on job satisfaction, especially for younger people. At the same time they may be less important for "older" people, where the presence of a higher number of children may strongly limit the career growth without possibility of the existing benefits to compensate career loss.

every response variable y_{ijt} in the binary variable $z_{ijt}^{(d)} = 1\{y_{ijt} \geq d\}$, where $1\{\cdot\}$ denotes the indicator function equal to 1 if its argument is true and to 0 otherwise. It is easy to observe that the above assumptions imply the following logit model on these dichotomized variables:

$$\log \frac{p\left(z_{ijt}^{(d)} = 1 \middle| \alpha_{ij}, x_{it}\right)}{p\left(z_{ijt}^{(d)} = 0 \middle| \alpha_{ij}, x_{it}\right)} = \alpha_{ij} + x_{it}'\beta_j$$

Therefore, with reference to each response variable j, with $j = 1, \ldots, J$, the log-likelihood that is maximized to estimate the parameter vector β_j has the following expression:

$$l(\beta_j) = \sum_{d=1}^{c-1} l^{(d)}(\beta_j)$$,

where $l^{(d)}(\beta_j)$ is the conditional log-likelihood based on the above logistic model for the dichotomized variables $z_{ijt}^{(d)}$. Standard errors may be computed as usual by a sandwich formula.

The estimator based on the maximization of $l(\beta_j)$ has desirable properties. In particular, it is consistent for β_j even if the unit specific effects α_{ij} are generated from a distribution correlated with the covariates. Moreover, differently from a random-effects approach, such a distribution needs not to be specified. On the other hand, as any other fixed-effects approach, the estimation approach here adopted does not allows to estimate the effect of time-fixed covariates or covariates (e.g., age) which are collinear with time dummies when these are included; the approach may also lack efficiency with respect to a random-effects approach.

7. Econometric Results

We first present results for the overall sample followed by separate analyses by distinguishing by gender, residence places and age of the respondents. We conclude the section interpreting our results as tests of compensating wage differentials, in the light of Section 3.

As for the overall sample (Table 2), wages seems to be the most important covariate, since it significantly (and positively) affects the responses to all four questions. Satisfaction with respect to earnings is also significantly affected by the last time dummy (negatively); a possible explanation is related to the lag in the impact of the financial crisis and "great recession" on the perception of a lower "security on the job" and in terms of higher uncertainty about the future earnings perspectives.

Table 2 - Parameter estimates for the overall sample

	job in general			work condition			earnings			opportunity of growth		
covariate	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value
marital.together	-0.087	0.178	0.623	-0.063	0.177	0.723	-0.208	0.171	0.223	-0.264	0.182	0.148
n.children	-0.061	0.207	0.767	0.071	0.204	0.729	0.188	0.188	0.316	0.223	0.189	0.239
education.base	-0.028	0.270	0.917	0.253	0.292	0.387	-0.206	0.302	0.494	-0.076	0.266	0.776
education.higher	0.073	0.370	0.843	0.462	0.395	0.242	-0.325	0.393	0.409	-0.213	0.358	0.551

	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value
work.leave	-0.172	0.257	0.503	-0.044	0.251	0.861	0.315	0.250	0.208	0.046	0.226	0.839
hours	0.005	0.010	0.608	-0.003	0.009	0.741	0.006	0.009	0.494	0.005	0.009	0.590
wages	**0.035**	**0.012**	**0.004**	**0.032**	**0.011**	**0.004**	**0.080**	**0.017**	**0.000**	**0.030**	**0.011**	**0.007**
2007	-0.047	0.181	0.794	-0.127	0.178	0.475	0.026	0.173	0.881	0.106	0.161	0.510
2008	-0.037	0.183	0.839	0.028	0.186	0.879	0.089	0.188	0.635	-0.121	0.171	0.478
2009	-0.056	0.184	0.763	0.071	0.183	0.698	-0.231	0.196	0.239	0.122	0.181	0.502
2010	-0.033	0.203	0.871	-0.182	0.205	0.375	**-0.459**	**0.215**	**0.033**	0.007	0.199	0.971

Note: in "bold" significant at 10%, in "bold and italic" significant at 5%

As for the separate analysis for the gender (Table 3), we find that the pattern is interestingly different: for women the only significant covariate is wages that positively affects the opinion about job satisfaction with respect to any of the four aspects. A possible explanation is related to the "unpaid work" that is mainly realised by women and that produce - especially for them - a higher opportunity cost of the "paid work" with a consequent higher job satisfaction determined by higher wage levels. As for man the situation is more complex and less clear. For them, being in a couple negatively affects the opinion about satisfaction with respect to opportunity for professional growth; this can be also explained by the fact that married people could have a lower geographical mobility for searching better career opportunities. Having a higher education has a negative effect on the opinion about job satisfaction with respect to earnings, maybe due to overeducation[3] (or bad matching) phenomena; finally, job satisfaction with respect to earnings is positively affected by wage levels, and negatively by the time dummy for the year 2009..

Table 3 - separate parameter estimates for the men and women

men

covariate	job in general			work condition			earnings			opportunity of growth		
	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value
marital.together	-0.093	0.265	0.727	-0.137	0.285	0.629	-0.283	0.264	0.283	**-0.525**	**0.281**	**0.062**
n.children	-0.090	0.249	0.717	0.128	0.256	0.616	0.233	0.255	0.361	0.171	0.253	0.499
education.base	-0.211	0.385	0.583	0.257	0.377	0.495	-0.610	0.372	0.101	-0.136	0.327	0.677
education.higher	-0.118	0.614	0.847	0.569	0.660	0.388	*-1.300*	*0.548*	*0.018*	-0.708	0.555	0.202
work.leave	-0.517	0.899	0.565	0.217	0.610	0.722	0.073	1.091	0.947	-1.672	1.400	0.232
hours	-0.004	0.014	0.778	0.000	0.015	0.989	0.000	0.014	0.980	0.002	0.014	0.899
wages	0.014	0.019	0.456	0.004	0.017	0.802	*0.072*	*0.020*	*0.000*	0.025	0.019	0.183
2007	0.091	0.272	0.737	0.073	0.257	0.777	-0.019	0.238	0.936	-0.010	0.251	0.968
2008	0.203	0.279	0.467	0.342	0.278	0.219	0.057	0.265	0.829	0.004	0.269	0.987
2009	0.106	0.277	0.703	0.187	0.269	0.488	**-0.521**	**0.277**	**0.060**	0.238	0.274	0.387
2010	0.238	0.307	0.439	-0.012	0.302	0.970	-0.450	0.303	0.137	0.089	0.307	0.772

women

covariate	job in general			work condition			earnings			opportunity of growth		
	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value

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[3] It consists on graduate people that find a job for which it is not necessary or useful to be graduated.

covariate	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value
marital.together	-0.075	0.242	0.758	-0.047	0.223	0.833	-0.156	0.226	0.490	-0.089	0.253	0.726
n.children	-0.003	0.364	0.994	0.126	0.351	0.720	0.186	0.294	0.526	0.337	0.324	0.298
education.base	0.213	0.356	0.549	0.410	0.451	0.363	0.752	0.489	0.124	-0.103	0.427	0.809
education.higher	0.323	0.469	0.490	0.511	0.548	0.351	0.789	0.583	0.176	-0.100	0.516	0.847
work.leave	-0.160	0.306	0.601	-0.038	0.303	0.900	0.303	0.284	0.285	0.068	0.273	0.803
hours	0.012	0.013	0.360	-0.005	0.012	0.698	0.012	0.012	0.321	0.008	0.013	0.519
wages	*0.051*	*0.017*	*0.003*	*0.059*	*0.017*	*0.001*	*0.090*	*0.029*	*0.002*	*0.037*	*0.015*	*0.016*
2007	-0.161	0.244	0.510	-0.310	0.246	0.208	0.028	0.250	0.912	0.198	0.215	0.357
2008	-0.217	0.247	0.380	-0.230	0.252	0.361	0.081	0.270	0.763	-0.232	0.227	0.306
2009	-0.184	0.252	0.466	-0.021	0.251	0.933	-0.018	0.275	0.949	0.034	0.250	0.891
2010	-0.222	0.272	0.414	-0.291	0.277	0.293	-0.490	0.307	0.111	-0.053	0.274	0.846

Note: in "bold" significant at 10%, in "bold and italic" significant at 5%

By distinguishing young people living in capitals, in cities or in other situations (mainly rural areas), we find quite a diversified picture (Table 4). As for subjects living in capitals, the covariate wages (in ppp) has a significant positive role for all types of satisfaction (but with respect to work condition); in other terms a higher job satisfaction for those living in capitals is strongly related to higher wage levels (in ppp); in addition, the educational level has a certain importance on affecting job satisfaction in the case of higher educated subjects; in particular, tertiary level of education negatively affects job satisfaction with respect to job in general and with respect to earnings[4]. As for subjects living in capitals, no covariate seems to have a significant effect on their opinion about job satisfaction about work condition; On the contrary, for subjects living in the cities, this latter item is significantly and negatively affected by marital status and hours of work, and positively by base educational level[5]. Finally, for subjects living in "other places with respect to capitals and cities", it is worth noting the significant and positive effect of wages for two items (2nd and 3rd), confirming again a key role of wage levels in affecting job satisfaction. In addition, the 3rd item, concerning satisfaction with respect to earnings, is significantly and negatively affected by the time dummies (2007-2010), likely due to a structural worsening in the perspectives of rural areas with respect to capitals and cities, also as a consequence of a different geographical and sectoral impact of the international financial crisis and the consequent "great recession".

Table 4 - separate analysis for the capital/city/other

capital

covariate	job in general			work condition			earnings			opportunity of growth		
	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value
marital.together	0.230	0.273	0.398	0.240	0.281	0.392	-0.125	0.248	0.613	-0.049	0.264	0.854
n.children	-0.080	0.294	0.784	0.076	0.334	0.821	0.150	0.279	0.590	0.206	0.281	0.465

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[4] This can be partly explains by the existence of "bad matching" (or overeducation) and a consequent inadequate return for the individual (and family) investment in tertiary education.

[5] In addition, the negative and significant of the 2010 time dummy shows the impact of the crisis on job satisfaction with respect to the job in general for young people living in the cities.

covariate	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value
education.base	**-0.677**	**0.406**	**0.095**	-0.476	0.441	0.281	*-0.952*	*0.386*	*0.014*	-0.407	0.364	0.263
education.higher	-0.559	0.482	0.246	-0.104	0.537	0.846	*-1.232*	*0.497*	*0.013*	-0.533	0.458	0.244
work.leave	-0.049	0.387	0.900	0.088	0.400	0.826	0.410	0.329	0.213	-0.039	0.319	0.902
hours	0.007	0.014	0.592	0.004	0.012	0.757	0.006	0.012	0.630	0.004	0.012	0.775
wages	**0.029**	**0.015**	**0.051**	0.020	0.014	0.159	*0.066*	*0.016*	*0.000*	**0.028**	**0.014**	**0.054**
2007	0.255	0.272	0.350	-0.062	0.252	0.804	0.344	0.240	0.152	*0.559*	*0.224*	*0.013*
2008	0.166	0.262	0.525	0.181	0.278	0.515	0.390	0.265	0.141	0.191	0.245	0.434
2009	0.013	0.268	0.962	-0.007	0.272	0.978	-0.081	0.264	0.758	0.310	0.265	0.243
2010	0.079	0.297	0.791	-0.325	0.313	0.298	-0.126	0.298	0.673	0.158	0.291	0.586

city

	job in general			work condition			earnings			opportunity of growth		
covariate	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value
marital.together	-0.418	0.333	0.210	*-0.684*	*0.343*	*0.046*	-0.306	0.360	0.394	-0.552	0.399	0.167
n.children	0.110	0.408	0.787	0.238	0.349	0.496	0.167	0.334	0.617	0.497	0.352	0.158
education.base	0.349	0.449	0.437	**0.760**	**0.420**	**0.071**	0.431	0.526	0.413	0.356	0.522	0.495
education.higher	0.547	0.716	0.445	0.706	0.764	0.355	0.695	0.751	0.355	0.164	0.715	0.819
work.leave	0.240	0.523	0.646	0.150	0.449	0.738	0.177	0.576	0.758	0.745	0.537	0.165
hours	-0.012	0.023	0.595	*-0.048*	*0.024*	*0.049*	0.004	0.020	0.859	-0.024	0.020	0.224
wages	0.048	0.030	0.104	0.024	0.025	0.344	0.059	0.048	0.217	0.041	0.029	0.167
2007	-0.319	0.345	0.355	0.201	0.370	0.586	0.381	0.357	0.286	-0.212	0.335	0.526
2008	-0.546	0.375	0.145	-0.150	0.393	0.703	0.292	0.410	0.477	-0.489	0.370	0.187
2009	-0.564	0.362	0.119	0.125	0.389	0.747	-0.038	0.426	0.928	-0.447	0.376	0.234
2010	**-0.675**	**0.393**	**0.085**	0.168	0.391	0.669	-0.548	0.478	0.251	-0.335	0.420	0.425

other

	job in general			work condition			earnings			opportunity of growth		
covariate	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value
marital.together	-0.290	0.340	0.393	0.085	0.317	0.788	-0.127	0.365	0.728	-0.300	0.327	0.360
n.children	-0.137	0.450	0.760	-0.168	0.381	0.659	0.382	0.459	0.405	-0.058	0.392	0.883
edu.base	1.075	0.842	0.202	1.188	0.883	0.178	0.302	0.660	0.647	0.424	0.558	0.448
edu.higher	1.102	1.158	0.341	1.201	1.101	0.275	0.411	1.046	0.695	0.518	1.174	0.659
work.leave	**-0.861**	**0.453**	**0.057**	-0.451	0.455	0.321	0.445	0.490	0.363	-0.293	0.408	0.472
hours	0.019	0.018	0.299	0.019	0.018	0.294	0.023	0.017	0.162	*0.043*	*0.020*	*0.036*
wages	0.027	0.033	0.418	*0.063*	*0.030*	*0.036*	*0.153*	*0.030*	*0.000*	0.023	0.030	0.435
2007	-0.381	0.358	0.287	**-0.599**	**0.359**	**0.095**	*-0.936*	*0.333*	*0.005*	-0.470	0.310	0.130
2008	0.004	0.371	0.991	-0.135	0.347	0.696	*-0.858*	*0.342*	*0.012*	-0.390	0.341	0.253
2009	0.238	0.378	0.529	0.052	0.351	0.882	*-1.018*	*0.379*	*0.007*	0.314	0.348	0.366
2010	0.303	0.400	0.450	-0.320	0.394	0.416	*-1.241*	*0.404*	*0.002*	-0.020	0.367	0.957

Note: in "bold" significant at 10%, in "bold and italic" significant at 5%

Finally, we separately consider individuals that are at most 23 years old at the last interview from the other individuals.[6] The results highlight that job satisfaction of younger subjects are much

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[6] It should be considered that 17-18 is the age (in Russia) when people finished secondary school, 22-23 is the age, when some young people received specialist or master degree. Obviously, there is heterogeneity and while some

more sensible to wages; a possible explanation is related to the higher opportunity cost of younger individuals due to a higher potential investment in schooling and other educational or training activities. Interestingly, the wage is never significant for the older subjects, which supports fully compensating wage differentials for this category of workers (we will discuss this issue more in general at the end of this section). In addition, the marital status ("together") negatively affect younger, possibly for the consequent lower geographical mobility. As for the covariate "number of children", it should be noted that, while it has not a significant effect on overall sample, it has a significant effect for the sample of younger people; in particular, the presence of (a higher number of) children positively affect the job satisfaction (with respect to all items) in the case of younger workers; as already mentioned in section 5, a possible explanation refers to the comparative higher perceived value/utility (and satisfaction) of having a job and a labour income (with respect to be unemployed) when it crucially permit a better life and education for children. However, for "older" workers the satisfaction with the job in general is negatively affected by the presence of children, highlighting the need for a deeper investigation[7]. In addition, for younger to be in "work leave" negatively affect the satisfaction with the job in general; while for older the satisfaction with respect to work condition is positively affected by the working hours. As for this latter group it should be mentioned the positive and significant effect of having a tertiary education on job satisfaction with respect to job in general and with respect to work condition[8]. Finally, 2009-2010 dummy variables negatively affect younger satisfaction with respect to earnings, while for older all time dummies have a positive effect on job satisfaction with respect to opportunity of professional growth.

Table 5 - separate analysis for younger and older subjects

younger

covariate	job in general			work condition			earnings			opportunity of growth		
	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value
marital.together	**-0.516**	**0.275**	**0.061**	-0.200	0.289	0.488	*-0.664*	*0.276*	*0.016*	-0.294	0.302	0.331
n.children	*0.720*	*0.334*	*0.031*	**0.624**	**0.363**	**0.086**	*0.781*	*0.317*	*0.014*	*0.797*	*0.305*	*0.009*
education.base	-0.225	0.368	0.541	-0.168	0.357	0.637	-0.107	0.412	0.795	-0.196	0.358	0.584
education.higher	-0.065	0.561	0.907	-0.086	0.608	0.888	-0.842	0.585	0.150	-0.557	0.526	0.289
work.leave	**-0.702**	**0.386**	**0.069**	-0.255	0.387	0.511	0.311	0.415	0.453	-0.340	0.333	0.308
hours	0.000	0.015	0.976	-0.006	0.014	0.654	0.003	0.013	0.827	0.006	0.013	0.606
wages	*0.059*	*0.019*	*0.002*	*0.055*	*0.018*	*0.002*	*0.142*	*0.022*	*0.000*	*0.064*	*0.020*	*0.001*
2007	-0.128	0.218	0.556	-0.271	0.226	0.230	-0.132	0.213	0.537	0.132	0.199	0.506
2008	-0.133	0.252	0.597	-0.215	0.246	0.383	-0.288	0.233	0.217	-0.279	0.239	0.244

							-0.657	0.261	0.012			
2009	-0.234	0.261	0.370	-0.390	0.262	0.136	*-0.657*	*0.261*	*0.012*	-0.088	0.258	0.733
2010	-0.157	0.314	0.618	-0.506	0.313	0.106	*-1.114*	*0.304*	*0.000*	-0.247	0.303	0.414

older

covariate	job in general			work condition			earnings			opportunity of growth		
	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value	est.	s.e.	p-value
marital.together	0.025	0.387	0.949	-0.116	0.424	0.784	0.408	0.312	0.191	-0.288	0.320	0.369
n.children	**-0.744**	**0.427**	**0.081**	-0.418	0.411	0.310	-0.060	0.321	0.852	-0.060	0.356	0.867
education.base	0.417	0.668	0.532	0.961	0.655	0.142	-0.064	0.613	0.917	0.118	0.497	0.812
education.higher	*1.469*	*0.803*	*0.068*	*3.000*	*0.888*	*0.001*	0.490	0.800	0.541	0.260	0.720	0.718
work.leave	-0.081	0.414	0.845	0.267	0.375	0.476	0.432	0.405	0.286	0.334	0.381	0.380
hours	0.008	0.021	0.698	**0.035**	**0.020**	**0.087**	0.015	0.018	0.419	0.002	0.017	0.892
wages	0.014	0.019	0.468	0.028	0.019	0.125	0.049	0.032	0.124	0.015	0.016	0.372
2007	1.595	1.955	0.414	0.555	2.119	0.794	0.140	2.240	0.950	*0.853*	*0.260*	*0.001*
2008	1.631	1.952	0.403	0.577	2.099	0.783	0.429	2.247	0.849	*0.741*	*0.263*	*0.005*
2009	1.496	1.950	0.443	0.500	2.121	0.814	0.013	2.247	0.996	*0.838*	*0.272*	*0.002*
2010	1.477	1.956	0.450	0.081	2.132	0.970	-0.230	2.252	0.918	*0.760*	*0.289*	*0.009*

Note: in "bold" significant at 10%, in "bold and italic" significant at 5%

We can now interpret our results in the light of the discussion in Section 3. For all but one of the samples considered, there is at least one response variable whose estimated wage effect turns out significantly positive. This finding is at odds with wage differentials fully compensating for latent workplace disamenities. Partially compensating wage differentials could in fact obscure even larger pure wage effects. There is only the interesting exception given by the older subjects in the sample, for whom we find that wage differentials has no explanatory power for differentials in job satisfaction, however this variable is defined. This seems to support a theory of compensating wage differentials for the more experienced subjects in the Russian youth labour market.

8. Final Remarks

We have estimated ordered logit models of job satisfaction with individual fixed effects for a panel data of Russian young workers, carrying out separate analyses for the general job satisfaction variable and three variables on specific aspects of job satisfaction. Along with the overall sample we have also considered some sub-samples.

The wage turns out to play a prominent role as an explanatory variable in our model specifications. Indeed, for all but one samples considered there is at least one job satisfaction variable with a significantly positive wage effect. We interpret this result as a failure of the theory of compensating wage differentials in the Russian youth labour market. Interestingly, compensating wage differentials seem at work only among the older subjects; our estimates also show strong gender and location effects. This paper is a first attempt to investigate job satisfaction for young

Russian and a need for deeper analyses surely exists[9]. However, according to our analysis, few general and specific policy implications already emerged. In particular, a general policy implication refer to the opportunity to improve and extend the definition of the policy objectives regarding the (youth) labour market by also including performance indicators regarding several dimensions of job quality and job satisfaction, in addition to the traditional performance indexes (employment/unemployment and NEET rates). In addition, our results could also favour a better definition of specific policy interventions and public services for young people in general and, especially, for some specific segments, like young women, young with children and those living out of capital and cities.

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[9] For example, our research could be extended along two directions: (i) by relaxing the assumption of strictly exogenous wages and (ii) by including into the analysis measures of job disamenities.

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Appendix

Table A1: *frequency of each interview configuration: 1 for interviewed in a certain year, 0 otherwise*

2006	2007	2008	2009	2010	frequency
0	0	0	0	1	902
0	0	0	1	0	54
0	0	1	0	0	53
0	1	0	0	0	18
1	0	0	0	0	17

Total with 1 interview					**1044**
0	0	0	1	1	160
0	0	1	0	1	49
0	0	1	1	0	33
0	1	0	0	1	24
0	1	0	1	0	9
0	1	1	0	0	14
1	0	0	0	1	8
1	0	0	1	0	4
1	0	1	0	0	12
1	1	0	0	0	10
Total with 2 interviews					**323**
0	0	1	1	1	155
0	1	0	1	1	28
0	1	1	0	1	25
0	1	1	1	0	25
1	0	0	1	1	9
1	0	1	0	1	5
1	0	1	1	0	13
1	1	0	0	1	9
1	1	0	1	0	13
1	1	1	0	0	7
Total with 3 interviews					**289**
0	1	1	1	1	84
1	0	1	1	1	28
1	1	0	1	1	10
1	1	1	0	1	26
1	1	1	1	0	21
Total with 4 interviews					**169**
1	1	1	1	1	113
Total with 5 interviews					**113**
Total					**1938**

Table A2: *distribution of the covariates*

covariate	modality/ indicator	2006	2007	2008	2009	2010	overall
marital status	single	0.626	0.567	0.557	0.474	0.443	0.498
	together	0.374	0.433	0.443	0.526	0.557	0.502
children	yes	0.180	0.227	0.285	0.319	0.345	0.303
n.children	mean	0.193	0.243	0.311	0.345	0.397	0.338
	s.d.	0.428	0.465	0.516	0.531	0.592	0.545
n.minors	mean	0.193	0.241	0.306	0.336	0.391	0.332
	s.d	0.428	0.464	0.511	0.526	0.590	0.542

education	lower	0.151	0.154	0.151	0.133	0.116	0.133
	base	0.748	0.709	0.674	0.639	0.604	0.647
	higher	0.102	0.138	0.175	0.228	0.280	0.221
gender	male	0.462	0.456	0.462	0.469	0.494	0.476
	female	0.538	0.544	0.538	0.531	0.506	0.524
age	mean	21.223	21.872	22.342	23.287	24.001	23.101
	s.d.	1.621	1.807	2.114	2.133	2.364	2.364
working status	on leave	0.052	0.067	0.075	0.074	0.077	0.073
	working	0.948	0.933	0.925	0.926	0.923	0.927
hours	mean	41.377	41.555	41.124	41.241	41.817	41.516
	s.d.	7.748	7.424	8.426	7.817	7.207	7.625
wages	means	6.321	8.413	11.005	11.381	13.407	11.440
	s.d.	4.439	4.867	7.639	7.022	8.344	7.690
living	capital	0.475	0.450	0.486	0.490	0.490	0.483
	city	0.249	0.261	0.270	0.278	0.272	0.270
	other	0.275	0.289	0.244	0.232	0.238	0.247
n. obs		**305**	**436**	**663**	**759**	**1635**	**3798**