

Willingness to Work, Human Capital and Job Satisfaction: A Case Study for Turkey

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Abstract

The paper aims to outline the relationships between willingness to work (WTW), human capital and job satisfaction. It formulates WTW as an indicator of labor supply and provides direct estimation of the link between WTW and the rise of knowledge and skills. The authors assume positive relationships between WTW, human capital and job satisfaction. Data collected by interviewing Turkish citizens were used to test the formulated hypotheses. The study outlines the link between the influence of the accumulated knowledge and skills on WTW and the job satisfaction factors. The paper can be regarded as a starting point for studying one important relationship in the economy: WTW, human capital and job satisfaction.

Keywords: Willingness to work (WTW), knowledge and skill, Job satisfaction, Human

JEL Code Classification: D120, J240, J280, O110, O400

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1. Introduction

The decision to participate in the labor market is complex and depends on many factors. Classical theory defines the wage level as the basic impetus of labor supply. The modern vision of this issue is complemented by a wide variety of socio-economic, psychological, cultural and other elements that affect this decision. As an indicator of labor supply we use willingness to work (WTW), which, beyond the wage level, we expect to be affected by a broad spectrum of socio-economic factors. Taking into account the role of human capital in the modern knowledge-based society, the paper tries to shed light on the effect of the level of knowledge and skills on WTW using data for the Turkish labor market.

Among a whole variety of factors that could influence the link between WTW and human capital, we concentrate on job satisfaction. The rationale for choosing it as a component of the study is that a high level of job satisfaction creates incentives for workers to improve their individual performance, and in particular to expand their knowledge and skills, to develop their creativity, etc. - crucial for the survival on our modern high competitive world. For this reason job satisfaction is regarded in this paper, in a similar way to which other authors have viewed it, as an intermediary element and a reflection of a broad spectrum of preconditions for labor supply. As Hamermesh (1999) states, "only one measure, the satisfaction that workers derive from their jobs, might be viewed as reflecting how they react to the entire changing panoply of job characteristics".

Taking into account the complexity of the relationships in this process, the paper is organized in the following way. In Part 2 we present a brief review of the research on WTW, human capital and job satisfaction. In Part 3 we outline theoretical models used in the paper, based on the literature review presented in Part 2. We comment on the features of the sample in Part 4. The theoretical models are used to construct their econometric analogue, which are estimated mainly by means of the Maximum Likelihood technique. Before testing the econometric models however we carry out factor analysis to outline more distinctly the relationships among the variables in the study. We analyze the findings in Part 5 and discuss the implications revealed during the analysis in Part 6. Part 7 summarizes the results of the study and formulates conclusions and recommendations.

2. Brief Review of the Studies on WTW, Human Capital and Job Satisfaction

Although interest in labor supply issues has increased during recent years, it has focused mainly on deviations from the standard neoclassical model within the wage and income dimensions. Less attention has been paid to the role of non-wage and non-income factors such as human capital, that is, how an increase in knowledge and skills affects the decision to supply one's own labor in the market. Correspondingly, labor supply elasticity studies have concentrated mainly on wage

rates and income levels. Using reference-dependent preferences, decisions on labor supply are explained as a result of optimization with these preferences, but as Farber (2004) states, “the usual estimates of wage and income elasticity are likely to be misleading”. Moreover, difficulties with the data on the reference level of income and the level of reference point have been observed, and these reduce the predictable power of such an approach.

Another dimension of the literature is devoted to the elasticity of labor supply and relates to the intensive margin (intensity of work on the job) and the extensive margin (participation in the labor force) (Saez 2002), which has no direct link with human capital. A more concrete approach to the link between labor supply and human capital is the work of Rosen (1972), who studies the role of the labor market in the transition and acquisition of knowledge and skills.

Over time the concept of human capital has been extended to include new qualitative characteristics of the labor force: beside the accumulated knowledge and skills, level of education, etc., such a new elements of human capital as health status, value system, etc. become integral part of the study of labor force (Danchev 2010). Among the vast range of literature that creates a bridge between human capital and the labor supply in this broader sense we can indicate the study by Blinder and Weiss (1975), and the projects within the Center for Effective Organizations at the University of Southern Carolina's (Optimizing... 2011) research programme on strategic talent management and human capital, combining “organizational, managerial, and economic perspectives to bridge the strategic, business, and organizational aspects of human resource management”.

Interest in measuring the other element of our study – job satisfaction – has a long history. This is a problem discussed in many social sciences, probably beginning with psychology. Brayfield and Rothe (1951) constructed one of the first indices of job satisfaction. Kalleberg (1977) empirically tested the relationship between job satisfaction and such indicators as work values and job rewards associated with “six dimensions of work-intrinsic, convenience, financial, relations with co-workers, career opportunities and resource adequacy”.

Later job satisfaction studies have further enriched this concept. Job satisfaction has been defined as “a person’s overall evaluation of his or her present work role” (Kalleberg and Berg 1987). In the late 1970s job satisfaction was already being treated as “strictly a function of personal characteristics, while ignoring aspects of the positions people hold and the social relations surrounding those positions” (Wharton et al. 2000). Studies such as the Minnesota Satisfaction questionnaire (MSQ 2011) and the Job Satisfaction Survey (JSS 2011) provide a background for systematic observations of the problem, thus allowing the construction and testing of various econometric models.

Although most of the studies identify the level of remuneration as a primary condition for job satisfaction, there are many publications devoted to the non-monetary factors that influence this process. Arvey et al. (1989) considered the role of intrinsic, extrinsic and genetic satisfaction with the current (or major) job. Weiss (2002) underlined the role of overall evaluative judgments about jobs, affective experiences at work, and beliefs about jobs in job satisfaction. These studies allow the formulation of the hypothesis that the monetary sources of job satisfaction are not always the most important, and that non-monetary factors may also play a significant role in this process. This is an observation that is significant for our study, as human capital is a non-monetary element and it is important to see how it integrates with the other factors associated with job satisfaction.

Most of the research on job satisfaction has been carried out by psychologists and sociologists, revealing important details of this issue. The economic aspects of the problem are much less well developed. However, intuition suggests that job satisfaction is an integrative element of labor supply and specifically of WTW and human capital improvement. This is probably due to the fact that job satisfaction consists of multifaceted feelings that are subjective, and depends to a large degree on the value system of the individuals concerned. The problem is identifying how this link functions in economic reality, and which factors influence it in given conditions. The dynamic and fast-growing Turkish economy presents good opportunities to study this (Turkey's Labour Market 2006).

3. Theoretical Background of the Study

As indicated above, the decision to supply labor is the result of a complex interaction between many factors. If we assume WTW to be an indicator of labor supply, the formulation of a function defining its variables requires in the first instance a distinction to be made between the quantitative and qualitative factors that influence it. According to the standard textbook model labor supply depends solely on wage or broader income measures. Our interest is oriented however in another dimension of the problem – the link between WTW and human capital; the latter, for simplicity, we identify with knowledge and skills.

Let us formulate a function $WTW = f(HC)$, where HC is human capital expressed in terms of the accumulated knowledge and skills of the labor force within a period of time. We assume an exponential form of this relationship, namely

$$WTW = aHC^E, \quad (1)$$

where “a” is the coefficient and “E” is a measure of elasticity of labor supply depending on the knowledge and skills.

WTW also depends on the increase in knowledge in the present and past. Thus the equation (1) can be defined as the yearly total of knowledge and skills

$$WTW_t = a(\sum_{t=1}^n HC_t)^E \quad (2)$$

where “n” is the period of accumulation of knowledge and skills during the life cycle of individuals.

Among the whole range of factors that could influence the sensitivity of labor supply to accumulated knowledge and skills, we select job satisfaction. Next we try to identify which factors affect the improvement and deterioration of job satisfaction. We expect this approach to outline relatively clearly the connection between WTW and accumulated knowledge and skills on one hand and the factors affecting job satisfaction/dissatisfaction on the other hand.

The model of job satisfaction (JS) presented below assumes a continuous and twice differentiable function. Job satisfaction is defined in it as

$$JS = \int_{t=0}^T \exp(\alpha, \beta, t) dt \quad (3)$$

where “α” is the influence of income-related factors, “β” is the influence of non-income factors, and t is time.

Job satisfaction is here regarded as being affected by first, the level of income and related factors (if these increase, the level of job satisfaction increases) and second, by the non-income factors, which may also increase or decrease it.

Correspondingly we can describe the effect of the non-income factors as follows:

$$\beta = x(x_1, x_2 \dots x_n) \quad (4)$$

where $x_1, x_2 \dots x_n$ are factors related to the non-income qualities of job satisfaction. With regard to increasing job satisfaction, these qualities have been defined by the responses to the following statements: “I meet very good friends in my job” (x_1), “It gives me a high level of satisfaction as it is socially important” (x_2), “I spend my time very pleasantly during working hours” (x_3), and “It is a pleasure to work with our team” (x_4). These four variables are expected to capture the main effects of the non-income elements that positively affect job satisfaction.

Correspondingly we can modify the job satisfaction function as

$$JS = \int_{t=0}^T c_t \cdot \exp(\alpha, x_1, x_2 \dots x_n, t) dt \quad (5)$$

In analytical form this function can be presented as

$$JS = \alpha x_1^{\alpha_1} x_2^{\alpha_2} x_3^{\alpha_3} x_4^{\alpha_4} x_5^{\alpha_5} \quad (6)$$

or in log-linear form

$$\ln JS = \ln \alpha + \alpha_1 \ln x_1 + \alpha_2 \ln x_2 + \alpha_3 \ln x_3 + \alpha_4 \ln x_4 + \alpha_5 \ln x_5 \quad (7)$$

The analysis of the problem would be incomplete if we did not shed light on the role of the factors that reduce job satisfaction. For this reason we include in the model independent variables measuring the negative effects on job satisfaction. Again we introduce first, the level of income and related factors (if these decrease,

the level of job satisfaction is expected to decrease) and second, other (non-income) factors that can cause a reduction in job satisfaction.

Correspondingly we can again present income and non-income factors in a similar way to equation (4) as

$$\beta_D = z(z_1, z_2 \dots z_n) \quad (8)$$

where $z_1, z_2 \dots z_n$ are factors relating to reduced job satisfaction. We assume that the deterioration of the non-income characteristics of job satisfaction is defined by the following factors opposite to those improving job satisfactions: "I dislike the atmosphere in the team I work with" (z_1), "I find my job useless for society" (z_2), "My job is boring and irritating" (z_3), and "There are no interesting people in our firm" (z_4).

Correspondingly we can modify the job satisfaction function as

$$JS = \int_{t=0}^T c_t \cdot \exp(\alpha, z_1, z_2 \dots z_n, t) dt \quad (9)$$

In analytical form this function can be presented as

$$JS = \beta z_1^{\beta_1} z_2^{\beta_2} z_3^{\beta_3} z_4^{\beta_4} z_5^{\beta_5} \quad (10)$$

or in log-linear form

$$\ln JS = \ln \beta_0 + \beta_1 \ln z_1 + \beta_2 \ln z_2 + \beta_3 \ln z_3 + \beta_4 \ln z_4 + \beta_5 \ln z_5 \quad (11)$$

Finally we construct a joint job satisfaction function including all factors leading to its rise or decline, or

$$JS = \int_{t=0}^T c_t \cdot \exp(\alpha, x_1, x_2 \dots x_n, t) dt + \int_{t=0}^T c_t \cdot \exp(\alpha, z_1, z_2 \dots z_n, t) dt \quad (12)$$

Now let us return to WTW and human capital. We assume that these both depend on job satisfaction, so that ultimately we have $WTW = g(JS)$ and $HC = h(JS)$. WTW can be presented as

$$WTW = g(h(JS)) \quad (13)$$

Then

$$dWTW/dHC = d[g(h(JS))]/dHC \quad (14)$$

Next, we test this equation and its modification with empirical data.

An analysis of the relationship between the three basic components of the study requires first the choice of appropriate variables that are suitable for producing correct estimations. However, there are difficulties with the choice of appropriate variables for WTW and human capital. If we assume that the relationship is non-linear, this problem can be solved by a direct measurement of the WTW depending

on the growth of knowledge and skills¹. Respondents may be asked to define their WTW depending on the growth of their knowledge and skills during recent years, and providing that their level of knowledge and skills has increased by 1% during the current year (WATWPR) and the last three years (WATWPA), to indicate by how much their WTW would increase during the current year. The variables WATWPR and WATWPA have been formulated in such a way as the respondents actually have been asked to express their ability and willingness to work depending on present and past growth of knowledge and skill. It was anticipated that there would be difficulties in the understanding of these questions, so graphical illustrations of variables in the form of discrete choices (a scale from 1 to 12) was presented to the respondents. The word “ability” was added to the WTW expression so that the respondents could more easily catch the theoretical background of the question.

The next stage was to test how the WATWPR and WATWPA are related to job satisfaction, or

$$\text{WATWPR} = f(\text{JS}) \text{ and } \text{WATWPA} = f(\text{JS}) \quad (14)$$

While it is difficult to choose an appropriate measure of WTW and to combine all characteristics of human capital into one variable, the study of job satisfaction was facilitated by the achievements in its analysis, as described above in the literature survey. For the purposes of our study this allowed the formulation of a hypothesis that job satisfaction is influenced by monetary (income, wage) and non-monetary factors. This division is necessary as it allows the separation of monetary and non-monetary influence on job satisfaction, and the testing of these relationships with WTW and human capital (HC). Taking into account the results of other studies (Wharton at al. 2000; Vila at al. 2007; Pichler and Wallace 2009) we selected the following variables for our model of job satisfaction:

- JOBMON – level of income sufficient “to enjoy my life”;
- JOBFR – ability to make friends in the job;
- JOBSOC – perception of social importance of the job;
- JOBNICE – time is spent very pleasantly during the working hours;
- JOBTEAM – the pleasure of working with the team.

These variables were felt to reflect the main monetary and non-monetary factors of job satisfaction. They were included in the model as dichotomous variables, being 1 when they were ranked as the most important factor for job satisfaction and 0 otherwise. Thus a variable JOBMON was included in the model as an indication of the degree to which the wage allows an individual not only to make ends meet but also to afford some extras in everyday life.

The variable SATISF in the model was regressed with the dichotomically constructed variables described above, namely JOBMON, JOBFR, JOBSOC, JOBNICE

¹ This idea was proposed by Prof. Dr. Ahmet Kara during the work on the project.

and JOBTEAM, in order to capture the effect of monetary and non-monetary factors.

In the most general form the model measuring the influence of the factors on job satisfaction was constructed as

$$\text{SATISFi} = f(\text{JOBMON}, \text{JOBNICE}, \text{JOBFR}, \text{JOBSOC}, \text{JOBTEAM}) \quad (15)$$

Correspondingly we formulated the following binary variables from the answers indicating a low level of satisfaction in the sample and added them to the model:

NJOBMON – level of payment is too low;
NJOBATM – dislike the atmosphere in the team;
NJOBUL – job is useless for society;
NJOBOR – job is boring and irritating;
NJOBIP – no interesting people in the firm.

Thus the equation(15) was extended and the variable SATISF in the model was regressed with the dichotomically constructed variables for the factors that not only increase but also decrease job satisfaction, or

$$\text{SATISFi} = f(\text{JOBMON}, \text{JOBNICE}, \text{JOBFR}, \text{JOBSOC}, \text{JOBTEAM}, \text{NJOBMON}, \text{NJOBATM}, \text{NJOBUL}, \text{NJOBOR}, \text{NJOBIP}) \quad (16)$$

Following literature recommendations (Aitchison and Silvey 1957; Chimka and Wolfe 2009) the dependent 5-scale Likert-like variable SATISF was regressed by means of Ordered Probit Regression with the independent variables.

Finally to complete the picture we added to the model such socio-economic indicators as age, gender, working experience, educational level, health status, etc.

4. The Sample

The sample included 426 citizens from Turkey, who were interviewed within the “Managing human capital for the aims of sustainable development (case study of some Balkan countries)” project, funded by Fatih University. The interviews covered a broad spectrum of problems relating to human capital and sustainable behavior.

The data were collected by interviewing Turkish citizens randomly selected from various parts of Turkey. Taking into account the features of the study, the enumerators were trained by the author to carry out semi-structured interviewing, recording both the basic answers and the idiosyncratic comments from the respondents. In such a way we collected data allowing both positivist and phenomenological strategies to be applied in the research. In the paper we present only the results of the econometric models, leaving for technical reasons the phenomenological analysis for further studies.

The structure of the sample was aimed at reflecting the structure of the population from the point of view of accepted indicators of human capital, as there was no information available for the other basic indicators (WTW and JS). Thus, of the 415 individuals who responded, 10.6% have primary education, 6.5% secondary education, 35.2% a bachelor's degree, 44.3% a master's degree and 3.4% a doctorate. This sample is expected to be sufficiently indicative of the level of knowledge and skills in those parts of the Turkish population that are the basic providers of human capital. However, it is difficult to say to what degree the sample matches the population in the dynamic Turkish economy, where the proportion of those with secondary education has increased from 1.8% in 1970 to 11.8% in 2000, and the proportion of those with university and higher education from 1.2% to 6.1% (Turkey's Labour Market 2006).

With regard to working experience, 20.9% have less than 3 years' experience, 18.2% have between 3 and 6 years, 17.3% between 6 and 10 years, 13.1% between 10 and 15 years and 30.4% more than 15 years. In terms of region, most of the respondents are from Istanbul (65.5%). The distribution of the age within the sample is 1.0% between 16 and 19 years old, 38.1% between 20 and 29 years, 26.4% between 30 and 39 years, 12.6% between 40 and 45 years, 14.3% between 45 and 50 years, 7.1% between 50 and 59 years and 0.5% over 60 years. With regard to gender, 63.5% are male and 36.5% female.

The basic statistical characteristic of the variables in the sample – namely age (7 groups), children (real number), education (5 groups), gender (male 1, female 2), health (5 groups), years of schooling (YEARSCH – real number) and years of working (YEARSW – 5 groups) – are presented in Table 1.

Table 1: Basic statistical characteristics of the sample

	AGE	CHILDREN	EDUCATION	GENDER	HEALTH	YEARSCH	YEARSW
Mean	3.453608	1.505155	3.082474	1.319588	3.917526	12.5567	3.515464
Std. Dev.	1.163871	0.631198	1.133487	0.468739	0.731296	4.332458	1.370169
Skewness	0.451508	0.854961	-0.42113	0.773776	-0.67583	0.053028	-0.44771
Kurtosis	2.443528	2.694304	2.718077	1.598729	4.621167	2.292251	1.919016
Jarque-Bera	4.547281	12.19485	3.188395	17.61551	18.00632	2.069964	7.963296
Sum	335	146	299	128	380	1218	341
Sum Sq. Dev.	130.0412	38.24742	123.3402	21.09278	51.34021	1801.938	180.2268

Taking into account the division of some of the variables into groups the mean of age (3,453608) in table 1 corresponds to the group of age between 30 and 39 years, the mean of education – to high education, the health – to normal, the years of working – to 6 to 10 years. Thus it shows that the basic socio-economic indicators of the sample are such that they could be expected to be good prerequisites for producing reliable quality results to reach the aims of the study.

5. Analysis of the Results

The models constructed above outline a complex picture of the relationships between labor supply, human capital and job satisfaction. Despite the clear formulation of the object of the study, due to the complexity of the relationships it makes sense to apply initially factor analysis in order to outline more distinctly the level of correlation between variables and to outline in general the causal relationships among them.

5.1. Factor Analysis of the Variables in the Sample

The theoretical analysis presented above does not take into account all the variables included in the questionnaire, and outlines only the main relationships that are expected to reveal the link between the theory and the empirical observations. However, by means of factor analysis we test all obvious and latent relationships and try to enrich the theoretical postulates with inductive insights.

In order to outline more clearly the structure of the sample, the number of variables was reduced to 27 and the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was applied to calculate the proportion of the variance due to the basic factors. We started with calculation of the KMO Measure of Sampling Adequacy for the whole sample known just as KMO and Bartlett's test. The result is 0.522, which is good as it is indication of how good factor analysis could be for our data. The Bartlett's test of sphericity also indicates a significance level of 0.000, which provides encouragement to apply factor analysis for a more detailed study of the problem.

The extraction communalities in the sample are relatively high, which is evidence of a good presentation of the variables by the extracted components, and there is no need for further component extraction. However, we observe that as a whole 13 initial eigenvalues are above 1, which explains about 79% of the variation. This result is one confirmation of the hypothesis of the complexity of the relationships between the variables in the model, in which variance is dispersed among a relatively high number of eigenvalues. Using 13 eigenvalues in the further analysis would be difficult, but reducing this number would result in a loss of information, which even with the first 4 eigenvalues, which are above 2, is high (61%).

Nevertheless scree plot diagram (figure 1) shows that the restriction of the eigenvalues to three is reasonable. Although there is not a great difference between the extraction and rotation sums of the squared loadings, the restriction of the eigenvalues to three seems reasonable as the rotated component matrix is expected to contribute more sufficiently to the interpretation of the results than the original matrix.

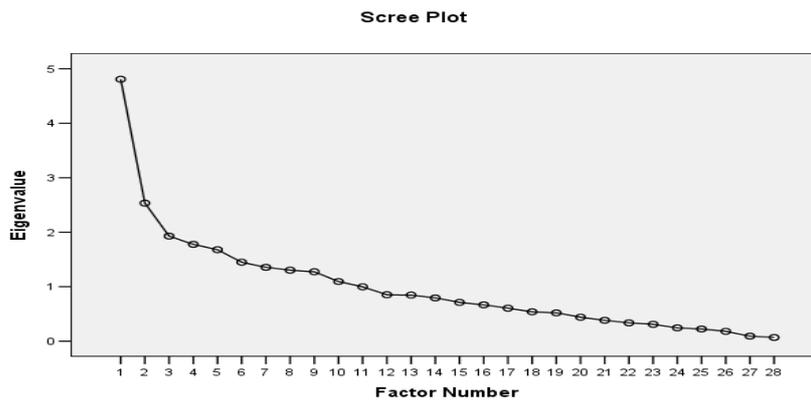


Figure 1: The scree plot of the variables in the model.

Next we use the rotated component matrix to determine the composition of the components. For technical reasons we are not presenting the results in a table. Nevertheless, it has been clearly demonstrated that the first component is most highly correlated with job satisfaction (0.749), job performance (0.717) and WTW (0.697). The second component, which we can define as demographic, gives highest values in relation to age (0.928) and years of working (0.913), with a large difference between this and the next variable PSKILL (0.324). A similar picture is observed for the third component, which we can define as the human capital component: education level has value of 0.888 and years of schooling 0.815, while the next variable, the present level of knowledge and skills, has a value of 0.521. Such a clear difference is not observed in the next components, so it confirms the reasonability of restricting our analysis to the first three components. However, it should be noted that restricting the analysis to the first three components would result in a loss of 69% of the information, which reduces the explanatory power of the model, although all variables in the model are well represented in these three components.

The scatter plot matrices (Figure 2) illustrates the links between the components. There is skewed distribution in the first component (the first plot of the first row) as a result of the skewness of some of the variables, as indicated above. In all matrices we observe outliers, which are excluded from the further analysis.

The fact that the 9 eigenvalues account for around 69% of the variation requires that an attempt be made to try to reduce the size of the data by means of extraction of the principal components, which complicates the analysis as it is already based on a rotated component matrix.

Despite some fuzziness of the results the interrelation of job performance, job satisfaction and human capital with various variables of the sample is distinctly observed, which is the reason to make the next step – the test first the consistency

of the data and after that to extend analysis including other variables until desirable results are obtained.

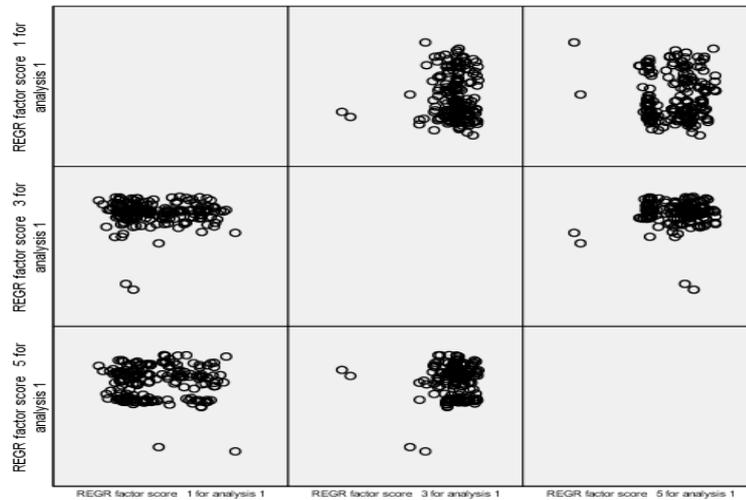


Figure 2: The scatter plot of the matrices

To test the reliability and the internal consistency of the data we calculated Cronbach alpha for the basic variables in the model (age, children, education, gender, health, incomel, incomep, jobfr, jobmon, jobnice, jobpn, jobpp, jobteam, jobsoc, marstat, njobatm, njobbor, njobinp, njobmon, njobul, paskill, position, pskill, SAFISF, skillr, watwec, watem, watwpa, watwph, watwpr, watwsk, watwwe, yearsch, yearsw) – altogether 34 variables, some of which have not been presented in the above models for technical reasons as they are included into the part of the socio-economic indicators. Although the Cronbach alpha is within the acceptable boundaries (0.732) in the next analysis some of the variables had to be abandoned from the calculations for statistically significance reasons.

5.2. Regression Analysis of the Basic Relationships

The observations from the factor analyses have been used to produce more detailed estimations of the basic relationships in the models formulated above. Below we report the results of regressing WATWPR against job satisfaction by means of OLS regression. Although weak, the link is positive (Table 2), which shows that job satisfaction increases the sensitivity to WTW when knowledge and skills are increasing.

Although the SATISF is statistically significant, the R-squared coefficient (0.060305) is very low in the regression model. Obviously using only the SATISF as independent variable is not sufficient to explain the dependent variable WATWPR. This was the reason to extend the model in the further study including additional explanatory variables.

Table 2: The Influence of Job Satisfaction on the Willingness and Ability to Work depending on the Accumulation of Knowledge and Skills in the Current Year

Dependent Variable: WATWPR
 Method: Least Squares
 Sample: 1 426
 Included observations: 417

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.459133	0.613342	7.270225	0.0000
SATISF	0.861437	0.166923	5.160683	0.0000
R-squared	0.060305	Mean dependent var		7.537170
Adjusted R-squared	0.058041	S.D. dependent var		3.008671
S.E. of regression	2.920053	Akaike info criterion		4.985865
Sum squared resid	3538.585	Schwarz criterion		5.005209
Log likelihood	-1037.553	Hannan-Quinn criter.		4.993513
F-statistic	26.63265	Durbin-Watson stat		1.564158
Prob(F-statistic)	0.000000			

Next we tried to define the factors affecting job satisfaction in positive and negative sense. As it is ranked variable we applied ordered Probit technique for the estimations of the parameters. The results of the analysis of the factors affecting job satisfaction are shown in Table 3.

Table 3: Ordered Probit Model of the Factors that Increase Job Satisfaction.

Dependent Variable: SATISF
 Method: ML - Ordered Probit (Quadratic hill climbing)
 Sample: 1 426
 Included observations: 424
 Number of ordered indicator values: 5
 Convergence achieved after 4 iterations
 Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
JOBMON	0.946713	0.166789	5.676102	0.0000
JOBNICE	0.467499	0.212360	2.201450	0.0277
JOBSOC	0.780159	0.195828	3.983902	0.0001
JOBFR	0.695449	0.207835	3.346149	0.0008
JOBTEAM	0.678975	0.203049	3.343892	0.0008
NJOBMON	-0.687526	0.155629	-4.417721	0.0000
NJOBATM	-0.839275	0.266657	-3.147398	0.0016
NJOBBOR	-0.932450	0.271636	-3.432714	0.0006
NJOBIP	-0.893294	0.450972	-1.980820	0.0476
Pseudo R-squared	0.084773	Akaike info criterion		2.366274
Schwarz criterion	2.499992	Log likelihood		-487.6501
Hannan-Quinn criter.	2.419105	Restr. log likelihood		-532.8184
LR statistic	90.33676	Avg. log likelihood		-1.150118
Prob(LR statistic)	0.000000			

They definitely demonstrate the effect of the factors increasing and decreasing job satisfaction. Although the relationship is weak (low Pseudo R-squared), job satisfaction is positively affected mostly by the payment sufficient to “enjoy my life” (1.1), the perception of the social importance of the job (0.95), working with a nice team (0.75), meeting good friends in the job (0.65) and a pleasant working atmosphere (0.55). Results indicating that the factor “money to enjoy my life” has the most influential effect on job satisfaction in terms of probability have also been reported by other authors (Weaver 1980; Clark 1996). The role of non-monetary factors is strong in the sample: the role of the understanding of the social importance of the job is close to the results for the monetary factor. The other non-monetary factors are also significant.

It is interesting to indicate that while the monetary effects of job satisfaction are of obvious primary importance, in job dissatisfaction primary effect has the nonmonetary factors, which influence is rather close to each other. The analysis of this fact in our option requires a study of the psychology of perception of job satisfaction, in which it is possible that individuals feel dissatisfied with their job not so much due to the low payment as due to other non-monetary factors.

It should be noted however that the Ordered Probit estimates does not explain sufficiently well the dependent variable SATISF if we use as criteria the very low Pseudo R-squared (0.084773). Normally similar case is defined either as a problem of omitted variables or of the need of another form of the relationship. This aspect of the model remains for further studies.

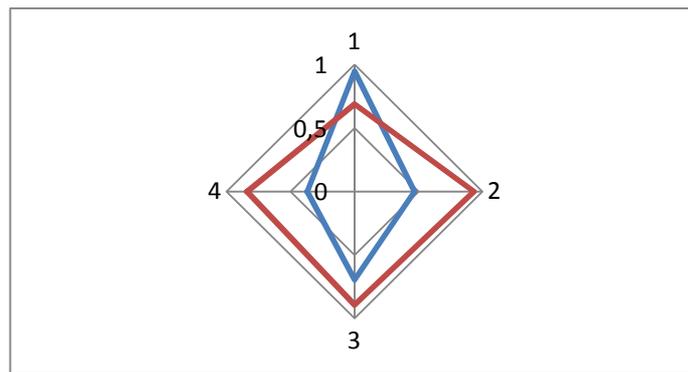


Figure 3. Radar Diagram of the Factors that Increase and Reduce Job Satisfaction

Note. The data in blue reflect the role of the factors that increase job satisfaction, while the red indicates the factors that reduce job satisfaction.

To facilitate this task it makes sense to juxtapose the effects of the factors affecting positively and negatively job satisfaction. In some aspects they have been formulated in a polar way reflecting the extreme states. Thus while JOBMON

reflects the money sufficient “to enjoy my life”, NJOBMON defines the opposite state - money not sufficient “to enjoy my life”. In a similar extreme way are formulated the variables JOBNICE and JOBBOR, JOBSOC and NJOBUL (excluded from the further estimations due to low statistical significance), JOBFR and NJOBIP, JOBTEAM and NJOBATM. In order to compare the effect of factors increasing and reducing job satisfaction we took the absolute values of the coefficients and constructed a radar diagram (Figure 3). It illustrates the conclusion that the monetary factors that increase job satisfaction have greater effect than the factors that decrease it. On contrary the non-monetary factors such as the atmosphere the respondents work in, the lack of interesting persons in the job, the boring job, and the way the time is spent during the working hours are reducing job satisfaction more that the opposite factors increasing it. The low statistical significance of the social importance of job does not allow including this component in the diagram.

The next step is to test the effect of the variables affecting job satisfaction on the WTW depending on the accumulated knowledge and skill over the life cycle of the respondents. As it was indicated above instead of measuring separately WTW and the accumulated knowledge and skill and next to constrict non-linear model to capture the elasticity of this relationship E_{HC} we underwent direct measurement of the effect of present (WATWPR) and past (WATWPA) levels of knowledge and skill on the willingness and ability to work. Most of the coefficients of this regression are statistically insignificant. The only statistically acceptable result among the many combinations of factors is the link between WATWPR and some of the factors that negatively affect job satisfaction (Table 4). We observe a higher level of influence for the non-monetary factor “boring job” than for the monetary factor “money to enjoy my life”. This can be explained by the assumption that WTW related to the growth of knowledge and skills is more sensitive to the attractiveness of the job than to the wage level paid.

Table 4: The Link between WATWPR and the Factors Negatively Affecting Job Satisfaction

Dependent Variable: WATWPR
 Method: ML - Ordered Probit (Quadratic hill climbing)
 Sample: 1 426
 Included observations: 419
 Number of ordered indicator values: 12

Variable	Coefficient	Std. Error	z-Statistic	Prob.
NJOBMON	-0.439161	0.135838	-3.232964	0.0012
NJOBBOR	-0.990455	0.262178	-3.777795	0.0002
Pseudo R-squared	0.011286	Akaike info criterion		4.758892
Schwarz criterion	4.884172	Log likelihood		-983.9879
Hannan-Quinn criter.	4.808413	Restr. log likelihood		-995.2203
LR statistic	22.46474	Avg. log likelihood		-2.348420
Prob(LR statistic)	0.000013			

Similar to the previous case we again receive very low Pseudo R-squared, which demonstrates the difficulties of explaining the whole lot of factors affecting job satisfaction, despite the solid theoretical background of the model. In the search of better explanation we regressed separately the basic dependent variables of the models applied in the study– namely WTW, knowledge and skill as a proxy of human capital and job satisfaction – against various socio-economic indicators. In Table 5 we report only those results that are statistically significant despite the low level of correlation.

Table 5: The effect of the socio-economic indicators

Variable	Coefficient	Std. Error	z-Statistic	Prob.
Willingness to work				
EDUCATION	0.228364	0.050171	4.551694	0.0000
HEALTH	0.116240	0.067825	1.713824	0.0866
YEARSCH	0.037227	0.011715	3.177810	0.0015
Human Capital (knowledge and skill)				
EDUCATION	0.208569	0.053706	3.883537	0.0001
HEALTH	0.268850	0.073190	3.673307	0.0002
YEARSCH	0.042983	0.012830	3.350183	0.0008
Job satisfaction				
EDUCATION	0.154615	0.051851	2.981904	0.0029
HEALTH	0.217670	0.070533	3.086071	0.0020
YEARSCH	0.032475	0.012292	2.641896	0.0082

These results show that the level of education is the most influential for WTW, followed by health status and years of schooling. However, for both the increase in knowledge and skills and job satisfaction, the most influential is health status followed by level of education. As a rule, years of schooling are the least influential factor for all of the indicated variables.

6. Discussion

It would be appropriate to produce a more in-depth investigation of the factors that influence the relationships within the WTW, human capital and job satisfaction triangle. We have yet to fully explore the origin of this relationship, and the next stages of the research should address the value system of individuals. During the interviewing, many respondents commented on some idiosyncratic features, which revealed interesting aspects of the problem. Although these were not included into the paper for technical reasons, they were taken into account in the analysis of the results.

The theoretical argument for WTW as an indicator of labor supply is not yet sufficiently developed. Surprisingly, the number of studies devoted to this issue is relatively low. Neither has it been discussed in depth in this paper, which concentrates more on the influence of human capital on WTW than on WTW itself.

Many unclear elements remain in relation to human capital indicators. The deeper the theory moves into this area, the more difficult it becomes to elaborate an integral measure of human capital, a concept that is constantly being enriched. The UNDP's Human Development index (HDI) still remains the only integral indicator that reflects its main statistical dimensions (Human Development Index 2011). However, for the purposes of our analysis we used measurements of human capital that were more directly oriented to WTW, which naturally cannot reflect all the features of the human capital concept.

Many elements of the other component – job satisfaction – remained outside our study, in particular the role of job conditions, perceived organizational support, etc. As stated by Eisenberger et al. (1997), “further research is needed on factors influencing employee perceptions about the organization's discretionary control over the favorableness of job conditions”. Combining such research with the role of non-monetary factors would allow a deeper analysis of the motivation for work, which is crucial for many aspects of decision-making in relation to labor.

7. Conclusions and Recommendations

The paper is part of a complex study of the influence of human capital on sustainable development in the Balkan countries, during which a collection of data on many aspects of WTW, human capital and sustainability has been produced. In our opinion the main contribution of this paper is to explore one important relationship in the economy, namely the one between WTW, human capital and job satisfaction. An attempt has been made at direct measurement of the effect of the increase in knowledge and skills on WTW of the labor force. The next step, to identify the factors affecting this effect, was initiated, though the major part of it was left for future studies.

An attempt was made also at a new approach to job satisfaction issues, namely to divide the analysis by studying two aspects: the effects of monetary (income) and non-monetary factors such as the perception of the job's social importance, meeting friends and spending a pleasant time during working hours. The results indicate that both monetary and non-monetary factors play an important role for job satisfaction. Job satisfaction is a factor influencing the sensitivity of WTW, when knowledge and skills are increasing.

The present paper can be regarded as a starting point in the investigation of the link between labor supply, human capital and job satisfaction. There is much to be done in theoretical terms in order to prepare a sound methodological basis for more profound research into this issue. Additional analysis is needed to shed light on such a fundamental category as WTW, which is a complex psychological process. It is still studied more by psychologists and sociologists than by economists. Like WTP in demand studies, WTW awaits economic reasoning (qualitative analysis) and measurement (quantitative analysis). Future investigations of labor supply should

concentrate in greater depth on the factors affecting WTW decisions from an economic point of view, to complement the psychological and other motivations of WTW already revealed in other studies.

Job satisfaction is an important factor in relation to both WTW and human capital. Understanding the motivation and factors influencing job satisfaction and dissatisfaction would allow a better understanding of the labor market. The firms monitoring this process would be able to manage their human resources more effectively, thus creating favorable preconditions for sustainable and prospective growth of the economy as a whole.

Further studies on the labor force should be more closely focused on the non-monetary factors of labor supply, in terms of not only job satisfaction but also much broader aspects. Many facets of the motivation to work still remain hidden, and job satisfaction is only a small part of them. There is a need for cross-cut analysis of the genesis of individuals' value systems in order to shed light on the many idiosyncratic features of human behavior, which remain outside traditional economic analysis.

Indicative is the conclusion following from the analysis that the monetary factors increasing job satisfaction have greater effect than the factors decreasing it. On contrary the non-monetary factors such as the atmosphere the respondents work in, the lack of interesting persons in the job, the boring job, and the way the time is spent during the working hours are reducing job satisfaction more than the opposite factors increasing it. The low statistical significance of the social importance of job does not allow including this important component in the analysis.

In order to complete this task effectively, there is a need for a multidisciplinary approach to the study of the WTW, human capital and job satisfaction relationship, joining together knowledge of economics, sociology, psychology and other sciences. Job satisfaction is an important integrating element within this relationship. Judge et al. (2002) recommend that "future studies should attempt to integrate alternative frameworks of the dispositional source of job satisfaction and to model the psychological processes that may explain the relationships of the traits with job satisfaction". Complementary to this is the application of modern research methods such as neuro-fuzzy, systemic and other approaches, which would allow the new theoretical postulates to be enriched with modern practical visions.

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