



Job Performance, Job Satisfaction and Human Capital in the Labour Market in Bosnia

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The paper analyses the effect of job performance, job satisfaction and human capital. It shows that together with monetary factors, such factors as the perception of the social importance of the job, the ability to meet good friends in the team, and the atmosphere within which the respondents work, may also have a high level of impact on labour supply through human capital. The paper demonstrates the power of non-monetary factors in achieving improvements in the context of the 'job performance-job satisfaction-human capital' chain, thus bringing about positive changes in labour market supply in Bosnia.

Keywords: job performance; human capital; job satisfaction; Bosnia

Introduction

During the past 20 years, dramatic changes have taken place in the labour market in Bosnia. The transition from a centrally planned economy to a market economy has created new conditions for the supply and demand of labour. Job performance is a component of this market, affecting both supply and demand. One of the conditions for good job performance is the level of job satisfaction, which is expected to have a positive influence on it.

There are many aspects of this relationship that have not yet been sufficiently explored. For example, a high level of job satisfaction creates incentives for activity with many external effects, which result in the encouragement of economic agents to improve their individual performance, and, in particular, to expand their knowledge and skills, to work better, to increase their creativity, etc. Job satisfaction is one of the central factors that creates incentives for human capital improvement and thus for a better quality of labour supply. The decision to pursue such improvement is strongly related to the value systems of individuals and is defined by a complex of social, economic, psychological, ethical, and other elements, which is reflected in their job satisfaction. As Hamermesh (1999) indicates, '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.'

Thus, job satisfaction can be regarded as a pivot point between job performance and human capital. The increase in knowledge and skills as the main characteristic of human capital is expected to contribute to a greater job satisfaction, which in turn should lead to improved job performance. Certainly in real life the link is not so linear, but we apply this simplification to facilitate the analysis of this complex problem. All these three elements – job performance, job satisfaction and human capital – are reflections of various facets of the labour supply. For this reason, we initially concentrate on the link between job performance and increased knowledge and skills – that is, on the quality of the human capital. We then try to observe the effect of job satisfaction on this relationship.

Based on this perspective, we can outline the following research objectives:

1. To construct the theoretical background of the study examining the links within the labour market triangle, job performance-job satisfaction-human capital, with the aim of capturing significant new characteristics of this market.
2. To identify suitable analytical methods for the quantitative measurement of the links within this triangle and the factors affecting its components and their relationships.
3. To test the formulated theoretical hypotheses using concrete data from the labour market in Bosnia and to outline further problems of studying labour markets from the perspective of job performance, job satisfaction and human capital.

In the first part of this paper, we present a critical review of the literature on the basic relationships. Theoretical models used in further work, as a result of the review, are then outlined. The statistical data and the features of the sample are explored by means of factor analysis. Next, we examine some of the basic characteristics of the relationship between job performance and the quality of human capital, using a logistic approach. As a result of the features of the collected data, most of the models are tested by means of the Maximum Likelihood technique, followed by a detailed analysis of job satisfaction and the factors influencing its extent. Consequently, the link between job performance and human capital is analysed, taking into account the effect of job satisfaction on both, job performance as well as human capital.

The discussion of some of the main issues that are not fully examined in this paper highlights problems such as the expected biases and the search for more objective methods of data collection, i.e. looking at the sample 'from outside.' Finally, conclusions are presented and recommendations outlined for further studies.

Brief Critical Review

Job performance is certainly an important feature of the labour market. Introducing three categories of job performance, namely organizational citizenship behaviour (OCB), counterproductive work behaviour (CWB) and task performance, Ong (2012) indicates the way in which 'job performance could benefit organizations and their members.' From a psychological viewpoint, job performance is presented as a significant ingredient of the personality dimensions in the work of Barrick and Mount (1991), who outline three criteria of job performance: job proficiency, training proficiency and personal data. The Human Resources project at the University of California, Berkeley (Human Resources at UC Berkley, 2011) made great strides in the methodology of Job Performance Standards, formulating them as describing 'the scope, key responsibilities, and knowledge and skill requirements of a specific job level within a family.' Morrison et al. (2008) indicate that 'job performance standards are critical to help ensure the success of the employee, supervisor, work unit and agency.'

Judge, Thoresen, Bono and Patton (2001) add to this discussion the effect of job satisfaction on job performance, providing a reliable qualitative and quantitative review of the relationship between the two, and underlining the difficulty of producing a clear estimation of this relationship.

Although both job performance and job satisfaction are psychological entities, they have important socio-economic dimensions and without doubt can be regarded as a part of labour market studies. Bartel (1992) looks for the link between on-the-job training, wages and job performance, and indicates how biases can be avoided in such estimations. Bartel's conclusion is that training (the growth of human capital) leads to wage growth and improvement in job performance.

During the 1960s, an important observation was formulated by Lawler and Porter (1967). According to their work, 'much of the interest in job satisfaction seems to have come about because of its presumed relationship to job performance.' In more recent times, this relationship remained somewhat neglected, as most of related studies are oriented either toward various aspects of job performance or toward job satisfaction. The level of job performance, as one of the indicators of the quality of labour supply, is most probably determined largely by job satisfaction and the whole spectrum of factors influencing it. Pugno and Depedri (2009) not only confirm the positive relationship between job performance and job satisfaction, but also indicate that the economic incentives may not be the main motivations of job performance. This is an additional piece of evidence that job performance is influenced by a complex of factors and it is difficult to outline a universal scheme of their interrelationships.

While the analysis of job performance includes a broad range of studies at individual and company level, research on job satisfaction has been more directly oriented towards individuals. Advances have been made in both theoretical and empirical aspects. Brayfield and Rothe (1951) construct one of the first indices of job satisfaction and incorporate differences in work values, presenting job characteristics as 'key explanatory variables.' They empirically test the theoretical background, examining 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' (Kalleberg, 1977).

This concept has been enriched in the modern vision of job satisfaction, which indirectly traces out the link with job performance. Both job-related issues are analysed in relation to the monetary (wage, income, etc.) and non-monetary factors. Arvey, Bouchard, Segal and Abraham (1989) study the role of intrinsic, extrinsic, and genetic satisfaction with the current (or major) job. Weiss (2002) underlines the role of overall evaluative judgments about jobs, affective experiences at work, and beliefs about jobs in job satisfaction. The complexity of the link between job satisfaction and the monetary factors affecting it is demonstrated in the work of Grund and Schmitt (2013) on the effects of works councils on employees' wages and job satisfaction in general and in subgroups with respect to sex and occupational status. These studies enable the formulation of the hypothesis that the monetary reasons for job performance/satisfaction are not always the most important and that non-monetary factors may also play a significant role in this chain.

Several studies seem to be more directly relevant to our paper, thus helping to define the choice of the variables for testing the models in part 3. Special attention has been paid to the choice of non-monetary variables, due to a wide variety of possible approaches. Among the numerous studies in this area, we selected indicators following the results of Troup and Rose (2012), examining the link between job satisfaction and the way the time is spent during working hours, and the detailed study by Jones (2005) of various aspects of job satisfaction and communication with amiable people, which were divided into two parts, namely the satisfaction gained through meeting friends on the job (Krug & Rebien, 2012), and the satisfaction of working in a good team, even if this does not necessarily turn into friendship (Gockel, Robertson & Brauner, 2013).

Other social factors that are relevant to our study are analysed by Kulka-rni and Nithyanand (2013) and include the level of friendship in the unit in which the respondent works, and the perception of the social importance of the job. However, account must also be taken of the factors that could

have a negative influence on job satisfaction (Fraňek & Večeřa, 2008), such as poor social environment, perception that the work is of low value, etc.

In terms of the choice of suitable methods of analysis, we followed Judge et al. (2001), who underline the importance of using advanced analytical methods, since both job performance and job satisfaction are multifaceted phenomena that not only exist per se, but also depend on the point of view from which they are analysed. This problem is discussed in detail in part 4.

Next we narrowed down our analysis of the literature by focusing on human capital; the literature on this is vast, and a full survey would fill many volumes. For the purposes of this study, we have constrained it by using knowledge and skills as a proxy for human capital, although in our previous publications it was analysed in a broader sense that included individuals' health and value systems (Danchev, 2010).

Among the vast literature that connects the different elements of our triangle, we should also mention Blinder and Weiss's (1976) study on human capital and labour supply, and the projects within the Center for Effective Organizations at the University of Southern Carolina's (http://ceo.usc.edu/research/human_capital.html) 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.'

In the wider research context, studies on the link between human capital and its affect on labour supply reveal various other aspects of the problem, including life cycle issues, effects of human capital on wages, and the determinants of labour supply in developing countries (Sahn & Alderman, 1988). López-Bazo and Motellón (2012) report the results of a study of human capital and regional wage gaps, thus indicating the necessity of research on the role of both monetary and non-monetary factors of human capital formation.

These studies provide evidence of the advances in research on the complexity of human capital and the factors influencing its formation, which help to better orientate its link with job performance and job satisfaction.

For this reason, in our study we considered human capital to only be the starting point for analysing the relationships between job performance and job satisfaction. These relationships are presented in this way merely in order to simplify the analysis with a view of moving toward more realistic models in the future.

The Theoretical Background

As previously stated, job performance is defined by many external and internal components, and it is not possible to construct a model that could encompass all of them. For this reason, we narrowed down our analysis and

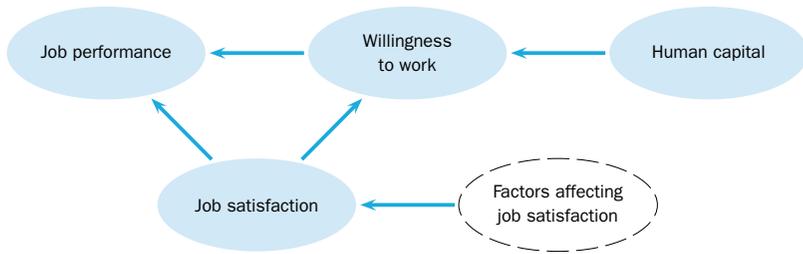


Figure 1 The Scheme of the Study

formulated the hypothesis that job performance primarily depends on the Willingness to Work (*WTW*), which in turn depends on job satisfaction and human capital:

$$JOBPN = f(WTW, SATISF), \quad (1)$$

$$WTW = h(PSKILL, SATISF), \quad (2)$$

where *JOBPN* is job performance and *PSKILL* is the present level of knowledge and skills as a proxy for human capital. It should be noted that, similar to Willingness To Pay (*WTP*) in demand studies, we regard *WTW* as a basic characteristic of labour supply reflecting a complex of social, economic, psychological, political, and other elements. On the other hand, the rationale of including job satisfaction and human capital in this relationship is based on the results from the abovementioned studies on the role of both job satisfaction and human capital in the labour market. Combining 1 and 2 gives:

$$JOBPN = f[h(PSKILL, SATISF)]. \quad (3)$$

In our opinion, such an interpretation of the problem reveals new aspects of the labour market that have not previously been presented. The scheme of our study is presented in Figure 1.

In order to more adequately outline the influence of human capital and job satisfaction on job performance, we initially defined the factors influencing job satisfaction. It is a process that includes many possible factors, and as shown in the critical review, there are many approaches to it. For the purpose of our analysis, we selected several factors and divided them into two groups:

- *Monetary factors* – the level of income and related factors (if these increase, the level of job satisfaction increases).
- *Non-monetary* (some of these can be defined as hedonic) *factors*, which can increase or decrease the level of job satisfaction.

To facilitate our analysis we assumed a continuous, concave and twice-differentiable function of job satisfaction (the mathematical reasoning of these conditions are not presented for technical reasons) so that:

$$SATISF = f[\exp(\alpha, \beta)]. \tag{4}$$

Correspondingly, we can decompose monetary and non-monetary factors as follows:

$$\alpha = f(x_1, x_2, \dots, x_n), \tag{5}$$

where x_1, x_2, \dots, x_n are monetary-related factors; and

$$\beta = z(z_1, z_2, \dots, z_n), \tag{6}$$

where z_1, z_2, \dots, z_n are non-monetary (hedonic)-related factors.

We can combine monetary and non-monetary characteristics into one equation as:

$$SATISF = f(\alpha, \beta, t) = f(x_1, x_2, \dots, x_n), z(z_1, z_2, \dots, z_n). \tag{7}$$

If we assume a non-linear form, the equation would be:

$$SATISF = \alpha_0 x_1^{\alpha_1} x_2^{\alpha_2}, \dots, x_n^{\alpha_n} z_1^{\beta_1} z_2^{\beta_2}, \dots, z_n^{\beta_n}. \tag{8}$$

The next problem was to select the concrete indicators for the empirical test of (8). As can be seen from the critical review, there are many approaches to different aspects of the problem, which allows a selection of various indicators to cover the most essential part of the model.

Following the results of the critical review, our study considered such factors as the way the time is spent during working hours (z_1), together with the satisfaction derived from communication with amiable people, which has two aspects: the satisfaction gained through meeting friends on the job (z_2), and the satisfaction of working in a good team, even if this does not necessarily turn into friendship (z_3). In our opinion, another important non-monetary characteristic is the perception of social significance of one's work (z_4), which is also included in equation 8.

However, the analysis would be incomplete if we did not take into account the negative aspects of this relationship. Thus, the basic dependent variable *SATISF* was regressed against the following factors:

Factors that are expected to have a positive influence on job satisfaction, namely (the number in parenthesis reflects the corresponding number in the questionnaire):

- *JOBMON* – level of income sufficient ‘to enjoy my life’ (1.7.1),
- *JOBFR* – ability to make friends on the job (1.7.2),

- *JOBSOC* – the perception of social importance of the job (1.7.3),
- *JOBNICE* – working hours pleasantly spent (1.7.4.),
- *JOBTEAM* – the pleasure of working within a team (1.7.5).

It is envisaged that these variables, except *JOBMON*, reflect the main social factors of job satisfaction outside the influence of income level. The choice of these variables was on one hand inspired by the work of Pugno and Depedri (2009), which emphasizes the role of interest in the job, and Helliwell and Huang's (2005) study on the role of social capital in the workplace, which finds a significant and substantial relationship between trust in management and job satisfaction, etc. On the other hand, the choice was influenced by factors such as the perception of social importance of the job, which have so far not been sufficiently discussed, but which could also be expected to have significant influence on job satisfaction.

Factors that are expected to negatively affect job satisfaction. The choice of factors that negatively affect job satisfaction is difficult due to the complexity of the relationships. Analysis of the various factors that have negative effects on job satisfaction is presented in the studies of Redman and Snape (2006), who suggest that 'age discrimination acts as a stressor, with [...] negative effects of perceived age discrimination on job and life satisfaction, perceived power and prestige of the job.' Willem, Buelens and de Jonghe (2007) describe the negative effect of centralization on job satisfaction. Hsu (2011) indicates that work-family conflict has a negative effect on job satisfaction.

In order to allow comparison of the effects of the factors affecting job satisfaction positively and negatively, we selected negative factors as opposites to the positive ones. In this way, we expect to be able to present a more comprehensive analysis by comparing the extremes. For example, if we choose a factor such as a level of income sufficient to 'enjoy my life,' we correspondingly formulate a factor at the other extreme – too low a level of payment; to the perception of the social importance of the job, we counter-vail the perception that the job is useless for society, and so on.

Next, we formulated the following factors with negative effects on job satisfaction:

- *NJOBMON* – the level of payment is too low (1.8.1),
- *NJOBATM* – dislike the atmosphere in the work team (1.8.2),
- *NJOBUL* – the perception that the job is useless for society (1.8.3),
- *NJOBBOR* – the job is boring and irritating (1.8.4),
- *NJOBIP* – there are no interesting people in the firm (1.8.5).

Our expectation is that these two groups of variables will encompass a

broad spectrum of the basic factors defining the level of job satisfaction. Finally, we added socio-economic indicators, such as age, gender, working experience, educational level and health status, to the model.

Research Strategy

The theoretical background presented above imposes the requirement of a search for a suitable strategy to test the theory with empirical data. The starting point is the three basic dependent variables – job performance, job satisfaction and human capital – and a complex of other variables that are expected to affect the dependent variables in various ways. Several problems can be outlined, the solution of which influences the research strategy of the study.

Data Collection

The nature of the variables in the models is such that it requires the participants to be interviewed in the labour market. This entails the construction of a suitable questionnaire and the organization of the interview process. Since telephone and postal interviewing normally have low response rates, and taking into account the features of the questions that require more direct links with the respondents, the survey took the form of personal interviews with the respondents. Despite the need to collect a large volume of information to cover the details of the problems, the questionnaire was controlled, so that it took no more than 15–20 minutes of the respondents' time. The selection of the respondents was random.

Defining the Methods of Measuring the Relationships

Data collection in the form of interviews allows a large number of interrelated performance measures to be collected, with this number subsequently being reduced (Kalogeras et al., 2013). In this case it is normal to apply the principal component (factor) analysis to outline the main groups (eigenvalues) of relationships. The merits of factor analysis are multifarious: it not only defines the basic groups of interrelated components, but also provides useful information on the links between the components, which can be used as a basis of further in-depth analysis, an approach demonstrated by many studies (Papadimitriou, Theofilatos & Yannis, 2013; Broberg, Salminen, & Kytä, 2013; Siddiqui & Ahmed, 2013). Such an approach also provides information that is useful as an orientation measure in the search for suitable methods of analysis for the next, more detailed, stages of the study of these relationships.

Traditionally, the results of the factor analysis are consequently used to construct the econometric models applying ordinary least square (OLS) or other techniques. As most of the observations in our study are in the

form of ranked variables, following the practice of Al-Najjar and Elgammal (2013) and Zhang, Duysters and Cloodt (2013), we selected the Ordered Probit technique (quadratic hill climbing), which is expected to help produce reliable estimations of the relationships.

Search for Suitable Interpretation

The methods presented above allow many sides of the estimations to be revealed, and the presentation of these would fill many pages of comments and interpretation. We restricted the interpretation within the following basic reasonable boundaries:

- First of all there is a need to analyse the descriptive statistics of the main variables to determine their suitability for further analysis.
- For the results of the factor analysis, we restricted our exposition within the comments of the scree plot to determine the degree of explanations of the variables by the eigenvalues. To reduce the number of variables we applied the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Barlett's test to determine the proportion of the variance that is due to the basic factors.
- It also makes sense to analyse the scatter plot of the matrices in order to test for outliers and other deviations.
- As most of our variables are in the form of rankings, it is important to apply the Ordered Probit (quadratic hill climbing) method for calculating the regression coefficients and their statistical significance, as well as such characteristics as Pseudo *R*-squared coefficient, Schwarz criterion, LR statistics and other characteristics.

Research Results

The data were collected by interviewing Bosnian citizens, who were randomly selected from various parts of Bosnia. Taking into account the features of the study, the enumerators were trained by the authors to carry out semi-structured interviews, recording both the respondents' answers to the basic questions and their idiosyncratic comments. In such a way, we collected data that allowed us to apply both positivist and phenomenological strategies in the research. For technical reasons, this paper presents only the results of the econometric models, leaving the phenomenological analysis for further presentations.

During the process of data gathering, quota control was applied in line with the structure of those parts of the population that represent the main characteristics of job performance, job satisfaction and human capital for the country. The quota control was constructed in such a way as to retain only the main information necessary for the purposes of the model. Special

attention was paid to the structure of education and work experience as the main components needed for the next stage of the study, as well as such socio-economic indicators as age, gender and place of residence.

The sample consists of interviews with 287 citizens from Bosnia as part of the project 'Managing human capital for the aims of sustainable development (case study of some Balkan countries),' which was funded by the Fatih University (Istanbul, Turkey). The questionnaire also covered some general issues relating to human capital and sustainable behaviour.

Not all respondents gave answers to all the questions asked. Thus, out of the 287 respondents, only 256 gave relatively complete answers. Of these, 0.7% have primary education, 50.2% secondary education, 45.1% a university degree, 3.3% a master's degree and 0.7% a doctorate. With regard to working experience, out of 256 respondents, 31.3% have up to 3 years of work experience, 21.9% between 3 and 6 years, 12.6% between 6 and 10 years, 10.8% between 10 and 15 years, and 23.4% more than 15 years.

Socio-economic indicators were also collected, namely place of residence, age and gender. With regard to the regional aspect, most of the respondents were from Sarajevo (76.3%). The age distribution within the sample was: 2.1% aged 16–19 years, 47.0% aged 20–29, 23.2% aged 30–39, 9.8% aged 40–44, 11.9% aged 45–49, 4.9% aged 50–59 and 1.1% aged 60 or over. In terms of gender, 53.2% were male and 46.8% female.

These features characterize the sample as sufficiently indicative for outlining a general picture of the 'job performance–job satisfaction–human capital' triangle, as well as the factors influencing various aspects of this chain in Bosnia.

We selected several indicators for characterizing these relationships. Job performance and job satisfaction are represented on the 5-point Likert scale *JOBPN* and *SATISF*, while human capital is defined by the level of education *EDUCATION*, and the present level of knowledge and skills necessary to complete the respondents' jobs *PSKILL*. The descriptive statistics of these variables are presented in Table 1.

We observed relatively high levels of job performance and job satisfaction, as well as high levels of education and accumulated knowledge and skills. Next we applied factor analysis in order to more distinctly outline the level of correlation between variables.

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 empirical observations. However, by means of factor analysis we tested all obvious

Table 1 Descriptive Statistics of the Basic Variables

| Item | <i>JOBPN</i> | <i>SATISF</i> | <i>EDUCATION</i> | <i>PSKILL</i> |
|--------------|--------------|---------------|------------------|---------------|
| Mean | 4.027344 | 3.972656 | 2.546875 | 4.269531 |
| Median | 4.000000 | 4.000000 | 2.000000 | 4.000000 |
| Maximum | 5.000000 | 5.000000 | 6.000000 | 5.000000 |
| Minimum | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Std. Dev. | 0.693976 | 0.779161 | 0.655108 | 0.687143 |
| Skewness | -0,45944 | -0,65038 | 1.126210 | -0,69478 |
| Kurtosis | 3.780489 | 3.864101 | 6.037315 | 3.867689 |
| Jarque-Bera | 15.50386 | 26.01205 | 152.5192 | 28.62673 |
| Observations | 256 | 256 | 256 | 256 |

and latent relationships and attempted to enrich the theoretical postulates with inductive insights.

All extraction communalities in the sample are 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 observed that the 9 initial eigenvalues were above 1, which explains only about 71% of the variation. This result is the first 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. We have to restrict the number of eigenvalues in further analysis, but reducing this number results in a loss of information, which is high even with 9 eigenvalues (29%).

The problem is exacerbated by the fact that there is not a great difference between the extraction and rotation sums of the squared loadings, which indicates that the rotated component matrix would not contribute much more to the interpretation of the results than the original matrix. This is illustrated clearly in the scree plot presented in Figure 2.

However, it makes sense to analyse the rotated component matrix to determine the composition of the components. Due to technical reasons we are not presenting the results in detail here. Nevertheless, it has been clearly demonstrated that the first component is most highly correlated with

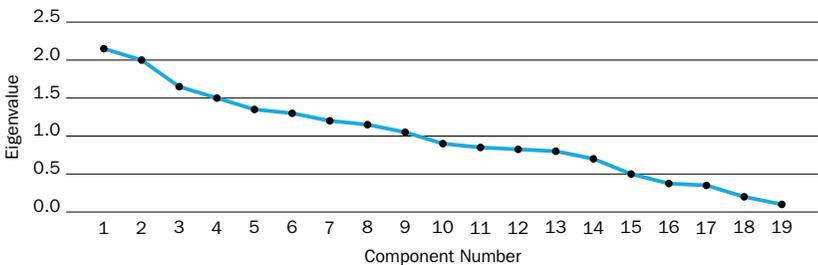


Figure 2 The Scree Plot of the Variables in the Model

job satisfaction (0.749), job performance (0.717) and *WTW* (0.697). The second component, which can be defined 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 can be defined as human capital: education level has a value of 0.888 and years of schooling a value of 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; therefore, we were able to restrict 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 is unacceptable, although all variables in the model are well represented in these three components.

The scatter plot of the matrices (Figure 3) 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 observed outliers, which were excluded from further analysis.

The fact that 9 eigenvalues account for around 69% of the variation requires an attempt to 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. In order to more clearly outline the structure of the sample, the number of variables is reduced and the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy is applied to calculate the proportion of the variance that is due to the basic factors. As it is not clear which variables should be eliminated due to the structure of the eigenvalues, we calculated the KMO Measure of Sampling Adequacy for the whole sample; this is known as KMO and Bartlett's test. The result is 0.296, which is regarded as low (< 0.5), and requires a revision of the structure of variables included in the model. However, the Bartlett's test of sphericity indicates a significance level of 0.000, which provides encouragement to apply factor analysis for a more detailed study of the problem.

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. This provides the reason to take the next steps: first, to test the relationships between these three variables, and then to extend the analysis to include other variables until suitable results are obtained.

Ordered Probit Analysis of the Relationships

As the data for first variable – job performance – were collected in the form of a ranking, we applied the Ordered Probit technique (quadratic hill

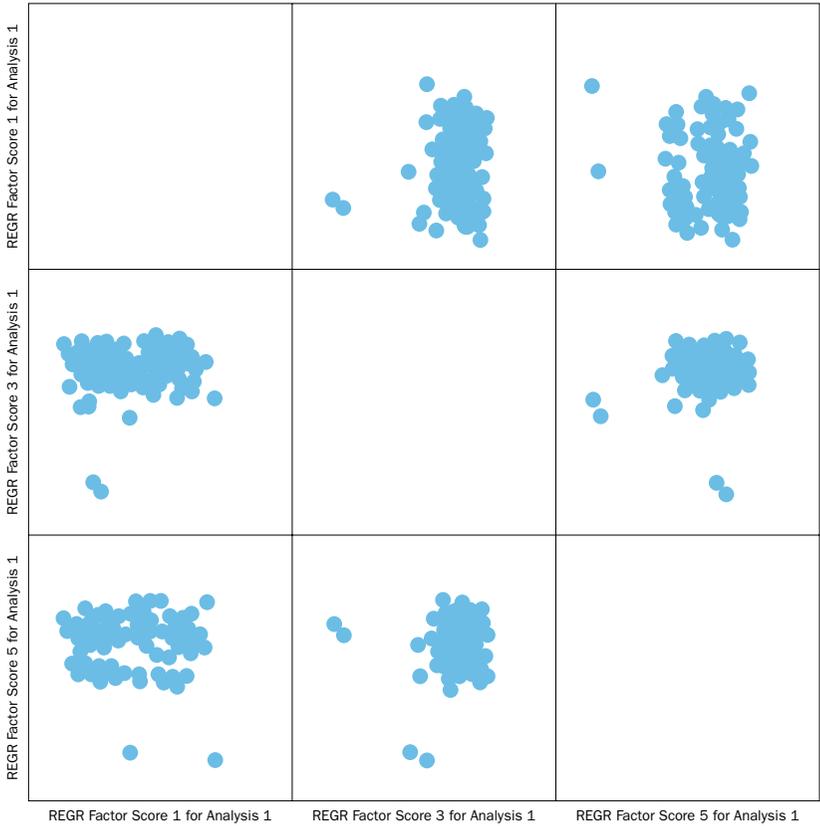


Figure 3 The Scatter Plot of the Matrices

climbing). The results of econometric calculations of the link between job performance, job satisfaction, and knowledge and skills are presented in Table 2. Job performance and job satisfaction are positively correlated, which supports the above formulated assumption. Knowledge and skills have less influence on job performance, but the link is also positive and sufficiently influential.

The results provide evidence of the fact that both job satisfaction and the accumulated knowledge and skills positively affect job performance. However, job satisfaction in turn depends on a number of factors. Following the literature recommendations (Aitchison & Silvey, 1957; Chimka & Wolfe, 2009), the dependent 5-scale variable *SATISF* was next regressed against various combinations of positive and negative factors by means of Ordered Probit regression. Table 3 displays the parameters of the best combination.

The results indicate that the ‘money to enjoy my life’ factor has the greatest effect on job satisfaction in terms of probability, a fact that is

Table 2 The Influence of Job Satisfaction and Knowledge and Skills on Job Performance

| Variable | Coefficient | Std. error | z-Statistic | Prob. |
|------------------------|-------------|-----------------------|-------------|-----------|
| SAFISF | 0.712619 | 0.097995 | 7.271964 | 0.0000 |
| PSKILL | 0.572106 | 0.105512 | 5.422184 | 0.0000 |
| Pseudo R-squared | 0.158481 | Akaike info criterion | | 1.759060 |
| Schwarz criterion | 1.838180 | Log likelihood | | -234.9912 |
| Hannan-Quinn criterion | 1.790817 | Restr. log likelihood | | -279.2466 |
| LR statistic | 88.51081 | Avg. log likelihood | | -0.857632 |
| Prob. (LR statistic) | 0.000000 | | | |

Notes Dependent variable: *JOBPN*; Method: ML – ordered probit (quadratic hill climbing); Sample: 287; Included observations: 274.

Table 3 The Influence of Various Factors on Job Satisfaction

| Variable | Coefficient | Std. error | z-Statistic | Prob. |
|------------------------|-------------|-----------------------|-------------|-----------|
| <i>JOBFR</i> | 1.010156 | 0.313283 | 3.224417 | 0.0013 |
| <i>JOBNICE</i> | 1.139422 | 0.320520 | 3.554916 | 0.0004 |
| <i>JOBTEAM</i> | 1.018901 | 0.287842 | 3.539793 | 0.0004 |
| <i>JOBSOC</i> | 1.092107 | 0.277519 | 3.935256 | 0.0001 |
| <i>NJOBMON</i> | -0.388302 | 0.200749 | -1.934268 | 0.0531 |
| Pseudo R-squared | 0.047635 | Akaike info criterion | | 2.222809 |
| Schwarz criterion | 2.353299 | Log likelihood | | -298.9705 |
| Hannan-Quinn criterion | 2.275161 | Restr. log likelihood | | -313.9243 |
| LR statistic | 29.90762 | Avg. log likelihood | | -1.075433 |
| Prob. (LR statistic) | 0.000041 | | | |

Notes Method: ML – ordered probit (quadratic hill climbing); Sample: 287; Included observations: 278; Number of ordered indicator values: 5; Convergence achieved after 4 iterations; Covariance matrix computed using second derivatives.

also reported, albeit ambiguously, by other authors (Clark, 1996; Weaver, 1980). The role of non-monetary factors is also strong in the sample: the understanding of the social importance of the job is very close to that shown by the results for monetary factors. We can surmise that non-monetary factors play a strong role as well; these include the pleasure of working with the team (1.15), a pleasant time spent during working hours (1.21), and making very good friends on the job (1.11).

Interestingly, of the factors that were expected to negatively influence job satisfaction, only the monetary factor was found to be statistically significant (at a 10% level of confidence). This indicates that, beyond income, the lack of positive experiences, rather than the presence of negative experiences, drives down job satisfaction, and by extension job performance, in our sample. This result is most probably influenced by the fact that most respondents indicate a high level of job satisfaction.

Overall, the analysis indicates that the respondents are willing to partic-

ipate in the market and demonstrate a high level of job performance when they are satisfied with their jobs; furthermore, they assess their knowledge and skills as high. As a rule, *WTW* is very sensitive to the level of accumulated knowledge and skills and this demonstrates the power of human capital to influence the state of the Bosnian labour market.

Discussion

The attempts to shed light on the 'job performance–job satisfaction–human capital' triangle raise several questions.

First of all, as job performance is based on self-estimation it includes a large element of subjectivity. There is a need to improve the methodology for estimating job performance, in spite of significant progress in this area during the past few decades. Most of the studies that are similar to the discussed study are based on respondents' self-assessment, a process that inevitably suffers from subjective drawbacks. As Lawler (2010) indicates, 'There are also numerous examples of situations where individuals thought they were doing the right thing and performing well, only to find out they were mistaken when they had their annual appraisals.' It is necessary to apply a methodology that produces more objective views on this issue.

In relation to job satisfaction, it would be useful to complement the positivist-based survey with a phenomenological approach and balance the analysis based on structured data with the idiosyncratic information provided by the comments of the respondents for every level, including the scale of job dissatisfaction. Moreover, many elements of job satisfaction – and in particular the role of job conditions and perceived organizational support, etc., which may also have double effects, remained outside the scope of our study. As Eisenberger, Cummings, Armeli and Lynch (1997) indicate, 'Further research is needed on factors influencing employee perceptions about the organization's discretionary control over the favourableness of job conditions.'

Reducing human capital only to knowledge and skill neglects recent research achievements in this area. Our attempts to extend this vision to include value systems, health, and other modern components of human capital could not be supported by empirical data.

The combination of factor analysis and Probit-based calculations reveals only one approach to the relationship between the variables. Discrepancies are observed in some correlations and it is not always clear which of the outlined relationships are closer to the real situation. It would be appropriate to complement the present analysis through the use of neuro-fuzzy and other approaches to produce a more complex and thus more realistic picture of the problem.

Conclusions

This paper is a part of a complex study of the influence of human capital on sustainable development in the Balkan countries. An important task in this process is to reveal the influence of human capital on labour supply. In our opinion, the key contribution of the study is the analysis of the combined effects of monetary factors (income) and non-monetary factors (such as the perception of the social importance of the job, meeting friends and spending a pleasant time during the working hours) on job satisfaction and thus on job performance. The results are an indication that the 'job performance-job satisfaction-human capital' chain is influenced by both monetary and non-monetary factors, which may have positive and negative effects on the Bosnian labour market.

Although not very strong (low Pseudo *R*-squared), the positive effects of job satisfaction and knowledge and skill on job performance are evident. Job satisfaction is sensitive to the level of payment and is positively affected by a number of non-monetary (hedonic) factors. Nonetheless, as indicated above, a great deal remains to be done. Further studies should include broader aspects of human capital. There is a definite need to complement this study with research regarding how individuals' value systems affect many idiosyncratic features of human behaviour that create incentives for increasing knowledge and skills, but remain outside the traditional economic analysis. Our paper presents findings that could benefit further in-depth studies in this area.

These results have direct practical implications. They are a starting point for understanding the motivation and factors that influence job satisfaction, which would allow firms to manage their human resources more effectively and create favourable preconditions for sustainable and prosperous growth. The case study on Bosnia reveals interesting relationships between job performance, job satisfaction and human capital in an area 'where special-interest groups and patron-client relations prevail over generalized norms and networks of reciprocity, trust, and cooperation that promote wider social welfare and development objectives' (Christoforou, 2011). Our study is the first step towards revealing a complex relationship in a rather complicated setting.

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