PUBLIC PRIVATE JOB SATISFACTION DIFFERENTIAL IN SERBIA: EVIDENCE FROM SILC DATA

Marko Vladisavljević[1]

ABSTRACT

Although the wage differences between the public and private sectors in Serbia are well researched, little is known on the differences in the overall quality of work between the sectors. In this paper we aim to fill this gap, by analysing the differences in job satisfaction between the public and private sector workers in Serbia, starting from a theoretical framework which views job satisfaction as an operationalization of total utility from work. To analyse the differences in job satisfaction we use nationally representative Survey on Income and Living Conditions (the SILC) data from 2013 and Blinder-Oaxaca decomposition method. The results show that public sector workers in Serbia, beside high public sector wage premium, also work in better working conditions, and have higher levels of job satisfaction. Although higher levels of job satisfaction can partially be accounted for by higher wages and better job characteristics of the public sector workers, a part of the gap in job satisfaction remains unexplained by the variables available in the SILC data. According to recent literature on job satisfaction these unexplained differences could be contributed to lower stress, higher job security and higher levels of intrinsic motivation of public sector workers. The results further support the notion of strong labour market duality in Serbia, which causes micro level labour market distortions.

Key words: *job satisfaction, public and private sector, working conditions, the SILC, Serbia.*
JEL Classification*: J28, J45, J81.*

INTRODUCTION

Public private sector division is one of the most important bases of the labour market duality in Serbia (Arandarenko, 2011). The primary labour market, which majorly consists of the public sector workers, is characterized by higher job security, good working conditions and higher wages. On the other hand, the secondary labour market, majorly composed of private sector employees, is characterized by lower job security and lower wages, but also by difficult transition to the primary labour market (Arandarenko, 2011).

The more favourable position of the public sector workers is not a special feature of Serbia, but is often found in many European countries. One of the advantages of working in the public sector is that employees in this sector have, on average, a higher level of earnings than private sector workers. However, when the differences in labour market characteristics, such as the level of education, work experience or work on managerial positions, are statistically kept constant, the

[1] Researcher, Institute of Economic Sciences, Belgrade, Serbia, e-mail: marko.vladisavljević@ien.bg.ac.rs

public sector wage premium is sometimes positive and sometimes negative (European Commission, 2014).

In Serbia, at the beginning of the transition the public sector wages were, ceteris paribus, lower than the wages in the private sector (of about 28% in 1995, Krstić et al, 2007). As the transition progressed the wages in the public sector firstly became equal to the wages in private sector (in 2004; according to Lausev, 2012) and then significantly higher than the wages for the comparable jobs in the private sector (about 17%, according to Vladisavljević and Jovančević, 2016). Although the number of papers dealing with the public private wage differentials in Serbia is now substantial, not many of them deal with the other differences in the workers' position.

This paper aims to analyze the differences in job satisfaction between public and private sector in Serbia, using nationally representative micro data from the 2013 Survey on Income and Living Conditions (the SILC) and the Blinder and Oaxaca decomposition (Blinder, 1974; Oaxaca, 1974). In this paper, job satisfaction is viewed as an operationalisation of the overal utility of work, a framework of the job satisfaction analysis established by Clark (1996).

The contribution of this paper is twofold. Firstly, to the best of our knowledge, the differences between the public and private workers in job satisfaction have not been previously investigated in the case of Serbia, due to unavailability of nationally representative data. The methodology applied in this paper is similar to the one which is usually applied in the investigations of public private wage differentials, although adopted to study the differences in job satisfaction according to the framework of Clark. Secondly, the investigation of the public private job satisfaction differential is important as it underlines the differences between the public and private sector, other than wages and working conditions. High level of differences in job satisfaction between the public and private sector workers, in the situation where there are no differences in wages, could indicate that workers of one sector are in more favourable position, which can cause labour market inefficiencies, as the workers "wait in line" for the job in one sector and less skilled workers are left to the other.

This paper is structured as followed. After this introduction, the second part of the paper defines the concept of job satisfaction and underlines its significance, while the third part discusses the sources of the job satisfaction differences between the public and private sector. Fourth part of the paper discusses the data and the methodology that is going to be used to analyse the public private job satisfaction differential, while the fifth presents the results of the analysis. Finally the sixth part concludes.

JOB SATISFACTION: DEFINITION AND DETERMINANTS

One of the most commonly used definitions of job satisfaction is given by Locke (Locke, 1970, according to Clark, 1996), who defines job satisfaction as "a pleasant or positive emotional state that is the result of an evaluation of someone's work or experience of work". Within the concept of job satisfaction different domains can be distinguished, such as satisfaction with pay, with co-workers, working conditions, job importance etc. (Ghinetti, 2007). According to this approach, job satisfaction components which relate to satisfaction with different aspects of work, combined together, make the overall measure of job satisfaction, which is calculated as an (weighted) average score of specific job satisfaction aspects (Linz & Semykina, 2012).

According to one of the most prominent authors in the field of job satisfacton Andrew E. Clark, job satisfaction is important because: 1) it direclty measures the overall ustility of work, the and the (workers) overall well-being which is one of the core topic in economics which cannot be investigated otherwise; and 2) because job satisfaction indicators are strongly linked with job perfromance indicators such as quits, abseentiesm and productivity (Clark 1996).

The concept of job satisfaction is closely related to the notion of motivation for work. In job motivation research, typically to two groups of factors are mentioned: so-called *extrinsic* (external) factors of motivation that include cash rewards for success, working conditions, etc. and *intrinsic* (internal) which encompass the sense of accomplishment, self-development, etc. (Buelens & Van den Broeck, 2007). While extrinsic factors of job satisfaction are more in the research focus of economists, intrinsic factors are more investigated by psychologists (Linz & Semykina, 2012).

Authors in the field of psychology and management (e.g. Hulin and Judge, 2003) emphasize that job satisfaction is a multi-dimensional concept that includes a cognitive (evaluative) and affective component. The cognitive component refers to a cognitive assessment of the difference between the expected and achieved working conditions and other aspects of the job. On the other hand, the affective component reflects the level of happiness and positive emotions related to the job. These two components are said to have different determinants and are not necessarily directly related, although cognitive job satisfaction can contribute to greater emotional satisfaction with ones work.

On the other hand, economists view job satisfaction as an operationalization of the total work utility (Clark, 1996). This line of research usullly focuses on global utility of work, measured on the basis of one item, which refers to general job satisfaction, typically a cognitive one. This approach is more appropriate in the surveys with a large number of respondents (nationally representative samples) and has been implemented in the SILC module on subjective well being, which is used in this paper.

Job satisfaction determinants

In economics, as already mentioned, job satisfaction is viewed as an operationalization of total utility from work. In accordance with this theoretical framework, the economic model of job satisfaction, focuses on the so-called extrinsic (external) determinants. Within this approach, job satisfaction is viewed as a function of earnings (y), hours of work (h) and a set of other job characteristics (j) (Clark, 1996):

$$JS = U = U(y, h, j) \qquad (1)$$

assuming positive preferences for higher income and fewer hours of work, which have been well estblished in the previous research (e.g. Clark, 1997).

According to Ghinetti (2007), the set of job satisfaction determinants is identical to one used in Mincer earnings equations, and within the set two groups of factors are often separately considered: personal and job characteristics. Among the personal characteristis a large number of studies indicated that women show higher levels of job satisfaction, despite being lower paid than men, primarily due to lower initial work expectations (Clark, 1997). On the other hand, the relationship of job satisfaction and age is U-shaped, with country specific age for minimum values of job satisfaction (Clark et al., 1996). Finally, marriage and parenting, as well as health, have a beneficial effect on job satisfaction, probably thorught an indirect relationships with higher levels of overall life satisfaction.

On the other hand, although it has been unequivocally established that people with a higher education are earning more and have better working conditions, their job satisfaction is often lower than the one of less educated workers. This unexpected result is explained by the fact that more educated workers have significantly higher expectations from work, and therefore, more often than workers with lower education, they have a greater discrepancy between expected and actual conditions at work (Clark and Oswald, 1996). The effects of occupation are similar to the effects of

education: jobs that involve more qualified work (managers, professionals, technicians) show on average higher levels of job satisfaction, but when other variables are controlled for they can be lower then for less skilled workers.

In addition to the described effects of earnings and hours of work, other job characteristics have also been demonstrated to affect job satisfaction (Clark and Oswald, 1996). Job satisfaction is generally higher in larger companies, because, as a rule, they provide a higher level of earnings. On the other hand, when the effects of wages and working hours are controlled for, it is shown that workers in smaller enterprises are more satisfied with their work, which is often explained by their higher intrinsic work motivation (Clark, 1996). Additionally, workers working on permanent contracts typically have higher levels of job satisfaction due to higher job security. Finally, more work experience is also associated with higher levels of job satisfaction (Ghinetti, 2007), but these effects are not uniform, especially in countries in transition (Linz & Semykina, 2012).

JOB SATISFACTION IN PRIVATE AND PUBLIC SECTOR

Public sector wage premium and job satisfaction

One of the main reasons behind the differences in job satisfaction between the private and public sector is the difference in the level of earnings. Although in a long period of years public sector wages were higher than in the private sector, a recent European Commission research suggests that in 2010, roughly divided, in the countries of southern and western Europe there was a positive premium for public sector work, while in the countries of central, eastern and northern Europe, wages for the same job were higher in the private sector (European Commission, 2014).

The size and the sign of the public sector wage premium is affected by numerous factors such as political factors in decision making, wage setting in the public sector, institutional mechanisms of wage setting in general (e.g. minimum wages), the monopsonistic role of the state, and the strength of the trade unions in the wage negotiating process (Vladisavljević et al, 2017).

On the other hand, research on the pay gap in transition countries suggests that wages for "the same job" in the public sector were significantly lower than in the private sector at the beginning of the transition. However, this advantage of the public sector disappears when the economic transition reaches its maturity. In addition, for some countries at the end of the transition, the public sector premium becomes positive, suggesting a convergence between the trends of developed and transition countries (Lausev, 2014).

The public sector premium in Serbia has evolved exactly as the transition literature suggest: at the beginning of the transition the premium was negative, and as the transition unfolded the wages in the sectors firstly became equal, around the turn of the century and then became ceteris paribus higher in the public sector. In one of the papers dealing with the topic for Serbia, Jovanovic and Lokshin (2003) found a negative public sector premium of 9.4% for men and 4% for women using the 2000 Labour Force Survey data. Krstić, Litchfield and Reilly (2007) also use the Labour Force Survey data and show that between 1995 and 2003, the negative public sector premium for men decreased from 28.5% to 8%. Laušev (2012) shows that in 2004 the wages for the public sector workers were equal to the ones in the private sector for low skilled workers, while for the high-skilled workers the wages were ceteris paribus still higher in the private sector. The same study shows that in 2008, public sector premiums became positive for both low-skilled and high-skilled workers (Laušev, 2012). Finally, in 2010s, research based on both data from the 2013 Survey on Income and Living Conditions in 2013 (the SILC) and 2014 Labour Force Survey (LFS) indicate that the public sector wage premium is very high and is estimated at about 17% (Vladisavljević and Jovančević, 2016, Vladisavljević, 2017).

Other factors determining the gap in job satisfaction between the sectors

A large number of research suggest that public sector workers feel that their jobs are more secure and stable than the workers in the private sector (Buelens & Van den Broeck, 2007). Therefore, the public sector jobs are often more attractive, even if there are no differences in the wages between sectors (Ghinetti, 2007). This result is partly due to the fact that, in most countries, as well as in Serbia, trade unions are more strong in the public sector than in the private sector (Arandarenko, 2011). According to Arandarenko (2011), data from 2010 CESID survey suggest that in Serbia the share of union workers is almost four times higher in the public than in the private sector (46% in public vs. 12% in the private sector). In this way, public sector workers are in a better position to negotiate their wages and working conditions in general.

Luechinger, Meier and Stutzer (2010) found that the effects of changes in the unemployment rates and the deterioration of economic conditions on the lowering of subjective welfare of workers are much higher in private workers than in public sector workers. They conclude that work in the public sector is, as a rule, more protected, not only because it is less likely to get fired, but also because the organization in which public sector workers are employed is less likely to bankrupt (Luechinger, Meier and Stutzer, 2010). Additionally, public sector work is more attractive than work in the private sector, due to well-defined working time and a social (versus competitive) work environment (Linz & Semykina, 2012).

Differences in job satisfaction between the private and public sectors can also be the result of different sources of motivation. Research shows that, while private sector workers are more motivated by "external" (extrinsic) factors, such as money and job rewards, public sector workers are more motivated by "internal" (intrinsic) factors such as job content, responsibility, and self-development (Buelens & Van den Broeck, 2007).

Ghinetti states that personal characteristics such as age or education are more likely to determine jobs satisfaction in public sector, while job characteristics, such as the ability to progress, occupation, and place in the job hierarchy, are more likely to determine job satisfaction in the private sector (Ghinetti, 2007). These differences are probably the result of the fact that job and career expectations in the private sector are more volatile, and the career progress has a higher impact on job satisfaction than in the public sector (Ghinetti, 2007).

The gap in job satisfaction between the public and the private sector – previous research

Due to the low data availability, there is a low number of research which investigate the differences in job satisfaction between the public and private. Heywood et al. (2002) directly estimate the sectoral gap in job satisfaction in the UK. They find that, although the cross section data indicate a higher job satisfaction in the public sector, these differences stem from selection effects, due to the fact that public sector workers need less to be satisfied with their work (Heywood et al, 2002). On the other hand, Artz (2008) who also investigated the gap in the UK, found that satisfaction is higher in the private sector, and attributed the difference to fact in the private sector workers are more likely to be paid in accordance with their performance at work.

In Italy, public sector employees are, ceteris paribus, more satisfied with thier job security, respect by colleagues, safety and health at work, while there are no differences between satisfaction with job interest and work efforts (Ghinetti, 2007). In this way, it has been shown that public sector employees, besides the wage premium, also make premiums in the form of better working conditions (Ghinetti, 2007).

In one of the rare studies on job satisfaction in transitin countries, Linz & Semykina (2012) have investigated job satisfaction determinants in five countries: Armenia, Kazakhstan,

Kyrgyzstan, Russia and Serbia. Although not focusing exlcusively on the effects of the type of ownership, one of the control variables used in the research was the dummy variable for public sector. The authors find that, in Serbia, working in public sector, ceteris paribus, lowers the job satisfaction, while in other countries, the type of ownership had no statistically significant effects on job satisfaction.

DATA AND METHODOLOGY

Data and sample

We use Survey on Income and Living Conditions (the SILC) data for Serbia from 2013. The survey, conducted by the Statistical Office of the Republic of Serbia (SORS), provides nationally and regionally representative data on income, poverty and living conditions for Serbia and is a basic instrument for comparative poverty assessment in Serbia and the European Union (according to Eurostat methodology).

The sample includes 6,501 households, and the data were collected at both household and individual level. The data include weights, calculated by SORS, which are used to correct estimates of descriptive statistics and econometric estimates for the probability that the household will be selected as a sample from the population of the households of Serbia.

The regression analysis sample consists of 3,304 employees (1,605 employees in the public and 1,699 private sector employees) who answered the question on job satisfaction. The analysis excludes self-employed and unpaid family members, as well as persons working in the informal employment, to enable greater comparability of the public and private sector. In accordance with the recommendations in the literature, we also exclude employees in the agriculture sector, as well as military personnel, as well as persons working less than full-time and as well as employees who do not receive salaries at work. In addition to the missing data, persons who cannot be determined whether they are employed in the public or private sector are also excluded.

Definitions of job satisfaction, public sector and other covariates

Job satisfaction measure was included in the 2013 the SILC data as a part of the special (ad-hoc) module on subjective well-being. Job satisfaction was measured via one question within a group of nine questions that measure general life satisfaction and satisfaction related to eight different aspects of life. Job satisfaction was operationalized through the question "How do you evaluate your current job?", (Eurostat, 2015). From the perspective of the previous discussion, the measure of job satisfaction is designed to measure one, general, cognitive component of job satisfaction via comprehensive job evaluation. Respondents respond to this question (and all other life satisfaction questions) on a Likert type scale from 0 to 10, where 0 represents the answer "I'm not at all satisfied", 10 represents "I'm completely satisfied", and the middle digits are answers between these two extremes.

The main independent variable, sector of ownership, was based on the question "What is the form of property at which you work:?", which had four possible answers: "Private Registered", "Private Unregistered", "Public / State" and "Other (Social, mixed, etc.)". To analyse the differences we include only respondents who answered "Private Registered" and "Public / State", therefore excluding informal employment (“Private unregistered”) and mixed ownership types ("Other (Social, mixed, etc.)"), to increase the comparablity between the public and private sector.

List of remaining independent variables which will be used in the job satisfaction model and their precise definitions can be found in Table 1. The list is composed having in mind the discussion in the section 2, and the availability of the data from the SILC.

Table 1: Independent variables that will be used in the job satisfaction model and their definition

Variable	*Question in the SILC*	*Variables in a job satisfaction model*
Education	The highest level of education, (recategorized into three categories: primary, secondary and tertiary education)	Dummy variables - secondary education = 1 - tertiary education = 1
Working experience	How many years did you work on all paid jobs?	Numerical variable
Region	Registered category variables with four regions: Belgrade, Vojvodina, Western Serbia, Eastern Serbia	Dummy variables - Vojvodina = 1 - Western Serbia = 1 - Eastern Serbia = 1
Sex	Category variables with two levels: male and female	Dummy variable: women = 1
Age	Completed years of life (as of December 31, 2012)	Numerical variable (level and square)
Marital status	What is your marital status?	Dummy variable: Married = 1
Occupation	What is your occupation at the main job? (ISCO categories)	Dummy variables - Managers = 1 - Experts and artists = 1 - Engineers, professional associates = 1 - Administrative workers = 1 - Service and trade interests = 1 - Crafty and related occupations = 1 - Machine managers = 1 - Elementary occupations (base)
Activity sector	Activity (local units) in which you work (what is produced or which services are rendered at your enterprise, company, organization, etc.) (collected as NACE Rev 2, recategorized)	Dummy variable: Service sector = 1 Industry (base) Agriculture (excluded)
Type of contract	Do you do the job: for an indefinite period of time, for definite period of time, on seasonal basis, occasionally (recategorized)	Dummy variable: Temporary contract = 1 (definite, seasonal or occasional work)
Monthly earnings	What were your net earnings in the previous month?	Numerical variable: Logarithm of monthly earnings
Working hours	How many hours during a week do you usually work at your main job?	Numerical variable

Model specification and estimates

The basic form of the job satisfaction model in this study is given by the following equation:

$$\mathrm{JS_i} = \alpha + \beta Pub_i + \boldsymbol{X}_i'\boldsymbol{\theta}_k + \varepsilon_i, \quad (2).$$

Model is used to assess the relationship between job satisfaction and the set of the independent variables *X* (the list of variables and the definitions given in Table 1) on job satisfaction, with ε_i denoting the error term. As the focus of the paper is the assessment of whether the public sector, ceteris paribus, increases or decreases job satisfaction, a variable that indicates the sector of ownership was singled out and presented a separate dummy variable *Pub,* in the equation (2). After the model is estimated by using the simple ordinary least squares (OLS) estimators, the coefficient β presents an estimate of the adjusted gap in job satisfaction between the private and public sectors.

Blinder-Oaxaca decomposition analyses the unadjusted gap in the job satisfaction between the public and private sectors by dividing it to its so-called explained and unexplained part (Blinder, 1973; Oaxaca, 1973). The decomposing is based on the separate models of job satisfaction in the public and the private sector

$$JS_i^{Pri} = \boldsymbol{X}_i^{Pri\prime}\boldsymbol{\theta}_k^{Pri} + \varepsilon_i^{Pri}, \text{ for the private sector} \quad (2a)$$

$$JS_i^{Pub} = \boldsymbol{X}_i^{Pub\prime}\boldsymbol{\theta}_k^{Pub} + \varepsilon_i^{Pub}, \text{ for the public sector} \quad (2b)$$

where $\mathrm{X_i^{Pri\prime}}$ and $\mathrm{X_i^{Pub\prime}}$ denote the vector of individual and job characteristics (wages, education level, work experience, etc.), $\boldsymbol{\theta}_k^{Pri}$ and $\boldsymbol{\theta}_k^{Pub}$ are the coefficients from private and public sectors job satisfaction models respectively, while ε_i^P and ε_i^J are the error terms. If we assume that the expected values of the errors in the model are equal to zero, the difference in the expected value of job satisfaction in the private and public sector can be written as

$$E\left(JS_i^{Pub}\right) - E\left(JS_i^{Pri}\right) = E(\boldsymbol{X}_i^{Pub\prime})\boldsymbol{\theta}_k^{Pub} - E(\boldsymbol{X}_i^{Pri\prime})\boldsymbol{\theta}_k^{Pri} \quad (3).$$

After estimating the equations (2a) and (2b) with the ordinary least squares (OLS) estimators, the difference in average job satisfaction between the public and private sectors (the unadjusted job satisfaction gap), can be written as

$$\overline{\mathrm{JS}}^{\mathrm{Pub}} - \overline{\mathrm{JS}}^{\mathrm{Pri}} = \overline{\boldsymbol{X}}^{Pub\prime}\widehat{\boldsymbol{\theta}}_k^{Pub} - \overline{\boldsymbol{X}}^{Pri\prime}\widehat{\boldsymbol{\theta}}_k^{Pri}. \quad (3a).$$

The last equation, after some transformations can be written as:

$$\overline{\mathrm{JS}}^{\mathrm{Pub}} - \overline{\mathrm{JS}}^{\mathrm{Pri}} = \left(\overline{\mathrm{X}}^{\mathrm{Pub}} - \overline{\mathrm{X}}^{\mathrm{Pri}}\right)'\hat{\theta}^{*} + \left(\overline{\mathrm{X}}^{\mathrm{Pub}'}\left(\hat{\theta}^{\mathrm{Pub}} - \hat{\theta}^{*}\right) + \overline{\mathrm{X}}^{\mathrm{Pri}'}\left(\hat{\theta}^{*} - \hat{\theta}^{\mathrm{Pri}}\right)\right) \quad (4)$$

The last equation presents the basic division of the unadjusted gap in the Blinder-Oaxaca decomposition as the sum of the explained and unexplained part of the gap. Estimation of the explained part of the gap is based on the difference between the average labour market characteristics of the workers from the public and private sectors ($\overline{\mathrm{X}}^{\mathrm{Pub}} - \overline{\mathrm{X}}^{\mathrm{Pri}}$), weighted by the

regression coefficients from the reference equation $\hat{\theta}^*$. On the other hand, the unexplained part of the gap $(\overline{X}^{Pub'}(\hat{\theta}^{Pub} - \hat{\theta}^*) + \overline{X}^{Pri'}(\hat{\theta}^* - \hat{\theta}^{Pri})$ is based on the difference between the slope coefficients in the public and private regressions, which are weighted by the average values of the characteristics of the labour market of persons in the public and the private sector (Jann, 2008).

It can be shown that if for the reference coefficients $\hat{\theta}^*$ we take the coefficients from the pooled model which includes both public and private sector workers, (equation 2) the estimation of the unexplained part of the gap is equal to the value of the coefficient from equation 2, i.e. the adjusted gap in job satisfaction. Threfore, th true value of the Blinder-Oaxaca decomposition is in that it enables to isolate the contribution of each variable to the explained and unexplained part of the gap. Therefore, it is possible, for example, to assess which part of the gap in job satisfaction between the public and the private sector is due to the differences in wages, which part is due to the differences in education, etc. (Jann, 2008).

RESULTS

Differences in personal and job characteristics and job satisfaction between the public and private sector workers

The results indicate that the public sector workers on average have higher wages, work shorter working hours, and have higher levels of job satisfaction (Table 2). According to the data from EU the SILC, the average monthly salary in the public sector was 18.9% higher than in the private sector, while at the same time private sector workers worked on average 3 hours per week longer. Higher monthly earnings and lower working hours in the public sector have led to the difference in average hourly wages of 24%. On the other hand, the average job satisfaction (on a scale of 0 to 10) was 7.12 in the public and 5.96 in the private sector.

Table 2: The difference in the average monthly salary, average hours of work and satisfaction with the work in the public and private sector

	Average monthly wages	Average weekly working hours	Average hourly wages	Job satisfaction
Private sector	35,145	44.7	174.3	5.96
Public sector	43,337	41.3	229.2	7.12
Difference (%)	18.9%	-8.2%	24.0%	15.6%
Standardized difference	0.366	-0.558	0.474	0.468

Note: Standardized difference is a difference in the average values of standardized variables. Standardized variables represent the transformation of the original variables according to the formula: (Original variable- Mean) / Standard deviation. Source: Author's calculation based on data from the SILC (2013).

In order to be able to compare the difference in earnings and job satisfaction between the sectors, given that the measurement unit and the nature of scale for the two variables are different, a comparison of standardized differences in variables must be used. According to data from the SILC, the difference between the sectors in job satisfaction is 0.468 standard deviations, which is higher than the differences in the average monthly salaries (0.366), and at the level with the difference in the average hourly earnings (0.474). In other words, the differences in job satisfaction

between the sectors are more pronounced than the differences in monthly earnings, but are approximately equal to the differences in average hourly earnings.

In addition to these differences, there are a number of other differences in the characteristics of public and private sector jobs (Table A1 attached). Firstly, public sector workers work more often in occupations requiring a higher level of skills: professionals make 28.4%, while engineers and associate professionals account for 22.4% of employees in the public, as opposed to 8.1%, or 14.7% of employees in the private sector. On the other hand, the private sector workers work more frequently in services (25.2% of employees compared to 9.8% of employees in the public sector), crafts (20.5% compared to 8.1%) and as machine managers (12.9% compared to 6.3%). Additionally, almost four fifths (79.8%) of public sector workers work in the service sector, while this number in the private sector is slightly lower than two-thirds (65.7%). Furthermore, private sector workers are more likely to work on some form of temporary contract (18.3% compared to 7.7% in the public sector), they perform less frequently on managerial functions (17.3% compared to 20.7%), have less work experience and work in enterprises with fewer workers (Table A1 in the Appendix).

On the other hand, workers in the private and public sectors also differ from the perspective of socio-demographic characteristics. Public sector workers are on average five years older, more likely to be married, and more likely to live in urban settlements. The share of women is higher in the public than in the private sector, as women account for 51% of workers in public and only 43% of private sector workers. Finally, public sector employees are on average better educated, as 40.9% has tertiary education, compared to 21.4% in the private sector (Table A1 in the Appendix).

Determinants of job satisfaction in the public and private sector

Table A2 in the Appendix shows the results of job satisfaction model estimates for all workers, as well as a separate model for workers in the public and private sectors. In all three models, as well as in the later specifications for the Blinder-Oaxaca decomposition, the set of determinants includes: education, work experience, region, gender, age (and age square), marital status, occupation (eight ISCO 1 categories from Table 1), activity sector (industry vs. services) and contract type (temporary vs. permanent contract). Additionally, the model for all workers includes an the main independent variable of interest - sector of ownership: public or private.

Below, we first discuss the results of the above mentioned set of job satisfaction determinants, and then we will focus on the differences between the public and private sector.

The coefficients in Table A2 are in line with expectations of the basic model of job satisfaction as an operationalization of total utility of work (Clark, 1996), which suggests that job satisfaction is higher for workers with higher wages and lower hours worked. However, while the coefficient with logarithmic earnings is significant and roughly the same in all three models (all workers, public and private sector workers), the coefficient for working hours is significant only for the private sector, probably due to the lower variability in public sector work hours in general.

In line with the previous research (Clark and Oswald, 1996), education, when income is controlled for, reduces job satisfaction, probably either due to increased demands for workers with this level of education or due to a greater difference between job expectations and working conditions. In addition, education does not represent a significant determinant in the sample of public sector workers. On the other hand, working experience does not affect job satisfaction in any of the three models.

Other job characteristics also have a pronounced effect on job satisfaction. Occupations which require a higher degree of skills: managers, professionals, engineers and associate professionals, as well as the clerks in both sectors have significantly higher levels of job satisfaction when compared

to elementary occupations. At the same time, the effects of working as managers or professionals are higher in the private than in the public sector, which having in mind that the wages are controlled for, suggests higher intrinsic awards for these occupation in the private sector. On the other hand, working in service activities (vs. working in industry) yields higher level of job satisfaction in public sector, but not in private sector. Finally, temporary forms of contract, due to greater uncertainty in terms of job stability, reduces job satisfaction in both sectors.

Finally, among the personal characteristics, in accordance with the previous research (Clark, 1997; Clark et al., 1996), women have, ceteris paribus, higher level of job satisfaction than men, while age and job satisfaction have a characteristic non-linear (U-shaped) relationship, in all three models. Job satisfaction with work is higher, ceteris paribus, in Vojvodina, Western and Eastern Serbia, than in Belgrade, and regional effects are more pronounced in the public than in the private sector. Finally, marriage, ceteris paribus, has no effect on job satisfaction, which is inconsistent with the results of some previous research.

Job satisfaction in public and private sector

Now we return to the central topic of this paper, which is a gap in job satisfaction between the public and the private sector. In the model for all the workers in table A2, the coefficient next to public sector indicator variable shows that public sector workers have a statistically higher job satisfaction than the workers in the private sector, even when we control for all other job satisfaction determinants. This value represents the so-called adjusted gap in job satisfaction, and its value of 0.479 is lower than the value of the unadjusted job satisfaction gap, which is 1.116 (i.e. the difference between the average values of satisfaction with public and private sector jobs from Table 2).

The previous discussion can be summarized within the framework of the Blinder-Oaxaca decomposition (Table 3). The difference in the average values of job satisfaction in the public and the private sector is 1.116 scale points. As workers in the public sector, compared to private sector workers, are more likely to have personal or job characteristics that overall, ceteris paribus, lead to increased job satisfaction, more than half of the difference between the sectors can be explained by the differences in these characteristics (57.1%; 0.637 of 1.116, explained part, Table 3). The remaining part of the difference - 0.479 scale points cannot be explained by differences in job or personal characteristics. This part of the gap, called the adjusted gap (or the unexplained part of the gap in the terms of Blinder-Oaxaca decomposition) represents a difference that can be attributed to the fact that workers work in the public or private sector. The analysis in the Table A3 (in Appendix) suggest this part of the gap cannot be explained by differences in the coefficients from public and private sector models of job satisfaction.

Table 3: Blinder-Oaxaca decomposition of job satisfaction differences between the sectors

	Job satisfaction
Private sector (average)	5.961
Public sector (average)	7.077
Difference in job satisfaction (unadjusted gap)	-1.116
Explained part of the difference	-0.637
Unexplained part of the difference (adjusted gap)	-0.479

Source: Authors calculation based on data from the SILC (2013).

As noted earlier, public sector workers are more likely to have characteristics that increase job satisfaction then the private sector workers, and these differences explain more than half the differences among sectors. Table 4 presents the results of the detailed Blinder-Oaxaca decomposition which shows what characteristics contribute to the explained part of the gap the most.

Table 4: Summarized results of detailed Blinder-Oaxaca decomposition

Variable	Coefficient	Percentage of explained variability
Monthly earnings	0,396 ***	35.5%
Working hours	0,083 ***	7.4%
Education	-0.032	-
Work experience	0,073	-
Region	-0.002	-
Sex	0,017 **	1.5%
Age	-0.170 ***	-15.2%
Marital status	-0.002	-
Occupation	0,194 ***	17.4%
Activity sector	0,032 **	2.9%
Type of contract	0,050 ***	4.5%
Total explained part	*-0.637 ****	*57.1%*

*Source: Authors calculation based on data from SILC (2013). *** p <0.01, ** p <0.05, * p <0.1.*
Note: A table with estimated coefficients and standard errors is attached in Table A3.

The largest part of the difference in job satisfaction between the sectors can be explained by differences in job characteristics, primarily in differences in earnings and occupations (Table 4). In accordance with the job satisfaction model (Clark, 1996), higher wages in the public sector account for 35.5% of total job satisfaction differential (0.396 of 1,116), while longer working hours in the private sector explain an additional 7.4% difference (0.083 from 1,116). Effects of occupation are also prominent: higher participation of professionals, engineers, associate professionals and technicians in the public than in the private sector, accounts for additional 17.4% difference (0.194 from 1.116) between the sectors, as these professions are, ceteris paribus, associated with higher levels of job satisfaction. Higher public sector job satisfaction is also due to lower share of the temporary contracts (4.5% of the difference: 0.05 from 1.116), and higher share of employees in services (3.2% difference: 0.032 from 1.116), where job satisfaction is higher.

On the other hand, personal characteristics of workers contribute very little to the public private job satisfaction differential. While higher share of women in the public sector, due to the higher female job satisfaction additionally explains 1.5% of job satisfaction differences, other personal characteristics: education, working experience, region and marital status have no effect on the gap between the sectors. Finally, the effects of age work in the opposite direction than the effects of the job characteristic and gender. Due to higher average age of public sector workers and the fact that there is a negative correlation between age and job satisfaction, the difference in age attenuates the unadjusted gap, which would be higher (by 0.170) if the public and private sector workers were on average of the same age.

SUMMARY OF RESULTS, DISCUSSION AND CONCLUSION

This paper aimed at estimating the gap in job satisfaction between the public and the private sector in Serbia using the Blinder-Oaxaca decomposition methods. The method, originally applied to the difference in earnings, is modified here to investigate the problem of job satisfaction differential. The paper uses nationally representative data from the Survey on Income and Living Conditions (SILC) from 2013. To the best of our knowledge, this is the first study which uses the nationally representative data from Serbia to estimate the public private job satisfaction differential, while the evidence from other countries is also limited due to the low data avialbility (Ghinetti, 2007, Heywood et al, 2002, Linz & Semykina, 2012).

The estimated model of job satisfaction in this paper is consistent with the findings of previous research: job satisfaction is higher for workers with higher wages and lower for workers who work longer working hours; higher for occupations that require a higher degree of skills (managers, professionals, etc.), as well as for workers in the service sector and under an permanent contracts. Furthermore, job satisfaction is, ceteris paribus, higher for women, workers with lower levels of education, while the correlation of job satisfaction and age is U-shaped, which is also consistent with previous research.

Workers in the public sector in Serbia have higher job satisfaction than private sector workers. On a scale from 0 to 10, where 0 represents "I'm not at all satisfied", and 10 "I am completely satisfied", private sector employees estimate their jobs by an average of 5.9, compared to the 7.1 estimate of public sector workers, resulting in unadjusted gap in job satisfaction between the sectors of 1.2 scale points. This difference, observed in standardized scores, is higher than the difference in monthly wages earned by workers in these sectors, and at the level with the difference in their hourly earnings. In addition to higher wages, public sector employees also enjoy shorter working hours, more frequent employment in better-paid occupations and in the service sector, and higher share of permanent contract. From the perspective of individual characteristics, public sector workers are, on average, better educated, older, more likely to live in urban settlements, and among them there are more women than in the private sector.

The application of regression analysis and Blinder-Oaxaca decomposition method suggests that more than half (57.1%) of the differences in job satisfaction between the sectors can be explained by the differences in characteristics described above. Most importantly, public private job satisfaction differential can be explained by higher monthly wages (35.5% of the unadjusted gap), more frequent work in better-paid occupations (15.2%), shorter working time (7.4%), higher share of permanent contracts (4.5%), and higher share of workers in the service sector of (2.9%) and women (1.5%) of the public sector workers. On the other hand, the gap would be even larger (by about 15%) if the public sector share of older workers is the same as in the private sector, since job satisfaction of older workers is lower.

However, even after controlling for all the factors described, public sector workers still have a higher job satisfaction of 0.479 scale points. Detailed Blinder-Oaxaca decomposition has not suggested that difference is due to the differences in the coefficients for the public and private job satisfaction model.

The literature suggests that the main reasons for higher job satisfaction in the public sector, beside the wages which are controlled for in the model, is in the higher job security in the public sector. Although this component of the public sector benefits is partially accounted by a temporary contracts variable, it is possible that there other components of higher job security and stability, such as lower possibility of bankruptcy of a public company or higher share of union members (Luechinger, Meier and Stutzer, 2010), which could are not measured in the SILC. Additionally, higher levels of job satisfaction in the public sector could be explained by lower levels of stress at work, due to a less competitive work environment, and well-defined working conditions (Linz &

Semykina, 2012). Finally, public sector workers, especially those working in education or health, more frequently state intrinsic motivation a source of their work, which probably contributes to their higher overall jobs satisfaction (Buelens & Van den Broeck, 2007).

To summarize, in this research, it has been shown that besides the premium in wages, public sector workers also enjoy a premium in terms of better working conditions: they work shorter hours, have more secure jobs, etc. Furthermore, public sector workers have additional premium in the terms of job satisfaction that cannot be accounted by differences in variables which are available in the SILC. Previous research suggest that these advantages are due to higher job security, lower stress and higher intrinsic job motivation in the public sector.

All these results taken together further corraborate the argument of prominent labour market duality between the public and private sector in the Serbian labour market (Arandarenko, 2011), which causes significant distortions on the labour market. Public sector workers, beside higher wages, have higher working hours, better working conditions and more favourable working enviourment. The strong duality results in "waiting in line" for the public sector jobs which creates the labour supply gaps for the private sector.

REFERENCES

Arandarenko, M. (2011). Tržište rada u Srbiji: trendovi, institucije, politike. Ekonomski Fakultet: Univerzitet u Beogradu.

Blinder, A. S. (1973), "Wage Discrimination: Reduced Form and Structural Estimates," The Journal of Human Resources, 8(4), 436-455.

Buelens, M., & Van den Broeck, H. (2007). An analysis of differences in work motivation between public and private sector organizations. Public administration review, 67(1), 65-74.

Clark, A. E. (1996). Job satisfaction in Britain. British journal of industrial relations, 34(2), 189-217.

Clark, A. E. (1997). Job satisfaction and gender: why are women so happy at work?. Labour economics, 4(4), 341-372.

Clark, A. E., & Oswald, A. J. (1996). Satisfaction and comparison income. Journal of public economics, 61(3), 359-381.

Clark, A., Oswald, A., & Warr, P. (1996). Is job satisfaction U-shaped in age?. Journal of occupational and organizational psychology, 69(1), 57-81.

de Castro, F., Salto, M., & Steiner, H. (2013). The gap between public and private wages: new evidence for the EU (No. 508). Directorate General Economic and Financial Affairs (DG ECFIN), European Commission.

European Comission (2014): Government wages and labour market outcomes. EUROPEAN ECONOMY, Occasional Papers 190. ISBN 978-92-79-35374-1

EUROSTAT (2015). Quality of life in Europe. Facts and views, European Union: Eurostat Statistical Books.

Ghinetti, P. (2007). The public–private job satisfaction differential in Italy.Labour, 21(2), 361-388.

Giordano, R., Depalo, D., Pereira, M. C., Eugène, B., Papapetrou, E., Pérez García, J. J. & Roter, M. (2011). The public sector pay gap in a selection of Euro area countries (No. 1406). European Central Bank.

Heywood, J. S., Siebert, W. S., & Wei, X. (2002). Worker sorting and job satisfaction: The case of union and government jobs. Industrial & Labor Relations Review, 55(4), 595-609.

Hulin, C. L., & Judge, T. A. (2003). Job attitudes. In W. C. Borman, D. R. ligen, & R. J. Klimoski (Eds.), Handbook of psychology: Industrial and organizational psychology (pp. 255-276).

Hoboken, NJ: Wiley.
Jann, B. (2008), "The Blinder-Oaxaca Decomposition for Linear Regression Models," The Stata Journal, 8(4), pp. 453-479.
Krstić, G., Litchfield, J. & Reilly, B. (2007). An anatomy of male labour market earnings inequality in Serbia, 1996–2003. Economic Systems, 31, 97–114.
Laušev, J. (2012): Public sector pay gap in Serbia during large-scale privatisation, by educational qualification. Economic annals, Volume LVII, No. 192, pp. 7–2.4.
Laušev, J. (2014): What has 20 years of public–private pay gap literature told us? Eastern European transitioning vs. Developed economies. Journal of Economic Surveys. Vol. 28, No. 3, pp. 516–550
Linz, S. J., & Semykina, A. (2012). What makes workers happy? Anticipated rewards and job satisfaction. Industrial Relations: A Journal of Economy and Society, 51(4), 811-844.
Luechinger, S., Meier, S., & Stutzer, A. (2010). Why does unemployment hurt the employed? Evidence from the life satisfaction gap between the public and the private sector. Journal of Human Resources, 45(4), 998-1045.
Oaxaca, R. L. (1973), "Male-Female Wage Differentials in Urban Labor Markets," International Economic Review, 14(3), pp. 693-709.
Vladisavljević, M., Jovančević, D. (2016): Public sector wage premium in Serbia: evidence from the SILC data. In: Belsać et al (eds). Serbian road to the EU: finance, insurance and monetary policy. Belgrade, Serbia: Faculty of Business Economics and Entrepreneurship (BEE), 2016, pp 192-210, Belgrade.
Vladisavljević M., Narazani E., and Golubović V. (2017): Public-private wage differences in the Western Balkans countries. In: Arandarenko M. (ed): Political Economy of Unemployment in the Western Balkans forthcoming. Working paper available at https://mpra.ub.uni-muenchen.de/80739/1/MPRA_paper_80739.pdf
Vladisavljević, M. (2017): Public sector wage premium and fiscal consolidation in Serbia. Conference Economic Policy for Smart, Inclusive and Sustainable Growth, 15-17 June 2017, Faculty of Economics - University of Belgrade, Belgrade, 34-35.

APPENDIX

Table A1: Descriptive statistics of job satisfaction determinants in private and public sector

	Average (private sector)	Average (public sector)	St. dev (private sector)	St. dev (public sector)	T test	P value
Ln wages (monthly)	10.303	10.561	0.466	0.422	-16.677	0
Weekly working hours	44.633	41.291	6.928	4.116	16.737	0
Education – Primary	0.089	0.087	0.285	0.281	0.231	0.818
Education – Secondary	0.697	0.505	0.459	0.5	11.547	0
Education – Tertiary	0.214	0.409	0.41	0.492	-12.41	0
Work experience	15.109	19.611	10.333	10.071	-12.674	0
Region - Belgrade	0.28	0.278	0.449	0.448	0.109	0.914
Region - Vojvodina	0.248	0.206	0.432	0.405	2.85	0.004
Region - Western Serbia	0.246	0.254	0.431	0.435	-0.501	0.616
Region - Eastern Serbia	0.227	0.262	0.419	0.44	-2.39	0.017
Women	0.433	0.51	0.496	0.5	-4.447	0
Age	39.194	44.088	10.308	9.91	-13.901	0
Married	0.646	0.7	0.478	0.458	-3.313	0.001
Senior officials and managers	0.036	0.044	0.186	0.204	-1.135	0.256
Professionals	0.081	0.284	0.272	0.451	-15.793	0
Technicians and associate professionals	0.147	0.224	0.354	0.417	-5.739	0
Clerks	0.09	0.102	0.286	0.303	-1.183	0.237
Service and sales workers	0.252	0.098	0.434	0.298	11.779	0
Craft and trades workers	0.205	0.081	0.404	0.273	10.27	0
Plant and machine operators	0.129	0.063	0.336	0.243	6.495	0
Elementry occupations	0.06	0.103	0.238	0.305	-4.579	0
Service sector	0.657	0.798	0.475	0.402	-9.127	0
Temporary contract	0.183	0.077	0.387	0.267	9.098	0
Supervises the workers	0.173	0.207	0.375	0.407	-2.47	0.014
Number of workers	10.79	13.59	7.802	9.333	-17.525	0
Sample	1.699	1.605				

Source: Author's calculation based on data from the SILC (2013).

Table A2: Estimates of the job satisfaction model

	Pooled model		Public sector		Private sector	
Variables	Coef.	St. error	Coef.	St. error	Coef.	St. error
Public sector	0.479 ***	(0.086)				
Monthly wages (ln)	1.532 ***	(0.107)	1.660 ***	(0.170)	1.428 ***	(0.143)
Weekly working hours	-0.025 ***	(0.007)	-0.006	(0.013)	-0.033 ***	(0.008)
Education – Primary	(ommit.)					
Education – Secondary	-0.372 **	(0.146)	-0.238	(0.216)	-0.433 **	(0.203)
Education – Tertiary	-0.533 ***	(0.188)	-0.293	(0.277)	-0.675 ***	(0.261)
Work experience	0.016 *	(0.009)	0.015	(0.012)	0.020	(0.013)
Region – Belgrade	(ommit.)					
Region - Vojvodina	0.445 ***	(0.106)	0.432 ***	(0.148)	0.422 ***	(0.154)
Region - Western Serbia	0.227 **	(0.106)	0.398 ***	(0.144)	0.105	(0.158)
Region - Eastern Serbia	0.424 ***	(0.108)	0.530 ***	(0.142)	0.324 **	(0.163)
Women	0.220 ***	(0.082)	0.208 *	(0.117)	0.270 **	(0.120)
Age	-0.149 ***	(0.028)	-0.198 ***	(0.043)	-0.141 ***	(0.041)
Age square	0.001 ***	(0.000)	0.002 ***	(0.000)	0.001 ***	(0.000)
Married	-0.043	(0.085)	-0.154	(0.116)	0.062	(0.126)
Senior officials and managers	1.284 ***	(0.269)	0.944 **	(0.368)	1.414 ***	(0.404)
Professionals	1.284 ***	(0.212)	0.982 ***	(0.281)	1.533 ***	(0.348)
Technicians and associate professionals	0.916 ***	(0.176)	0.804 ***	(0.233)	0.856 ***	(0.279)
Clerks	0.913 ***	(0.191)	0.828 ***	(0.251)	0.875 ***	(0.300)
Service and sales workers	0.481 ***	(0.171)	0.681 ***	(0.247)	0.334	(0.259)
Craft and trades workers	0.462 ***	(0.178)	0.186	(0.274)	0.484 *	(0.260)
Plant and machine operators	0.417 **	(0.189)	0.549 **	(0.276)	0.299	(0.277)
Elementary occupations	(ommit.)					
Service sector	0.227 **	(0.097)	0.410 ***	(0.144)	0.135	(0.136)
Temporary contract	-0.469 ***	(0.116)	-0.518 **	(0.203)	-0.440 ***	(0.146)
Constant	-6.085 ***	(1,239)	-6.772 ***	(1,947)	-4.722 ***	(1,704)
Sample	3,304		1,605		1,699	
R square	0.207		0.181		0.156	
P value	0		0		0	
Adjusted R square	0.20		0.17		0.15	

*Source: Author's calculation based on data from SILC (2013). *** p <0.01, ** p <0.05, * p <0.1*

Table A3: Detailed Blinder-Oaxaca decomposition

	Explained part		Unexplained part	
Variables	Coefficient	St. error	Coefficient	St. error
Monthly wages (ln)	-0.396 ***	(0.037)	-2.425	(2,334)
Weekly working hours	-0.083 ***	(0.025)	-1.110	(0,721)
Education – Primary	(ommit.)			
Education – Secondary	-0.072 **	(0.030)	-0.110	(0.183)
Education – Tertiary	0.104 ***	(0.038)	-0.128	(0.127)
Work experience	-0.073 *	(0.042)	0.074	(0.322)
Region – Belgrade	(ommit.)			
Region - Vojvodina	0.018 **	(0.008)	-0.003	(0.050)
Region - Western Serbia	-0.002	(0.004)	-0.073	(0.053)
Region - Eastern Serbia	-0.015 **	(0.007)	-0.051	(0.051)
Women	-0.017 **	(0.007)	0.028	(0.078)
Age	0.728 ***	(0.151)	2.490	(2,500)
Age square	-0.558 ***	(0.142)	-1.262	(1,299)
Married	0.002	(0.005)	0.145	(0.116)
Senior officials and managers	(ommit.)			
Professionals	-0.010	(0.009)	0.020	(0.021)
Technicians and associate professionals	-0.261 ***	(0.047)	0.106	(0.076)
Clerks	-0.071 ***	(0.019)	0.016	(0.069)
Service and sales workers	-0.011	(0.010)	0.005	(0.038)
Craft and trades workers	0.074 **	(0.029)	-0.057	(0.064)
Plant and machine operators	0.057 **	(0.024)	0.027	(0.053)
Elementary occupations	0.028 **	(0.014)	-0.024	(0.038)
Service sector	-0.032 **	(0.014)	-0.206	(0.143)
Temporary contract	-0.050 ***	(0.014)	0.009	(0.029)
Constant			2.050	(2,642)
Sample	3,304		3,304	

*Source: Author's calculation based on data from SILC (2013). *** p <0.01, ** p <0.05, * p <0.1*