

PUBLIC – PRIVATE WAGE DIFFERENTIALS IN SERBIA

Jelena Laušev¹

ABSTRACT

This paper aims to explore the public-private wage differentials during economic transition in Serbia from 1995 to 2006 applying Quantile Regression approach. The study revisits the earlier findings and verifies smoother evolution of wage differentials due to better measurement of dependent variable. There is some evidence that economic transition has produced cyclicalities in sector wage differentials for workers with similar characteristics. The study shows that initially growing private sector markup dissipates over the years and tends to transfer into public sector markup. We identified significant private sector premiums across the earnings distribution from 1998 until 2002. In 2003 only male employees at the top end of the earnings distribution fared better in the private sector. From 2004 female earnings and top end male earnings were equalized across sectors while men at a lower part of the wage distribution obtained significant premiums from public sector jobs. The results of the analysis indicate that public-private pay differentials obtained for Serbia follow patterns consistent with other transition countries.

Key words: Wages, Transition, Quantile Regression, Serbia

JEL Classification: J31

¹ Faculty of Economics, University of Belgrade, Serbia, e-mail: jelena@one.ekof.bg.ac.yu and School of Economics, University of Nottingham, United Kingdom, e-mail: lexjl6@nottingham.ac.uk

INTRODUCTION

Most studies on sector wage differentials in developed countries² are motivated by growth of the public sector and costs of supporting it. The motivation for studies on the same issues but in the countries in transition seems to be quite the opposite. These studies are concerned by pay gap based on the growing private sector relative to public sector. Nearly all empirical studies from transition economies find private sector premiums at the early stages of transition³. Public sector difficulty to retain and recruit qualified workers and encouragement of moonlighting and corruption in providing public sector services are recognized as the main consequences of sector pay gap. On the other hand, reasons for private sector pay premium are identified. The most quoted explanations for sector pay gap are risk premiums for first movers to a new sector, an efficiency wage that induces harder work in new jobs or compensating differentials for fewer non wage benefits and reduced job security.

Reilly (2003) provides evidence for private sector premium in Serbia during first years of transition, based on Yugoslav Labor Force Survey data from 1995 to 2000 for male employees, but points out that the average estimate may be inflated upwards because a small number of private sector workers command relatively large returns (for example the OLS point estimate in 1995 was over two thirds higher than the median estimate). The results from this study suggest that the hourly wage premium for a private sector job at the 50th percentile of the conditional wage distribution was just over 20% in 1995, insignificantly different from zero in 1996, 1997 and 1999, and nearly 24% in 1998. In the last year observed, the median point estimate was found to be comparable in magnitude to the 1995 estimate. Reilly (2003) comments that it is evident that the movements displayed by private sector premium does not appear to have developed a settled pattern over the years considered. Pooling 1995-2000 data together, OLS estimate shows average private sector premium of 32.7%. Quantile regression estimates show 17% premium for those at the median and almost 70% premium for workers at 90th percentiles while workers at other percentiles of the wage distribution obtained no significant premiums compared to their public sector counterparts. On the other hand, Jovanović and Lokshin (2003)

² See Disney and Gosling (1998), (2003) and (2007); Mueller (1998); Lucifora and Meurs (2004)

³ See Adamchik and Bedi (2000) for Poland; Jurajda (2003) for Czech Republic; Reilly (2003) and Jovanović and Lokshin (2003) for Serbia; Jovanović and Lokshin (2004) for Russia; Falaris (2004) for Bulgaria; Leping (2006) for Estonia;

use the same data for the same period, but apply endogenous switching regression model. Authors found on average private sector premium of 9.4% for males and 4% for females. They conclude that the part of this gap may be offset by the benefits state sector employees receive, such as greater job security. Additionally, authors believe that estimated public-private wage differential should increase in the future as a result of abandonment of repressive regulation and over taxation in which case the gap can pose difficulties for the public sector to retain and recruit qualified workers and may encourage moonlighting and corruption. This is opposed to conclusions in Reilly (2003) which predict future decline in pay gap due to restructuring and privatization that inevitably cause open unemployment and put downward pressure on private sector wages.

The motivation for this study is to complement the previous research by extending the observed period which allows us to follow the evolution of sector pay gap across selected points of the conditional wage distribution during more stable period of transition. The longer period of data is essential because uncertain evolution of detected private sector premiums between 1995 and 2000 correlates with period of great political and economic turbulence. The side effects of unclear directions of government policies considering privatisation process included diversified ownership types and growing informal sector. Moreover, the policy of Serbian enterprises in the public sector was based on steep decline of real wages rather than on the reduction in employment. Jovičić et al. (2000) explained the proclaimed policy that jobs have to be saved during the period of sanctions as a new form of subsidies, similar to unemployment benefits. Krstić (2002) estimated that 33% of employees in 1997 had a second job in informal sector. It is pointed that despite very low earnings most of the employees kept formal employment status to preserve social benefits in the form of pension and health insurance, transportation and lunch allowances, compensating low wages by second job earnings in the informal sector. In environment where regulated public sector pay and unregulated private sector pay co-exist, the public pay effect may be negative. On the other hand, even though studies on pay differentials during pre 2000 period use quite sophisticated statistical techniques the results may simply be an artefact of the sampling procedure considering predominantly formal sector. There is strong evidence that the outcomes of empirical analysis for the more recent period differ considerably from the results presented in the previous studies on this topic. Large scale economic privatisation and deep reforms in Serbia were initiated after democratic changes in October 2000.

During next years production activation and the inflow of the funds from abroad in the form of aid, loans or privatization proceeds allowed further rise in real wages. In the World Bank study Labor Market Assessment of Serbia (2006) earnings differentials are presented for the year 2005 only. In an augmented Mincerian log of monthly earnings equation socially-owned (as omitted variable) and state-owned sectors were included separately. Study finds 11% private sector punishment while employees in state-owned sector enjoyed 4% mark-up in earnings compared to their counterparts in socially-owned sector. Yet, that study neither considers longer data period nor does it differentiate between male and female workers and their hourly earnings. There is no such study for Serbia in post 2000 period.

The question of interest in this study is whether there is a difference in earnings between public and private sector and to which extent this differential has changed over the period of transition. Our intention is to answer on other related questions such as whether the sector pay gap depends on educational qualifications, industry or additional characteristics of the workers and whether it diverges for men and women.

The argument proceeds through four sections. The next section describes the data sets to be used for empirical analysis and following section provides the methodology. Earnings differentials are estimated in the third section by applying two econometric approaches: OLS and Quantile Regression. Fourth section summarizes the results and offers concluding remarks.

THE DATA

This paper employs data from two available data bases for Serbia. The first is Labour Force Survey (LFS) conducted over the period 1995 to 2006. The second one is Living Standard Measurement Survey (LSMS) accomplished in 2002 and 2003. Both data sets are based on a nationally representative random sample and use a two-staged stratified sampling method. Each of the annual LFS data sets represents cross-sectional view of the labour market. The panel nature of data is only present in LSMS and in LFS between 2004 and 2005.

The LFS questionnaires consist of two sections. The first focuses on individual characteristics that include age, gender, marital status, educational attainment and nationality. The second collects information, only for individuals over fifteen years old, on their labour market status, employment, labour force experience, occupation, industry branch level, monthly earnings and hours worked in the respondent's main job as well as the enterprise type of

ownership. Similar structure holds for LSMS where the data are collected from demographics and employment reports.

We restrict our sample to male and female employees between 15 and 64 years old, who reported non-zero monthly wages and earnings and non-zero hours of work in the reference week on the main job only. Total number of employees using LSMS data is formed summing up official and non-official employees. This is consistent with definition of LFS employees on formal or oral agreement. We distinguish between two main sectors: public and private. Public sector includes all ownership types other than private.⁴ As LSMS differentiates between private registered and private non registered enterprises the private sector is defined to include both categories. Table 1 in the Appendix provides the information on the timing of the surveys and sample size used in our analysis by gender and ownership type.

Earnings definition used in our analysis is based on earnings on the main job only. It excludes taxes, pensions and any welfare payments and relate to earnings received in the reference month, so that any arrears owed to the individual may be reflected in the monthly pay measure. Earnings include regular wage and all additional earnings payments such as transportation subsidies, payments for meals, payment in kind, union benefits, credits from the firm and other payments. Division between regular wage and earnings is important especially at the beginning of the analyzed period. LFS from 1995 to 2003 separately records additional payments to earnings, such as hot meal allowances and holiday cash grants, which were non-taxable before fiscal reform in Jun 2001. For employees in the formal sector that was dominantly structured of public sector work force these payments comprised important part of income during 1995 to 2000 period. Table 2 in the Appendix shows different wage structure of public and private sector employees. About 86% of total earnings received by public sector workers came from regular payments, and approximately 15.5% came from subsidies on transportation and meals. In the private sector, only about 4% of total earnings came from such subsidies, and 96% came from regular wages. Payments in kind, credits from employers, and other kind of payments constitute less than 1% of total earnings. Therefore total earnings represent a proper measure of

⁴ The non-private ownership types are: socially-owned, cooperative ownership, state sector (public state and public local enterprises, government administration at all levels, education and culture, health and social protection) and mixed ownership. They all form the public sector. Private sector includes: privatized enterprises and medium and small enterprises and entrepreneurship. Same distinction between sectors is used in other studies that measure public-private pay differential in Serbia (see Jovanović and Lokshin (2001), Krstić (2002) and Krstić and Reilly (2003))

the pay gap between public and private sector.⁵ The hourly pay is computed as a ratio of the monthly pay and the total number of hours worked in the previous month. Because the survey reference period for hours worked was a week prior to the interview, we multiply the reported hours worked in previous week by the average number of weeks in a month (i.e. 4.25) and assume that the number of hours worked was uniform in the month prior to the interview.

The LSMS data base is conveniently used to overcome some changes in LFS definitions of employees as it is consistent with definitions used in LFS data bases from 2004. The long term trend in wages from 1995 to 2006 is hard to measure only from LFS because there was a break in LFS methodology in 2004 when the sample has increased and research tools were completely revisited and fully adjusted to the last recommendations and definitions of ILO and Eurostat. The LFS from 1995 to 2003 selects individuals into five categories: paid employed, helpers, farmers, temporarily active and other active. Paid employed are then classified into employees, self-employed, owners and co-owners. These categories are impossible to match with the ones used from 2004 to 2006: employers, self-employed, employees and helpers. New definition of employees considers individuals with formal or oral agreement, members of the household that help in household business and are paid for the work, as well as all those performing any paid temporary activity during a week prior the interview. Therefore, we are able to consistently follow changes in size and sign of public-private wage differential during nine year period using 1995-2003 LFS and five year period using 2002-2003 LSMS and 2004-2006 LFS.

EMPLOYMENT COMPOSITION AND WAGE TRENDS

The proportion of employees in the private sector in Serbia has been increasing steadily since 1995. In 1995, 5.5% of men and 10.3% of women were working in the private sector and by 2003 the proportion reached 25% for men and 30% for women. Sector shares almost equal in 2004-2006 sample.

We performed a Hotelling T-squared test for each of the years observed and found that there was significant difference between vectors of the means of variables in public and private sector for both genders. This test showed that the characteristics of the public sector workers differ from those of the private sector in a number of dimensions. Public sector workers are on

⁵ After the fiscal reform in 2001 additional payments such as hot meal allowances and holiday cash grants were included in regular wage and the difference between wages and earnings almost vanished.

average older with more labor force experience than their private sector counterparts. Public sector workers are better educated with roughly 5% more men and 9% more women with university and college degrees compared to private sector workers. Workers with secondary school are more likely to work in the private than in the public sector. Private sector workers are more likely to work longer hours per month and be single. Especially from 2004 public sector workers were more likely to live in the cities and private sector workers in rural areas.

Employment structure in the public sector during the period of transition has been transformed towards larger number of highly qualified workers in education, government administration and health, such as teachers, civil servants and doctors, especially for women. Rise in share of manufacturing and mining in the private sector, especially for men, reveals the results of privatization.

The hourly earnings by gender and ownership type at different points of the distribution are presented in Tables 3 and 4 in the Appendix. The tables summarise the magnitude of pay inequality using three measures of inequality: the standard deviation of the log earnings, the decile ratio and the Gini coefficient. Both men and women face greater inequality if employed by the private sector. Wages in both sectors are more unequal for men than for women and women have lower wages across all percentiles than men. During 1995 to 2003, men at the lower end of the earnings distribution had similar hourly earnings across sectors while those at the top end fared better in the private sector. In the same period, women fared better in the public sector across most of the percentiles but sector difference becomes more evident only for those at the upper end of the earnings distribution. Between 2004 and 2006 hourly earnings of both men and women in the public sector were markedly above the private sector real hourly earnings across all percentiles of the earnings distribution.

THE ESTIMATION TECHNIQUES

Our emphasis is on examination of the public-private sector pay differential on average and at different points on the conditional earnings distribution. In general the estimation equation can be written as:

$$(1) W_i = X_i\beta + \beta^* S_i + \sum_{j=1}^k \delta_j D_{ij} + \sum_{j=1}^k \alpha_j (D_{ij} * S_i) + \varepsilon_i \quad i = 1, \dots, n$$

where W is the log of earnings, X is a vector of human capital, demographic and job characteristics with parameter vector β , $S_i=1$ if the i^{th} individual works in private sector and zero otherwise; D_{ij} are time specific dummies and $(D_{ij} * S_i)$ are time dummy interactions with the private sector variable; $D_{ij}=1$ for the i^{th} individual in the j^{th} year and is zero otherwise. β^* is a coefficient that captures wage differential between public and private sector i.e. if β^* is positive there is a private sector pay premium and if β^* is negative there is a private sector pay penalty and ε is an error term.

The equation (1) can be conveniently estimated by OLS. We also apply Quantile regression because this approach provides important insights into the nature and evolution of the sector pay gap. While OLS predicts the average (mean) wage by minimizing the sum of squared errors, the quantile regression estimates public-private wage differentials at particular quantiles of the wage distribution by minimizing the absolute sums of the errors. The estimator is known as Least Absolute Deviations (LAD). The median regression coefficients can be estimated by choosing the values that minimize L:

$$(2) L = \sum_{i=1}^n |W_i - X_i\beta - \beta^* S_i| = \sum_{i=1}^n (W_i - X_i\beta - \beta^* S_i) \text{sgn}(W_i - X_i\beta - \beta^* S_i)$$

where $\text{sgn}(a)$ is the sign of a : 1 if a is positive and -1 if a is negative or zero.

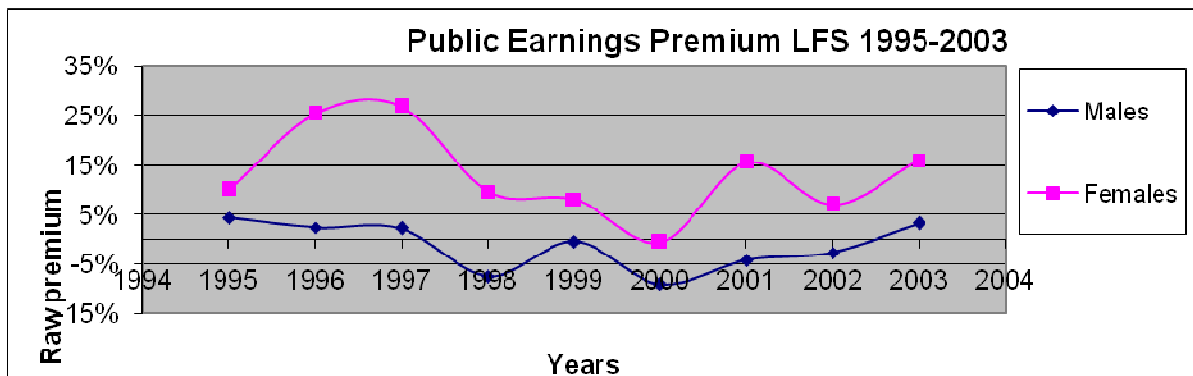
The quantile regression approach is less sensitive to outliers and provides more robust estimators in terms of departures from normality than OLS. Additionally, quantile regression models have better properties in the presence of heteroscedasticity. It allows us to estimate the log earnings equation conditional on a given specification and then calculated at various percentiles of the residuals (10th, 25th, 50th, 75th and 90th). The estimates of β^* parameter establish the magnitude of the public-private earnings differential at selected points of the conditional earnings distribution.

SECTOR EARNINGS DIFFERENTIALS

The annual average real hourly earnings and wages across sectors and unadjusted public sector premiums/penalties during years observed for both gender are presented in the Table 5 in the Appendix. The unadjusted premium is the unconditional difference in mean earnings (wages)

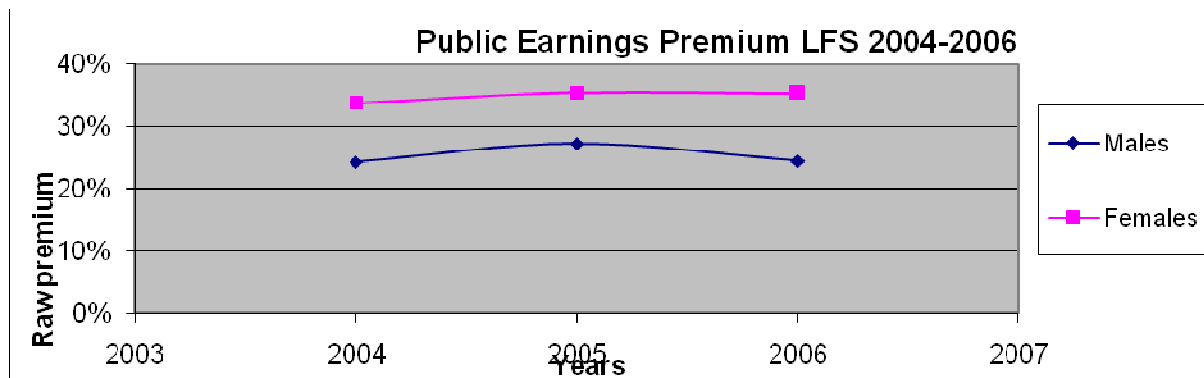
between public and private sector. Our results from Table 5 reveal that there was no statistically significant differences in earnings between two sectors for male workers between 1995 and 2003 but the gap turned into significant public sector premium between 2004 and 2006. Women enjoyed public sector earnings raw premium during most of the years observed. These trends are presented on Graphs 1 and 2.

Graph 1 : Unconditional Public Sector Hourly Real Earnings Premium by gender in period 1995-2003



*Source: Calculated by author from successive Labour Force Surveys 1995-2003.

Graph 2 : Unconditional Public Sector Hourly Real Earnings Premium by gender in period 2004-2006



*Source: Calculated by author from successive Labour Force Surveys 2004-2006

It is likely that difference between average earnings in two ownership sectors is largely determined by different nature of jobs and skills in the two sectors. The 'adjusted' premium measures the difference in mean earnings (wages), conditional on individual characteristics such as qualifications, gender, ethnicity, labor experience, occupation, etc. To control for these

characteristics we estimated augmented Mincerian logarithm of hourly earnings equations for each year from 1995 to 2006 using LFS data and from 2002 to 2003 using LSMS data.

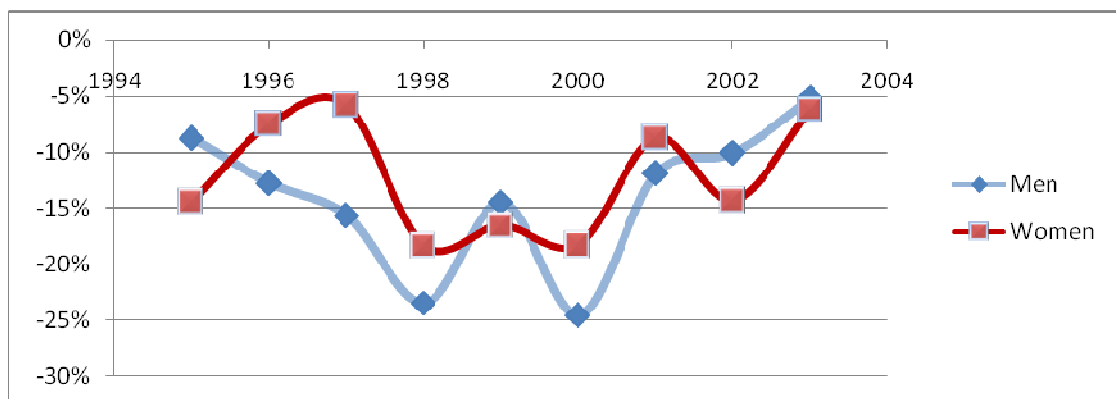
The earnings specifications include a set of human capital variables which are augmented by controls for an individual's one-digit marital status, region of residence, type of settlement, industry branch and occupation. The human capital variables consist of a set of binary variables capturing the individual's educational qualifications, labour force experience of individual and its quadratic form.⁶ Labor force experience effects (linear and quadratic), were poorly determined in the hourly earnings specifications. This is consistent with findings in other transitional countries where skills and experience obtained under the communist regime were not valued by the new market system. The level of educational attainment strongly correlates to pay differentials. However, returns to all educational levels higher than primary school education were contracting from 1995 to 2001 which is in accordance to Reilly and Krstić (2001). In 2001 returns to education increased sharply (by 20% for men and women with university degree compared to 1995). During 2004 to 2006 returns to education rose especially for men with university degree (by 13%). This is in line with experience of many transitional countries (see Newell and Reilly, 1999; Munich, Svejnar and Terrell 2000). Men working in cities earned on average more than those working in rural areas. Residing in the Serbian capital Belgrade provides significant premium relative to residing in northern province Vojvodina and even more compared to Central Serbia. Most other variables in the hourly earnings functions were significant at conventional levels. Workers in catering and tourism, financial and other services, education and health and administration had advantage in earnings relative to a number of other branch activities over the most of the years between 1995 and 2003. For men, earnings across most of the industry branches other than agriculture on average doubled in 2005 compared to 2004. Same sharp increase is recorded for women but in 2006. The highest paying industry branch for men in 2005 was education and health, followed by catering and tourism, construction, financial and other services and manufacturing. Three lowest paying industry branches were agriculture, trade and government administration. For women highest paying industry branches were education and health, financial and other services, catering and tourism

⁶ In the rest of the text we discuss results on coefficients obtained for explanatory variables from OLS regressions that are estimated for each year between 1995 to 2006 using both LFS and LSMS data and also results from OLS and Quantile regressions estimated by pooling LFS 1995-2003 and LFS 2004-2006 and LSMS 2002-2003 which are presented in Tables 8, 9 and 10 in the Appendix.

and government administration. Agriculture and manufacturing were the lowest paying industries. The set of occupational level variables show on average lower wages for farmers, miners, industrial and trade workers. Managers and professionals enjoyed significant earnings premium relative to other occupational categories during all years.

The private ownership of the employee's establishment provided a significant hourly earnings premiums for men from 1997 (by 16%) until 2002 (by 10%) and for women from 1998 (by 18%) until 2002 (14%). The marked cyclical nature of pay gap for workers with similar characteristics but located in different sectors, presented on the Graph 3, verifies growing initial private sector 'mark-up' that tends to close down by the end of the observed period.

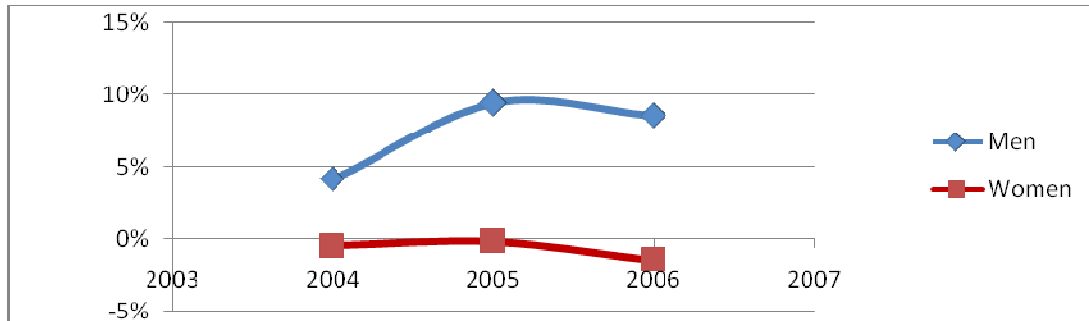
Graph 3: Adjusted Annual Public Sector Hourly Earnings Penalty by gender in period 1995-2003



*Source: Calculated by author from successive Labour Force Surveys 1995-2003

Between 2004 and 2006 women across sectors earned the same while men in the public sector earned by 9% and 8% more than their private sector counterparts, in 2005 and 2006 respectively. This result, presented by the Graph 4, is consistent with the one reported in The World Bank study, Labor Market Assessment of Serbia (2006), which used LFS data in the year 2005. The earnings measure in the World Bank study is the same as ours, but not corrected for hours worked. Additionally, the study does not differentiate between men and women across public and private sectors but includes in augmented Mincerian log of monthly earnings equation employees in socially-owned (as omitted variable) and state-owned sector separately.

Graph 4: Adjusted Annual Public Sector Hourly Earnings Premium and Penalty by gender in period 2004-2006



*Source: Calculated by author from successive Labour Force Surveys 2004-2006

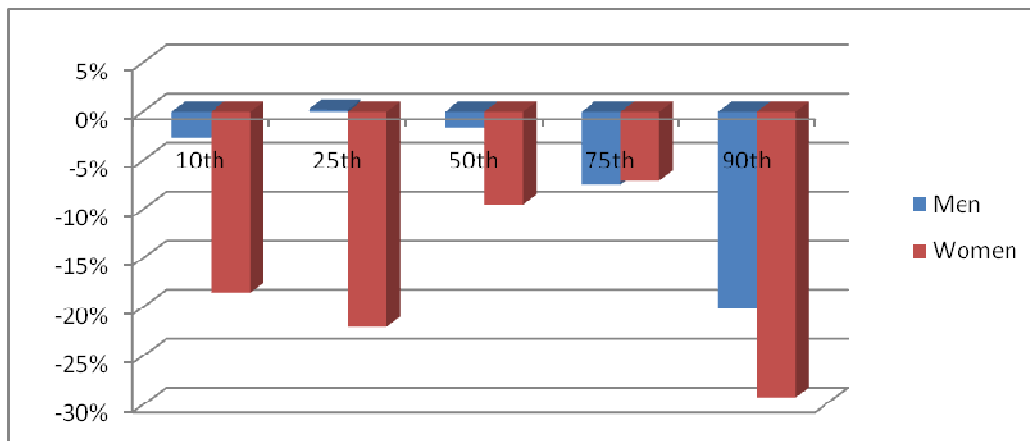
Using OLS estimates the World Bank study reports private sector earnings ‘punishment’ of 11% compared to earnings in socially owned sector while employees in state-owned sector enjoyed 4% mark-up above their counterparts based in socially-owned sector. This is acceptable difference due to our definition of public sector by which the average earnings are decreased by lower earners working in public sectors other than state owned.

Further analysis estimates the hourly earnings equation by pooling together years from 1995 to 2003 and from 2004 to 2006 for LFS and from 2002 to 2003 for LSMS data, using OLS and Quantile Regression approach. Earnings equation is expanded with a number of interactive variables designed to capture variation of the sectoral pay gap over time. After some experimentations we included one education category, one occupational group, two industries, city residence and the set of year dummies as interaction terms. Included interactions are consistent with Reilly (2003).

Pooling 1995-2003 LFS data the OLS estimates show no statistically significant pay gap between male public and private sector workers on average. Same is demonstrated at all percentiles of the real hourly earnings distribution except for employees at 90th percentile who enjoyed 20% premium if working in the private sector. Reilly (2003) reports that men between 18 and 64 years old and working in the private sector earned on average by a third more than their public sector counterparts when 1995-2000 LFS data are pooled. Same as reported here, Reilly (2003) finds that only men at 90th percentile had statistically significant private sector premium at 0.01 level.

The Graph 5 shows the estimated earnings differentials between public and private sector for male and female workers with similar characteristics at different percentiles of earnings distribution during nine year period of transition in Serbia.

Graph 5: Public Sector Earnings Penalty across the Earnings Distribution



*Source: Pooled LFS, 1995-2003

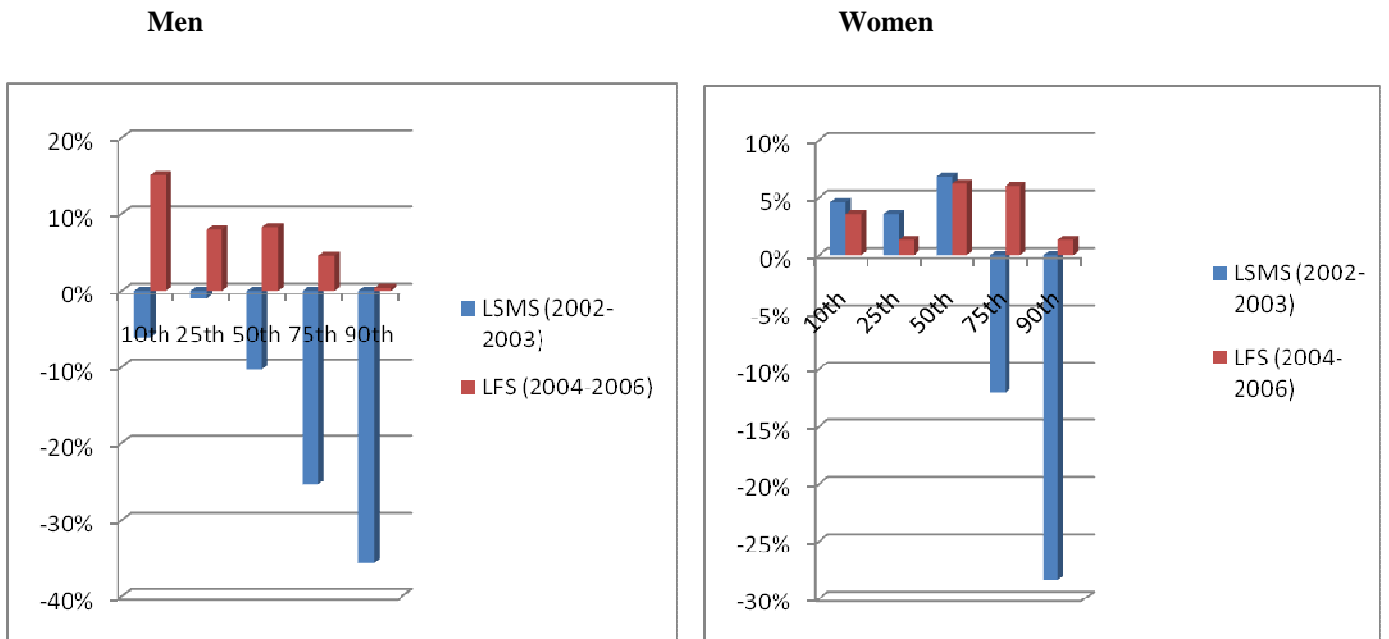
Pay estimates for women show on average 19.6% public sector earnings punishment during same period. The larger wage gap between the public and private sector for women may indicate that the sector-specific non-wage benefits could be a more important determinant of women's choice of a sector. Women at all percentiles except at 75th fared significantly better in the private sector. Women at 10th and 25th percentile and those at the top of the distribution gained the most (by 18.5%, 22% and 29% respectively). Additionally, according to OLS estimates of interaction terms, male workers with no formal education and working in construction fared better in private sector while men and especially women working in finance and other services fared better in the public sector between 1995 and 2003. There was a contraction of real hourly earnings, especially in the public sector in 1998, 1999 and 2000 but followed by sizeable expansion from 2001 onwards.

We also observed sectoral pay differentials across earnings distribution in the last five years of transition in Serbia by pooling 2002-2003 LSMS and 2004-2006 LFS data. The real hourly earnings of public sector workers increased significantly in 2003 for both men and women across all percentiles. Men at the bottom end and women at the top end earned even one fifth more than compared to 2002 base. While this growth was similar across sectors for men, in

the case of women it was mainly caused by considerable rise in earnings of public sector female workers. The obtained results most likely portrait the rise in earnings in education and health in 2003, where 36% of public sector female labour force was employed. Analogous trends, but smaller in extent, occurred in 2006 compared to 2004 base.

The difference between quantile regression estimates of sectoral pay gap obtained pooling 2002-2003 LSMS and 2004-2006 LFS is remarkable. During 2002-2003, private sector men in the middle and at the upper and top end of the distribution earned significantly more than public sector men with similar characteristics (by 10%, 25% and 36% more at 50th, 75th and 90th percentiles respectively). But for those at the bottom, earnings in the two sectors were not significantly different. This is in line with other transitional countries⁷ where higher inequality in the private sector than in the public sector causes more negative public-private sector wage differential among high earners. For women, earnings across two sectors during 2002 and 2003 did not differ significantly at all percentiles except at the top of the earnings distribution where women earned 28% premium with job in the private sector. However, between 2004 and 2006 public sector female workers at 50th and 75th percentile of the earnings distribution obtained 6% benefits compared to their private sector counterparts with similar characteristics. Male workers at the lower end and at the middle of the distribution gained from job in the public sector (by 15% at 10th percentile and 8% at 25th and 50th percentiles) while those at the top of the distribution earned the same across sectors. This is illustrated on the Graph 6. The blue bars represent the pay gap estimates obtained by quantile regressions from the pooled 2002-2003 LSMS data and the red bars reflect the results from the pooled 2004-2006 LFS data for men and women separately. The Graph 6, shows that it was the highest paid group of private sector workers who saw the largest premiums during 2002-2003. However, there was no statistically significant difference in earnings on average across sectors for women. Men in the private sector enjoyed on average 17.7% premium between 2002 and 2003, but this premium dissipates when years from 2004 to 2006 are pooled.

⁷ See Leping (2006)

Graph 6: Public Sector Earnings Premiums and Penalties across the Earnings Distribution

*Source: Pooled LSMS 2002-2003 and LFS 2004-2006

The rise of earnings in the public sector between 2004 and 2006 enabled lower paid men and middle paid women in the public sector to collect the largest ‘mark-up’ to earnings compared with workers of comparable age and education in the private sector. Moving up the male earnings distribution, the size of the public sector premium declines. Among the highest earners the earnings of male public and private sector workers with similar characteristics are not statistically significantly different. Same holds for women at both end of the wage distribution. The results obtained for men during 2004-2006 are consistent with findings in developed countries⁸. Full insight into pay gap across sectors at selected percentiles within each year can be obtained from Table 7 in the Appendix.

⁸ see for example pg. 25, Disney et al. (1998) for UK between 1991 and 1995

CONCLUSION

This study examined public-private wage differentials in Serbia over the period of transition from 1995 to 2006. The estimates obtained give important insights into the main changes of the labor market during transition. The results of the analysis indicate that pay differentials obtained for Serbia follow similar pattern as the one obtained in other transitional countries⁹.

The study finds that earnings are more equally distributed in the public sector than in the private sector, even after controlling for different characteristics of employees. Private sector premiums observed from 1995 to 2003 can be interpreted as willingness of public sector employees to trade off wages for employment in order to preserve social benefits. This behaviour is more evident for women. The public-private gap closes over time via faster growth of public sector wages. Interpreting the results obtained in the latter period, between 2004 and 2006, through competitive world framework, it can be concluded that workers of different quality would be employed in the two sectors. Employers in the private sector would tend to hire the better-quality employees at the highest educational levels. The public sector would tend to attract better-quality men with lower educational qualifications and women with higher educational attainment. This means, that the public sector is able to retain better-quality public servants such as teachers, nurses or civil servants, due to earnings premium provided for men and due to non pecuniary benefits provided for women, as there is no significant pay difference for females with same characteristics across sectors. If non wage attributes, such as insurance in the form of greater job security, were added to current earnings of employees the advantage of holding a job in the public sector would be higher even for workers with the highest educational skills. Therefore, results imply that the recent concern is not about retaining workers on public sector jobs but rather about queues of workers for public sector positions, especially for those at the lower part of the wage distribution. The consequence is an increasing wage bill that strains the fiscal position.

⁹ See Jurajda (2003) or Leping (2006)

APPENDIX

Table 1: Timing of Surveys and Number of Observations Used in Analysis

Data	Reference Year and a Month	Number of Males		Number of Females		Total
		Public	Private	Public	Private	
LFS	March-95	1400	81	930	107	2518
	May-96	1377	93	926	97	2493
	Oct-97	1373	116	954	117	2560
	Oct-98	1327	159	956	159	2601
	Oct-99	1,290	175	919	178	2,562
	Oct-00	1,421	213	1,008	225	2,867
	Oct-01	1,329	273	947	233	2,782
	Oct-02	1,272	284	910	251	2,717
	Oct-03	1,164	381	792	332	2,669
	Oct-04	1,760	1,130	1,306	881	5,077
	Oct-05	1,543	1,283	1,133	836	4,795
	Oct-06	1,336	1,333	1,063	922	4,654
LSMS	June-08	2,078	839	1,517	627	5,061
	June-08	639	395	461	260	1,755

*Source: LFS successive years from 1995 to 2006 and LSMS in 2002 and 2003

Table 2: Average Annual Share of Wages and Hot Meal and Transport Allowances in Earnings by Ownership Type and Gender

	Male				Female			
	Public		Private		Public		Private	
	Wage	Hot Meal and Transport Allowances	Wage	Hot Meal and Transport Allowances	Wage	Hot Meal and Transport Allowances	Wage	Hot Meal and Transport Allowances
1995	85%	14%	94%	7%	82%	16%	92%	7%
1996	84%	15%	92%	8%	81%	17%	92%	9%
1997	84%	15%	93%	7%	83%	15%	91%	6%
1998	85%	13%	95%	8%	82%	16%	94%	6%
1999	85%	15%	94%	6%	82%	17%	94%	6%
2000	84%	16%	95%	4%	81%	19%	94%	6%
2001	96%	3%	99%	1%	96%	4%	98%	1%
2002	97%	2%	99%	0%	98%	2%	99%	0%
2003	98%	2%	99%	0%	98%	1%	99%	0%

*Source: Authors calculations from LFS successive years from 1995 to 2003

Table 3: Real Hourly Earnings and Wage Percentiles for Male Employees in the Republic of Serbia, 1995-2006

Year	10 th		25 th		50 th		75 th		90 th		Average		Stand. Dev.		Decile Ratio		Gini Coef.	
	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
LFS																		
1995	3.05	2.9	3.39	3.39	3.79	3.61	4.08	4.06	4.34	4.38	3.73	3.68	0.54	0.57	1.3	1.48	0.28	0.31
1995 _ω	2.79	2.87	3.23	3.28	3.61	3.61	3.95	3.97	4.2	4.31	3.55	3.62	0.57	0.58	1.41	1.44	0.3	0.32
1996	3.03	2.96	3.43	3.32	3.83	3.66	4.18	4.07	4.46	4.44	3.78	3.76	0.59	0.68	1.43	1.48	0.3	0.42
1996 _ω	2.83	2.89	3.23	3.2	3.65	3.65	3.99	3.99	4.34	4.34	3.6	3.66	0.61	0.71	1.51	1.46	0.31	0.44
1997	3.29	3.45	3.75	3.71	4.15	3.98	4.52	4.43	4.8	4.84	4.1	4.08	0.61	0.55	1.51	1.39	0.31	0.31
1997 _ω	2.94	3.37	3.57	3.62	3.96	3.92	4.33	4.35	4.64	4.84	3.91	4	0.65	0.56	1.69	1.47	0.33	0.32
1998	3.38	3.38	3.72	3.78	4.11	4.15	4.46	4.53	4.74	4.88	4.08	4.15	0.57	0.58	1.36	1.5	0.29	0.32
1998 _ω	3.19	3.38	3.56	3.66	3.93	4.07	4.29	4.47	4.58	4.88	3.9	4.09	0.61	0.6	1.39	1.5	0.31	0.33
1999	3.19	3.23	3.53	3.53	3.93	3.88	4.25	4.22	4.55	4.62	3.9	3.9	0.54	0.62	1.36	1.4	0.28	0.34
1999 _ω	2.85	2.96	3.21	3.36	3.61	3.62	3.95	4.06	4.28	4.46	3.55	3.68	0.59	0.67	1.43	1.5	0.3	0.39
2000	3.28	3.35	3.58	3.63	3.9	3.99	4.19	4.33	4.53	4.55	3.88	3.97	0.52	0.58	1.25	1.2	0.28	0.31
2000 _ω	2.76	2.89	3.12	3.36	3.45	3.74	3.81	4.1	4.15	4.32	3.46	3.69	0.57	0.6	1.39	1.43	0.3	0.32
2001	3.53	3.6	3.89	3.89	4.22	4.25	4.48	4.49	4.78	4.94	4.17	4.21	0.51	0.54	1.25	1.34	0.26	0.3
2001 _ω	3.47	3.48	3.79	3.83	4.1	4.17	4.42	4.42	4.71	4.77	4.08	4.14	0.51	0.54	1.24	1.29	0.27	0.3
2002	3.74	3.74	4.06	3.98	4.32	4.32	4.63	4.7	4.92	5.02	4.33	4.36	0.5	0.52	1.19	1.28	0.27	0.3
2002 _ω	3.73	3.73	4.01	3.97	4.31	4.31	4.6	4.68	4.89	5.01	4.29	4.34	0.51	0.52	1.16	1.28	0.27	0.3
2003	3.78	3.8	4.11	4.01	4.42	4.34	4.73	4.67	4.95	4.92	4.38	4.35	0.5	0.48	1.17	1.13	0.26	0.27
2003 _ω	3.75	3.78	4.07	4	4.39	4.34	4.71	4.68	4.93	4.93	4.36	4.35	0.5	0.49	1.19	1.15	0.26	0.28
2004	3.79	3.49	4.18	3.87	4.49	4.23	4.82	4.63	5.14	4.92	4.47	4.23	0.55	0.62	1.35	1.43	0.28	0.34
2004 _ω	3.71	3.46	4.14	3.84	4.49	4.22	4.81	4.62	5.1	4.92	4.44	4.21	0.58	0.64	1.39	1.46	0.29	0.34
2005	3.85	3.51	4.21	3.89	4.5	4.26	4.81	4.61	5.14	4.95	4.5	4.23	0.53	0.6	1.29	1.44	0.28	0.31
2005 _ω	3.85	3.49	4.18	3.89	4.48	4.26	4.77	4.59	5.14	4.95	4.49	4.22	0.54	0.62	1.29	1.46	0.29	0.32
2006	3.96	3.63	4.25	3.96	4.61	4.37	4.88	4.66	5.16	5.06	4.57	4.32	0.51	0.59	1.19	1.44	0.27	0.31
2006 _ω	4	3.66	4.29	4	4.64	4.4	4.91	4.69	5.19	5.1	4.6	4.36	0.51	0.59	1.19	1.44	0.27	0.31
LSMS																		
2002	3.51	3.42	3.92	3.86	4.25	4.23	4.58	4.61	4.84	4.99	4.2	4.24	0.6	0.72	1.32	1.57	0.31	0.47
2002 _ω	3.5	3.5	3.91	3.88	4.23	4.23	4.55	4.6	4.82	4.96	4.18	4.25	0.6	0.71	1.32	1.46	0.31	0.47
2003	3.6	3.6	3.99	3.89	4.34	4.27	4.68	4.61	5.03	5.03	4.32	4.3	0.58	0.68	1.43	1.43	0.32	0.4
2003 _ω	3.57	3.65	3.99	3.94	4.34	4.3	4.68	4.63	5.04	5.04	4.33	4.32	0.58	0.68	1.46	1.39	0.31	0.39

Notes to Table 3: Data Source: Labour Force Survey of the Republic of Serbia (LFS) and Living Standard Measurement Survey (LSMS)

- a) All earnings and wage percentiles are given in natural logarithm values. Earnings include beside regular wage all additional payments from the main job. Earnings and wages are net of taxes, pension and welfare benefits. They are expressed in 2005 prices.
- b) Decile ratio is calculated as the difference between the log earnings/wage at the 90th percentile and at the 10th percentile.
- c) The Gini coefficient estimates use earnings/wage in unlogged form

Table 4: Real Hourly Earnings Percentiles for Female Employees in the Republic of Serbia, 1995-2006

Year	10 th		25 th		50 th		75 th		90 th		Average		Stand. Dev.		Decile Ratio		Gini Coef.	
	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
LFS																		
1995	2.91	3.03	3.39	3.28	3.75	3.56	4.05	3.79	4.31	4.31	3.68	3.58	0.59	0.5	1.39	1.27	0.29	0.29
1995 _ω	2.7	2.83	3.1	3.1	3.53	3.39	3.83	3.79	4.08	4.31	3.46	3.48	0.61	0.54	1.39	1.48	0.31	0.31
1996	2.96	2.87	3.43	3.14	3.86	3.43	4.16	3.87	4.41	4.18	3.76	3.51	0.58	0.52	1.45	1.31	0.28	0.3
1996 _ω	2.63	2.73	3.17	3.1	3.65	3.43	3.93	3.72	4.23	3.99	3.53	3.42	0.62	0.53	1.6	1.25	0.3	0.3
1997	3.3	3.23	3.76	3.53	4.14	3.86	4.48	4.15	4.76	4.37	4.08	3.81	0.58	0.54	1.46	1.14	0.29	0.28
1997 _ω	3.01	2.94	3.55	3.45	3.92	3.72	4.33	4.15	4.59	4.33	3.87	3.7	0.63	0.57	1.58	1.39	0.31	0.3
1998	3.23	3.19	3.66	3.57	4.07	3.89	4.37	4.25	4.59	4.53	3.99	3.9	0.56	0.52	1.36	1.34	0.3	0.28
1998 _ω	2.97	3.19	3.4	3.52	3.89	3.8	4.22	4.15	4.42	4.47	3.78	3.83	0.61	0.53	1.45	1.28	0.32	0.29
1999	3.17	3.12	3.53	3.43	3.86	3.71	4.17	4.06	4.41	4.36	3.82	3.74	0.52	0.54	1.24	1.24	0.26	0.3
1999 _ω	2.67	2.85	3.14	3.18	3.53	3.46	3.82	3.77	4.06	4.17	3.44	3.5	0.57	0.55	1.39	1.32	0.28	0.31
2000	3.2	3.23	3.53	3.53	3.82	3.81	4.09	4.06	4.33	4.33	3.78	3.78	0.46	0.46	1.12	1.1	0.24	0.25
2000 _ω	2.71	2.89	3.05	3.16	3.35	3.45	3.67	3.81	3.94	4.1	3.33	3.49	0.52	0.49	1.22	1.2	0.27	0.26
2001	3.41	3.38	3.78	3.67	4.15	3.89	4.41	4.23	4.68	4.48	4.09	3.93	0.52	0.44	1.27	1.1	0.26	0.24
2001 _ω	3.32	3.32	3.68	3.55	4.05	3.83	4.3	4.17	4.58	4.42	3.99	3.86	0.53	0.45	1.25	1.1	0.26	0.25
2002	3.7	3.58	3.92	3.83	4.27	4.12	4.55	4.57	4.89	4.94	4.26	4.19	0.5	0.5	1.19	1.35	0.27	0.29
2002 _ω	3.62	3.57	3.91	3.81	4.22	4.09	4.51	4.56	4.83	4.89	4.22	4.17	0.51	0.5	1.21	1.32	0.27	0.29
2003	3.82	3.64	4.06	3.82	4.39	4.2	4.71	4.52	4.92	4.77	4.37	4.21	0.46	0.49	1.1	1.13	0.24	0.28
2003 _ω	3.83	3.65	4.06	3.83	4.36	4.19	4.71	4.53	4.93	4.78	4.36	4.21	0.46	0.49	1.1	1.13	0.24	0.28
2004	3.82	3.47	4.18	3.72	4.49	4.07	4.76	4.45	4.98	4.82	4.45	4.11	0.5	0.57	1.16	1.35	0.26	0.32
2004 _ω	3.79	3.44	4.12	3.71	4.49	4.06	4.73	4.44	4.97	4.81	4.43	4.09	0.52	0.6	1.17	1.37	0.26	0.33
2005	3.85	3.48	4.17	3.74	4.54	4.07	4.77	4.48	5.06	4.86	4.48	4.12	0.53	0.57	1.2	1.39	0.3	0.32
2005 _ω	3.85	3.45	4.17	3.73	4.51	4.07	4.77	4.48	5.03	4.86	4.47	4.11	0.53	0.58	1.18	1.42	0.31	0.32
2006	3.96	3.56	4.3	3.78	4.61	4.15	4.88	4.57	5.06	4.92	4.55	4.19	0.5	0.59	1.1	1.36	0.25	0.32
2006 _ω	4	3.59	4.34	3.82	4.64	4.18	4.91	4.59	5.1	4.95	4.58	4.23	0.5	0.59	1.1	1.36	0.25	0.32
LSMS																		
2002	3.46	3.23	3.87	3.63	4.21	4.02	4.45	4.39	4.79	4.91	4.14	4.06	0.56	0.74	1.32	1.69	0.29	0.49
2002 _ω	3.44	3.28	3.86	3.62	4.19	4.03	4.42	4.39	4.76	4.83	4.13	4.05	0.56	0.71	1.32	1.55	0.29	0.46
2003	3.6	3.39	3.99	3.64	4.34	4.05	4.65	4.41	4.96	4.74	4.32	4.07	0.63	0.63	1.36	1.35	0.34	0.38
2003 _ω	3.63	3.47	3.99	3.81	4.34	4.06	4.66	4.44	4.97	4.75	4.32	4.11	0.63	0.57	1.34	1.28	0.34	0.34

Notes to Table 4:

See Notes to Table 3.

Table5: Average Hourly Real Pay by ownership type and gender and Unconditional Sectoral Pay Differential

Years	Hourly Log Mean Pay		Annual Growth Rate				Raw Premium		ttest			
	Males		Females		Males		Females		Males	Females		
LFS	Public	Private	Public	Private	Public	Private	Public	Private			Males	Females
1995	3.73	3.68	3.68	3.58					0.044	0.1	0.67	1.91
1995ω	3.55	3.62	3.46	3.48					-0.064	-0.015	-0.97	-0.24
1996	3.78	3.76	3.76	3.51	0.06	0.08	0.08	-0.07	0.024	0.254	0.33	4.48**
1996ω	3.6	3.66	3.53	3.42	0.05	0.05	0.07	-0.06	-0.063	0.114	-0.96	1.73
1997	4.1	4.08	4.08	3.81	0.32	0.32	0.32	0.31	0.022	0.269	0.4	5.05**
1997ω	3.91	4	3.87	3.7	0.31	0.34	0.34	0.29	-0.089	0.171	-1.44	2.79**
1998	4.08	4.15	3.99	3.9	-0.03	0.07	-0.09	0.09	-0.074	0.097	-1.52	2.16*
1998ω	3.9	4.09	3.78	3.83	-0.01	0.09	-0.1	0.13	-0.187	-0.05	-3.67**	-0.98
1999	3.9	3.9	3.82	3.73	-0.18	-0.25	-0.17	-0.17	-0.004	0.081	-0.09	1.85
1999ω	3.55	3.68	3.44	3.5	-0.35	-0.41	-0.34	-0.33	-0.13	-0.06	-2.685***	-1.23
2000	3.88	3.98	3.78	3.79	-0.02	0.08	-0.04	0.06	-0.09	-0.005	-2.14	-0.16
2000ω	3.46	3.69	3.33	3.49	-0.09	0.01	-0.11	-0.01	-0.23	-0.16	-5.35***	-4.32***
2001	4.17	4.21	4.09	3.93	0.29	0.23	0.31	0.14	-0.041	0.156	-1.14	4.67**
2001ω	4.08	4.14	3.99	3.86	0.62	0.45	0.66	0.37	-0.07	0.13	-2.01**	3.58***
2002	4.33	4.36	4.26	4.19	0.16	0.15	0.17	0.26	-0.026	0.07	-0.77	1.91
2002ω	4.29	4.34	4.22	4.17	0.22	0.2	0.23	0.31	-0.05	0.05	-1.45	1.37
2003	4.38	4.34	4.36	4.21	0.05	-0.02	0.1	0.02	0.032	0.16	1.11	5.10**
2003ω	4.36	4.35	4.36	4.21	0.07	0.01	0.14	0.04	0.02	0.15	0.6	4.89***
2004	4.47	4.23	4.45	4.11					0.243	0.338	10.80**	14.29**
2004ω	4.44	4.21	4.43	4.09					0.23	0.35	9.92***	14.36***
2005	4.5	4.23	4.48	4.12	0.03	0	0.03	0.01	0.273	0.355	12.73**	14.14**
2005ω	4.49	4.22	4.47	4.11	0.05	0.01	0.04	0.03	0.27	0.36	12.35***	14.19***
2006	4.57	4.32	4.55	4.19	0.07	0.09	0.07	0.07	0.245	0.354	11.42**	14.26**
2006ω	4.6	4.36	4.58	4.23	0.11	0.14	0.11	0.11	0.24	0.35	11.43***	14.45***
LSMS												
2002	4.19	4.23	4.13	4.05					-0.04	0.086	-1.49	2.48**
2002ω	4.18	4.23	4.12	4.04					-0.05	0.08	-1.73*	2.68***
2003	4.33	4.31	4.33	4.08	0.14	0.08	0.2	0.03	0.025	0.247	0.59	5.06**
2003ω	4.33	4.3	4.32	4.08	0.14	0.07	0.19	0.04	0.02	0.24	0.62	4.87***

Notes to Table 5: Data Source: Labour Force Survey (LFS) 1995-2006 and Living Standard Measurement Survey (LSMS) 2002-2003.

- ω - hourly wage excludes all additional payments from the main job. Earnings beside regular wage include all additional payments from the main job.
- Earnings and wages are net of taxes, pension and welfare benefits. They are expressed in 2005 prices.
- t-test undertakes a test for the difference in sample means between public and private sector wages and earnings.
- ***, ** and * denote statistical significance at the 1%, 5% and 10% level respectively using two-tailed tests. The corresponding critical (absolute) values are 2.576, 1.96 and 1.64 respectively.

Table 6: Description of Variables Used in the Analysis

Variable name	Variable description
Demographic Variables	
Age (Years)	Age of individual in years
Age ² (Years/100)	Age squares of individual in years (divided by 100)
Married	=1 if the individual is married; otherwise 0.
Single	=1 if the individual is single; otherwise 0.
Divorced/Widowed ¹	=1 if the individual is divorced or widowed; otherwise 0.
Serbian	=1 if the individual's nationality is Serbian; otherwise 0.
Montenegrin	=1 if the individual's nationality is Montenegrin; otherwise 0.
Other ¹	=1 if the individual's nationality is some other; otherwise 0.
Region and Location Variables	
Belgrade ¹	=1 if the individual lives in capital Belgrade; otherwise 0.
Central Serbia	=1 if the individual lives in Central Serbia; otherwise 0.
Vojvodina	=1 if the individual lives in Vojvodina; otherwise 0.
Rural ¹	=1 if the individual lives in the village; otherwise 0.
Urban (City)	=1 if the individual lives in the city; otherwise 0.
Education Level and Labor Force Experience Variables	
No Education	=1 if the individual has no education or has incomplete primary education; otherwise 0.
Primary ¹	=1 if the individual has primary education; otherwise 0.
Secondary	=1 if the individual has secondary education; otherwise 0.
College	=1 if the individual has high education; otherwise 0.
University	=1 if the individual has university education; otherwise 0.
Master	=1 if the individual has master degree; otherwise 0.
PhD	=1 if the individual has PhD degree; otherwise 0.
Labor Force Experience <=5 years	=1 if the individual has less or five years of working experience; otherwise 0.
5<Labor Force Experience<=10 years	=1 if the individual has more than five and less or ten years of working experience; otherwise 0.
10<Labor Force Experience<=20 years	=1 if the individual has more than ten and less or twenty years of working experience; otherwise 0.
20<Labor Force Experience<=30 years	=1 if the individual has more than twenty and less or thirty years of working experience; otherwise 0.
Labor Force Experience>30 years	=1 if the individual has more than thirty years of working experience; otherwise 0.
Labor Force Experience ² (Years/100)	Labor Force Experience squared of individual in years (divided by 100)
Worker Occupation Variables	
Farmer	=1 if the individual is a farmer; otherwise 0.
Miner, Worker in Industry or Similar	=1 if the individual is a miner, industrial or similar worker; otherwise 0.
Worker in Trade	=1 if the individual is worker in trade; otherwise 0.
Worker in Service Sector ¹	=1 if the individual is worker in the service sector; otherwise 0.
Welfare Worker	=1 if the individual is welfare worker; otherwise 0.
Worker in Administration	=1 if the individual is worker in government institution or administration; otherwise 0.
Manager	=1 if the individual is manager; otherwise 0.
Professional or Artist	=1 if the individual is professional or artist; otherwise 0.
Worker in Other Occupation	=1 if individual works in some other occupation; otherwise 0.
Industry Branch Variables	
Agriculture ¹	=1 if the individual works in agriculture and forestry; otherwise 0.
Industry & Mining	=1 if the individual works in industry sector; otherwise 0.
Construction	=1 if the individual works in construction; otherwise 0.
Transport	=1 if the individual works in transport and communication; otherwise 0.
Trade	=1 if the individual works in trade; otherwise 0.
Catering and Tourism	=1 if the individual works in catering and tourism; otherwise 0.
Financial and Other Services	=1 if the individual works in financial and other services; otherwise 0.
Education, Culture and Health	=1 if the individual works in education, culture, health and social work; otherwise 0.
Government	=1 if the individual works in government administration and social insurance; otherwise 0.
Ownership Sector Variable	
Public ¹	=1 if the individual works in non privately owned enterprise; otherwise 0.
Private	=1 if the individual works in the privately owned enterprise; otherwise 0.
Hours and Wages Variables	
Main Job Monthly Hours (natural log)	The natural logarithm of the monthly hours worked by the individual in their main job.
Main Job Monthly Wage (natural log)	The natural logarithm of the main job monthly regular wage
Main Job Monthly Earnings (natural log)	The natural logarithm of the main job monthly earnings which includes beside regular wage all additional payments
Main Job Hourly Wage (natural log)	The natural logarithm of the hourly regular wage worked by the individual in their main job.
Main Job Hourly Earnings (natural log)	The natural logarithm of the main job hourly earnings which includes beside regular wage all additional payments

Table 7: Conditional Private Sector Wage Premium for Different Years

Year	Average		10th Percentile		25th Percentile		50th Percentile		75th Percentile		90th Percentile	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
LFS												
1995	0.087 1.34	0.144 (2.22)*	-0.01 -0.11	0.219 1.17	-0.036 -0.53	0.165 (2.01)*	0.028 0.33	0.078 1.08	0.128 1.2	0.047 0.59	0.178 1.15	0.092 1
1996	0.127 1.61	0.075 1.15	-0.167 -0.95	0.259 1.79	-0.005 -0.04	0.093 0.98	-0.001 -0.02	0.014 0.2	0.092 1.29	-0.024 -0.33	0.152 0.6	-0.017 -0.13
1997	0.156 (2.73)**	0.058 0.9	0.124 1.08	0.101 0.63	0.17 1.67	0.11 1.23	0.031 0.61	0.032 0.72	0.068 0.83	0.098 1.63	0.138 1.44	0.081 1.64
1998	0.234 (4.95)**	0.183 (3.76)**	0.252 (3.02)**	0.078 0.78	0.158 1.93	0.169 (2.49)*	0.162 (3.34)**	0.208 (2.72)**	0.163 (2.49)*	0.188 (2.78)**	0.338 (3.12)**	0.21 (2.56)*
1999	0.144 (2.64)**	0.165 (3.67)**	0.125 1.42	0.114 1.09	0.134 (2.56)*	0.179 (2.51)*	0.097 1.72	0.125 (3.12)**	0.128 1.59	0.156 (3.19)**	0.155 1.52	0.232 (2.81)**
2000	0.245 (5.26)**	0.182 (4.84)**	0.132 (2.01)*	0.166 (2.06)*	0.166 (3.51)**	0.164 (2.48)*	0.241 (4.64)**	0.222 (7.25)**	0.252 (4.08)**	0.221 (5.45)**	0.262 (4.63)**	0.234 (2.65)**
2001	0.118 (3.18)**	0.087 (2.31)*	0.09 1.46	0.151 (2.08)*	0.07 1	0.042 0.83	0.047 1.08	0.01 0.32	0.092 (2.82)**	0.009 0.17	0.155 (2.49)*	-0.003 -0.07
2002	0.1 (3.09)**	0.143 (4.60)**	0.141 (2.16)*	0.222 (4.53)**	0.074 1.38	0.144 (2.69)**	0.087 1.87	0.129 (2.99)**	0.11 (2.75)**	0.091 (2.44)*	0.05 0.96	0.109 (2.28)*
2003	0.051 1.77	0.062 1.65	0.016 0	-0.03 -0.4	0.053 1.52	0.036 0.91	0.017 0.57	0.026 0.69	0.042 1.31	0.027 0.61	0.07 1.33	0.084 1.22
2004	-0.041 -1.7	0.005 0.18	-0.128 (-2.7)**	-0.056 -1	-0.088 (-3.7)**	0.014 0.35	-0.035 -1.49	-0.039 -1.29	-0.02 -0.67	-0.017 -0.5	0 0.01	-0.001 -0.02
2005	-0.094 (-4.6)**	0.002 0.06	-0.155 (-3.3)**	-0.061 -1.23	-0.123 (-4.4)**	-0.055 -1.38	-0.073 (-2.4)*	-0.039 -1.53	-0.053 -1.83	0.022 0.78	-0.053 -1.57	0.052 1.05
2006	-0.085 (-3.8)**	0.015 0.44	-0.085 (-2.5)*	0.014 0.21	-0.082 (-2.6)**	0.004 0.11	-0.053 (-2.1)*	-0.012 -0.26	-0.097 (-6.1)**	-0.046 -1.13	-0.057 -1.67	-0.026 -0.56
LSMS												
2002	0.148 (4.36)**	0.07 1.78	0.072 1.69	-0.078 -1.21	0.023 0.56	-0.036 -0.66	0.069 (2.44)*	-0.032 -0.84	0.175 (4.42)**	0.12 (2.47)*	0.298 (3.33)**	0.266 (3.07)**
2003	0.127 (2.78)**	0 0.01	0.073 0.8	0.021 0.21	0.049 1.25	-0.014 -0.25	0.028 0.43	-0.074 -1.48	0.134 (2.92)**	-0.001 -0.01	0.272 (3.44)**	0.156 1.62

Notes to Table 7: ** and * denote statistical significance at the 1% and 5% level respectively using two-tailed test. f denotes category omitted in estimation.

- The samples used relate to male and female employees, aged between 15 and 64, who reported non-zero main job earnings.
- The depended variable is the log of real hourly earnings. Earnings are net of taxes, pensions and welfare benefits. They include payments for meals, transport, union benefits, credits from the firm and payment in kind. They relate to earnings received on the main job only. All explanatory variables are binary variables.
- The estimation procedure for the mean regression is OLS and robust standard errors are computed on the basis of White (1980) standard errors. Robust t statistics reported: ** and * denote significance at the 0.01 and 0.05 level respectively.
- Quantile regression procedures are used to obtain the coefficient estimates for the selected percentiles. The estimated t statistics reported in parentheses for the quantile regressions is based on the bootstrapping procedure with 1000 replications in all cases. OLS and quantile regression analysis reported used STATA 8.0.
- Bootstrapping quantile regression procedure is used to obtain the coefficient estimates for the selected percentiles; t statistics reported: ** and * denote significance at the 0.01 and 0.05 level respectively.

Data Source: Labour Force Survey 1995-2006 and Living Standard Measurement Survey 2002-2003.

Table 8: OLS and Quantile Regression Equation Estimates for Log Hourly Earnings in Serbia – 1995 to 2003

LFS	OLS		10th		25th		50th		75th		90th	
Variable	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Constant	3.604 (99.7)**	3.392 (78.23)**	3.214 (43.8)**	2.799 (26.6)**	3.402 (70.18)**	3.103 (52.1)**	3.674 (89.1)**	3.423 (83.36)**	3.834 (99.7)**	3.665 (68.20)**	3.943 (81.0)**	3.99 (64.4)**
Labour Experience:												
<= 5 Years	f	f	f	f	f	f	f	f	f	f	f	f
5< Years<=10	0.021 1.26	0.061 (3.70)**	0.04 1.2	0.019 0.61	0.029 1.35	0.026 1.11	0.022 1.2	0.065 (3.63)**	0.008 0.43	0.045 (2.61)**	0.05 (2.09)*	0.05 1.9
10< Years<=20	0.049 (3.29)**	0.088 (6.09)**	0.04 1.34	0.102 (3.65)**	0.067 (3.43)**	0.059 (2.87)**	0.056 (3.16)**	0.099 (7.15)**	0.049 (3.22)**	0.077 (5.25)**	0.055 (2.83)**	0.077 (3.39)**
20< Years<=30	0.079 (5.13)**	0.135 (9.28)**	0.075 (2.35)*	0.158 (5.64)**	0.089 (4.42)**	0.119 (5.95)**	0.072 (4.03)**	0.133 (9.36)**	0.058 (3.78)**	0.109 (7.29)**	0.095 (4.55)**	0.104 (4.34)**
> 30 Years	0.105 (6.03)**	0.17 (8.40)**	0.099 (2.97)**	0.179 (4.08)**	0.097 (4.14)**	0.111 (4.08)**	0.09 (4.33)**	0.166 (8.94)**	0.098 (5.08)**	0.17 (7.74)**	0.122 (4.99)**	0.192 (5.44)**
Education:												
No formal education	-0.104 (-3.7)**	-0.122 (-3.2)**	-0.148 (-0.56)*	-0.125 -1.58	-0.092 (-2.26)*	-0.156 (-2.8)**	-0.118 (-3.5)**	-0.092 (-1.99)*	-0.089 (-2.46)*	-0.097 (-2.93)**	-0.085 (-2.32)*	-0.103 -1.85
Primary	f	f	f	f	f	f	f	f	f	f	f	f
Secondary	0.098 (8.11)**	0.148 (10.25)**	0.073 (3.26)**	0.139 (5.03)**	0.113 (6.64)**	0.173 (10.8)**	0.109 (8.36)**	0.203 (13.22)**	0.118 (8.40)**	0.182 (11.22)**	0.108 (5.86)**	0.157 (6.49)**
College	0.247 (13.3)**	0.278 (14.59)**	0.222 (5.92)**	0.275 (7.33)**	0.265 (9.40)**	0.302 (14.6)**	0.241 (11.6)**	0.335 (17.57)**	0.25 (11.6)**	0.294 (14.80)**	0.257 (7.91)**	0.29 (9.12)**
University	0.466 (22.6)**	0.494 (25.64)**	0.44 (12.0)**	0.452 (10.7)**	0.478 (18.31)**	0.49 (22.2)**	0.45 (18.8)**	0.536 (26.07)**	0.492 (22.7)**	0.544 (26.49)**	0.478 (15.3)**	0.549 (16.2)**
Marital Status:												
Single	-0.019 -0.97	-0.012 -0.72	-0.04 -1.01	-0.008 -0.26	-0.009 -0.38	-0.019 -0.9	-0.044 (2.11)*	-0.001 -0.06	-0.001 -0.03	-0.006 -0.37	0.002 0.08	0.007 0.29
Married	0.019 1.16	-0.032 (-2.56)*	-0.019 -0.56	-0.049 (-1.99)*	0 0	-0.034 (-2.37)*	-0.003 -0.14	-0.02 -1.49	0.034 1.9	-0.019 -1.5	0.056 (2.15)*	0 0.02
Divorced/Widowed	f	f	f	f	f	f	f	f	f	f	f	f
Settlement Types:												
Rural	f	f	f	f	f	f	f	f	f	f	f	f
City	0.066 (6.53)**	0.028 (2.42)*	0.069 (3.59)**	-0.001 -0.04	0.072 (5.26)**	0.029 1.92	0.063 (5.83)**	0.035 (3.22)**	0.073 (6.29)**	0.037 (3.54)**	0.076 (5.90)**	0.019 1.09
Regions:												
Belgrade	f	f	f	f	f	f	f	f	f	f	f	f
Central Serbia	-0.369 (-35)**	-0.329 (-29.6)**	-0.477 (-24)**	-0.374 (-18)**	-0.404 (-28.3)**	-0.34 (-23)**	-0.353 (-28)**	-0.311 (-29.4)**	-0.314 (-26)**	-0.295 (-27.5)**	-0.281 (-17)**	-0.267 (-15)**
Vojvodina	-0.228 (-18)**	-0.225 (-17)**	-0.367 (-15)**	-0.282 (-9)**	-0.3 (-7.65)**	-0.27 (-4.9)**	-0.225 (-4.9)**	-0.228 (-6.05)**	-0.159 (-11)**	-0.181 (-3.07)**	-0.095 (-9.8)**	-0.139 (-23)**
Nationality:												
Serbian	-0.001 -0.05	-0.005 -0.33	-0.011 -0.39	0 0	-0.019 -1.04	-0.029 -1.48	-0.002 -0.16	-0.021 -1.54	-0.002 -0.1	0.006 -0.34	0.035 1.89	-0.038 -1.53
Montenegrin	-0.055 -1.41	-0.035 -0.82	-0.136 (-2.12)*	-0.139 -1.78	-0.128 -1.6	-0.121 -1.93	-0.074 -1.91	-0.075 (-2.05)*	-0.017 -0.33	0 0	0.026 0.44	0.013 0.17
Other	f	f	f	f	f	f	f	f	f	f	f	f
Industry Branch:												
Agriculture	f	f	f	f	f	f	f	f	f	f	f	f
Manufacturing	0.089 (4.47)**	0.129 (3.89)**	0.022 0.46	0.153 1.71	0.057 1.83	0.15 (3.13)**	0.085 (3.71)**	0.09 (2.80)**	0.122 (4.84)**	0.118 (2.85)**	0.154 (6.19)**	0.121 (2.98)**
Construction	-0.007 -0.29	0.126 (2.86)**	-0.037 -0.66	0.287 (2.49)*	-0.029 -0.84	0.188 (2.90)**	-0.008 -0.24	0.136 (2.70)**	0.039 1.21	0.046 0.92	0.027 0.85	-0.022 -1.6
Transport	-0.001 -0.05	0.022 0.58	-0.069 -1.02	0.09 0.85	-0.047 -0.97	0.117 (2.08)*	0.023 0.62	0.008 0.21	0.061 1.87	0.028 0.63	0.087 (2.29)*	-0.03 -0.64
Trade	-0.007 -0.24	0.099 (2.53)*	-0.037 -0.6	0.209 (2.11)*	-0.024 -0.51	0.121 (2.38)*	-0.021 -0.62	0.041 0.97	-0.014 -0.4	0.03 0.6	0.057 1.33	0.028 0.5
Catering&Tourism	0.227 (10.4)**	0.329 (8.50)**	0.266 (5.57)**	0.451 (4.64)**	0.249 (7.65)**	0.337 (5.93)**	0.215 (8.54)**	0.257 (6.64)**	0.198 (7.17)**	0.288 (5.49)**	0.204 (7.05)**	0.262 (5.71)**
Financial & Other S	0.249 (10.5)**	0.32 (9.21)**	0.298 (6.45)**	0.536 (5.73)**	0.259 (7.72)**	0.417 (8.59)**	0.223 (7.42)**	0.26 (7.68)**	0.203 (7.07)**	0.225 (5.24)**	0.167 (5.11)**	0.186 (4.40)**
Education and Health	0.233 (10.7)**	0.264 (7.79)**	0.329 (7.30)**	0.531 (5.78)**	0.275 (8.27)**	0.369 (7.67)**	0.198 (7.55)**	0.199 (6.11)**	0.15 (5.36)**	0.104 (2.37)*	0.128 (3.94)**	0.057 1.35
Government Admin.	0.107 (4.98)**	0.211 (6.45)**	0.223 (4.59)**	0.488 (5.38)**	0.172 (5.30)**	0.348 (7.66)**	0.086 (3.46)**	0.152 (4.91)**	0.025 0.93	0.048 1.14	-0.032 -1.01	-0.039 -0.97
Occupations:												
Farmer	-0.086 (-2.8)**	-0.139 (-24.3)*	-0.16 (-2.40)*	-0.315 -1.64	-0.092 (-2.08)*	-0.085 -0.97	-0.061 -1.78	-0.107 -1.34	-0.06 -1.87	-0.029 -0.57	-0.072 -1.9	-0.11 -1.54

Miner or Industrial	0.03 (2.02)*	-0.029 -1.4	0.037 1.12	-0.043 -1.03	0.019 0.88	-0.003 -0.12	0.016 1	-0.028 -1.14	0.008 0.48	-0.032 -1.43	0.035 1.58	-0.035 -1.07
Trade Worker	-0.038 -1.39	-0.081 (-3.10)**	0.029 0.47	-0.072 -1.09	-0.022 -0.52	-0.116 (-3.5)**	-0.073 (-2.03)*	-0.085 (-2.95)	-0.113 (-4.1)**	-0.095 (-2.95)**	-0.104 (-2.57)*	-0.106 (-2.7)**
Service Worker	f	f	f	f	f	f	f	f	f	f	f	f
Welfare Worker	0.115 (5.27)**	0.189 (7.77)**	0.088 (1.98)*	0.191 (3.79)**	0.143 (4.57)**	0.189 (5.81)**	0.154 (6.28)**	0.198 (7.88)**	0.122 (5.35)**	0.215 (9.26)**	0.089 (2.64)**	0.167 (4.44)**
Government Worker	0.098 (6.31)**	0.144 (9.00)**	0.146 (4.75)**	0.138 (4.09)**	0.1 (4.56)**	0.179 (9.17)**	0.093 (5.39)**	0.144 (7.67)**	0.062 (3.74)**	0.146 (8.55)**	0.049 (2.14)*	0.113 (4.52)**
Manager	0.275 (11.3)**	0.377 (12.80)**	0.326 (7.53)**	0.434 (8.08)**	0.255 (7.97)**	0.399 (8.44)**	0.293 (9.86)**	0.363 (11.83)**	0.244 (10.6)**	0.334 (11.50)**	0.255 (7.33)**	0.302 (7.54)**
Professional	0.163 (8.04)**	0.192 (10.41)**	0.192 (4.96)**	0.205 (4.67)**	0.15 (5.56)**	0.223 (10.1)**	0.158 (6.90)**	0.178 (8.59)**	0.131 (6.07)**	0.183 (9.85)**	0.137 (4.43)**	0.168 (5.55)**
Miscellaneous	0.038 176	0.064 (3.19)**	0.022 0.56	0.06 1.49	-0.001 1.49	0.082 (3.20)**	0.009 0.36	0.069 (2.92)**	-0.022 -0.89	0.092 (4.35)**	0.021 0.61	0.041 1.29
Private Sector Job:	0.076 1.8	0.196 (3)**	0.027 0.27	0.185 (2.18)*	-0.002 -0.03	0.22 (3.99)**	0.017 0.21	0.095 (2.00)*	0.075 0.92	0.071 1.12	0.201 (2.74)**	0.292 (4.18)**
Years:												
1995	f	f	f	f	f	f	f	f	f	f	f	f
1996	0.051 (2.85)**	0.063 (2.85)**	0.013 0.32	0.037 0.74	0.046 (1.98)*	0.086 (3.38)**	0.069 (3.83)**	0.081 (4.11)**	0.088 (4.55)**	0.056 (2.96)**	0.09 (3.84)**	0.068 1.81
1997	0.377 (20.4)**	0.407 (18.74)**	0.351 (8.72)**	0.404 (8.55)**	0.38 (16.45)**	0.44 (14.7)**	0.4 (20.4)**	0.414 (19.60)**	0.429 (22.5)**	0.418 (20.88)**	0.436 (20.5)**	0.379 (10.7)**
1998	0.348 (19.4)**	0.322 (14.87)**	0.342 (10.5)**	0.335 (7.90)**	0.357 (14.40)**	0.331 (12.9)**	0.34 (17.2)**	0.323 (16.74)**	0.366 (19.4)**	0.317 (16.41)**	0.391 (17.2)**	0.286 (9.03)**
1999	0.159 (8.99)**	0.111 (5.26)**	0.16 (4.84)**	0.143 (3.43)**	0.179 (7.78)**	0.141 (5.95)**	0.136 (6.60)**	0.11 (5.47)**	0.181 (9.26)**	0.091 (4.53)**	0.183 (7.54)**	0.045 1.29
2000	0.137 (7.83)**	0.079 (3.90)**	0.136 (4.32)**	0.078 (2.03)*	0.13 (5.98)**	0.083 (3.66)**	0.09 (4.65)**	0.03 1.54	0.12 (6.14)**	0.037 1.91	0.166 (5.97)**	-0.024 -0.7
2001	0.43 (25.5)**	0.378 (17.92)**	0.47 (15.6)**	0.413 (10.8)**	0.446 (21.25)**	0.417 (16.6)**	0.408 (22)**	0.362 (20.66)**	0.411 (20.7)**	0.36 (17.15)**	0.422 (16)**	0.313 (9.19)**
2002	0.588 (34.6)**	0.536 (26.19)**	0.645 (20.6)**	0.597 (15.5)**	0.605 (30.03)**	0.56 (24.3)**	0.555 (29.8)**	0.506 (26.44)**	0.563 (28.4)**	0.514 (27.26)**	0.578 (22.8)**	0.479 (14.9)**
2003	0.621 (35.6)**	0.629 (30.8)**	0.629 (19.6)**	0.669 (15.1)**	0.627 (22.9)**	0.692 (27.2)**	0.619 (34.5)**	0.635 (35.93)**	0.62 (33.4)**	0.595 (30.00)**	0.604 (26.1)**	0.523 (15.9)**
Interaction Terms:												
[Private]*[Noeducation]	0.357 (2.78)**	0.221 1.48	0.225 1.27	0.256 1.7	0.203 1.45	0.027 0.2	0.224 1.71	0.092 0.45	0.341 1.58	0.308 1.56	0.755 1.73	0.297 0.5
[Private]*[Farmer]	-0.078 -0.9	0.237 1.31	0.006 0.03	0.391 1.55	-0.094 -0.8	0.377 1.66	0.001 0.01	0.153 0.68	-0.156 -1.58	0.166 0.52	-0.189 -1.01	0.529 1.51
[Private]*[City]	-0.126 (-4.8)**	-0.071 (-3.1)**	-0.099 -1.86	0.011 0.24	-0.089 (-2.8)**	-0.057 (-2.0)*	-0.113 (-4.1)**	-0.056 (-2.0)*	-0.159 (-5.1)**	-0.072 (-2.4)*	-0.186 (-4.9)**	-0.11 (-2.7)**
[Private]*[Construction]	0.308 (6.43)**	0.027 0.4	0.203 (2.53)*	-0.044 -0.4	0.226 (4.60)**	-0.005 -0.05	0.264 (4.64)**	-0.02 -0.18	0.311 (5.23)**	0.09 1.21	0.396 (3.56)**	-0.022 -0.16
[Private]*[Financial S]	-0.165 (-3.7)**	-0.258 (-6.8)**	-0.217 (-2.4)*	-0.448 (-6.6)**	-0.168 (-2.4)**	-0.275 (-3.8)**	-0.133 (-2.5)*	-0.204 (-4.6)**	-0.069 -1.54	-0.141 (-2.7)**	-0.066 -1.3	-0.202 (-3.9)**
[Private]*[Year 1996]	0.031 0.34	-0.122 -1.75	0.024 0.2	-0.125 -0.83	-0.027 -0.24	-0.204 (-2.3)*	0.022 0.2	-0.112 -1.61	0.008 0.08	-0.078 -0.93	-0.089 -0.45	-0.249 -1.48
[Private]*[Year 1997]	0.044 0.56	-0.162 (-2.2)*	0.09 0.69	-0.123 -0.54	0.103 1.11	-0.177 (-2.2)	0.064 0.69	-0.096 -1.5	-0.028 -0.29	-0.035 -0.47	-0.149 -0.91	-0.238 -1.68
[Private]*[Year 1998]	0.107 1.42	-0.034 0.55	0.133 0.97	-0.029 -0.23	0.176 (2.02)*	-0.075 -0.92	0.122 -1.43	0.07 1.05	0.034 0.35	0.107 1.47	0.054 0.31	-0.139 -0.96
[Private]*[Year 1999]	0.069 0.9	0.026 0.42	0.088 0.62	-0.004 0.02	0.112 1.49	-0.003 -0.05	0.092 0.99	0.106 1.61	0.04 0.41	0.108 1.48	-0.037 -0.23	0.049 0.33
[Private]*[Year 2000]	0.164 (2.24)*	0.094 1.67	0.124 1.05	0.092 0.79	0.202 (2.77)**	0.101 1.46	0.239 (2.69)**	0.227 (4.18)**	0.16 1.85	0.151 (2.14)*	0.067 0.41	0.07 0.5
[Private]*[Year 2001]	0.059 0.83	-0.056 -1.01	0.061 0.52	0.05 0.43	0.116 1.63	-0.115 -1.8	0.087 1.05	-0.011 -0.2	0.032 0.37	0.012 0.15	-0.051 -0.31	-0.185 -1.36
[Private]*[Year 2002]	0.056 0.82	0.019 0.35	0.092 0.84	0.082 0.72	0.104 1.51	-0.005 -0.09	0.085 0.96	0.074 1.44	0.094 1.13	0.079 1.11	-0.055 0.35	-0.079 -0.57
[Private]*[Year 2003]	0.025 0.37	-0.06 -1.1	0.132 1.12	0.014 0.12	0.112 1.66	-0.117 1.87	0.063 0.76	-0.038 -0.69	0.025 0.31	0.025 0.38	-0.12 -0.78	-0.138 -1.02
R-squared	0.38	0.47										
Root MSE	0.46	0.42										
Observations	13721	10039	13721	10039	13721	10039	13721	10039	13721	10039	13721	10039

Notes to Table 8: see Notes to Table 7.

Data Source: Labour Force Survey of the Republic of Serbia 1995-2003.

Table 9: OLS and Quantile Regression Equation Estimates for Log Hourly Earnings in Serbia – 2002-2003

LSMS	OLS		10th		25th		50th		75th		90th	
Variable	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Constant	4.104 (45.94)**	4.017 (56.53)**	3.299 (20.50)**	3.198 (25.86)**	3.737 (41.36)**	3.569 (50.08)**	4.027 (66.72)**	3.939 (58.92)**	4.296 (59.88)**	4.253 (52.87)**	4.568 (28.68)**	4.699 (30.59)**
Labour Force Experience:												
<= 5 Years	f	f	f	f	f	f	f	f	f	f	f	f
5< Years<=10	0.039	0.055	0.071	0.067	0.047	0.047	0.049	0.046	0.04	0.114	0.054	0.105
	1.13	1.35	1.2	1.32	1.19	1.24	1.62	1.15	1.15	(2.34)*	0.77	1.32
10< Years<=20	0.001	-0.031	-0.021	-0.04	0.02	0.05	0.045	0.032	0.08	0.061	0.128	-0.065
	0.04	-0.89	-0.36	-0.77	0.54	1.48	1.7	1.03	(2.54)*	1.49	(2.16)*	-1.07
20< Years<=30	-0.045	0.015	-0.058	0.059	-0.022	0.091	0.021	0.076	0.024	0.077	0.061	-0.051
	-1.38	0.42	-0.96	1.08	-0.53	(2.43)*	0.75	(2.43)*	0.74	1.85	1.02	-0.75
> 30 Years	0.044	0.011	0.019	-0.009	0.036	0.019	0.117	0.076	0.119	0.081	0.095	0.118
	1.17	0.17	0.27	-0.1	0.72	0.28	(3.30)**	1.37	(2.80)**	1.07	1.49	1.11
Educational Qualification:												
No formal qualification	-0.167 -1.77	-0.033 -0.31	-0.365 -1.74	-0.005 -0.03	-0.167 -1.33	0.084 0.6	-0.173 -1.67	-0.027 -0.19	-0.235 (-2.0)*	-0.097 -0.65	-0.125 -0.49	-0.119 -0.47
Primary	f	f	f	f	f	f	f	f	f	f	f	f
Secondary	0.119 (3.89)**	0.132 (3.57)**	0.189 (3.41)**	0.195 (3.59)**	0.177 (5.49)**	0.219 (6.24)**	0.142 (4.78)**	0.21 (6.00)**	0.08 (2.41)*	0.142 (2.92)**	0.063 1.36	0.108 1.62
College	0.328 (8.01)**	0.355 (7.15)**	0.44 (6.28)**	0.445 (7.15)**	0.402 (8.07)**	0.46 (11.04)**	0.288 (6.86)**	0.399 (9.62)**	0.237 (4.47)**	0.329 (5.63)**	0.266 (3.59)**	0.345 (3.82)**
University	0.57 (12.48)**	0.605 (14.05)**	0.656 (8.14)**	0.602 (9.51)**	0.622 (14.39)**	0.646 (15.89)**	0.544 (12.43)**	0.653 (15.52)**	0.482 (10.49)**	0.645 (10.91)**	0.472 (6.00)**	0.643 (7.91)**
Marital Status:												
Single	-0.138 -1.87	-0.16 (-3.8)**	-0.037 -0.26	-0.097 -1.26	-0.124 -1.64	-0.076 -1.8	-0.031 -0.67	-0.064 -1.17	-0.069 -1.23	-0.146 (-2.7)**	-0.052 -0.39	-0.25 (-2.7)**
Married	0.002 0.02	-0.068 -1.91	0.097 0.74	-0.045 -0.7	0.006 0.08	-0.036 -1.2	0.035 0.79	-0.031 -0.69	0.049 0.93	-0.12 (-3.2)**	0.103 0.86	-0.17 (-2.5)**
Divorced/Widowed	f	f	f	f	f	f	f	f	f	f	f	f
Settlement Types:												
Rural	f	f	f	f	f	f	f	f	f	f	f	f
City	0.067 (2.82)**	0.047 1.5	0.071 1.38	0.093 1.79	0.069 (2.23)*	0.092 (2.48)*	0.074 (3.50)**	0.047 1.7	0.082 (3.03)**	0.06 1.7	0.092 (2.51)*	0.039 0.73
Regions:												
Belgrade	f	f	f	f	f	f	f	f	f	f	f	f
Central Serbia	-0.109 (-3.4)**	-0.076 (-2.7)*	-0.12 (-2.3)*	-0.038 -0.96	-0.09 (-2.5)**	-0.064 (-2.2)**	-0.13 (-4.6)**	-0.065 (-2.5)*	-0.101 (-3.7)**	-0.051 -1.71	-0.059 -1.31	-0.065 -1.27
Vojvodina	-0.204 (-8.3)**	-0.208 (-7.2)**	-0.219 (-4.5)**	-0.251 (-5.3)**	-0.219 (-6.8)**	-0.2 (-7.3)**	-0.21 (-8.9)**	-0.152 (-5.6)**	-0.188 (-6.6)**	-0.148 (-5.9)**	-0.161 (-4.1)**	-0.16 (-3.8)**
Industry Branch:												
Agriculture	f	f	f	f	f	f	f	f	f	f	f	f
Manufacturing & Mining	0.036 1.12	-0.061 -1.37	0.069 1.11	-0.014 -0.17	0.102 (2.78)**	-0.113 -1.79	0.066 (2.21)*	-0.098 (-2.2)*	0.087 (2.78)**	-0.023 -0.45	-0.026 -0.4	0.016 0.21
Construction	-0.074 -1.09	-0.058 -0.47	-0.336 (-2.4)*	0.225 0.49	-0.09 -0.85	-0.008 -0.07	-0.002 -0.03	-0.143 -1.1	0.055 1.04	0.111 0.77	-0.036 -0.34	-0.023 -0.2
Transport	-0.096 (-2.0)*	-0.149 (-2.8)**	-0.139 -1.63	-0.022 -0.23	-0.048 -0.9	-0.186 (-2.8)**	-0.045 -0.97	-0.177 (-3.1)**	-0.019 -0.39	-0.138 (-2.6)**	-0.154 -1.71	-0.205 (-2.7)*
Trade	-0.174 (-2.1)*	-0.027 -0.32	-0.433 (-2.9)**	-0.058 -0.41	-0.049 -0.52	-0.147 -1.65	-0.129 (-2.0)*	-0.117 -1.6	-0.125 (-2.1)*	-0.015 -0.16	-0.293 (-2.4)*	0.023 0.08
Catering&Tourism	0.107 (2.45)*	0.14 (2.51)*	0.195 (2.50)*	0.44 (3.10)**	0.133 (3.08)**	0.158 (2.15)*	0.097 (2.54)*	0.094 1.74	0.125 (3.12)**	0.04 0.66	0.008 0.09	-0.008 -0.09
Financial Services & Other Services	0.021 0.39	0.243 (3.73)**	0.115 0.83	0.419 (3.03)**	0.016 0.22	0.23 (3.21)**	0.102 (2.25)*	0.196 (3.22)**	0.052 1.25	0.162 (2.66)**	-0.081 -0.82	0.146 1.11
Education, Culture and Health	0.251 (6.36)**	0.151 (2.94)**	0.398 (5.52)**	0.359 (3.58)**	0.352 (7.10)**	0.161 (2.58)**	0.266 (7.98)**	0.088 1.77	0.19 (4.60)**	0.056 1.26	0.053 0.63	-0.044 -0.52
Administration	0.184 (3.88)**	0.185 (4.36)**	0.398 (6.04)**	0.515 (6.58)**	0.216 (4.59)**	0.206 (3.74)**	0.107 (2.46)*	0.053 1.35	0.134 (2.05)*	0.044 1.14	0.132 1.22	0.035 0.42
Private Sector Job:	0.177 (3.77)**	0.081 1.32	0.061 0.72	-0.046 -0.51	0.011 0.21	-0.036 -0.52	0.103 (2.17)*	-0.069 -1.18	0.254 (4.84)**	0.12 1.47	0.356 (3.64)**	0.284 (2.26)**
Years:												
2002	f	f	f	f	f	f	f	f	f	f	f	f
2003	0.14	0.177	0.201	0.14	0.129	0.153	0.126	0.165	0.123	0.192	0.15	0.203

	(5.83)**	(6.11)**	(3.97)**	(3.42)**	(4.25)**	(4.76)**	(5.42)**	(6.55)**	(4.35)**	(5.73)**	(3.74)**	(4.31)**
Interaction Terms:												
[Private]*[No formal education]	0.043	0.098	0.137	-0.03	-0.077	0.104	0.117	0.227	0.122	0.155	0.147	0.587
	0.26	0.44	0.54	-0.08	-0.32	0.28	0.63	0.91	0.64	0.43	0.33	1.15
[Private]*[City]	-0.043	0.031	-0.064	0.012	-0.015	0.066	-0.031	0.106	-0.069	0.009	-0.009	-0.058
	-0.91	0.51	-0.71	0.14	-0.29	0.97	-0.66	1.91	-1.34	0.11	-0.09	-0.44
[Private]*[Construction]	0.066	0.3	0.388	0.196	0.137	0.179	0.063	0.182	0.002	0.08	0.077	0.6
	0.74	1.52	(2.20)*	0.4	1.15	0.99	0.75	0.86	0.02	0.22	0.47	1.8
[Private]*[Financial Services and other services]	0.004	-0.243	0	-0.457	0.143	-0.342	0	-0.22	-0.074	-0.161	-0.123	0.026
	0.06	(-2.7)**	0	(2.96)**	1.66	(-2.9)**	0	(-2.8)**	-1.14	-1.66	-0.85	0.15
[Private]*[Year 2003]	-0.066	-0.136	0.002	0.014	-0.038	-0.068	-0.07	-0.113	-0.086	-0.229	-0.092	-0.278
	-1.39	(-2.4)*	0.02	0.17	-0.71	-1.06	-1.38	(-2.1)*	-1.47	(-3.1)**	-0.87	(-3.2)**
R-squared	0.15	0.22										
Root MSE	0.59	0.56										
Observations	3659	2618	3659	2618	3659	2618	3659	2618	3659	2618	3659	2618

Notes to Table 9: See notes to Table 7

Data Source: Living Standard Measurement Survey of the Republic of Serbia 2002-2003.

Table 10: OLS and Quantile Regression Equation Estimates for Log Hourly Earnings in Serbia – 2004-2006

LFS	OLS		10th		25th		50th		75th		90th	
Variable	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Constant	3.925 (68.47)**	3.763 (49.60)**	3.147 (28.01)**	2.962 (20.55)**	3.679 (48.19)**	3.508 (35.83)**	4.055 (64.89)**	3.828 (66.97)**	4.422 (71.00)**	4.211 (47.38)**	4.536 (54.49)**	4.57 (48.20)**
Labour Experience:												
<= 5 Years	f	f	f	f	f	f	f	f	f	f	f	f
5< Years<=10	0.031 1.58	0.058 (3.09)**	0.018 0.56	0.092 (2.86)**	0.059 (2.21)*	0.024 1.31	0.014 0.63	0.047 (2.42)*	0.016 0.71	0.06 (3.02)**	0.041 1.39	0.039 1.27
10< Years<=20	0.064 (3.48)**	0.089 (5.26)**	0.076 (2.35)*	0.122 (3.71)**	0.08 (2.99)**	0.078 (4.58)**	0.052 (2.65)**	0.105 (6.11)**	0.061 (3.14)**	0.084 (4.86)**	0.076 (2.83)**	0.073 (2.62)**
20< Years<=30	0.078 (4.09)**	0.142 (7.97)**	0.059 1.67	0.16 (4.58)**	0.107 (3.90)**	0.119 (6.49)**	0.066 (3.28)**	0.146 (8.27)**	0.065 (3.13)**	0.127 (7.25)**	0.083 (3.08)**	0.108 (3.58)**
> 30 Years	0.104 (4.91)**	0.171 (6.97)**	0.14 (3.46)**	0.169 (3.70)**	0.145 (4.75)**	0.156 (6.01)**	0.096 (4.25)**	0.165 (7.85)**	0.068 (2.90)**	0.172 (6.75)**	0.083 (2.73)**	0.157 (4.00)**
Educational Qualification:												
No formal qualification	-0.027 -0.47	-0.233 -1.79	0.095 0.92	-0.36 -1.07	-0.075 -0.86	-0.174 -1.35	-0.02 -0.25	-0.012 -0.16	-0.092 -1.33	-0.142 (-3.3)**	-0.057 -0.62	-0.298 -1.88
Primary	f	f	f	f	f	f	f	f	f	f	f	f
Secondary	0.137 (7.64)**	0.136 (6.51)**	0.161 (4.72)**	0.095 (2.63)**	0.135 (5.27)**	0.123 (5.70)**	0.13 (6.28)**	0.153 (7.69)**	0.109 (5.54)**	0.154 (6.19)**	0.128 (4.82)**	0.115 (3.49)**
College	0.317 (11.82)**	0.318 (12.05)**	0.365 (7.58)**	0.292 (6.72)**	0.316 (8.81)**	0.319 (11.38)**	0.295 (9.48)**	0.319 (13.64)**	0.295 (10.09)**	0.319 (11.26)**	0.293 (6.26)**	0.313 (7.39)**
University	0.536 (19.89)**	0.566 (21.53)**	0.527 (9.60)**	0.474 (11.29)**	0.54 (14.73)**	0.527 (18.73)**	0.535 (17.95)**	0.552 (21.42)**	0.514 (17.90)**	0.581 (19.18)**	0.597 (13.39)**	0.613 (14.00)**
Master	0.593 (7.39)**	0.721 (10.45)**	0.485 (2.36)*	0.494 (4.52)**	0.528 (4.48)**	0.631 (7.26)**	0.598 (6.71)**	0.637 (6.33)**	0.697 (7.53)**	0.866 (6.63)**	0.851 (5.62)**	0.912 (8.06)**
PhD	0.871 (10.46)**	0.789 (7.09)**	0.806 (10.42)**	0.559 (5.09)**	0.719 (9.16)**	0.55 (3.87)**	0.768 (7.39)**	0.768 (4.80)**	0.886 (8.00)**	0.897 (4.39)**	0.947 (3.26)**	1.172 (5.05)**
Marital Status:												
Single	0.026 0.97	0.012 0.54	-0.01 -0.17	0.048 1.19	0.008 0.25	0.007 0.31	0.042 1.22	-0.006 -0.27	-0.013 -0.34	0.005 0.23	0.04 0.93	-0.019 -0.55
Married	0.086 (3.53)**	0.023 1.2	0.044 0.8	0.031 0.91	0.074 (2.81)**	-0.003 -0.18	0.104 (3.24)**	0.003 0.2	0.035 1.03	0.019 0.98	0.051 1.32	-0.006 -0.25
Divorced/Widowed	f	f	f	f	f	f	f	f	f	f	f	f
Settlement Types:												
Rural	f	f	f	f	f	f	f	f	f	f	f	f
City	0.038 (2.68)**	0.019 1.32	0.044 1.5	0.005 0.21	0.048 (2.52)*	-0.002 -0.12	0.041 (2.48)*	0.003 0.26	0.036 (2.25)*	0.02 1.47	0.047 (2.18)*	0.049 (2.41)*
Regions:												
Belgrade	f	f	f	f	f	f	f	f	f	f	f	f
Central Serbia	-0.296 (-22.6)**	-0.244 (-19.0)**	-0.354 (-14.8)**	-0.197 (-8.9)**	-0.313 (-18.4)**	-0.183 (-12.2)**	-0.269 (-18.7)**	-0.203 (-15.5)**	-0.263 (-18.0)**	-0.245 (-16.9)**	-0.23 (-10.8)**	-0.23 (-10.3)**
Vojvodina	-0.191 (-12.3)**	-0.145 (-9.5)**	-0.227 (-7.1)**	-0.111 (-4.1)**	-0.217 (-10.0)**	-0.117 (-6.0)**	-0.196 (-11.7)**	-0.118 (-7.6)**	-0.15 (-7.0)**	-0.133 (-7.1)**	-0.099 (-4.2)**	-0.135 (-5.6)**
Nationality:												
Serbian	0.056 (2.79)**	0.029 1.43	0.123 (2.86)**	0.054 1.62	0.033 1.22	0.013 0.6	0.043 (2.12)*	0.038 (2.04)*	0.058 (2.59)**	0.019 0.84	0.033 1.22	-0.003 -0.09
Montenegrin	-0.074 -1	-0.077 -1.01	-0.024 -0.12	-0.111 -0.49	-0.061 -0.5	-0.089 -0.63	-0.017 -0.24	0.046 -0.56	-0.077 -1.13	-0.073 -1.03	-0.125 -1.33	-0.218 (-2.7)**
Other	f	f	f	f	f	f	f	f	f	f	f	f
Industry Branch:												
Agriculture	f	f	f	f	f	f	f	f	f	f	f	f
Manufacturing & Mining	0.282 (8.13)**	0.205 (3.37)**	0.519 (6.68)**	0.348 (2.92)**	0.333 (7.20)**	0.259 (2.93)**	0.253 (7.23)**	0.166 (3.51)**	0.174 (4.43)**	0.082 1.17	0.19 (3.84)**	0.033 0.51
Construction	0.306 (6.89)**	0.193 (2.15)*	0.502 (5.14)**	0.123 0.49	0.322 (5.21)**	0.348 (2.83)**	0.236 (5.24)**	0.141 1.86	0.167 (3.19)**	-0.011 -0.09	0.242 (3.22)**	0.082 0.58
Transport	0.221 (5.76)**	0.206 (3.31)**	0.502 (6.16)**	0.405 (3.22)**	0.301 (6.11)**	0.287 (3.18)**	0.172 (4.26)**	0.164 (3.46)**	0.116 (2.66)**	0.038 -0.52	0.131 (2.34)*	-0.02 -0.29

Trade	0.111 (2.26)*	0.153 (2.26)*	0.284 (3.00)**	0.405 (3.17)**	0.072 1.04	0.181 (1.98)*	0.032 0.62	0.093 1.65	-0.019 -0.32	-0.001 -0.01	0.078 1.08	-0.067 -0.92
Catering&Tourism	0.324 (8.87)**	0.364 (5.58)**	0.586 (7.53)**	0.594 (4.65)**	0.389 (7.64)**	0.414 (4.28)**	0.27 (7.62)**	0.302 (4.93)**	0.201 (4.74)**	0.193 (2.57)*	0.182 (3.33)**	0.114 1.4
Financial Services & Other Services	0.313 (7.67)**	0.376 (5.94)**	0.57 (6.29)**	0.65 (5.40)**	0.365 (6.89)**	0.486 (5.16)**	0.229 (5.38)**	0.283 (5.70)**	0.159 (3.37)**	0.156 (2.11)*	0.229 (3.61)**	0.17 (2.29)*
Education, Culture and Health	0.453 (12.07)**	0.42 (6.83)**	0.814 (9.50)**	0.816 (6.95)**	0.54 (10.86)**	0.56 (6.16)**	0.361 (9.45)**	0.317 (6.58)**	0.232 (5.55)**	0.156 (2.19)*	0.23 (3.66)**	0.075 1.09
Administration	0.262 (7.15)**	0.316 (5.25)**	0.741 (8.80)**	0.754 (6.45)**	0.409 (8.34)**	0.494 (5.59)**	0.183 (5.06)**	0.223 (4.99)**	0.032 0.76	0.006 0.08	-0.029 -0.51	-0.102 -1.58
Occupations:												
Farmer	0.071 0.95	-0.198 -0.84	0.13 0.83	0.076 0.07	0.027 0.23	-0.145 -0.35	-0.011 -0.11	-0.143 -0.69	0.025 0.28	0.102 0.51	0.027 0.3	-0.084 -0.58
Miner or Industrial Worker	0.007 0.27	-0.035 -1.01	-0.052 -1.13	0.081 1.26	-0.061 (-1.6)*	-0.08 -1.92	-0.054 (-2.1)*	-0.052 -1.47	-0.023 -0.91	-0.028 -0.73	0.043 1.1	-0.088 -1.5
Trade Worker	-0.134 (-3.7)**	-0.121 (-3.0)**	-0.153 (-2.2)*	0.007 0.1	-0.206 (-4.7)**	-0.15 (-3.9)**	-0.185 (-4.3)**	-0.141 (-4.3)**	-0.181 (-4.8)**	-0.133 (-3.5)**	-0.156 (-2.8)**	-0.181 (-3.7)**
Service Worker Welfare Worker	0.066 1.5	0.227 (2.82)**	0.086 1.08	0.711 (2.90)**	0.067 1.88	0.362 (2.41)*	0.027 0.57	0.369 (2.54)*	0.069 1.85	0.208 1.29	0.066 1.13	-0.083 -0.4
Government Worker	0.001 0.03	0.15 (4.89)**	-0.012 -0.23	0.214 (4.14)**	-0.036 -1.06	0.146 (3.68)**	-0.047 -1.54	0.157 (4.59)**	-0.055 -1.94	0.15 (4.85)**	0.01 0.21	0.036 0.73
Manager	0.331 (8.09)**	0.365 (6.80)**	0.233 (2.90)**	0.387 (5.67)**	0.297 (5.09)**	0.261 (4.44)**	0.258 (5.96)**	0.346 (5.57)**	0.297 (5.81)**	0.337 (4.12)**	0.372 (5.28)**	0.331 (3.70)**
Professional	0.126 (4.82)**	0.257 (9.37)**	0.059 1.21	0.327 (7.15)**	0.073 (2.34)*	0.252 (7.45)**	0.081 (2.71)**	0.279 (10.61)**	0.083 (2.99)**	0.245 (8.66)**	0.142 (3.30)**	0.198 (4.00)**
Miscellaneous	-0.117 (-3.1)**	-0.046 -1.54	-0.206 (-3.4)**	-0.052 -0.99	-0.167 (-4.2)**	-0.085 (2.41)*	-0.151 (4.72)**	-0.051 -1.73	-0.1 (-3.4)**	0.006 0.18	-0.047 -1.09	-0.033 -0.6
Private Sector Job:	-0.05 -1.93	-0.015 -0.53	-0.151 (-3.3)**	-0.036 -0.73	-0.08 (-2.2)*	-0.013 -0.41	-0.083 (-2.6)**	-0.062 (-2.6)*	-0.045 -1.51	-0.06 (-2.01)*	-0.004 -0.09	-0.013 -0.29
Years:												
2004	f	f	f	f	f	f	f	f	f	f	f	f
2005	0.026 1.67	0.021 1.33	0.028 0.87	0.018 0.71	0.039 1.86	0.017 0.97	0.019 1.17	0.011 0.85	0.008 0.46	0.001 0.09	-0.012 -0.44	-0.001 -0.03
2006	0.133 (8.26)**	0.085 (5.51)**	0.122 (3.58)**	0.051 (2.04)*	0.124 (6.37)**	0.048 (3.14)**	0.081 (5.12)**	0.042 (2.93)**	0.093 (4.92)**	0.055 (3.51)**	0.049 (2.22)*	0.052 (2.36)*
Interaction Terms:												
[Private]*[Noeducation]	0 0	0.174 1.22	-0.16 -0.93	0.292 0.8	-0.036 -0.26	0.111 0.66	0.076 0.74	0.006 0.06	0.02 0.24	0.082 1.17	0.003 0.02	0.126 0.67
[Private]*[Farmer]	-0.243 (-2.8)**	0.149 0.62	-0.33 -1.92	-0.217 -0.21	-0.35 (-2.3)*	-0.021 -0.05	-0.271 (-2.1)*	0.073 0.34	-0.239 (-2.5)*	-0.102 -0.47	-0.11 -0.89	0.05 0.29
[Private]*[City]	0.008 0.36	0.041 1.73	0.054 1.29	0.042 1.08	0.008 0.28	0.05 1.94	0.032 1.17	0.053 (2.07)*	-0.001 -0.04	0.053 1.73	-0.043 -1.19	0.069 1.69
[Private]*[Construction]	-0.038 -0.95	-0.018 -0.19	-0.084 -0.95	0.163 0.55	-0.039 -0.72	-0.016 -0.13	0.007 0.14	-0.042 -0.4	0.038 0.8	0.009 0.07	0.001 0.01	-0.132 -0.78
[Private]*[Financial and other services]	-0.001 -0.02	-0.007 -0.18	-0.094 -1.19	-0.158 (-2.1)*	-0.065 -1.11	-0.13 (-2.8)**	0.043 0.89	0.062 1.25	0.097 1.7	0.083 1.75	0.083 1.24	0.066 0.98
[Private]*[Year 2005]	-0.029 -1.09	-0.022 -0.8	0.004 -0.09	-0.026 -0.52	-0.026 -0.68	-0.066 (-2.2)*	-0.016 -0.55	-0.015 -0.53	-0.008 -0.27	0.015 0.49	-0.028 -0.57	0.026 0.54
[Private]*[Year 2006]	-0.025 -0.93	-0.012 -0.48	0.061 1.27	0.036 0.79	0 0.01	-0.012 -0.41	0.004 0.12	-0.004 -0.14	-0.039 -1.26	-0.011 -0.36	-0.051 -1.16	-0.048 -1.06
R-squared	0.32	0.48										
Root MSE	0.48	0.41										
Observations	8385	6141	8385	6141	8385	6141	8385	6141	8385	6141	8385	6141

Notes to Table 7: See notes to Table 7

Data Source: Labor Force Survey of the Republic of Serbia 2004-2006.

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